

Examination of The Relationship Between Exercise Addiction and Childhood Trauma*

Egzersiz Bağımlılığı ile Çocukluk Çağı Travmaları Arasındaki İlişkinin İncelenmesi

Erva SARIYER**, Hüseyin ÜNÜBOL***

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Abstract

This study was conducted to examine whether there is a relationship between exercise addiction and childhood traumas. Sociodemographic Information Form, Exercise Addiction Inventory, Childhood Trauma Questionnaire (CTQ-28), Alcohol Use Disorder Identification Test (AUDIT) and Fagerström Test for Nicotine Dependence (FTND) prepared by the researcher were applied to the participants in the study. For the study, 3747 male and female volunteers completed the Exercise Addiction Inventory. Among these volunteers, the Alcohol Use Disorder Identification Test was administered to 1756 people, the Fagerström Test for Nicotine Dependence to 1076 people, and the Childhood Trauma Questionnaire to 935 people. In the analysis, it was seen that there was no relationship between exercise addiction and childhood traumas. In addition, when exercise addiction and different sociodemographic characteristics were examined together, the addiction scores of the participants who were male, young, had a lower income level, were single, had a lower education level, and used alcohol and reported harmful alcohol use were found to be significantly higher. Addiction status did not differ significantly according to BMI, smoking and smoking addiction, place of residence, history of psychiatric treatment.

Keywords:

Exercise Addiction Inventory, Behavioral Addiction, Neglect, Abuse

Öz

Bu çalışma egzersiz bağımlılığı ve çocukluk çağı travmaları arasında bir ilişki olup olmadığını incelemek amacıyla yapılmıştır. Çalışmaya katılan kişilere araştırmacı tarafından hazırlanmış Sosyodemografik Bilgi Formu, Egzersiz Bağımlılığı Envanteri, Çocukluk Travması Anketi (CTQ-28), Alkol Kullanım Bozukluğu Tanıma Testi (AKBTT) ile Fagerström Nikotin Bağımlılık Testi (FNBT) uygulanmıştır. Çalışma için 3747 erkek ve kadın gönüllü Egzersiz Bağımlılık Envanteri'ni doldürmüştür. Bu gönüllülerin içerisinde 1756 kişiye Alkol Kullanım Bozukluğu Tanıma Testi, 1076 kişiye Fagerström Nikotin Bağımlılık Testi ve 935 kişiye Çocukluk Travması Anketi uygulanmıştır. Yapılan analizlerde egzersiz bağımlılığı ile çocukluk çağı travmaları arasında bir ilişki olmadığı görülmüştür. Ayrıca egzersiz bağımlılığı ve farklı sosyodemografik özellikler birlikte incelendiğinde erkek, genç, gelir seviyesi daha düşük, bekâr, eğitim seviyesi daha aşağıda, alkol kullanan ve zararlı alkol kullanımını bildiren katılımcıların bağımlılık puanları anlamlı şekilde daha yüksek çıkmıştır. VKİ, sigara kullanımı ve sigara bağımlılığı, yaşanan yer, psikiyatrik tedavi alma öyküsü değişkenlerine göre bağımlılık durumları anlamlı şekilde farklılık göstermemiştir.

Anahtar Kelimeler:

Egzersiz Bağımlılığı Envanteri, Davranışsal Bağımlılık, İhmal, İstismar

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** Psychology PhD Student, Üsküdar University, erva.kurtul@st.uskudar.edu.tr, ORCID ID:0000-0003-0850-218X

*** Asst. Prof., Üsküdar University, huseyin.unubol@uskudar.edu.tr, ORCID ID: 0000-0003-4404-6062.

INTRODUCTION

Exercise: It is a phenomenon that comes up frequently with the benefits it provides to people in many areas. However, exercise is no longer just on the positive side; With the concept called 'Exercise Addiction', it has started to take place in human life. Exercise Addiction is defined as the individual's excessive desire to engage in physical activity and exhibiting this behavior, striving to continue the movement despite the negative consequences of the behavior, and feeling bad in case of not being able to continue (Vardar, 2012). The fact that different negative consequences of addiction on individuals were found in studies (Garman et al., 2004; Cook et al., 2013; Rogers et al., 2018) has made this concept important. However, it is important to obtain detailed information about Exercise Addiction and to develop an appropriate treatment protocol. For this reason, there are various studies in the literature. In particular, besides some sociodemographic variables (Fernández-Martínez et al., 2021; Rudolph, 2017; Yang et al., 2021); eating disorders (Cook et al., 2015), mood disorders (Weinstein et al., 2015), different behavioral (Di Nicola et al., 2010) and chemical addictions (Müller et al., 2015) were studied together with Exercise Addiction.

Childhood trauma is a type of trauma that has been over-studied due to its importance and long history. The World Health Organization defined maltreatment of children as abuse and neglect experienced by persons under the age of 18; includes any form of physical or emotional abuse, neglect, sexual harassment or other forms of abuse that results in potential or actual harm to the child's health, survival, development and dignity within the scope of power, responsibility, trust factors (WHO, 2020). It is known that traumatic experiences in childhood pave the way for various diseases. Chemical and behavioral addiction types are also some of these diseases. With trauma survivors being more likely to use drugs and alcohol (Kendall-Tackett, 2002), the risk of substance addiction was also found to be quite high (Khoury et al., 2010). In addition, relationships have been found between some of the behavioral addiction types, including Exercise Addiction, and traumatic experiences in childhood (Eşkisu, 2020; Horak et al., 2020).

The aim of this study is to examine whether there is a relationship between Exercise Addiction and childhood traumas; in addition, it is aimed to examine whether Exercise Addiction changes according to the characteristics of gender, age, income level, marital status, education level, alcohol use and amount of use, BMI, smoking and smoking addiction, place of residence and history of receiving psychiatric treatment.

METHOD

This study was carried out within the scope of Turkey Epidemic Addiction and Mental Health Map Project (TURBAHAR COVID-19). 67 Clinical Psychologists took part in the study. Due to the pandemic conditions, data were collected from the participants via the special digital platform www.humanations.org designed for the project. Before the scales on the platform, necessary information was given to the participants and prepared consent forms were presented. Special codes were defined for the participants during the process, and thus they were given the opportunity to continue filling out the scales later. The average scale completion time took 45 minutes. Data collection continued from December 2020 to February 2021, and sample selection was made with a snowball approach. The collected data were disaggregated and clustered according to 26 NUTS3 regions. In this way,

the data collected from 81 provinces could be separated regionally. Ethics Committee Approval of the study was obtained from Üsküdar University Non-Invasive Ethics Committee. Inclusion criteria for the study; Being over the age of 15, participating voluntarily, having no barriers to completing the surveys. Thus, 21815 people were included in the study and it was determined that 20808 people filled out the data completely. The sample selected from this universe consists of 3 different groups. 3747 people filled the Exercise Addiction Inventory and formed the first sample group. Of these individuals, 1756 people completed the Alcohol Use Disorder Screening Test, and 1076 people completed the Fagerström Test for Nicotine Dependence.

The second sample group consists of 6824 people who completed the Childhood Trauma Questionnaire. Finally, 935 people who completed the Exercise Addiction Inventory and Childhood Trauma Questionnaire together constitute the last group of the sample.

Data Collection Tools

Sociodemographic Information Form: In order to obtain information about the sociodemographic characteristics of the participants, such as gender, place of residence, education level, marital status, income level, BMI (body mass index), age, smoking and alcohol use, whether or not they had received any psychiatric treatment before, the researcher prepared by.

Childhood Trauma Questionnaire (CTQ-28): Childhood Trauma Questionnaire (CTQ-28), consisting of 28 items; maltreatment experienced during childhood; It is a self-report tool that evaluates emotional abuse, physical abuse, sexual abuse, emotional neglect and physical neglect. Participants rate statements about their childhood experiences (before age 18) on 5-point Likert-type scales (from “never true” to “very often true”). The validity and reliability of the Childhood Trauma Questionnaire, its stability over time, convergent and discriminant validity with structured trauma interviews, and validation using independent data have been documented (Bernstein et al., 1994). The Turkish version of CTQ-28 was made and it was found to be valid and reliable (Sar et al., 2012).

Exercise Addiction Inventory: The Inventory is a short theory-based measurement tool consisting of six statements designed to be indicators of basic addictive behavior components (Terry et al., 2004). Each item is rated on a five-point Likert scale (1 strongly disagree; 5 strongly agree). Although there is no Turkish validity and reliability study of the scale; Permission was obtained from the designers of the scale and translated into Turkish for this study.

Alcohol Use Disorder Identification Test (AUDIT): This test is a 10-question screening test that aims to identify problems related to alcohol use. Each question has 3 or 5 answer options that classify the frequency and amount of use. The total score is obtained by summing the numerical value of each selected answer (Saunders et al., 1993). A score of 8 points and above is defined as harmful use, while a score of 16 points and above is considered as high-risk use (Babor et al., 2001). The scale has a Turkish validity and reliability study (Saatçioğlu et al., 2002).

Fagerström Test for Nicotine Dependence (FTND): It was first proposed by Fagerström (1978). It is a self-assessment scale consisting of 6 questions and measuring double and

quadruple Likert type. The highest score that can be obtained in the test is 10, and 0-3 is considered as an indicator of low, 4-6 moderate, 7-10 high addiction (Sainz et al., 2016; Fagerström et al., 2012). A Turkish validity and reliability study was conducted in 2004 (Uysal et al., 2004).

Statistical Analysis of Data

SPSS 21 Program was used for the data obtained. Although it is seen that the data are in accordance with the assumption of normal distribution, parametric test methods were used to reveal the differences between these data and the related variables. While independent groups t test was used to examine the difference between the Exercise Dependence Inventory and the gender variable; A one-way ANOVA test was used to examine the differences between the variables of age, marital status, education level, place of residence, BMI, income level, psychiatric treatment history, smoking and alcohol use, alcohol and nicotine addiction, and Exercise Addiction Inventory. Welch Test was used because it was understood that the variables other than gender did not fit the normal distribution variance. Tukey test was used to determine the differences between the variables. Pearson correlation test was used to look at the possible relationship between Exercise Addiction and Childhood Trauma.

RESULTS

The sociodemographic characteristics of the individuals who answered the Exercise Addiction Inventory, which constitutes the first sample of the study, are given in Table-1.

Table-1. Demographic Properties of the Participants

| Demographic Information | N |
|-------------------------|------|
| Gender | |
| Woman | 2337 |
| Man | 1410 |
| Total | 3747 |
| Marital status | |
| Married | 1331 |
| Single | 2195 |
| Widowed/divorced | 221 |
| Total | 3747 |
| Age | |
| 29 years and younger | 2037 |
| 29-39 | 622 |
| 39-65 | 1018 |
| 65 years and older | 68 |
| Total | 3745 |

| | |
|--|-------------|
| BMI* | |
| Weak | 212 |
| Normal | 2284 |
| Fat | 1025 |
| Obese | 223 |
| Total | 3744 |
| Living place | |
| Town/village | 61 |
| District | 564 |
| City | 385 |
| Big City | 2737 |
| Total | 3747 |
| Level of education | |
| Primary school and before | 31 |
| Middle school | 54 |
| High school | 472 |
| University | 2441 |
| Postgraduate (master/PhD) | 749 |
| Total | 3747 |
| Psychiatric treatment history | |
| Yes, I've had it before. | 692 |
| Yes, I am currently receiving treatment. | 168 |
| No, I've never had it before. | 2887 |
| Total | 3747 |
| Income level | |
| 10 001 and above | 444 |
| 7001- 10 001 | 386 |
| 5001- 7000 | 536 |
| 4001- 5000 | 443 |
| Minimum wage - 4000 | 490 |
| Minimum wage | 299 |
| None | 1149 |
| Total | 3747 |
| Smoking | |
| Yes | 1094 |
| No | 2307 |

| | |
|---|------|
| I quit (6 months and I haven't used it for a long time) | 346 |
| Total | 3747 |
| Alcohol use | |
| Yes | 1465 |
| No | 2153 |
| I quit (6 months and I haven't used it for a long time) | 129 |
| Total | 3747 |
| AUDIT** Total score | |
| Risk free | 1488 |
| Harmful use | 242 |
| High risk | 26 |
| Total | 1756 |
| FTND*** Total score | |
| Low | 686 |
| Middle | 277 |
| High | 113 |
| Total | 1076 |

*Body-Mass Index, **Alcohol Use Disorder Identification Test, ***Fagerström Test for Nicotine Dependence

The Exercise Addiction Inventory of the participants and the number of participants, total scores and standard deviation values of the gender variable are presented in Table-2.

Table-2. EAI Scores and Gender Comparison

| | | Gender | N | X | SS | t | p** |
|---------------|-------|--------|------|-------|------|-------|-------|
| EAI* score | Total | Man | 1410 | 18.64 | 4.49 | | |
| | | Woman | 2337 | 17.93 | 4.13 | 4.914 | <.001 |

*Exercise Addiction Inventory, **p< .001

As shown in Table-2, the participants' total scores from the Exercise Addiction Inventory were compared with the gender variable. According to the results obtained, the exercise total scores of the individuals differed significantly according to the gender variable (p<.001). The mean exercise total score of male participants (\bar{x} =18.64) was found to be statistically significantly higher than the total score average of female participants (\bar{x} =17.93).

The Exercise Addiction Inventory of the participants and the number of participants, total scores and standard deviation values of different variables are presented in Table-3.

Table-3. EAI Scores and Various Properties' Comparison

| EAI* Total Score | | N | X | SS | F | p***** | Significant difference |
|------------------------|------------------------------------|------|------|------|-------|--------|-------------------------------------|
| Age | 29years and younger (A) | 2037 | 18.8 | 4.15 | 44.7 | <.001 | A > C, A > D, B > C, B > D |
| | 29-39 (B) | 622 | 18.5 | 4.24 | | | |
| | 39-65 (C) | 1018 | 17.0 | 4.31 | | | |
| | 65years and older(D) | 68 | 16.1 | 4.05 | | | |
| BMI** | Week | 212 | 18.1 | 4.26 | 0.336 | 0.799 | |
| | Normal | 2284 | 18.3 | 4.16 | | | |
| | Fat | 1025 | 18.1 | 4.53 | | | |
| | Obese | 223 | 18.1 | 4.37 | | | |
| Marial status | Married(A) | 1331 | 17.5 | 4.37 | 35.9 | <.001 | B > A, B > C |
| | Single(B) | 2195 | 18.7 | 4.17 | | | |
| | Widowed/ divorced(C) | 221 | 17.4 | 4.18 | | | |
| Level of education | Primary school and before(A) | 31 | 16.3 | 5.92 | 6.78 | <.001 | D > E, C > E |
| | Middle school(B) | 54 | 17.9 | 4.58 | | | |
| | High school(C) | 472 | 18.4 | 4.48 | | | |
| | University (D) | 2441 | 18.4 | 4.25 | | | |
| | Postgrad (master/ PhD) (E) | 749 | 17.6 | 4.09 | | | |

| | | | | | | | |
|-------------------------------|-------------------------------|--|------|------|-------|---------------------------|-------|
| Living place | Town | 61 | 17.8 | 4.12 | | | |
| | village | | | | | | |
| | District | 564 | 18.6 | 4.38 | 2.12 | 0.099 | |
| | City | 385 | 18.0 | 3.94 | | | |
| | Big City | 2737 | 18.1 | 4.31 | | | |
| Income level | 10 001 and above (A) | 444 | 17.3 | 4.46 | | | |
| | 7001-10 000 (B) | 386 | 17.7 | 4.15 | | | |
| | 5001-7000 (C) | 536 | 18.0 | 4.28 | | E > A, F > A, | |
| | 4001-5000 (D) | 443 | 18.0 | 4.27 | 7.75 | <.001 G > A, F > B, | |
| | Min. wage-4000(E) | 490 | 18.5 | 4.40 | | G > B | |
| | Minimum wage (F) | 299 | 18.9 | 4.32 | | | |
| | None(G) | 1149 | 18.6 | 4.11 | | | |
| | Psychiatric treatment history | Yes, I had it before. | 692 | 18.5 | 4.31 | | |
| | | Yes, I am currently receiving treatment. | 168 | 18.6 | 4.55 | 2.70 | 0.069 |
| No, I've never had it before. | | 2887 | 18.1 | 4.25 | | | |
| Smoking | Yes | 1094 | 18.2 | 4.47 | | | |
| | No | 2307 | 18.2 | 4.17 | | | |
| | I quit. | 346 | 17.8 | 4.40 | 1.53 | 0.217 | |
| | >6 month | | | | | | |
| FNBT*** Total Score | Low | 686 | 18.1 | 4.44 | | | |
| | Middle | 277 | 18.3 | 4.14 | 0.549 | 0.578 | |
| | High | 113 | 18.6 | 5.05 | | | |

| | | | | | | | |
|--------------------------|--------------------|------|------|------|------|-------|-----------------|
| Alcohol use | Yes(A) | 1465 | 18.1 | 4.36 | 4.10 | 0.017 | C > A, C > B |
| | No(B) | 2153 | 18.2 | 4.20 | | | |
| | I quit >6month | 129 | 19.3 | 4.68 | | | |
| AUDIT**** Total Score | Risk Free(A) | 1488 | 17.9 | 4.21 | 5.63 | 0.006 | B > A |
| | Harmful use (B) | 242 | 19.0 | 4.67 | | | |
| | High risk(C) | 26 | 18.2 | 5.54 | | | |

* Exercise Addiction Inventory, **Body-Mass Index, ***Fagerström Test for Nicotine Dependence, ****Alcohol Use Disorder Identification Test, ***** $p < .001$

The total scores of the participants from the Exercise Addiction Inventory were compared with the age variable. According to the results obtained, the exercise total scores of the individuals differed statistically significantly according to their age characteristics ($p < .001$).

The mean exercise total score of individuals aged 29 and younger ($\bar{x}=18.8$) is significantly higher than the mean total score of individuals aged 39-65 ($\bar{x}=17.0$) and the mean total score of individuals aged 65 and older ($\bar{x}=16.1$) ($F(3,310)=44.7$; $p < .001$). In addition, the total exercise scores of the individuals aged 29-39 ($\bar{x}=18.5$) were found to be significantly higher than the mean total scores of the individuals aged 39-65 ($\bar{x}=17.0$) and the total score averages of the individuals aged 65 and older ($\bar{x}=16.1$). ($F(3,310)=44,7$; $p < .001$).

When the total scores of the participants from the Exercise Addiction Inventory were compared with the marital status variable, according to the results obtained, the exercise total scores of the individuals showed a statistically significant difference according to the marital status variable ($p < .001$). The mean exercise total score of the single participants ($\bar{x}=18.7$) was significantly higher than the mean total score of the married participants ($\bar{x}=17.5$) and the total mean score of the divorced/widowed participants ($\bar{x}=17.4$) ($F(2,604)= 35.9$; $p < .001$). When the total scores of the participants from the Exercise Addiction Inventory and their education levels were examined together, the exercise total scores of the individuals differed statistically significantly according to their education levels ($p < .001$). The exercise total score averages of the participants with university level education ($\bar{x}=18.4$) were found to be significantly higher than the total score averages ($\bar{x}=17.6$) of the participants with graduate (master's/doctorate) education ($F(4,418)=6.78$; $p < .001$). The exercise total score averages of the participants with high school education ($\bar{x}=18.4$) were found to be significantly higher than the total score averages ($\bar{x}=17.6$) of the participants with graduate (master's/doctorate) education ($F(4,418)=6.78$; $p < .01$). When the total scores of the participants from the Exercise Addiction Inventory and their monthly income levels were compared, the individuals' total exercise scores showed a statistically significant difference according to their monthly income levels ($p < .001$).

The mean exercise total score of the participants with a monthly income of 10 001 TL and above ($\bar{x}=17.3$); It was found to be significantly lower than the total scores of the partici-

pants whose income levels are between the minimum wage and 4000 TL (\bar{x} =18.5), who are at the minimum wage level (\bar{x} =18.9) and who do not have any monthly income (\bar{x} =18.6) ($F(6,1352)=7.75$; $p<.001$). The average exercise total score of the participants whose monthly income is between 7001-10.000 TL (\bar{x} =17.7); It was found that the total scores of the participants whose income levels are at the minimum wage (\bar{x} =18.9) and who do not have any monthly income (\bar{x} =18.6) were found to be significantly lower. ($F(6,1352)=7,75$; $p<.01$). When the total scores of the Exercise Addiction Inventory and alcohol use were examined, the exercise total scores of the individuals differed statistically significantly according to their alcohol use ($p<.05$). The mean exercise total score of the participants who stopped using alcohol for 6 months and for a long time (\bar{x} =19.3) was found to be significantly higher than the total mean score of the participants who used alcohol (\bar{x} =18.1) ($F(2,346)=4.10$; $p<.01$). The mean exercise total score (\bar{x} =19.3) of the participants who stopped using alcohol for 6 months and for a long time was found to be significantly higher than the total mean score (\bar{x} =18.2) of the participants who did not use alcohol ($F(2,346)=4.10$; $p<.05$). The total scores of the participants from the Exercise Addiction Inventory and their alcohol dependence were compared. According to the results obtained, the exercise total scores of the individuals differed statistically significantly according to their alcohol addiction status ($p<.01$). The total mean score of exercise (\bar{x} =19.0) of the participants who use alcohol for the harmful effects of alcohol addiction was found to be significantly higher than the total score averages (\bar{x} =17.9) of the participants who did not have any risk for alcohol addiction ($F(2,62.7)=5.63$; $p<.001$). However, when the total scores of the participants from the Exercise Addiction Inventory and BMI, where they live, whether they have received any psychiatric treatment before, whether they smoke or not, and their smoking addiction status, there was no statistically significant difference ($p>.05$).

The correlation values between the Participants' Exercise Addiction Inventory and Childhood Trauma Questionnaire are presented in Table-4.

Table-4. EAI and CTQ Scores Comparison

| | | EAI Total Score | CTQ** Total | CTQ Sexual Abuse | CTQ Emo- tional Neglect | CTQ Physical Neglect | CTQ Physical- ly Abuse | CTQ Emotion- al Abuse |
|---------------------|-------------|-----------------------|----------------|------------------------|----------------------------------|----------------------------|------------------------------|-----------------------------|
| EAI* Total Score | Pearson's r | | 0.779 | 0.025 | -0.052 | 0.003 | 0.014 | 0.018 |
| | | 1 | | | | | | |
| | P | | -0.009 | 0.439 | 0.114 | 0.923 | 0.675 | 0.585 |

*Exercise Addiction Inventory, **Childhood Trauma Questionnaire

As seen in Table-4 Exercise Addiction Inventory and Childhood Trauma Questionnaire scores are compared; no meaningful correlation is observed between Exercise Addiction Inventory total score and CTQ Total ($r=-0.009$; $p>.05$), CTQ Sexual Abuse ($r=0.025$; $p>.05$), CTQ Emotional Neglect ($r=-0.052$; $p>.05$), CTQ Physical Neglect ($r=0.003$; $p>.05$), CTQ Physically Abuse ($r=0.014$; $p>.05$) and CTQ Emotional Abuse ($r=0.018$; $p>.05$) scores.

DISCUSSION

When the EAI scores were analyzed over the gender factor, the exercise total scores of the male participants were found to be significantly higher than the female participants. There are various studies in the literature on the relationship between gender and exercise addiction. There are studies that support the result of the study, in which the addiction levels of male participants are higher than female participants. In a study conducted with university students, it was found that the exercise addiction levels of male participants were significantly higher than female participants; The reason for this situation was attributed to the higher participation of males in gyms (Beltekin and Kuyulu, 2020). As a result of the study conducted with cyclists in fitness centers, it was reported that being male is a risk factor for exercise addiction (Bueno-Antequera et al., 2020). In a study comparing licensed athletes and students studying in sports sciences, it was stated that addiction levels were higher in males than females in both groups (Cicioğlu et al., 2019). When the exercise addiction of CrossFit people was examined, it was seen that men reported higher addiction scores (Lichtenstein and Jensen, 2016).

Age and exercise total scores were examined together. Accordingly, the total exercise scores of the participants aged 29 and younger were found to be significantly higher than the total scores of the participants aged 39-65 and 65 and over. In addition, the total exercise scores of people aged 29-39 were found to be significantly higher than the total scores of people aged 39-65 and those aged 65 and over. There are studies reporting similar results in the literature. Participants who regularly do sports were divided into 3 different age groups, 18-24, 25-44 and 45-64, and their exercise addictions were examined; It was determined that the addiction levels of the people in the 45-64 age group were lower than the other groups, and the researchers thought that the reason for this situation might be due to the difference in the number of people in the groups (Costa et al., 2013).

When exercise addiction and education level are examined together; The total exercise scores of the participants with high school education and those with university education were significantly higher than the scores of the participants with graduate (master's/PhD) education. In different studies in the literature, there are many studies stating that exercise addiction does not differ according to education level. It has been observed that the levels of exercise addiction do not change according to the education level of people who exercise regularly (Yang et al., 2021). When the education levels of people who exercise regularly in Turkey and their exercise addiction status are examined together, it has been stated that there is no significant difference (Orhan et al., 2019). In addition to these studies, the addiction status of individuals who have exercised and not exercised for at least two years were examined; Considering exercise addiction in various participants at high school, university and graduate education levels; It was determined that the number of addict people was higher in the group with university-level education, and it was stated that this might

be due to the fact that people at this level allotted more time to exercise (Yeltepe, 2005). In the findings of our study, it is thought that the state of being less addict on people with postgraduate education may be due to the increased awareness with the level of education received and the ability to do exercise in a controlled manner.

The exercise addiction status of individuals was examined over their income levels. The total exercise scores of the participants with a monthly income level of 10 001 TL and above were significantly lower than whose monthly income is between minimum wage and 4000 TL, and those who do not have any monthly income. In addition, the total exercise scores of the participants with a monthly income level of 7001-10 001 TL were significantly lower than those who have an income equal to the minimum wage and do not have any monthly income. In the literature review, different findings were found from the results of the study. In a study on high-level athletes and exercise addiction, it was observed that the financial income levels of individuals did not differ according to their addiction status (Demirel and Cicioğlu, 2020). In a study examining students, it was reported that the financial income levels of the participants did not have an effect on addiction (Tekkurşun Demir and Türkel, 2019). Likewise, when the students are examined, it has been seen that the economic level of the families of the individuals does not have an effect on exercise addiction (Gün and Ağırbaş, 2019). To support the result of the study, there was no finding stating that people with low income levels have higher addiction levels than people with high income levels.

When the addiction scores obtained as a result of the study were examined together with the marital status factor; single participants' EAI total scores were significantly higher than the total scores of married and divorced/widowed participants. When the necessary literature review was made, it was seen that results were different from the findings of this study. It was determined that the status of being addicted to exercise in indoor cyclists did not differ significantly according to the marital status factor (Bueno-Antequera et al., 2020). When exercise dependence was examined in people who regularly do sports, it was concluded that there was no significant difference in addiction scores according to marital status (Orhan et al., 2019). However, in a different study examining people who do sports regularly in terms of exercise addiction, they found that addicted people were more common in the single group, similar to the finding of this study (Ergun and Guzel, 2018). It is stated that among the currently accepted diagnostic criteria for exercise addiction, there will be decreases in the social or occupational functions of the person due to addiction (Vardar, 2012). The exercise-addicted person can prepare the ground for these dysfunctions with the intense work he spends on exercise. Single people may have relatively less responsibility for their social environment compared to other people. Based on this situation, the probability of single participants to spend more time on exercise; suggests that being single may be a factor that may increase the likelihood of being addicted to exercise.

According to the results obtained when BMI and exercise addiction were examined together, it was determined that the exercise addiction status of the individuals did not show a significant difference according to BMI. In a study conducted on students to support this finding, it was observed that BMI did not differ significantly in individuals according to their addiction status (Gün and Ağırbaş, 2019). Likewise, when people who do and do not do sports were compared, no significant difference was observed according to BMI (Serier et al., 2018). In addition to studies in which there is no difference in BMI in terms of ad-

diction, there are also studies with different findings in the literature. It has been observed that as BMI increases in ultra-marathon runners, the exercise addiction score also increases (Allegre et al., 2007). In addition, when cyclists were examined, it was stated that the BMI levels of exercise addicts were lower than those of other individuals (Bardakçı et al., 2015). In another study, when obligatory exercise behavior was examined in female participants, it was observed that the BMI of those who exercised compulsively was lower (Smith et al., 2001).

When the association of EAI total scores with the place factor of the participants was examined, it was seen that there was no significant difference in the exercise scores of the people according to the place they lived. In the literature review, no study related to this subject was found, and in this respect, it is seen that the study will make a new contribution to the literature. It is thought that motivation is important in the formation of exercise addiction. It has been stated that addiction can be triggered by a person's high motivation for exercise (Çakır, 2019). Thanks to this motivation, addicted people are expected to be able to participate in the exercise without seeking any conditions. At this point, it seems possible that the advantages of the metropolitan city or the disadvantages of living in a town/village will not have an effect on addiction.

According to the findings of the study, it was observed that there was no significant difference between the participants' past or present receiving any psychiatric treatment and those who had never received any treatment in terms of exercise scores. In the literature review, no study was found related to this subject. Exercise addiction is divided into two as primary and secondary. In primary exercise addiction, exercise is displayed as a goal on its own (Veale, 1987), and this addiction is not thought to occur secondary to any other disease. In this context, it is understandable that the exercise addiction status of individuals does not differ significantly according to a psychiatric treatment history.

When the participants' EAI scores, smoking and smoking addiction variables were examined together; smoking and cigarette addiction status did not differ significantly from exercise addiction. When alcohol use and alcohol addiction status and exercise addiction are examined together, it is seen that people who quit alcohol and who never drink alcohol; It has been observed that people who use alcohol at a harmful level get significantly higher exercise scores than people who use alcohol at a risk-free level. In the literature review on the association between exercise addiction and smoking, different findings supporting the results of the study were found. In a study conducted on sports store customers, it was determined that cigarette smoking and cigarette addiction status of exercise addicts were not different from other individuals (Lejoyeux et al., 2012). It was concluded that there was no difference in smoking between addicted and non-addicted people in the group of participants who regularly do sports (Vardar et al., 2012). Likewise, it was determined that people who are addicted to bicycle drivers consume cigarettes similarly to other participants (Bardakçı et al., 2015). However, unlike the results of our study, there are findings that exercise addicts use less cigarettes and have lower levels of cigarette addiction. The researchers determined that addicted individuals consume less cigarettes and their nicotine addiction status is at the same level as other individuals; They attributed less smoking to addicted individuals being more concerned about their physical health and sports effort (Lejoyeux et al., 2008). When people who exercise regularly were examined, it was determined that

addicted individuals consumed less nicotine, and based on this situation, it was thought that intense exercise of individuals was aimed at countering smoking (Szabo et al., 2018).

In a study examining alcohol use and addiction and exercise addiction together, it was observed that alcohol addiction rates were higher in exercise addicts among individuals who shopped at sports stores (Lejoyeux et al., 2012). When exercise addiction on undergraduate students was examined, it was determined that addiction was related to alcohol use and alcohol-related problems; The reason for this was attributed to the fact that exercise is used as a method of reducing anxiety and that the same factor may also cause alcohol use, however, individuals reduce their negative emotions due to excessive use of alcohol by exercising excessively (Martin et al., 2008). In addition, in our study, the EAI scores of people who quit alcohol were significantly higher than those who drink and those who never drink alcohol. The reason for this is that people can use exercise as an auxiliary coping method in their alcohol cessation adventure. Regarding the difference between alcohol use and addiction and exercise addiction, some results that are different from the findings of the study were found in the literature. It has been observed that the alcohol use status of addicted individuals is not different from other individuals (Szabo et al., 2018).

When the correlation between exercise addiction and childhood traumatic experiences was examined, no significant correlation was found between the Exercise Addiction Inventory and Childhood Trauma Questionnaire subscales and total score. In the literature review, no findings related to this subject were found, and the findings obtained in this context are the first. However, there are studies examining the relationship between childhood traumas and different types of behavioral addictions. It has been demonstrated that childhood traumas have a significant effect on Internet gaming disorder in university students (Shi et al., 2020).

It has been stated that childhood negative experiences, especially violence and emotional abuse, are associated with compulsive buying behavior (Sansone et al., 2013). It was observed that the severity of childhood trauma was significantly higher in individuals with a diagnosis of gambling disorder compared to healthy individuals (Horak et al., 2020). There are few studies on the etiology of exercise addiction. Different researchers have put forward various views about the formation of addiction. It is suggested that there may be different biological mechanisms underlying exercise addiction (Veale, 1987; Thompson and Blanton, 1987; Thorén et al., 1990). At this point, it is possible that the biological factors, which are thought to have an effect on becoming exercise addict, may support the formation of addiction independently of the traumatic experiences of the person during his childhood. In addition to biological factors, it is thought that different sociocultural factors have an effect on exercise addiction. As a matter of fact, it is seen in various studies that the probability of addiction increases as the amount of time allocated for exercise increases (Polat and Şimşek, 2015; Uz and Bavlı, 2016; İlbak and Altun, 2020; Arslanoğlu et al., 2021). Exercise is seen as positive because of its protective effect against various diseases and the benefits it provides. For this reason, people may start exercising over time and gradually increase their participation in exercise due to the positive feedback they get, and this may cause addiction. The possibility of being addicted to exercise by exercising too much due to the positive gains the person has achieved can be seen as a reason for the relationship that cannot be found between negative childhood experiences and addiction. However, it

is thought that the relationship between exercise addiction and childhood traumas may emerge in different ways as the etiology of addiction becomes clear.

Limitations

The study conducted to examine the relationship between exercise addiction and childhood traumas has some limitations. The data collection process in the study occurred in the form of participants filling out online questionnaires through the www.humanations.org platform during the COVID-19 epidemic period. In addition, the sociodemographic characteristics of 935 people who participated in the study for the correlation between the two scales are not known. The prevalence of exercise addiction could not be determined for the people who participated in the study. However, the presence of primary or secondary exercise addiction was not determined in individuals, and the presence of an eating disorder, which is important for secondary exercise addiction, was not questioned. The type of exercise that the participants did and the time they spent on exercise are unknown. The Turkish validity and reliability study of the Exercise Addiction Inventory, which is used to detect exercise addiction, has not been conducted, and the questionnaire was translated into Turkish after obtaining permission from the people who designed it.

CONCLUSION

According to the results obtained from the study conducted to examine the relationship between exercise addiction and childhood traumas; No relationship was found between exercise addiction and childhood traumas. When different sociodemographic variables and exercise addiction are examined together the levels of exercise addiction were found to be higher in the former category than the latter category these are; male participants to female participants, younger participants to older participants, high school and university students to graduate students, single people to married or divorced/widowed people, people who no longer drink alcohol to those who never drink alcohol, people with a low income level to people with higher incomes, people who are harmful alcohol consumers to those who consume alcohol without risk. In addition, the variables of BMI, smoking, smoking addiction, place of residence, and having received psychiatric treatment do not differ significantly according to addiction status.

Exercise addiction is a concept that has an increasing importance and causes negative results by negatively affecting the daily functionality of individuals. It is important to identify people with addiction and to provide appropriate treatment for these people, for which the etiology and risk factors of addiction should be understood. For this reason, it is important to carry out different studies on the concept. Particularly, the distinction between primary and secondary exercise addiction and the presence of eating disorders accompanying secondary exercise addiction is an important point. In addition, it is recommended to examine the relationship between primary and secondary exercise addictions and childhood traumas separately.

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