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The Relationship of Narcissistic Symptoms with Exercise Behavior in Young People

Gençlerde Narsistik Belirtilerin Egzersiz Davranışı ile İlişkisi

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Abstract: Objective: The aim of this study is to examine the relationship between narcissistic symptoms and exercise behavior in young people. Methods: This study is a cross-sectional study conducted on a sample of university students. 108 associate degree university students participated in the study. Narcissistic Personality Inventory was used to assess narcissistic tendencies in the study, and Exercise Behavior Change Stage Questionnaire was used to assess the exercise behavior change stage. SPSS 25 program, Independent Groups t Test and Pearson Correlation Analysis were used to evaluate the study findings. Results: Narcissistic tendencies were found to be statistically significantly higher in second graders than in first graders (p=0.05). It was found that the application levels of those who attach importance to health news were high, and the application level of health news was positively correlated with exercise behavior tendencies. It can be said that the higher the narcissistic tendency level, the higher the exercise behavior. In addition, it was seen that narcissistic tendencies were statistically significantly positively and moderately correlated with the exercise behavior change stage (p=0.001, r=0.303). Conclusion: It can be said that the tendency to exercise is higher in university students with high narcissistic tendencies and that narcissistic tendencies are higher in university students with high tendency to exercise. Personality traits may be effective on exercise decisions.
Keywords: Exercise behavior stages, Exercise addiction, Mental disorders, Narcissism, University students.

Öz: Amaç: Bu çalışmanın amacı gençlerde narsistik belirtilerin egzersiz davranışı ile olan ilişkisini incelemektir. Gereç ve Yöntem: Bu çalışma kesitsel bir çalışma olup, üniversite öğrencileri örnekleminde gerçekleştirilmiştir. Çalışmaya 108 ön lisans üniversite öğrencisi katılmıştır. Çalışmada narsistik eğilimi değerlendirmek amacıyla Narsistik Kişilik Envanteri, egzersiz davranış değişikliği basamağını değerlendirmek amacıyla ise Egzersiz Davranışı Değişim Aşaması Anketi kullanılmıştır. Çalışma bulgularını değerlendirmek için SPSS 25 programı, Bağımsız Gruplarda t Testi ve Pearson Korelasyon Analizi kullanılmıştır. Bulgular: Narsistik eğilimlerin ikinci sınıflarda birinci sınıflardan istatistiksel olarak anlamlı düzeyde daha yüksek olduğu (p=0,05) bulunmuştur. Sağlık haberlerine önem verenlerin uygulama düzeylerinin yüksek olduğu, sağlık haberlerinin uygulama düzeyinin egzersiz davranış eğilimleriyle pozitif korelasyon bulunmuştur. Narsistik eğilim düzeyi ne kadar yüksekse egzersiz davranışının da o kadar yüksek olduğu söylenebilir. Ayrıca narsistik eğilimlerin egzersiz davranışı değişim basamağı ile istatistiksel olarak anlamlı düzeyde, pozitif-çift yönlü ve orta etki düzeyinde ilişkili olduğu görülmüştür (p=0,001 r=0,303). Sonuç: Narsistik eğilimleri yüksek olan üniversite öğrencilerinde egzersiz eğiliminin yükseldiği ve egzersiz yapma eğilimi yüksek olan üniversite öğrencilerinde narsistik eğilimlerin yüksek olduğu söylenebilir. Kişilik özellikleri egzersiz kararlarında etkili olabilir.
Anahtar Kelimeler: Egzersiz bağımlılığı, Egzersiz davranış basamağı, Mental bozukluklar, Narsisizm, Üniversite öğrencileri.

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Introduction

Narcissism has become a popular topic that is frequently talked about in daily life as well as being a subject frequently studied by researchers. Narcissism is known as one of the 12 personality disorders described in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). The word has its origin in the story of Narcissus, the hero of a story. In the story, Narcissus falls in love with his reflection in the water one day and does not want to leave the water's edge even to have a meal. Finally, while trying to reach his own reflection, he falls into the water and drowns (İlkay, 2012; Dorland, 1986).

Although narcissism was first defined in 1980, later definitions are more comprehensive and explanatory. Narcissistic individuals have been characterized as individuals who desire unlimited power and success, who want to be proud and constantly admired, who think that they can be understood by special people, who desire unlimited beauty, who constantly have impulses that they deserve better, who use others for their own gain, who have poor empathy skills, who are disrespectful towards others, who show self-righteous attitudes, and the presence of 5 or more of these characteristics in a person is considered sufficient for the diagnosis of narcissism (APA, 2013). While studies on the behaviors of narcissistic individuals have increased recently, exercise tendencies and exercise addiction in the field of physiotherapy attract attention (Uçar et al., 2021; Wojtyna et al., 2020; Altunhan et al., 2021).

Exercise refers to planned, structured and repetitive physical activities that aim to improve or maintain some aspects of physical fitness (Bruno et al., 2014). Exercise improves both physical and mental health. This supports the idea that everyone should do at least some exercises in their lives (Bay, 2021; Hillman et al., 2008). In today's societies, many people have made exercise an important part of their daily lives and the number of people who take regular exercise seriously for a healthy life is increasing day by day (Ackvard et al., 2022). Although exercise is generally seen as a positive behavior due to its physical, physiological and psychological benefits, there have been increasing publications that excessive physical activity can also cause negative effects such as exercise addiction (Arslanoğlu et al., 2021; Tekkurşun and Türkeli, 2019). Exercise addiction, which is described as the “dark side” of exercise and negatively affects human health, has recently been addressed by many researchers (Cingöz et al., 2022; Demirel and Cicioğlu, 2020; Katra, 2021).

Exercise addiction is defined as exercise getting out of one's control, continuously increasing the duration, frequency and intensity of exercise to achieve the desired effect at the end of exercise, not being able to spare time for friends and family due to the excessive stress

of exercise, not being able to give up exercise, preferring to exercise instead of participating in social activities, and reorganizing one's life around exercise habits (Zmijewski and Howard, 2003). The cause of exercise addiction remains unclear. However, various psychophysiological explanations such as endorphin production have been suggested. According to the results of studies on exercise addiction in the literature, its prevalence in the general population is estimated to be close to 3% (İlbak and Altun, 2020). It has been stated that exercise addiction in university students is associated with personality traits and the possibility of exercise habit turning into addiction increases with age (Metin et al., 2023).

Studies on exercise addiction are especially related to the tendency to exercise excessively in athletes. Studies have reported that exercise addiction can be triggered in athletes with narcissistic tendencies or in those with narcissistic tendencies among regular exercisers (Uçar et al., 2021 Wojtyna et al., 2020 Altunhan et al., 2021).

Exercise can improve physical appearance and mediate a sense of competition. The harmful consequences of exercise addiction suggest that it is important to identify some of the risk factors that can lead to addiction (Grapsas et al. One possible risk factor for exercise addiction is narcissism (Grapsas et al., 2020; Krizan and Herlache, 2018; Miller et al., 2017). There are publications that narcissistic individuals want to be admired around them and may use exercise as a tool to achieve this need (Miller and Mesagno, 2014; Bircher et al., 2017, Wojtyna et al., 2020). Zeigler-Hill et al. (2021) examined the subheadings of narcissism and exercise addiction and observed positive relationships between narcissistic sub-aspects and exercise addiction (Zeigler-Hill et al. 2021). Cook et al. (2020) stated that narcissism and extroversion may be the underlying causes of exercise addiction (Cook et al., 2020).

Health literacy is the ability to access, understand, analyze, evaluate and convey health messages in written, oral or visual structures (internet, newspaper, radio, television etc.). In the evaluation of health news in the context of critical media health literacy, it can be said that it is based on the view that individuals need to have certain thinking skills in order to critically read the health messages given by the media in order to direct them to consumption. Regarding media health literacy, Wharf Higgins and Begoray (2012), who accept that new intervention channels should be developed and implemented for the promotion and development of health, which includes the application of critical thinking, developed the concept of critical media health literacy. In this sense, it is very important for individuals to care about health news and to evaluate the news they read and hear about health in terms of their applications.

There have been studies of exercise addiction in people with narcissistic traits. However, the relationship between these symptoms and exercise propensity at baseline is unclear. This study aims to fill this gap in the literature. For this purpose, the relationship between the level of narcissistic tendency that may be present in university students and the scores of exercise behavior stages was evaluated. In this context, this study aimed to answer the question "Are individuals' narcissistic tendency related to their exercise tendencies?

Methods

To conduct this research, the necessary permissions were obtained from University Health Sciences Ethics Committee with the decision.

Participation in this study was voluntary and participants signed informed consent before completing the questionnaires. The ethical rules specified in the Declaration of Helsinki were followed in the study. The study included volunteer, 1st and 2nd year undergraduate students of the Therapy and Rehabilitation Department, aged between 18-30, who did not have any communication problems. Individuals with a history of cardiopulmonary, orthopedic, rheumatic, neurological or metabolic diseases were excluded from the study.

Sample size was calculated using G*power 3.1.9.2 (effect size d = 0.5, $\alpha = 0.05$, power = 0.8) (Cingöz et al., 2022). The total sample size needed was more than 90 because the dropout rate was estimated to be 20.0% (Campbell and Machin, 1993). Therefore, a total of 108 students, 54 from the first grade and 54 from the second grade, participated in the study.

Relational survey 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 determines the current problem, the situations and variables faced with this problem and the relationships between the variables. The descriptive model is a research approach that aims to describe a past or present 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 influenced, changed or transformed in any way**.** Whatever is desired to be known is tried to be obtained (Karasar, 2023).

In the study, the Narcissistic Personality Inventory was used to assess narcissistic tendency, and the Stage of Exercise Behavior Change Questionnaire was used to assess the exercise behavior change step.

Narcissistic Personality Inventory: Developed in 2005 by Daniel R. Ames, Paul Rose and Cameron P. Anderson. The scale was adapted into Turkish, and its validity and reliability study

were conducted by Salim Atay (2009). In order to determine the validity of the inventory, factor analysis was applied and as a result of the factor analysis, it was seen that the questions were distributed into 6 factors: Exhibitionism, Superiority, Authority, Entitlement, Exploitation, and Self-admiration (Atay, 2009). As the total score of the scale increases, the narcissistic symptom level of the participant also increases (Atay, 2009).

Stage of Exercise Behavior Change Questionnaire: It was used to determine exercise behavior. Marcus et al. (1992) used the Stage of Exercise Behavior Change Questionnaire to assess exercise status change (Marcus, 1992). Consisting of 4 questions, the Stage of Exercise Behavior Change Questionnaire enables to determine the participant's intention to exercise and the step of change in exercise behavior. In their study conducted in 2010, Cengiz et al. (2010) tested the validity of the Stage of Exercise Behavior Change Questionnaire. The test-retest reliability of the Stage of Exercise Behavior Change Questionnaire administered at two-week intervals was found to be r=0.80. They stated that the Stage of Exercise Behavior Change Questionnaire can be said to be a valid and reliable tool in determining the exercise behavior stage of university students (Cengiz, 2010).

Evaluation of the Importance and Implementation of Health News: In order to evaluate the importance people have for health news and the information they put into practice the news they read and hear about health, the "Importance and Application of Health News Evaluation" study was conducted. Participants' evaluation of the importance and application of health news was evaluated with 2 questions. Participants were asked to answer the questions “How much do you care about health-related news?” and “How much do you apply the news you read and hear about health?” using the Visual Analog Scale (VAS). For the VAS, 0=never care/never apply, 10=extremely care/extremely apply, and the participant was asked to choose between 0 and 10.

SPSS 25 package program was used for data analysis. It was evaluated whether the data were normally distributed, and parametric tests were used since the normality assumption was met. Independent Groups t Test was used to evaluate the narcissistic tendency in different classes (1st and 2nd grade) and Pearson Correlation Analysis was used to evaluate the relationship between narcissistic tendency and exercise change step in all participants.

Results

This study was conducted to evaluate the relationship between the tendency for narcissistic behavior and exercise behavior in university students. A total of 108 university

students participated in the study. Of the students, 83 were female and 25 were male. It was observed that 20 of the participants had never thought of exercising, 39 of them had the contemplation to start (short-term or long-term), and 49 of them had been exercising regularly for a while (short-term or long-term) (Table 1). It was observed that 32 of the participants had a smoking habit.

Table 1: Demographic Data of the Participants

Demographic Data	**n**	**Mean±Standard Deviation**
Age	108	19.842± 2.970
Height	108	165.638± 8.320
Weight	108	60.379± 11.302
Stage Of Exercise Behavior Change	**n**	**%**
Precontemplation	20	%18.5
Contemplation	21	%19.5
Preparation	28	%25.9
Action	15	%13.9
Maintenance	24	%22.2
Gender	**n**	**%**
Female	83	%76.9
Male	25	%23.1
Grade levels	**n**	**%**
First Grade	54	%50
Second Grade	54	%50

In the study, it was observed that the exercise behavior step of the first and second grades was not statistically significantly different, but the narcissistic tendency showed a statistically significant difference between the two grade levels. According to the results of the analysis, it can be said that the narcissistic tendency in the second grades is higher than the first grades and this difference is statistically significant (Table 2).

Table 2: Comparison of Stage of Exercise Behavior Change Questionnaire Score and Narcissistic Tendency Score of Participants in Different Grade Levels

	Grade levels	**n**	**Mean**	**Standard Deviation**	**t**	**df**	***p***
Stage Of Exercise Behavior Change	First Grade	54	2.981	1.485	-0.272	106.000	0.786
	Second Grade	54	3.055	1.337		104.854	
Narcissistic Symptom Score	First Grade	54	5.870	3.273	-1.979	106.000	0.050
	Second Grade	54	7.055	2.942		104.814	

df. degrees of freedom t: t value p: p value of t test

In the study, the participants were questioned about their level of importance and implementation of health-related news. It was observed that those who cared about health-related news also had high levels of implementation, and the level of implementation of health-related news was positively correlated with exercise behavior tendencies (Table 3).

Table 3: The Relationship Between the Level of Interest in and Application of Health News and The Level of Stage of Exercise Behavior Change Questionnaire Score and Narcissistic Tendency Score

	Pearson Correlation Analysis	Importance of health-related news	Implementation of health-related news	Stage of Exercise Behavior Change	Narcissistic Symptom Score
Importance of health-related news	**Correlation Coefficient (R)**	1	0.574	0.248 (low impact)	0.078
	p	-	0.000	0.010	0.424
	n	108	108	108	108
Implementation of health-related news	**Correlation Coefficient (R)**	0.574 (medium impact)	1	0.393 (medium impact)	0.156
	p	0.000	-	0.000	0.107
	n	108	108	108	108

The correlation is significant at the 0.01 level (2-tail)

When the relationship between narcissistic tendency and exercise behavior step was evaluated in the study, it was seen that there was a statistically significant, positive, bidirectional and moderate effect level relationship between them. It can be said that the higher the level of narcissistic tendency, the higher the level of exercise behavior (Table 4).

Table 4: The Relationship Between Participants' Level of Narcissistic Tendency and Stage of Exercise Behavior Change

	Pearson Correlation Analysis	Stage Of Exercise Behavior Change
Narcissistic Symptom Score	**Correlation Coefficient (R)**	.303 (Medium Impact Level)
	p	0.001
	n	108

The correlation is significant at the 0.01 level (2-tail)

In the study, it was observed that 39 of the participants remained at the stage of thinking about exercise (contemplation and preparation stage), while 49 of them had been exercising regularly for some time (implementation and maintenance stage). In terms of narcissistic tendency, when those who thought about exercise and those who practiced exercise were compared, it was seen that the narcissistic tendencies of those who practiced exercise were statistically significantly higher than those who thought about it (Table 5).

Table 5: Comparison of Narcissistic Levels of Participants Who Plan to Exercise and Those Who Exercise

Exercise Status	n	Mean	Standard deviation	t	df	*p*
Those Considering Exercise	49	5.632	2.969	-3.265	86	0.002
Exercisers	39	7.743	3.066			

df: Degrees of freedom t: t value p: p value of t test p<0.005

Discussion

In this study, the participants' exercise tendency (stage of exercise behavior change) and narcissistic symptom level were mainly questioned. When the exercise change stage of the participants was observed, it was seen that 18.5% were in the precontemplation stage, 19.4% in the contemplation stage, 25.9% in the action stage, 13% in the preparation stage, and 22% in the maintenance stage. A statistically significant relationship was found between the measured narcissistic tendency score and the stage of exercise change in the participants. This relationship is positive and bidirectional.

When the grade differences of the participants were evaluated, it was seen that the narcissistic tendency level of the second-grade students was higher than the first-grade students. However, the exercise behavior change stage was not found to be related to grade level. In addition, it was observed that individuals who care about health-related news have a higher level of applying what they have learned, and individuals with a high level of applying health-related information have a high level of exercise tendency.

In this study, the rate of participants who did not yet exercise regularly was calculated as 63.3%. Looking at studies in similar populations, Elezim et al. (2020) reported this rate to be over 67% and Wallace and Janet Buckworth reported it to be 67.3%. In addition, in this study, when the individuals who have been doing exercise for a short time and for a long time were evaluated, it was seen that 13% (regularly active <6 months) in phase and 22% (regularly >6 months) in the maintenance phase. Elezim et al. (2020) reported this rate as 17.6% for the intervention phase and 14.9% for the maintenance phase, while Wallace and Janet Buckworth reported 11.7% for the intervention phase and 20.9% for the maintenance phase (Elezim et al. 2020, Kim et al., 2021). It was observed that the rates in the reported studies were like those in this study.

This study was inspired by the relationship between narcissistic tendency and exercise addiction, which was previously tried to be measured in athletes and individuals who exercise regularly. However, the population was university students, and it was interpreted that only the character trait could increase the tendency. However, we can say that as the narcissistic symptoms increase, the desire to exercise increases in individuals, they feel that they can start exercising more recently and the tendency to exercise is higher than the average. As a different population, it was similarly observed that the risk of exercise addiction increased as narcissistic scores increased among athletes and exercisers (Uçar et al., 2021 Wojtyna et al., 2020 Altunhan et al., 2021). It is currently unclear whether narcissistic symptoms will increase in the future or

whether a condition such as exercise addiction will develop in the measured individuals.

In this study, it was also observed that the level of narcissistic tendency was different in individuals who exercised regularly and those who did not. Although exercise habit is a positive behavior that is desired to be popularized in societies, its positive effects on self-confidence may increase the measured narcissistic tendency scores. This raises the question: "Is a society that exercises more likely to be a society with higher narcissistic tendencies?". This question can be resolved by clarifying the boundaries of narcissism and distinguishing narcissistic and non-narcissistic individuals more clearly.

In this study, the fact that the increase in narcissistic symptoms in individuals leads individuals to exercise can be explained by the feelings that narcissistic individuals feel more intensely, such as the importance of appearance, the desire to be liked, the feeling of competition, the desire for approval, admiration, and the desire to be the center of attention (Zeigler-Hill et al., 2019, Alperen, 2017, Cook et al., 2018). These symptoms can be seen as harmless for today. However, there is a need for more studies on how they will evolve in the future.

In this study, the change in narcissistic symptoms between the classes and the increase in narcissistic tendency in the second grade can be associated with self-confidence. While first-grade students had a new experience of living outside the city and university life, second-year students adapted to a new city and university environment in the process. This can be explained by the high self-confidence of 2nd graders and the relationship between self-confidence and narcissism (Gürsu and Apaydın, 2016). Although narcissistic symptoms changed between classes, the fact that the tendency to exercise did not change shows that narcissistic symptoms are a factor in the tendency to exercise regardless of the class.

There are studies examining the relationship between exercise addiction and personality in the literature (Hausenblas and Giacobbi, 2004; Costa and Oliva, 2012; Kem, 2009; Lichtenstein et al., 2014, Metin et al., 2023, Cook et al., 2020, Sousa 2024). In Hausenblas and Giacobbi's (2004) study 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 (Hausenblas and Giacobbi, 2004). In Costa and Oliva's study on gym users, it was reported that narcissistic tendency had a positive relationship with all sub-dimensions of personality (Costa and Oliva, 2012). In Kern's study 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 (Kern, 2009). Metin et al. (2023) found that personality was a factor in determining 18% exercise addiction, while Cook et al. (Metin et al., 2023, Cook et al., 2018). Sousa, with a different perspective, stated that different personality types are associated with parameters such as whether exercise is performed alone or with a group, different intensity and type (Sousa, 2024).

The limitation of the study is that we rely only on self-report instruments. The use of questionnaires only is an important limitation of the study. These methods run the risk of skewed responses, especially in the context of addiction and self-image research. The factor of social approval and better self-image may influence the results. It would be useful for future research on narcissism and exercise to avoid relying solely on self-report instruments.

This study supports previous studies in one aspect and showed that some personal conditions (narcissistic symptoms) may be related to exercise tendency. With a larger sample, the determinant power of narcissistic traits on exercise change steps can be evaluated. Personality traits may be effective on exercise decisions. For this study, it may be possible to determine at which stage the bidirectional positive relationship between narcissism and exercise becomes pathological or to determine a possible threshold value in future studies. Understanding these situations may be useful for exercise trainers when directing people to exercise.

Conclusions

In conclusion, in the light of the results of this study, it can be said that there is a relationship between narcissistic tendency and exercise tendencies in university students. In the future, this issue can be further elucidated by conducting studies on how personality traits or narcissistic tendencies affect beliefs about exercise. Long-term studies can be developed to collect data on psychological and mental health through exercise decisions. It may inspire studies on the social dimensions of exercise decisions or exercise habits.

Ethical Statement: The study was approved by the Süleyman Demirel University Faculty of Medicine Clinical Research Ethics Committee (Number: 77, Decision No: 7, Date: 03.07.2024).

Conflict of interest: No conflict of interest was declared by the authors.

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