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Investigation Of Orthorexia Nervosa And Exercise Addiction In Fitness Participants

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Abstract

The obsessive attitudes of individuals who exercise in fitness centers about nutrition and exercise may be affected and correlated with each other through different variables. In this regard the aim of the research is to examine the relationship between the levels of orthorexia nervosa and exercise addiction among individuals and reveal the relationship between the levels of orthorexia nervosa and exercise addiction with some variables who exercise in fitness centers. A total of 436 individuals, who were selected using a convenience sampling method from fitness centers in Mersin, participated in the research. The "Demographic Information Form," "ORTO-11 Scale," and "Exercise Addiction-21 Scale" were used as data collection tools. Descriptive statistics, independent t-tests for binary comparisons, and One Way Anova tests for multiple comparisons were utilized in the analysis of the data, based on the results of normality tests. Additionally, Pearson Correlation Analysis was conducted to reveal the possible relationship between the dependent variables. In terms of exercise addiction, gender and marital status variables showed significant differences. It is seen that there is a negative and low level significant relationship between exercise addiction and orthorexia nervosa scores of individuals who go to fitness centers. In conclusion, exercise addiction of fitness center-goers and its relationship with orthorexia nervosa may contribute to trainers in the light of this information. Further studies can be conducted with more samples and with individuals who prefer different types of exercise.

***Keywords*:** Eating Attitude, Exercise Addiction, Fitness, Orthorexia Nervosa

INTRODUCTION

For a long time, mass media and nutritionists around the world have been drawing attention to a new eating disorder called “Orthorexia Nervosa” (ON), which has not yet been defined as a disorder by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV, Diagnostic and Statistical Manual of Mental Disorders-IV, 1994) of the American Psychiatric Association (APA) (Donini, Graziani, Imbriale, & Cannella. 2004; Billings, 2005). Orthorexia Nervosa, also known as “obsession with healthy eating”, has recently attracted great interest as a research topic by clinicians around the world (Donini et al. 2004; Billings, 2005). In the United States, where the obesity epidemic is at the forefront, it has seemed difficult to imagine individuals who are extremely careful about their diet becoming a cause for concern. Recently, however, this new term, which describes people who turn their supposedly perfect diets into obsessions, has begun to attract attention in the headlines (Mathieu, 2005). The term orthorexia is formed from the Greek words “orthos” meaning correct and “orexis” meaning hunger. These words describe a “frenzied” mental effort to choose the right and healthy foods (Mathieu, 2005). This disorder exhibits a “qualitative” rather than a “quantitative” state as in anorexia (AN) and bulimia nervosa (BN) (Bratman & Knight, 2000).

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In general, orthorexia can be considered when the eating disorder has a long-term course, is not transient, and these behaviors have a significant negative impact on the quality of life of the individual (Donini et al., 2004; Billing, 2005; Billings, 2005; Nymah, 2005). Extreme orthorectic cases prefer to starve themselves instead of consuming "impure" foods that harm their health (Bratman & Knight, 2000; Billings, 2005; Nymah, 2005). As mentioned earlier, this concept is still very new. Although attention has been drawn to the issue, especially by the mass media, ON has not yet gained the status of an international term nor has it been included in diagnostic classifications (Donini et al., 2004). Addictive behavior is a disorder that can occur at any time of life and can negatively affect the person in many different areas. This situation, which is individualized by the living conditions of individuals but similar at certain points, has started to be addressed in a broader scope over the years. It has become an enriched research area with the inclusion of not only substance use disorders but also behavior-based addiction types. In this context, exercise addiction takes its place in the literature as a behavior-based addiction type (Koruç & Arsan, 2009). Exercise addiction is defined as the inability of people to quit exercise after starting exercise or experiencing emotional problems after quitting (Hausenblas & Giacobbi, 2004). Exercise addiction is described as the inability to fulfill one's responsibilities or to allocate enough time to one's social environment, constantly increasing the intensity, frequency and duration of exercise, because thinking about it can increase the effectiveness of the exercise (Adams, 2003; Kirkby, 2002, Zmijewski & Howard, 2003). Exercise addiction, regularis an exercise behavior that occurs in individuals who exercise as a compulsion to exercise, which negatively affects their personal and social lives (Doğan, Elçi and Gürbüz, 2022).

There are many differences between regular exercise and exercise addiction. First, exercise usually means maintaining health and fitness (Akarsu et al., 2023), whereas exercise addiction indicates a problem, a maladjustment. Therefore, exercise addiction can have more negative than positive effects on a person's health. Exercise addiction can lead to serious muscle damage, injuries, injuries, malnutrition and other problems. In addition, exercise addiction can be permanent. Therefore, a person with exercise addiction continues to exercise excessively without adequate rest (Freimuth, Moniz, & Kim, 2011). While normal people may decide to rest after exercise or feel tired after their daily routine, exercisers may continue exercising even when they are sick. They see it as a way to reduce stress or recover, and experience frustration or inadequacy when they do not (Berczik et al., 2012).

Among the studies in the literature that revealed the association of fitness participants with ON, Almeida et al. (2018) found that 51.8% of the sample with a mean age of 30.96 years (± 1.03 years) had documented ON behavior, and this tended to correlate with younger ages. Physical appearance and frequent exercise were also associated with ON, while no association was found between orthorexic tendencies and either gender or field of study. Rudolph (2018) found that 10.2% of the entire sample had EA, while ON was prevalent in 3.4%. Twenty-three people (2.3%) suffered from both. There is a significant positive correlation between ON and EA. Female participants show a higher correlation compared to male participants. In the study conducted by Gadak and Pulur (2021), it was observed that individuals who went to a fitness center were in the "dependent group" in exercise addiction. There was a relationship between marital status and education level variables and mean EA scores. Uz (2015) found that 2 (1.6%) of the participants were dependent, 100 (84.03%) were symptomatic and 17 (14.2%) were asymptomatic. It was observed that the most symptomatic level of exercise addiction symptom in the participants (62.1%) was observed in individuals with university education (74.7%) and in individuals with middle socio-economic income level (47.1%). It was determined that the total score of exercise addiction did not differ statistically in terms of gender. Apart from Rudolph's study, we are not aware of any study that demonstrates the relationship between exercise addiction and orthorexia nervosa in fitness participants. To reveal the relationship between these two conditions in individuals who exercise regularly in fitness centers will contribute to the experts working in this field and expand the literature.

In this context, the main aim of the study is to reveal the relationship between orthorexia nervosa levels and exercise addictions of individuals who exercise in a fitness center. The second aim of the study is to examine the relationship between orthorexia nervosa levels and exercise addictions of individuals who exercise in a fitness center in terms of different variables (age, gender, body mass index, income level, marital status).

METHOD

Participants

The population of the study consists of individuals who went to fitness centers in Mersin in 2023. The sample group of the study consists of 436 individuals selected by the "Convenience Sampling Method", which is an easy method among individuals who do sports in five different sports centers in Mersin province (Cohen, Manion, & Morrison, 2000).

Research Model and Procedure

The research is a descriptive research in cross-sectional and relational screening model, which is one of the general screening models. In this study, which will be conducted to examine the orthorexia nervosa levels and exercise addictions of individuals who do sports in fitness centers; "Ortho-11 Scale", "Exercise Addiction Scale-21 (EIS-21) and 'Demographic Information Form', which will be prepared by the researcher to determine the demographic characteristics of individuals who do sports, were used. Before the data collection process started; Mersin University Social Sciences Ethics Committee Report was obtained before the study. After obtaining the necessary institutional permissions, data collection started in the fall semester of 2022-2023. Data collection was conducted face-to-face by the researcher himself. The athletes participating in the study were informed about the purpose of the study and then the scales were applied. Within the scope of the research, it was stated that information about the identities of the participants would not be requested and the principle of confidentiality would be adhered to. Participants were asked to answer the demographic information form and scales in fitness centers.

Demographic Information Form

In this form to be prepared by the researcher, questions such as gender, age, body mass index, socioeconomic status, marital status, and dieting status of the participants were included. The socioeconomic status variable was categorized in terms of how individuals perceived their income levels, and low, medium, and high options were added to the demographic form by the researcher. These questions were prepared to collect information about the personal characteristics of the individuals participating in the study and to form the independent variables of the study.

Table 1 Descriptive Statistics of Participants

Variables	Groups	F		%
Gender	Women	282		65.6
	Men	148		34.4
Marital Status	Married	184		42.8
	Single	246		57.2
Socioeconomic Status	Low	28		6.5
	Medium	334		77.7
	High	68		15.8
Variables	Groups	Minimum	Maximum	Mean ± Ss.
Age	Women	18	60	30.38 ± 9.31
	Men	18	56	31.96 ± 8.92
	Total	18	60	30.93 ± 9.20
Body Mass Index	Women	.16	.38	.24 ± .04
	Men	.18	.34	.25 ± .03
	Total	.16	.38	.24 ± .04

Ortho-11 Scale

The ORTO-15 scale, which is a scale developed to determine healthy eating obsession in individuals, is the Turkish version of the ORTO 11 scale developed by Donini et al. (2004) and adapted into Turkish

by Arusoğlu et al. (2006). In this study, it was used to evaluate the orthorectic tendencies of the participants In the development of the scale, the 10-question scale, which is an orthorexia self-assessment test by Bratman (2000), was taken as a basis, and the 15-question form of the scale was prepared by reorganizing some questions in this scale and adding new items to the test. The ORTO-11 scale has 15 items scored on a four-point Likert scale (1- Always, 4-Never). The minimum score that can be obtained from the scale is 15 and the maximum score is 60, and an increase in the total score means a decrease in orthorexia tendency. Since it was aimed to select items with high statistical power while adapting the scale to Turkish, four items were eliminated and a total of 11 items and three factors were determined as "concerns about healthy eating", "food choice and eating attitudes and behaviors" and "food choice and value". However, factor analysis findings showed that it would be more appropriate to consider the ORTO-11 Scale in its new form with a single factor structure (Arusoğlu, 2006). In the final version of the scale, it was stated that items 3 and 6 would be scored in the opposite direction and the total score is obtained by summing all items. In the evaluation of the internal consistency analysis of the scale, Cronbach Alpha internal consistency coefficient was calculated over 11 items.

0.62 (Arusoğlu, 2006). In this study, the Cronbach's alpha internal consistency coefficient was found to be .53.

Exercise Dependence-21 Scale (EDS-21)

It was developed by Hausenblas and Downs (2002) and adapted to Turkish by Yeltepe and Can İkizler (2007). The scale developed to determine exercise addiction is a 6-point Likert-type scale consisting of 21 items. The scale is scored as (1) Never, (2) Rarely, (3) Sometimes, (4) Usually, (5) Frequently, (6) Always. The lowest score that can be obtained from the scale is 21 points and the highest score is 126 points. The Cronbach Alpha value calculated by Yeltepe and Can İkizler (2007) for the Exercise Addiction-21 Scale was found to be .96. In this study, the Cronbach Alpha value obtained for the Exercise Addiction-21 Scale was found to be .94.

Statistical Analysis

Skewness and Kurtosis values were examined to determine whether the data obtained in the study had a normal distribution. According to the normality result of the data; t-test / Mann Whitney U test for independent groups for pairwise comparisons and One Way Anova / Kruskal Wallis tests for multiple comparisons were used. In addition, Pearson Correlation analysis was performed to reveal the possible relationship between the dependent variables. The error level was accepted as 0.05 for all statistical methods.

RESULTS

Table 2. Analysis of the Relationship Between Participants' Age and Levels of Exercise Addiction and Orthorexia Nervosa

Variables	Age
Age	
Exercise Dependence	.120*
Orthorexia Nervosa	.220**

*: p < 0.05; **:p<0.01

When Table 2 is examined, it is seen that there is a positive and very low level significant relationship between the scores of the fitness center-going individuals on the exercise addiction scale and their age (r =120, p<.05). In addition to this result, it is seen that there is a positive, low-level significant relationship between the scores of individuals who go to the fitness center and their scores on the orthorexia nervosa scale and their age (r=.220, p<.05). In the light of the results obtained, as the age of individuals increases, their exercise addiction levels and orthorexia nervosa levels increase.

Table 3. Analysis of the Relationship Between Participants' Body Mass Indexes and Levels of Exercise Addiction and Orthorexia Nervosa

Variables	Body Mass Index
Body Mass Index	
Exercise Dependence	-.194**
Orthorexia Nervosa	-.062

*: p < 0.05; **:p<0.01

According to the results of the Pearson product-moment correlation analysis conducted to reveal the relationship between the body mass indexes of the individuals going to the fitness center and their exercise addiction and orthorexia nervosa levels, no significant relationship was found between the body mass indexes of the individuals and their scores on the exercise addiction scale (r =.073, p>.05). In addition to this result, it is seen that there is no significant relationship between the body mass indexes of individuals who go to the fitness center and their scores on the orthorexia nervosa scale (r =-.062, p>.05). In other words, the increase or decrease in body mass index of individuals does not affect their exercise addiction scores and orthorexia nervosa levels.

Table 4. Independent Groups T Test Results Regarding Exercise Addiction and Orthorexia Nervosa Levels of Participants According to Marital Status Variables

Variables	Marital Status	n	X	Ss	t	p
Exercise Dependence	Married	184	60.09	23.04	2,19	,03*
	Single	246	55.35	21.47		
Orthorexia Nervosa	Married	184	27.70	4.68	3.09	,01*
	Single	246	26.25	4.89		

*: p < 0.05; **:p<0.01

When Table 4 is observed, it is seen that the scores of the participants on the exercise addiction scale differed significantly in terms of marital status (t = 2.19, p<.05). It is seen that married individuals have higher scores on the exercise addiction scale. In addition, the scores of fitness participants on the orthorexia nervosa scale differed significantly in terms of marital status (t=3.09, p<.05). It is seen that married individuals have higher scores on the orthorexia nervosa scale.

Table 5. One Way ANOVA Test Analysis Results Regarding Exercise Addiction and Orthorexia Nervosa Levels of Participants According to Socioeconomic Status Variables

Variables	Socioeconomic Status	n	X	SS	F	p
Exercise Dependence	Low	28	51.57	22.31	2.09	.13
	Medium	334	58.51	21.78		
	High	68	54.21	24.11		
	Total	28	51.57	22.31		
Orthorexia Nervosa	Low	28	27.07	3.74	2.98	.05
	Medium	334	27.12	4.76		
	High	68	25.56	5.46		
	Total	430	26.87	4.85		

*: p < 0.05; **:p<0.01

When Table 5 is observed, it is seen that the scores of the individuals who go to the fitness center from the exercise addiction scale do not differ significantly in terms of socioeconomic status variable (f =2.09, p>.05). In addition, it is seen that the scores of individuals who go to the fitness center from the orthorexia nervosa scale do not differ significantly according to the socioeconomic status variable (f = 2.98, p>.05).

Table 6. The Relationship Between Participants' Exercise Addiction and Orthorexia Nervosa Levels

Variables	Exercise Dependence	Orthorexia Nervosa
Orthorexia Nervosa	-.194**	

*: p < 0.05; **:p<0.01

When Table 6 is observed, it is seen that there is a negative and very low level significant relationship between the scores obtained from the exercise addiction scale and the scores obtained from the orthorexia nervosa scale (r = -.194, p <.05). It is seen that as the exercise addiction levels of individuals who go to the fitness center increase, their orthorexia nervosa levels decrease.

DISCUSSION and CONCLUSSION

Exercise addictions of individuals who go to fitness centers differ significantly according to gender variable. It is seen that male participants have more exercise addiction. There are studies in the literature indicating that exercise addiction differs significantly according to the gender variable in the sports environment. For example, in the study conducted by Özkan, Çekiç and Çepikkurt in 2023 with 252 fitness participants (86 female, 166 male), it is seen that exercise addiction differs significantly according to gender variable. It was stated that the exercise addiction scores of male participants were higher than the exercise addiction scores of female participants. When the results of the study conducted by Costa, Hausenblas, Oliva, Cuzzocrea, and Larcan in 2013 with 409 participants (209 male, 200 female) who regularly exercise are examined, it is seen that the exercise addiction scores of male participants are significantly higher than the exercise addiction scores of female participants. Contrary to these results, there are also studies in the literature that show that exercise addiction does not differ significantly according to the gender variable. According to the results of a study conducted by Furst and Germone in 1993 with a total of 188 individuals, including 98 runners (72 men, 26 women) and 90 exercise participants (60 men, 30 women), it was observed that the exercise addiction scores of the athletes participating in the study did not differ significantly according to the gender variable. The results of the research conducted by Katra in 2021 with 202 individuals (151 men, 51 women) who went to a fitness center in 2021 similarly revealed that exercise addiction scores did not differ significantly according to gender variable. Considering this situation, having a muscular body for men may require a longer and more challenging process. In this direction, it can be thought that men who want to have a muscular body strive to increase the duration and intensity of exercise and this leads to higher exercise addiction scores in men.

In addition it is that the orthorexia nervosa levels of individuals who go to fitness centers do not differ significantly according to the gender variable. There are studies supporting the research finding in the literature. For example, according to the results of the study conducted by Çoban with 410 individuals (297 men, 113 women) who went to a fitness center in 2023, it is seen that the scores of the exercise participants from the “healthy eating obsession sub-dimension” and “food selection and value” sub-dimensions of the orthorexia nervosa scale do not differ significantly according to the gender variable. According to the results of the research conducted by the author in 2023 with 337 sport sciences faculty students (222 male, 115 female), it is seen that orthorexia nervosa scores do not differ significantly according to gender variable. In another study conducted by Brytek-Matera, Donini, Krupa, Poggiogalle, and Hay in 2015 with 327 university students (44 males, 283 females), it was similarly concluded that orthorexia nervosa scores did not differ significantly according to gender variable. As a result of the research conducted by Turhan in 2022 with 350 individuals (180 males, 170 females) who regularly exercise, it is seen that the scores obtained from the orthorexia nervosa scale do not differ significantly according to the gender variable. In the literature, there are also studies indicating that orthorexia nervosa differs significantly according to the gender variable.

It was found that there was a positive and very low level relationship between the age of fitness center-goers and their exercise addiction, and a positive and low level relationship between their orthorexia

nervosa scores and their age. According to the results of a study conducted by Lichtenstein, Larse, Christiansen, Stoving, and Bredahl in 2014 with 463 men (113 soccer players, 247 fitness participants), it was reported that younger individuals had higher exercise addiction scores. In a study conducted by Costa, Hausenblas, Oliva, Cuzzocrea, and Larcan in 2013 with 409 participants (209 men, 200 women) who regularly exercise, it was revealed that there was a negative and very low level significant relationship between the age of individuals and their exercise addiction. In the literature review, studies in which there was no significant relationship between exercise addiction and age were also found in the literature. According to the results of the research conducted by Köse and Bayköse in 2019 with 218 individuals (98 men, 120 women) who exercise in fitness centers, it is seen that there is no significant difference between the age of individuals and their exercise addiction. In a study conducted by Üstündağ on orthorexia nervosa and age variable with 350 individuals (118 males, 232 females) going to a fitness center in 2020, a significant differentiation was found in the sub-dimension of "food choice and eating attitude". It is seen that orthorexia nervosa scores increase as the age groups increase. According to the results of the study conducted by Fidan, Ertekin, Işikay, and Kırpınar in 2010 with 682 (379 male, 303 female) university students, it is seen that the level of orthorexia nervosa differs significantly according to the age variable. It was stated that individuals over 21 years of age had higher orthorexia nervosa scores than individuals 21 years of age and younger. When the literature is reviewed, different findings on the subject are also encountered. For example, in a study conducted by Öner with 322 individuals (196 men, 126 women) who went to the gym in 2021, it was found that there was no significant relationship between the participants' orthorexia nervosa levels and their age. It can be thought that individuals take on different responsibilities as they get older. With the acquisition of these responsibilities, the time and energy they devote to them also increase. Individuals who spend their time to take care of different responsibilities may exhibit problematic eating behaviors such as skipping meals due to lack of time or preferring fast foods (fastfood).

The scores of individuals who go to the fitness center from the exercise addiction scale differ significantly according to the marital status variable. The scale scores of married individuals were found to be higher than the scale scores of single individuals. There are studies in the literature that support the findings that exercise addiction differs significantly according to the marital status variable. For example, in a study conducted by Turhan in 2022 with 350 individuals (180 men, 170 women) who regularly exercise, it was concluded that exercise addiction differed significantly according to the marital status variable. It is stated that single participants have higher exercise addiction scores. According to the results of the research conducted by Öner with 322 individuals (196 men, 126 women) who went to the gym in 2021, it is seen that the scores obtained from the "tolerance development and passion" sub-dimension of the exercise addiction scale differ significantly according to the marital status variable and the scores of single participants are higher. As a result of the literature review, it is seen that there are studies reporting that exercise addiction does not differ significantly according to the marital status variable. For example, in the study conducted by Özkan, Çekiç and Çepikkurt in 2023 with 252 fitness participants (86 female, 166 male), it is seen that exercise addiction does not differ significantly according to the marital status variable. The results of the study conducted by Katra in 2021 with 202 individuals (151 men, 51 women) who went to a fitness center in 2021 are also parallel and indicate that exercise addiction does not differ significantly according to marital status. Another study was conducted by Martinez-Gonzalez, Varo, Santos, Irala, Gibney, Kearney and Martinez in 2001. The study included 15239 individuals (7155 males, 8077 females) from different member countries of the European Union who engaged in physical activity in their leisure time. It can be said that with marriage, individuals live their lives more regularly, pay more attention to their eating habits and eat healthier. Considering that regular life and healthy nutrition have a positive contribution to sports, it can be thought that individuals who have these opportunities with marriage can turn to sports and make exercise continuous. Taken together, this may explain the higher exercise addiction scores of married individuals.

It was found that the orthorexia nervosa levels of individuals who went to the fitness center differed significantly according to the marital status variable. It is seen that married individuals have higher scores on the orthorexia nervosa scale. There are studies in the literature that support the finding of differentiation according to the marital status variable obtained in the research. For example, according to the results of a study conducted by Çoban in 2023 with 410 individuals (297 men, 113 women) who went to a fitness center, it was concluded that the scores obtained from the "food selection - eating

attitude and behaviors" sub-dimension of the orthorexia nervosa scale differed significantly according to the marital status variable.

According to the result of the research conducted by Demirel and Cicioğlu with 160 (125 male, 35 female) high-level athletes in 2020, it is seen that the exercise addictions of athletes do not differ significantly according to the socioeconomic status variable. According to the study conducted by Gadak and Pulur with 113 individuals (67 men, 46 women) who went to a fitness center in 2021, it was concluded that the exercise addiction levels of the participants did not differ significantly according to the socioeconomic status variable. Contrary to the aforementioned research results, exercise addiction does not differ significantly according to the socioeconomic status variable. There are also studies in the literature indicating that they differ. For example, in a study conducted by Kayhan, Kalkavan, and Terzi with 209 (94 male, 115 female) participants who went to a fitness center in 2021, it was observed that the scores of individuals who went to the gym from the "withdrawal" sub-dimension of the exercise addiction scale differed significantly according to the socioeconomic status variable. When the difference in question is examined, it is seen that individuals with high economic status have higher scores than individuals with low economic status.

It was revealed that there was a negative and very low level significant relationship between exercise addiction and orthorexia nervosa. The results of the study conducted by Turhan in 2022 with 350 individuals (180 men, 170 women) who exercise regularly also support the results of the current study. According to Turhan's study, a negative, low-level significant relationship was found between exercise addiction and orthorexia nervosa levels of individuals who exercise regularly. In a study conducted by Çoban with 410 individuals (297 men, 113 women) who went to a fitness center in 2023, it was revealed that there was a negative and very low level significant relationship between the "concerns about healthy eating" sub-dimension of the orthorexia nervosa scale and the "excessive focus and emotional change" sub-dimension and "tolerance development and passion" sub-dimension of the exercise addiction scale. In addition, it was revealed that there was a negative and very low significant relationship between the "food choice and value" sub-dimension of the orthorexia nervosa scale and the "excessive focus and emotional change" sub-dimension and "tolerance development and passion" sub-dimension of the exercise addiction scale. On the other hand, according to the results of the study conducted by Öner with 322 individuals (196 men, 126 women) who went to the gym in 2021, it is seen that there is no significant relationship between individuals' exercise addiction and orthorexia nervosa levels. As the individual's exercise awareness increases, they can pay attention to their meals and nutrient content. From this point of view, they may pay attention not to practice unbalanced eating behavior. Therefore, a significant negative relationship can be considered normal. Based on the assumption that an individual with increased exercise addiction will also pay attention to his/her appearance, it can be considered normal for an individual who pays attention to his/her appearance to stay away from bad eating behavior and exhibit better eating behavior for the appearance of his/her body.

Gender and marital status variables showed significant differences in terms of exercise addiction. The exercise addiction scores of male participants were significantly higher than those of female participants. In addition, exercise addiction scores of married individuals were significantly higher than single individuals. There was a significant relationship between age and exercise addiction, and an increase in exercise addiction scores was observed as age increased. However, there was no significant relationship between body mass index and exercise addiction scores. In addition, it was observed that exercise addiction scores did not differ significantly according to the socioeconomic status variable.

In terms of orthorexia nervosa levels, marital status and age variables showed significant differences. Orthorexia nervosa scores of married individuals were found to be significantly higher than single individuals. A low level positive correlation was found between age and orthorexia nervosa, and an increase in orthorexia nervosa scores was observed as age increased. Gender, socioeconomic status and body mass index variables did not have a significant effect on orthorexia nervosa levels. In conclusion, this study revealed that exercise addictions and orthorexia nervosa levels of fitness center-going individuals differed according to variables such as gender and marital status, and were related to the age variable. These findings contribute to understanding the differences of individuals in these issues. Further studies can be conducted with more samples and with individuals who prefer different types of exercise.

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REFERENCES

Adams, J. M., Miller, T. W., ve Kraus, R. F. (2003). Exercise dependence: Diagnostic and Therapeutic Issues for Patients in Psychotherapy. *Journal of Contemporary Psychotherapy*, *33*(2), 93-107.

Akarsu, G., Bayrakdar, A., Yıldırım, Y., Aygüney, Y., & Meriçeri, S. (2023). Yaşam Boyu Form Kampı: Obezlerde Antropometrik Özellikler ve Obezite Farkındalığı Üzerine Etkisi. *IJPANH*, *1*(1), 46–55. https://doi.org/10.5281/zenodo.10447198

Almeida, C., Vieira Borba, V., & Santos, L. (2018). Orthorexia nervosa in a sample of Portuguese fitness participants. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, *23*, 443-451.

American Psikiyatri Birliği (APA). *Ruhsal Bozuklukların Tanısal ve Sayımsal Elkitabı*, Beşinci Baskı (DSM-5), Tanı Ölçütleri Başvuru Kitabı, Çevirmen: Köroğlu, E. Hekimler Yayın Birliği.

Arusoğlu, G. (2006). *Sağlıklı Beslenme Takıntısı (ortoreksiya) Belirtilerinin İncelenmesi, Orto-15 Ölçeğinin Uyarlanması* [Yayımlanmamış Yüksek Lisans Tezi]. Hacettepe Üniversitesi.

Berczik, K., Szabó, A., Griffiths, M. D., Kurimay, T., Kun, B., Urbán, R., & Demetrovics, Z. (2012). Exercise addiction: Symptoms, diagnosis, epidemiology, and etiology. *Substance use & misuse*, *47*(4), 403-417.

Biddle, S.J., Fox, K., & Boutcher, S. (2003). Physical activity and psychological well-being. *Routledge*, *1*(3), 88-98.

Billings, T. (2005). Other Types of Eating Disorders, *http://www.something-fishy.org*, Erişim Tarihi: 18/12/2021.

Bratman, S. ve Knight, D. (2000). *Health Food Junkies: Overcoming The Obsession with Healthful Eating*. Broadway Boks.

Büyüköztürk, Ş., Kılıç-Çakmak, E., Akgün, Ö. E., Karadeniz, Ş. V. ve Demirel, F. (2001). *Bilimsel Araştırma Yöntemleri*. Pegem.

Cohen, L., Manion, L. ve Morrison, K. (2000). *Research Methods In Education. Sixth Education.*Routledge.

Costa, S., Hausenblas, H. A., Oliva, P., Cuzzocrea, F. ve Larcan, R. (2013). The Role of Age, Gender,Mood States and Exercise Frequency on Exercise Dependence. *Journal of Behavior Addictions*, *2*(4), 216-223.

Demirel, H. G. ve Cicioğlu, H. İ. (2020). Üst düzey sporcuların egzersiz bağımlılık düzeylerinin incelenmesi. *Gaziantep Üniversitesi Spor Bilimleri Dergisi*, *5*(3), 242 – 254.

Doğan, M., Elçi, G., & Gürbüz, B. (2022). Egzersiz bağımlılığı ve sosyal görünüş kaygısı ilişkisi. *Türkiye Spor Bilimleri Dergisi*, *6*(2), 73-82.

Donini, L. M., Marsili, D., Graziani, M.P., Imbriale, M. ve Cannella, C. (2004). Orthorexia Nervosa: A Preliminary Study With A Proposal For Diagnosis and An Attempt To Measure The Dimension Of The Phenomenon. *Eat Weight Disord*, *9*, 151-157.

Fidan, T., Ertekin, V., Isikay, S. ve Kirpinar, I. (2010). Prevalence of orthorexia among medical students in Erzurum, Turkey. *Comprehensive Psychiatry*, *51*(1), 49–54.

Freimuth, M., Moniz, S. ve Kim, S. R. (2011). Clarifying exercise addiction: Differential diagnosis, co- occurring disorders, and phases of addiction. *International Journal of Environmental Research And PublicHealth*, *8*(10), 4069-4081.

Furst, D. M. ve Germone, K. (1993). Negative addiction in male and female runners and exercısers'.*Percepfual and Motor Skills*, 77, 192-194.

Gadak, A. ve Pulur, A. (2021). Fitness merkezine giden bireylerin egzersiz bağımlılıklarının incelenmesi. *Sportive*, *4*(2), 12 – 23.

Gross, J. J. ve Jazaieri, H. (2014). Emotion, emotion regulation, and psychopathology: An affective science perspective. *Clinical Psychological Science, 2*(4), 387-401.

Hausenblas, H. A., & Giacobbi Jr, P. R. (2004). Relationship between exercise dependence symptoms and personality. *Personality and Individual differences, 36*(6), 1265-1273.

Katra, H. (2021). Egzersiz yapan bireylerde egzersiz bağımlılığı ve benlik saygısı. *Journal of Dependence*, *22*(4), 370-378.

Kayhan, R. F., Kalkavan, A. ve Terzi, E. (2021). Fitness salonlarında spor yapan bireylerin egzersiz bağımlılığı düzeyleri ve ilişkili değişkenler. *Bağımlılık Dergisi*, *22*(3), 248-256.

Kilpatrick, D. G., Acierno, R., Saunders, B., Resnick, H. S., Best, C. L. ve Schnurr, P. P. (2000). Risk factors for adolescent substance abuse and dependence: data from a national sample. *Journal of consulting and clinical psychology*, *68*(1), 19.

Koruç, Z. ve Arsan, N. (2009). Derleme: egzersiz davranışını izleyen etmenler: egzersiz bağlılığı ve egzersiz bağımlılığı. *Spor Hekimliği Dergisi*, *44*(3), 105-113.

Köse, E. ve Bayköse, N. (2019). Serbest zamanda sıkılma algısı ve egzersiz bağımlılığı arasındaki ilişki. *Akdeniz Spor Bilimleri Dergisi*, *2*(1), 1-14.

Küçükapan, H., & Civan, A. (2021). Pilates egzersizlerinin beden algısına etkisi. *Türkiye Spor Bilimleri Dergisi*, *5*(2), 54-62.

Lichtenstein, M.B., Larsen, K. S., Christiansen, E., Stoving, R. K. ve Bredahl, T. V. G. (2014). Exercise addiction in team sport and individual sport: Prevalences and validation of the exercise addiction inventory. *Addiction Research and Theory*, *22*(5), 431–437.

Mathieu, J. (2005). What is Orthorexia? *Journal of American Dietetic Association, 10, 1510-1512.*

Nymah, H. (2005). A Direct question: ıs orthorexia a correct word for a wrong concept? *Lakardingten*, *99*(5), 433-4.

Özkan, A. M., Çekiç, A. ve Çepikkurt, F. (2023). Egzersiz katılımcıların fiziksel görünüm mükemmeliyetçiliği, sosyal görünüş kaygısı ve egzersiz bağımlılıklarının incelenmesi. *International Journal Sport, Exercise & Training Science*, *9*(1), 26-37.

Pulur, A., & Gedık, A. (2021). Fitness merkezine giden bireylerin egzersiz bağımlılıklarının incelenmesi. *Sportive*, *4*(2), 12-23.

Rudolph, S. (2018). The connection between exercise addiction and orthorexia nervosa in German fitness sports. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, *23*, 581-586.

Üstündağ, E. G. (2020). *Spor salonunda spor yapan bireylerde yeme farkındalığı ile ortoreksiya nervoza belirtileri arasındaki ilişkinin incelenmesi* [Yayımlanmamış Yüksek Lisans Tezi]. Çağ Üniversitesi.

Uz, İ. (2015). *Fitness merkezlerine düzenli katılan bireylerde egzersiz bağımlılığın incelenmesi* (Master's thesis, Sağlık Bilimleri Enstitüsü).

Yeltepe, H. ve Can-İkizler, H. (2007). Egzersiz bağımlılığı ölçeği-21'in türkçe geçerlilik ve güvenilirlik çalışması. *Journal of Dependence*, *8*, 29-35.