

Investigation of the relationship between exercise addiction and personality traits of university students

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Abstract

Background and Study Aim

It is a fact that in recent years people's interest in being healthy and physical appearance has increased. Therefore, it can be said that the number of people exercising is increasing day by day. It is seen that some of these people who exercise are now at the level of addiction. This study was conducted to determine the effect and relationship of personality traits on exercise addiction.

Material and Methods

The sample of the study consists of 535 people, 160 females and 375 males, who are studying at Bandırma Onyedi Eylül University and selected by simple random sampling method. In order to collect data in the study a personal information form including the demographic characteristics of the participants was requested. The Exercise Addiction Scale for Youth was administered. The Five Factor Personality Scale, which consists of openness to experience, conscientiousness (self-control), extraversion, agreeableness and emotional instability (neuroticism) sub-dimensions, was used. T-test was used for pairwise comparisons and ANOVA test was used for multiple comparisons. Correlation analysis was used to determine the relationship between personality and exercise addiction and regression analysis was used to determine the effect of personality on exercise addiction.

Results

In the study, it was determined that there was a significant difference in terms of exercise addiction in the variables of gender, age, having an athlete license and years of doing sports. In addition, it was seen that there was a significant difference in terms of personality sub-dimensions in the variables of gender, having an athlete license and years of doing sports. While it was seen that there was a significant positive correlation between the participants' personality scale average and exercise addiction. It was determined that personality explained 18% of exercise addiction.

Conclusions

As a result of the study, it was observed that: being male and being a licensed athlete increased the level of exercise addiction; the exercise habit turned into addiction with increasing age. Personality traits were found to have a positive relationship and significant effect on exercise addiction.

Keywords: exercise addiction, personality, student

Introduction

Exercise is defined as planned, programmed, regular and repetitive activities performed in order to maintain or improve one or more components of physical fitness [1]. In contemporary societies, many people have made exercise an important component of their daily lives and therefore the number of people who take regular exercise seriously for a healthy life has increased day by day [2]. Although exercise is generally seen as a positive behaviour due to its physical, physiological and psychological benefits [3, 4], it has recently been observed that excessive physical activities can also cause negative effects such as exercise addiction [5, 6, 7, 8]. Exercise addiction, which is described as the "dark side" of exercise and a disease that negatively affects human health, has recently been addressed by many researchers [9, 10, 11, 12].

Exercise addiction is defined as exercise going beyond the control of the person, continuously increasing the duration, frequency and intensity

of exercise in order to achieve the desired effect at the end of exercise, not being able to spare time for friends and family because of the inability to give up exercise, preferring to exercise instead of participating in social activities and reorganising one's life within the framework of exercise habits [13]. According to Hausenblas and Downs, it is the state of uncontrolled excessive exercise and excessive willingness to spend time with physical activity despite the presence of obstacles [14]. According to De-Coverly Veale, there is a possibility that exercise can become an addiction along with behaviours such as gambling, eating, computer games, sexual activity and internet use [15]. People who are addicted to exercise have symptoms such as need to exercise more and more every day, not being able to stop exercising, experiencing anxiety or tension when exercise is interrupted, spending too much time exercising, exercising for more time than expected, and preferring exercise instead of socialising with the environment [4]. If there is a constant feeling of deficiency in the exercise performed and this desire increases, this situation

is turned into a problem by the person [16]. The physical and mental attachment to exercise is the reason why exercise cannot be stopped [17]. In this case, negative conditions such as tension, insomnia, irritability, restlessness, insensitivity, laziness and headache may occur in the individual [18].

Based on the results of research on exercise addiction in the literature, the prevalence in the general population is estimated to be close to 3% [19]. In many studies, it has been shown that the incidence of exercise addiction is higher in individuals who do regular sports [20, 21]. It has been found that the risk of exercise addiction is more pronounced among certain groups, mostly runners [22]. In other studies, it has been determined that excessive exercise for the purpose of keeping weight in balance, looking good and increasing body motivation is addictive [23, 24, 25, 26]. However, there are no clear results on this subject and the factors that cause addiction have not been clearly stated. Therefore, more research is needed in different groups and populations to determine these factors and to prevent and treat addiction [27]. On the other hand, as revealed in the researches, determining the addiction levels of individuals who exercise is very vital in terms of individual, family and public health. As time passes, individuals who exercise attach more importance to participating in exercise than their family and social relationships, and in the future, the current situation may get out of the person's control. Exercise addiction, which is considered as both a psychological and physiological problem, and to be able to determine the factors affecting this addiction and to apply the methods used to control exercise addiction individually are important for healthy living habits. For this reason, it is important to identify such a situation before it affects the person's life and to take the necessary measures.

In a systematic study conducted by Hausenblas and Downs, it was stated that exercise addiction is related to personality traits as well as many factors such as psychological and physiological factors, type of exercise, gender, exercise age [14]. The most basic structure that determines the relationship patterns of an individual is personality [28]. Cüceloğlu defines personality as a unique, structured, consistent form of relationship formed by the inner and outer world of the individual [29]. In the definitions made by scientists, it would be a common point to call personality the characteristics that distinguish individuals from each other and make them different [30].

Although the relationships of exercise addiction with many different parameters such as age, sport age, gender have been examined in the literature recently, no study has been found to question the relationship with personality traits. Today, one of the points of interest is whether personality traits

are effective on some behaviours. Indeed, according to Mount, an individual's behaviours are influenced by his/her personality [30]. Digman and Takemoto-Chock suggested that personality is an important determinant of human behaviour [31]. Based on all this information, the aim of this study is to determine whether there is a relationship between exercise addiction and personality traits of university students and to analyse exercise addiction in terms of different variables.

Materials and Methods

Participants

A total of 535 students (160 female, 375 male) who were active students at Bandirma Onyedi Eylul University in the 2022-2023 academic year and who were not studying in the preparatory class voluntarily participated in the study. Demographics of participants appear in Table 1.

Table 1. Demographic information on participants

Variables	Groups	F	%
Gender	Female	160	29.9
	Male	375	70.1
Age	17-18 years	103	19.3
	19-20 years	238	44.5
	Age 21 and over	194	36.3
Training Age	1-5 years	252	47.1
	6 and more years	283	52.9
Licence	Yes	268	50.1
	No	267	49.9
Total		535	100

Research Design

Relational screening method was used as the method in the study. In this study, descriptive analysis and correlational research model were used in accordance with the objectives. The correlational research model specifies the current problem, the situations encountered with this problem, and the relationships between variables and variables [32]. Descriptive model is a research approach that aims to describe a past or current situation as it exists. The person or object that is the subject of the research is tried to be defined in its own conditions and as it is. The researched object is not tried to be affected, changed or transformed in any way. Whatever is desired to be known is tried to be taken [33].

Data Collection Tools. The data in this study were collected using a questionnaire form prepared by the researcher asking demographic data, "The Exercise Addiction Scale for Young People" and "The Five Factor Personality Scale".

Personal Information Form: A form created by the

owner of the study and including the questions of age, gender, being a licensed athlete or not, training age.

Exercise Addiction Scale for Young People: In the study, the “Youth Exercise Addiction Scale” developed by Lichtenstein et al. and adapted into Turkish by Dokuzoğlu et al. and validity and reliability study were used [34, 35]. It has a 5-item unidimensional structure. The scale has a 5-point Likert-type rating ranging from Strongly Disagree (1) to Strongly Agree (5). The scale score range is minimum 5 and maximum 25. Cronbach’s alpha (α) value of the scale was found to be 0.71.

Five Factor Personality Scale: In the study, the “Five Factor Personality Scale” developed by Rammstedt and John and adapted to Turkish culture by Horzum, Ayas and Padır, validity and reliability study was used [36, 37]. This scale measures five important personality traits: “openness to experience (1-6)”, “conscientiousness (self-control) (2-7)”, “extraversion (3-8)”, “agreeableness (4-9)” and “emotional instability (neuroticism) (5-10)”.

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.

Ethical Dimension of Research. After the voluntary consent form was obtained from the participants in the study, information was given about the scales applied. In order to conduct the study, the necessary permissions were obtained with the decision numbered 2023-2 10.03.2023 of the Ethics Committee of Bandırma Onyedi Eylül University

Institute of Social and Human Sciences.

Statistical Analysis

SPSS 25 package programme was used for data analysis. Whether the data showed normal distribution was determined according to kurtosis and skewness values. In the study, t test was used for the paired comparisons (being a licensed athlete, gender, training age) and ANOVA test was used for the multiple comparisons (age). In addition, Pearson correlation analysis was used to determine the relationship between students’ exercise addiction and personality, and linear regression analysis was used to determine the effect of personality on exercise addiction.

Results

Table 2 shows the t-test results based on the gender variable of the students. Accordingly, while a significant difference was found in the Conscientiousness (self-control) sub-dimension ($p<0.05$), no significant difference was found in the other sub-dimensions and personality averages ($p>0.05$). According to this, women have higher levels of Conscientiousness (self-control) than men. There is a statistically significant difference in terms of exercise addiction ($p<0.05$). Men were found to have higher levels of exercise addiction than women.

Table 3 shows the t-test results based on the training age variable of the students. According to this, while a statistically significant difference was found in the agreeableness sub-dimension depending on the training age variable of the students ($p<0.05$), no significant difference was found in the personality scale average and other sub-dimensions ($p>0.05$). Students who have been doing

Table 2. T-test results of students’ exercise addiction and personality based on gender variable

Parameters	Gender	X	Ss	df	t	p
Openness to experience	Women	2.9563	.55	533	-0.43	.966
	Male	2.9587	.61			
Conscientiousness (self-control)	Women	3.7406	.66	533	3.576	.000*
	Male	3.5173	.66			
Extraversion	Women	3.2313	.52	533	.264	.792
	Male	3.2160	.64			
Agreeableness	Women	3.9094	.84	533	-1.196	.232
	Male	4.0040	.83			
Emotional instability (neuroticism)	Women	2.5219	.79	533	-1.189	.235
	Male	2.6173	.87			
Personality Scale	Women	3.2719	.29	533	.272	.786
	Male	3.2627	.38			
Exercise Addiction	Women	3.5625	.77	533	-2.380	.018*
	Male	3.7387	.78			

* $p<0.05$

sports for 6 or more years show more agreeableness than those who have been doing sports for 1-5 years. There is a statistically significant difference in the exercise addiction levels of the students. Those who have been doing sports for 6 and more years have higher levels of exercise addiction than those who have been doing sports for 1-5 years ($p<0.05$).

Table 4 shows the t-test results depending on whether the students have an athlete license or not. Accordingly, while there was a statistically significant difference between the groups in extraversion and agreeableness sub-dimensions

($p<0.05$), no significant difference was found in openness to experience, conscientiousness (self-control), emotional instability (neuroticism) and personality scale ($p>0.05$). In the extraversion sub-dimension, the mean scores of those who did not have an athletic license were higher than those who did, while in the agreeableness sub-dimension, the mean scores of those who had a license were higher than those who did not. It was observed that there was a statistically significant difference between whether the students had an athlete license or not and exercise addiction. Those who have an athlete

Table 3. T-test results of students' exercise addiction and personality based on training age

Parameters	Training Age	X	Ss	df	t	p
Openness to experience	1-5 years	2.9821	.59	533	.883	.377
	6 and more years	2.9364	.59			
Conscientiousness (self-control)	1-5 years	3.6250	.70	533	1.336	.182
	6 and more years	3.5477	.63			
Extraversion	1-5 years	3.2718	.65	533	1.835	.067
	6 and more years	3.1749	.57			
Agreeableness	1-5 years	3.8274	.86	533	-3.914	.000*
	6 and more years	4.1078	.78			
Emotional instability (neuroticism)	1-5 years	2.5734	.85	533	-.394	.694
	6 and more years	2.6025	.84			
Personality Scale	1-5 years	3.2560	.34	533	-.576	.565
	6 and more years	3.2739	.36			
Exercise Addiction	1-5 years	3.5611	.82	533	-3.498	.001*
	6 and more years	3.7972	.73			

* $p<0.05$

Table 4. T-test results of students' exercise addiction and personality based on being a licensed athlete

Parameters	Being a licensed athlete	X	Ss	df	t	p
Openness to experience	Yes	2.9608	.55	533	.111	.911
	No	2.9551	.64			
Conscientiousness (self-control)	Yes	3.5951	.66	533	.382	.702
	No	3.5730	.66			
Extraversion	Yes	3.1399	.54	533	-3.082	.002*
	No	3.3015	.66			
Agreeableness	Yes	4.0970	.71	533	3.387	.001*
	No	3.8539	.93			
Emotional instability (neuroticism)	Yes	2.6455	.85	533	1.548	.122
	No	2.5318	.83			
Personality Scale	Yes	3.2877	.32	533	1.440	.151
	No	3.2431	.38			
Exercise Addiction	Yes	3.7896	.68	533	3.072	.002*
	No	3.5820	.86			

* $p<0.05$

license show more exercise addiction than those who do not ($p < 0.05$).

Table 5 shows the results of the ANOVA test based on the age variable. According to this, no significant difference was found in the mean of the personality scale with its sub-dimensions depending on the age variable ($p > 0.05$). However, a significant difference was found in exercise addiction ($p < 0.05$), and as a result of the Tukey and Scheffe test performed to understand between which groups this difference was between, it was understood that the exercise addiction levels of those aged 21 years and over were higher than those aged 17-18 years and 19-20 years.

Table 6 shows the correlation table for the relationship between exercise addiction and personality. Accordingly, there was a significant

positive correlation between exercise addiction and agreeableness sub-dimension and personality scale mean ($p < 0.01$). In addition, there was a positive and insignificant relationship between exercise addiction and openness to experience, conscientiousness (self-control) and extraversion sub-dimensions, and a negative and insignificant relationship with emotional instability (neuroticism) sub-dimension ($p > 0.05$).

Table 7 shows the results of regression analysis on the effect of students' personalities on exercise addiction. In Model 1, it was seen that there was a significant negative interaction of openness to experience, conscientiousness (self-control) and emotional instability (neuroticism) sub-dimensions and a significant positive interaction of extraversion and agreeableness sub-dimensions on students'

Table 5. Results of exercise addiction and personality ANOVA test depending on students' age variable

Parameters	Age	X	Ss	F	p	η^2
Openness to experience	17-18 years	2.88	.66	2.168	.115	.008
	19-20 years	2.93	.57			
	Age 21 and over	3.02	.58			
Conscientiousness (self-control)	17-18 years	3.66	.69	1.972	.140	.007
	19-20 years	3.60	.67			
	Age 21 and over	3.51	.63			
Extraversion	17-18 years	3.26	.69	.417	.659	.002
	19-20 years	3.19	.60			
	Age 21 and over	3.22	.57			
Agreeableness	17-18 years	3.83	.93	2.808	.061	.010
	19-20 years	3.95	.80			
	Age 21 and over	4.07	.81			
Emotional instability (neuroticism)	17-18 years	2.61	.84	1.615	.200	.006
	19-20 years	2.64	.84			
	Age 21 and over	2.50	.85			
Personality Scale	17-18 years	3.25	.40	.052	.949	.000
	19-20 years	3.26	.33			
	Age 21 and over	3.26	.35			
Exercise Addiction	17-18 years	3.58	.78	4.544	.011*	.017
	19-20 years	3.62	.80		Tukey	3-1-2
	Age 21 and over	3.81	.74		Scheffe	3-1-2

* $p < 0.05$

Table 6. Correlation table between personality and exercise addiction

Parameters	Openness to experience	Conscientiousness (self-control)	Extraversion	Agreeableness	Emotional instability (neuroticism)	Personality Scale
Exercise Addiction	r .024	.017	.059	.397**	-.044	.199**
	p .573	.698	.176	.000	.311	.000
	n 535	535	535	535	535	535

** $p < 0.01$

Table 7. Regression analysis results on the effect of personality scale sub-dimensions on exercise addiction

Parameters	R ²	ΔR ²	β	t	F
Model 1	.182	.174	Openness to experience	-.030	-.752
			Conscientiousness (self-control)	-.026	-.648
			Extraversion	.163	3.921
			Agreeableness	.433	10.632
			Emotional instability (neuroticism)	-.033	-.816

**p<0.01

exercise addiction levels. It was also found that the sub-dimensions of the personality scale explained approximately 18% of the students' exercise addiction.

Discussion

The study aimed to examine the relationship between personality traits and exercise addictions of university students. Firstly, exercise addictions and 5-factor personality traits of the students were examined depending on gender (Table 2), years of doing sports (Table 3), whether they have an athlete license (Table 4) and age (Table 5). Then, the relationship between exercise addictions and personality traits (Table 6) was examined and the effect of personality traits on exercise addiction (Table 7) was tried to be revealed.

In the study, a significant difference was found in terms of students' exercise addictions and conscientiousness (self-control), one of the personality sub-dimensions, depending on the gender variable, while no significant difference was found in personality scale mean and other sub-dimensions. Accordingly, it was understood that men had higher levels of exercise addiction than women, while women had higher levels of conscientiousness than men. Similar to our study, Cicioğlu et al. conducted a study on elite athletes and sports sciences faculty students and found that men had higher exercise addiction levels than women [5]. In addition, in the study conducted by Hamer and Karageorghis, the level of exercise addiction was found to be higher in men [38]. In contrast to our study, it was also observed that there were studies in which there were no differences in the gender variable [39, 17, 40]. These differences are thought to be due to the sample group. In terms of personality traits related to gender variable, Tatlıoğlu found a significant difference in the emotional instability (neuroticism) sub-dimension in his study on university students, while no significant difference was found in other sub-dimensions [41].

In our study, there was a significant difference in exercise addiction depending on the year of doing sports (training age). Accordingly, it was understood that those who have been doing sports for 6 or more years have higher levels of exercise

addiction compared to those who have been doing sports for less years. Similar to our study, it has been observed that there are many studies showing that the level of exercise addiction increases as the years of doing sports increases [5, 42, 43, 44]. Our and these studies show that doing sports regularly can reach the level of addiction, which can be considered a psychological and social problem as the years progress. For this reason, the duration and frequency of exercise should be kept under constant control. When the personality traits were analyzed according to the year of practicing sports, it was seen that there was a significant difference in the agreeableness sub-dimension, while no significant difference was found in the other sub-dimensions and the total scale. It is thought that this situation may be due to the experience of people in life over the years rather than the year of doing sports.

It was observed that there were significant differences between the exercise addictions of the students according to whether they had an athlete license or not. Accordingly, it was seen that those who had an athlete license had higher levels of exercise addiction than those who did not. It is thought that this situation is due to the fact that the exercise habits of licensed athletes, which they have acquired due to their regular training, turn into addiction. Similar to our study, in the study examining the differences in exercise addiction between elite athletes and students, the exercise addiction of elite athletes was higher [5]. In contrast to our study, in the study conducted by Arslanoğlu et al. on students studying in the coaching department, no difference was found in terms of whether the participants were licensed or not [3]. In our study, when the differences in terms of their personalities according to whether they had an athlete license or not were examined, a significant difference was found in the extraversion and agreeableness sub-dimensions, while no significant difference was found in the other sub-dimensions and scale mean. While the agreeableness levels of licensed athletes were high, the extraversion levels of unlicensed students were found to be high. In the study conducted by Eraslan on students studying in the sports department, significance was found only in the openness to experience sub-dimension, while no significance

was found in other sub-dimensions [45].

When the differences between the exercise addictions and personalities of the students depending on the age variable were examined, it was seen that there was no significant difference in the mean and sub-dimensions of the personality scale, but there was a significant difference between exercise addictions. Accordingly, it was seen that those aged 21 and over had higher levels of exercise addiction than those younger than themselves. In the study conducted by Cicioğlu et al., a significant difference was found in terms of elite athletes according to age variable, while no significant difference was found in terms of students [5]. Contrary to our study, there are also studies in the literature where no significant difference was found [40, 43]. It is thought that the lack of a significant difference in terms of personality is due to the closeness of the age groups.

In the literature, many studies examine the relationship between exercise addiction and personality [46, 47, 48, 49]. In the study conducted by Hausenblas & Giacobbi on non-athlete university students, it was reported that exercise addiction had a positive relationship with extraversion, neuroticism and agreeableness and a negative relationship with openness and conscientiousness [46]. In the study conducted by Costa & Oliva on gym users [47], it was reported that there was a positive relationship with all sub-dimensions of personality. In the study conducted by Kern with participants from universities and sports centers, it was reported that there was a negative relationship with extraversion and a positive relationship with neuroticism, agreeableness, openness and conscientiousness [48]. In our study, exercise addiction was found to have a positive significant relationship with agreeableness and scale mean, a positive significant relationship with extraversion, conscientiousness and openness, and a negative insignificant relationship with neuroticism.

In the study, in order to evaluate the effect of personality traits on exercise addiction, a model with personality sub-dimensions was created. When the model was examined, it was seen that exercise addiction had a negative interaction with openness to experience, conscientiousness (self-control) and emotional instability (neuroticism) and a positive interaction with extraversion and agreeableness and the model explained exercise addiction by 18%. In the study conducted by Andreassen et al. on university students, it was reported that the model created with the sub-dimensions of openness, conscientiousness, neuroticism, agreeableness and extraversion together with the independent variables of age and gender explained 16.4% of exercise addiction [50], which is similar to our study. Again, Cook et al. reported that personality traits can explain exercise addiction by 36% at the end of 3 models [51].

Conclusions

As a result of the study, it was observed that being male and being a licensed athlete increased the level of exercise addiction, and it was also observed that doing sports for a long time and with age, the exercise habit turned into addiction. Personality traits were found to have a positive relationship and effect on exercise addiction. Especially being Agreeableness was found to be effective on the level of exercise addiction.

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Conflict of interest

The authors declare no conflict of interest.

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