

THE EFFECT OF EXERCISE DEPENDENCE AND NARCISSISM COMPONENTS ON EATING DISORDERS IN MEN BODYBUILDERS

Solmaz Babaei^{B, C, D, E}

Department of Sport Sciences, Faculty of Humanities, University of Maragheh, Maragheh, Iran
ORCID: 0000-0003-0185-7850

Leily Alizadeh^{A, B, C, D}

Department of Sport Sciences, Faculty of Education and Psychology, Azarbaijan Shahid Madani University, Tabriz, Iran
ORCID: 0000-0001-5264-8253

Akram Amaghani^{B, C, D, E}

Department of Sport Sciences, Tabriz University of Medical Sciences, Tabriz, Iran
ORCID: 0000-0001-6466-5448

Bahram Jamali Gharakhanlou^{*A, B, C, D, E}

Nutrition Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
ORCID: 0000-0002-3138-273X | e-mail: jamali.bahram1980@gmail.com

^A Study Design; ^B Data Collection; ^C Statistical Analysis; ^D Manuscript preparation; ^E Funds Collection

Abstract Physical activity is considered a healthy behavior as lifestyle component that can prevent chronic disease and attributed to numerous psychological and physical benefits. The purpose of this study was to investigate the effect of exercise dependence and narcissism components on eating disorders in male bodybuilders.

The study was a correlational study and the statistical population consisted of male bodybuilders in city clubs with more than one year of continuous training of at least three sessions a week. 250 male bodybuilders were selected by cluster sampling. The research tool consisted of three questionnaires: narcissistic personality, exercise dependency and eating disorders. For data analysis correlation and regression tests were performed by SPSS version 21 and p-value less than 0.05 was considered as significant.

The results showed that addiction to exercise and narcissism and their components had a significant positive relationship with eating disorders (all P-values < 0.01). Regression models revealed that exercise dependence and narcissism were able to predict 46% of variance in eating disorder ($p < 0.01$).

According to the data, nutritional behaviors can be promoted by improving narcissistic tendencies and dependency on exercise.

Keywords bodybuilding, exercise dependence, eating disorders, narcissism

Introduction

The prevalence of eating disorders (EDs) and its consequences such as lack of self-confidence, depression and physical dissatisfaction has increased significantly over the past years (Stice, 2002). Different researches show that EDs are associated with a set of dysfunctional attitudes. Recently, it has been identified that exercise dependence play an important role in association between exercise and ED (Bratland Sanda, 2011). While the benefits of continued participation in physical activity are widely accepted, in some cases, physical activity can lead to adverse psychological outcomes. Exercise and physical activity have many physical and psychological benefits. However, excessive physical activity can have negative consequences and may be related to exercise. Exercise dependence is a tendency to intense physical activity that results in physiological (over-injury, endurance) and negative psychological symptoms (particularly when unable to exercise) (Lejoyeux, 2008).

Sachs (1981) defines dependence and addiction to exercise as a type of psychological and physiological dependence on regular exercise, with symptoms characterized by 24 to 36 hours of indeterminacy. Symptoms include anxiety, restlessness, sense of guilt, irritability, tension and discomfort, as well as apathy, laziness, loss of appetite, insomnia and headaches. The incidence of these symptoms is important in determining the presence and severity of exercise addiction (Sachs, 1981). Researches around the world confirm that athletes can depend on exercise for a variety of reasons (Sachs, 1981). Costa and Oliva (2012) reported that there was a significant relationship between exercise dependence and some personality traits, while extraversion, neuroticism, and adaptation could potentially be the underlying factors in determining the cause of exercise dependence. These results may be relevant for the possible diagnosis of individuals at risk for exercise-related behavior disorder (Costa, 2012). In the last few decades, young adults and adolescents paid increasing attention to improve the appearance of their body especially by growing muscle mass. This tendency in bodybuilders, who spend most of their time in fitness centers, have caused several mental related disorders (Costa, 2012).

Brosf, Williams and Levinson (2019) studied the exercise dependence contribution to ED symptoms and they found that withdrawal, tolerance, and time significantly affected ED symptoms. They reported that lack of control, withdrawal and time, positively predicted ED symptoms, when adjusting for baseline symptoms and negative affect (Brosf, 2019). Scharmer et al. (2019) suggested that compulsive qualities of exercise in order to control shape and weight are strongly associated with severity of ED pathology (Scharmer, 2019). Therefore, understanding the etiology of this relationship can be helpful in treatment of EDs and also identifying those who are most at risk.

Another important benefit of exercise is its potential in increasing self-esteem. A person's scientific, social, emotional, and physical satisfaction is referred to as self-worth (Fox, 1997). Despite a variety of healthy outcomes, self-worth can be overwhelming, which usually manifests itself in a form of narcissism. Exercise and sport may be mediators of narcissistic goals that lead to increased focus on appearance (Davis, 1992). Narcissistic individuals have traits such as persistent narcissism, fantasizing about unlimited success, power or beauty, and the urge to be exhibitionist for being admired (SHafiee, 2011). People with EDs often exhibit symptoms of narcissistic traits (Yarock, 1993). Campbell and Waller (2010) in their study on narcissistic characteristics and ED behaviors in women, demonstrated that there was a significant positive relationship between over-exercise and narcissism and there was also a multidimensional relationship between eating disorder behaviors and specific aspects of narcissism (Campbell, 2010). The results of Sivanathan et al. (2019) study suggested that grandiose narcissism was not associated with ED pathology, when vulnerable narcissism was controlled. However, parental invalidation had a positive indirect effect with ED pathology, via vulnerable narcissism which seems to have stronger association with

ED than grandiose narcissism (Sivanathan, 2019). In a pilot study, Jackson et al. (1992) examined the relationship between narcissism and body image in 307 undergraduate students. They showed that narcissistic individuals pay more attention to their appearance and fitness and therefore, are more involved in behaviors related to appearance and fitness (e.g., diet and exercise) (Jackson, 1999). Alizadeh et al. (2015) reported that body composition and physical conditions of both types of narcissism had a significant relationship with body perception (Alizadeh, 2015). Since regular exercise is very common in athletes, it seems reasonable that athletes may exhibit higher narcissistic behaviors (Alizadeh, 2015).

ED has been associated with negative psychological consequences and recognizing negative outcomes will provide a framework for future investigations of narcissism and exercise dependence components. Moreover, considering the lack of studies in this context, this study aimed to investigate the effect of exercise dependence and narcissism on EDs in male bodybuilders.

Materials and methods

250 male bodybuilders were randomly selected from city clubs (Urmia, Iran), through multistage cluster sampling. The included athletes have been training continuously through last year and at least three sessions per week. The mean age of the subjects was 26.8 years with a standard deviation of 5.94. Three questionnaires were used for data collection:

Narcissistic personality questionnaire: The current form of the narcissistic personality questionnaire has 40 questions and assesses the six components of authority, superiority, exploitativeness, legitimacy, self-sufficiency and self-esteem. This questionnaire was developed by Raskin and Hall in 1979 and using the split-half method, a reliability coefficient of 0.80 was reported. The Persian version of this questionnaire is narcissistic personality inventory (NPI)-40 that is validated in different studies (Raskin, 1997). Each question contains two-choice which is given a score and respondents chose one of two that is close to their characteristics. The sum-score above 20 indicates the narcissistic personality aspect.

Exercise dependence scale 21 questionnaire: The questionnaire was developed by Hausenblas and Downs (2002) and contains 21 questions, which are scored on a six-point Likert scale (one = never to six = always) (Hausenblas, 2002). A higher score indicates symptoms of exercise dependence and is manifested by observing at least three or more of the seven components. The validity and reliability of this tool had been evaluated in numerous studies. In the present study, the reliability coefficient of this scale was 92% using Cronbach's alpha. The results obtained from confirmatory factor analysis (goodness of fit index (GFI) = 0.9, adjusted goodness of fit index = 0.78 and root mean square error of approximation (RMSEA) = 0.74) indicate that the model fits well with the data. The results also showed that sample size was sufficient for factor analysis.

Eating disorder questionnaire: Eating attitude test EAT-26 items has been widely used as a self-assessment screening tool for eating-related attitudes and behaviors and has been proven to be effective in identifying neuropsychiatric anorexia and overeating (Garner, 1989). Each item of the questionnaire is graded on a six-point scale (always, often, usually, sometimes, rarely and never), while always, often and usually are scored three, two and one and the remaining three options (sometimes, rarely, and never) are scored zero. The screening score is derived from the sum of the scores, therefore, the EAT-26 score can range from zero to 78 and score 20 and above is considered as cut-off point. Nobakht (1998) had examined the content validity and reliability and calculated reliability coefficient using Pearson's correlation coefficient. According to their results, the correlation coefficient

between the scores obtained from the two stages of this questionnaire was 0.91 in the study group, indicating a desirable reliability (Nobakht, 1998).

Data analysis was performed using descriptive and inferential indices including mean and standard deviation, correlation coefficient and multivariate regression by SPSS 22 software (SPSS Inc., Chicago, Illinois, USA) and p-value less than 0.05 was considered as significant.

Theory/calculation

Researches indicate that ED is associated with numerous consequences and negative outcomes that affects narcissism and exercise dependency in athletes. Regarding the lack of studies in this context, this study aimed to investigate the effect of exercise dependence and narcissism on EDs in men bodybuilders to take the necessary precautions for preventing nutritional or personality problems.

Results

Descriptive indices (mean and standard deviation) of research variables are presented in Table 1. Among the components of exercise dependency, withdrawal and intention had the highest and lowest mean 22.99 ± 3.06 and 19.31 ± 3.20 respectively. Among the components of narcissism, authority has the highest mean (4.56 ± 1.89) and vanity has the lowest mean (0.91 ± 0.74). In addition, dieting had the highest mean (24.26 ± 4.35) and oral control had the lowest mean ($16/38 \pm 3.32$) among the components of ED.

Pearson correlation coefficient was used to examine the relationship between the components of exercise dependence, narcissism and ED in the participants. As presented in Table 2, dependence on exercise and its components have a significant positive relationship with ED, and its components ($P < 0.01$). Narcissism and its components had a significant positive relationship with ED components ($P < 0.01$).

Table 1. Descriptive indicators of the components of exercise dependence, narcissism, and EDs in the subjects

Variable	Component	Mean	Standard deviation
Exercise dependence	Withdrawal	22.99	3.06
	Continuance	19.34	3.36
	Tolerance	21.38	3.65
	Lack of control	21.32	4.38
	Reduction in other activities	20.05	4.46
	Time	21.36	3.31
	Intention effect	19.31	3.20
Narcissism	Authority	4.56	1.89
	Exhibitionism	1.38	1.26
	Superiority	1.74	1.27
	Exploitativeness	1.76	1.31
	Entitlement	2.48	1.54
	Self-Sufficiency	1.89	1.74
Eating disorder	Vanity	0.91	0.74
	Dieting	24.26	4.35
	Bulimia	19.36	3.38
	Oral control	16.38	3.32

Table 2. Correlation coefficients of the components of exercise dependence and narcissism with ED in the subjects (* p < 0.001)

Variable	Dieting	Bulimia	Oral control
Withdrawal	0.453*	0.426*	0.540*
Continuance	0.523*	0.424*	0.420*
Tolerance	0.562*	0.386*	0.459*
Lack of control	0.520*	0.487*	0.443*
Reduction in other activities	0.623*	0.445*	0.474*
Time	0.470*	0.433*	0.462*
Intention effect	0.562*	0.452*	0.421*
Authority	0.428*	0.530*	0.482*
Exhibitionism	0.436*	0.518*	0.442*
Superiority	0.426*	0.450*	0.371*
Exploitativeness	0.378*	0.430*	0.318*
Entitlement	0.375*	0.356*	0.424*
Self-Sufficiency	0.562*	0.521*	0.620*
Vanity	0.412*	0.516*	0.467*

Table 3. Summary of results of multivariate regression analysis of exercise dependence, narcissism and their components in research subjects

Predictive variable	B	β	T	Level of Significance	R	R ²	F	Level of Significance
Withdrawal	0.290	0.180	3.826	0.0200				
Continuance	0.118	0.085	1.648	0.0010				
Tolerance	0.654	0.386	8.378	0.0010	0.68	0.462	52.64	0.0001
Lack of control	0.122	0.086	1.645	0.0100				
Reduction in other activities	0.280	0.175	3.864	0.0010				
Time	0.310	0.186	3.445	0.0010				
Intention effect	0.415	0.216	3.946	0.0001				
Authority	0.360	0.189	3.322	0.0010				
Exhibitionism	0.116	0.079	1.623	0.0010				
Superiority	0.385	0.217	3.952	0.0001				
Exploitativeness	0.125	0.086	1.648	0.0100				
Entitlement	0.389	0.207	4.450	0.0001				
Self-Sufficiency	0.346	0.235	5.324	0.0030				
Vanity	0.250	0.172	3.853	0.0001				

Multivariate correlations were used to investigate the predictive role of exercise dependence and narcissism in ED. The minimum and maximum beta (β) values were significantly related to the components of exhibitionism ($\beta = 0.079, P = 0.001$) and tolerance ($\beta = 0.386, P = 0.001$) respectively (Table 3). Other components reported in the table explain 46% of the variance in ED ($P < 0.01$).

Discussion

The aim of this study was to investigate the effect of exercise dependence and narcissism components on EDs in male bodybuilders. The results demonstrated that, dependence on exercise and narcissism and their components are associated with ED prognosis. These results are correlated with previous studies by Campbell et al. (2010), Costa, Oliva (2012), Cook et al. (2015). In a research in 2002, Penas, Leal, Waller stated that there is a significant relationship between excessive exercise and a wide range of narcissistic traits and exercise can affect EDs. In western culture, generally being thin is considered advantageous (Penas-Lledó, 2002), therefore, when narcissistic individuals engage in a self-defense activity that increase their self-confidence, it will likely be an over-focus on body and physical appearance (Kohut, 2013). Such a defensive process is similar to the cognitive process of compensatory schemas, which is related to the underlying features of EDs (Young, 1994).

In individual with elements of narcissism, it can be assumed that, they intend to deal with the threatening factors of self-confidence through exercise (e.g., criticism and negative emotions) and enhances self-confidence by improving appearance (Campbell, 2010). People who attend the clubs are usually very dissatisfied with their appearance and tend to do more work out (Choi, 2002). This may be an effector in the ED itself, in accordance with findings of present study. Lipsey et al. (2006), also reported that the relationship between exercise and EDs in non-athletes with EDs was clinically less than elite athletes. For example, unprofessional athletes, in particular high school students, have a lower risk of EDs than their athletic peers. Indeed, if participants in the exercise are unaware of their body weight, it may be difficult to assess the potential risks or protective nature of participating in the exercise (Lipsey, 2006).

It can be concluded that in societies where people are exposed to social, cultural and media pressures on beauty and fitness, various kinds of ideal beauty and body shape criteria are becoming more prevalent which lead to a constant self-evaluation and misjudgment of the body. Therefore, to relieve this constant concern, one resorts to body management behaviors such as diet, medical manipulation or exercise. These coping behaviors may also lead to negative psychological consequences, such as EDs.

Recent studies have shown that people have different motivation to participate in sports clubs (Farahani, 2012). Noorbakhsh, Shafi Nia, Golchinkoohi (2010) stated that the motivation behind participating in an exercise is the urge to increase or maintain physical fitness and well-being, experience happiness, improve physical appearance, social status, self-confidence and psychological benefits (Noorbakhsh, 2010). Therefore, the difference in the amount of exercise, especially among athletes, is related to the difference in their motivation. Some athletes misuse a variety of medications to increase strength, muscle growth and physical appearance. As a result, this has become a common issue in societies and has created numerous irreparable social, economic, health, cultural, psychological and physical consequences (Yavari, 2013). So, to take the necessary precautions for preventing various personality problems and potential deviations, managers and authorities are to develop appropriate plans and programs. These programs should be conducted through various channels, including schools, universities, mass media, counseling centers, and the Ministry of Sports and Youth. This way, young people, especially competent and well-respected athletes, will be well-educated in terms of personality and psychology for the future (Rasouli, 2021). One of the limitations of this study is its implementation merely in men's society, whereby its generalization to women's society may not be logical. The present study was carried out among bodybuilders and it is suggested that similar researches should be conducted among athletes of other fields to extend the results. In addition, self-report questionnaires,

which are utilized in this study, have limitations when used in narcissistic individuals due to their unrealistic and extravagant claim of self-esteem, albeit they may be in denial of their weaknesses (Gordon, 2010).

Conclusion

This study suggests that nutritional behaviors can be promoted by improving narcissistic tendencies and dependency on exercise. Determining the components of behavior, narcissism and dependency will ascertain the main contributors, thus, purposeful implementations can be designed.

Acknowledgments

This project was conducted as a requirement of Ph.D dissertation degree in Physical Education and Sport Sciences and was supported by Research Council of Urmia University.

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Cite this article as: Babaei, S., Alizadeh, I., Amaghani, A., Gharakhanlou, B.J. (2022). The Effect of Exercise Dependence and Narcissism Components on Eating Disorders in Men Bodybuilders. *Central European Journal of Sport Sciences and Medicine*, 3 (39), 81–88. DOI: 10.18276/cej.2022.3-07.