İSTANBUL UNIVERSITY PRESS

ARAŞTIRMA MAKALESİ / RESEARCH ARTICLE
Journal of Advanced Research in Health Sciences / Sağlık Bilimlerinde İleri Araştırmalar Dergisi 2023
DOI: 10.26650/JARHS2023-1183465

EVALUATING THE RELATIONSHIP BETWEEN TENDENCIES OF ORTHOREXIA NERVOSA AND BODY DISSATISFACTION AMONG ADULTS

YETİŞKİNLERDE ORTOREKSİYA NERVOZA EĞİLİMLERİ İLE BEDEN MEMNUNİYETSİZLİĞİ ARASINDAKİ İLİŞKİNİN DEĞERLENDİRİLMESİ

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Citation/Atıf: Ozturk EA. Evaluating the relationship between tendencies of orthorexia nervosa and body dissatisfaction among adults. Journal of Advanced Research in Health Sciences 2023;6(2):186-191. https://doi.org/10.26650/JARHS2023-1183465

ABSTRACT

Objective: The aim of the study is to evaluate the relationship between the tendencies of orthorexia nervosa and body dissatisfaction among adults.

Material and Methods: The study was conducted on 239 voluntary individuals who were aged between 19 and 64 years and residing in Gaziantep. While the ORTO-11 scale was used to assess the orthorexic tendencies of the participants, the body shape questionnaire (BSQ-34) was employed to assess their body dissatisfaction. Also the general characteristics, anthropometric measurements were collected. In ORTO-11 scale, 25 points and below were considered as an orthorexic tendency. In the BSQ-34, a score between 80-110 points was classified as slight dissatisfaction, a score between 111-140 points as moderate dissatisfaction, and a score above 140 points as severe dissatisfaction.

Results: ORTO-11 and BSQ-34 mean scores of the participants were 29.54±5.98 and 83.20±45.46, respectively. 27.6% of the participants had orthorexic tendencies and 40.6% had dissatisfaction (slight: 10.9%, moderate: 13.4%, severe: 16.3%). There was no statistically significant difference in the mean BSQ-34 scores of the participants based on the orthorexic tendency classification. Furthermore, according to the body dissatisfaction classification, there was no statistically significant difference between the participants' mean ORTO-11 scores. However, the participants with severe dissatisfaction had significantly higher mean body weight and mean body mass index than those with no dissatisfaction.

Conclusion: This study revealed that there was no correlation between tendency of orthorexia nervosa and body dissatisfaction. Further studies need to be conducted to verify the results.

Keywords: Orthorexia nervosa, body dissatisfaction, adult

ÖZ

Amaç: Bu çalışma, yetişkin bireylerin ortoreksiya nervoza eğilimleri ile beden memnuniyetsizlikleri arasındaki ilişkiyi değerlendirmek amacıyla planlanmıştır.

Gereç ve Yöntemler: Çalışma, Gaziantep'te yaşayan, 19-64 yaş arası 239 gönüllü birey üzerinde yürütülmüştür. Katılımcıların ortorektik eğilimlerini değerlendirmek için ORTO-11, beden memnuniyetsizliklerini değerlendirmek için beden şekli ölçeği (BSQ-34) kullanılmıştır. Ayrıca katılımcıların demografik özellikleri sorgulanmış ve antropometrik ölçümleri alınmıştır. ORTO-11 ölçeğinde 25 puan ve altı ortorektik eğilim olarak değerlendirilmiştir. Beden şekli ölçeğinde 80-110 puan hafif beden memnuniyetsizliğini, 111-140 puan orta derecedeki beden memnuniyetsizliğini ve 140 puan üstü ciddi beden memnuniyetsizliği olarak sınıflandırılmıştır.

Bulgular: Çalışmaya katılan bireylerin ORTO-11 ve BSQ-34 puan ortalamaları sırasıyla; 29,54±5,98 ve 83,20±45,46'dır. Çalışmaya katılan bireylerin %27,6'sında ortorektik eğilim ve %40,6'sında beden memnuniyetsizliği (%10,9 hafif düzey, %13,4'ü orta düzey, %16,3'ü ciddi düzey) olduğu saptanmıştır. Katılımcıların ortorektik eğilimlerine göre BSQ-34 ölçek puanlarında anlamlı fark saptanmamıştır ($p>0,05$). Ayrıca, bireylerin beden memnuniyetsizliği sınıflamasına göre ORTO-11 ölçek puanlarında anlamlı farklılık göstermemiştir. Ciddi düzey beden memnuniyetsizliği olan bireylerin vücut ağırlığı ve beden kütle indeksi beden memnuniyetsizliği olmayan bireylerden daha fazladır ($p<0,05$).

Sonuç: Bu çalışma, ortoreksiya nervoza eğilimi ile beden memnuniyetsizliği arasında bir ilişki olmadığını göstermektedir. Bu bulguları doğrulamak için daha fazla araştırma yapılması gerekmektedir.

Anahtar Kelimeler: Ortoreksiya nevroza, beden memnuniyetsizliği, yetişkin

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Submitted/Başvuru: 03.10.2022 • **Revision Requested/Revizyon Talebi:** 18.10.2022 • **Last Revision Received/Son Revizyon:** 25.11.2022 • **Accepted/Kabul:** 25.11.2022 • **Published Online/Online Yayın:** 07.06.2023

INTRODUCTION

The desire to consume healthy food is not a pathological condition. However, when this desire becomes an obsessive situation, it can increase the anxiety and stress level of individuals and in turn become a pathological condition (1). Orthorexia nervosa refers to an obsession with healthy eating behaviours (2). This obsession is caused by the desire to optimise one's own health and well-being. Orthorexic individuals eliminate the foods they perceive as unhealthy and impure from their daily diets (3). They also pay attention to the preparation and cooking methods as well as the production, processing and packaging steps of foods (1). They avoid consuming foods containing carcinogenic substances, additives, dyes or hormones, and high amounts of salt, sugar, and unhealthy fat (3). Orthorexia nervosa is not officially recognised as an eating disorder in DSM-5 or ICD-10. In the literature, there is an ongoing discussion regarding whether or not orthorexia nervosa is classified as an eating disorder, obsessive compulsive disorder, or a mental disorder (4-5). Some researchers have suggested that orthorexia nervosa may be a precursor to an eating disorder. Changes occurring in the eating habits of the individuals may cause impaired body image (6). Body dissatisfaction refers to the negative thoughts and feelings of individuals about their body and is usually caused by the inconsistency between the way individuals perceive their body and the ideal body shape they perceive (7). Body dissatisfaction, impaired body image, and weakness obsession take place in the centre of clinically diagnosed eating disorders (anorexia nervosa, bulimia nervosa, binge eating disorder, other specified feeding and eating disorders) (8). However, there are a limited number of studies in the literature on how non-clinical disorders such as orthorexia nervosa affect body satisfaction (3, 5, 9-12) and the results of the studies are contradictory. Therefore, the aim of the study is to examine the correlation between the tendencies of orthorexia nervosa and body dissatisfaction among adults.

MATERIAL and METHODS

Sample of the study

The study was conducted between May and July 2022 with 239 participants (117 women, 122 men) aged 19 to 64 who lived in Gaziantep and did not have psychiatric or chronic diseases. Approval of Gaziantep Islam Science and Technology University Non-invasive Clinical Trials Ethics Committee was obtained (Date:26.04.2022, No:101.16.04). The principles of the Declaration of Helsinki were followed to conduct the study. Participants were informed about the study in detail and they read and signed the informed consent form.

Data collection tool

General characteristics (age, gender, marital status, and period of education), orthorexic tendencies, and body dissatisfaction of participants were collected by using the questionnaire and face-to-face interview method. Also, body weight, height, and body mass index were measured by a trained dietician according to proper methods (13). Body mass index (BMI; kg/m^2) was calculated and classified according to the World Health Organization recommendations (14).

Orto-11 scale

The ORTO-11 scale was used to determine the obsession of the participants regarding healthy diet. The 10-item scale developed by Bratman et al. was revised by Donini et al. and became the ORTO-15 scale (3, 15). Turkish validity and reliability of the scale was conducted by Arusoğlu et al. and adapted as ORTO-11 (2). Items 1, 2, 3, 4, 5, 7, 8, 9, 10, and 11 of the scale are rated between 4 points and 1 point (4: always, 3: frequently, 2: sometimes, and 1: never). The sixth question is reversely scored. Higher scores signify that the participants have less risk of orthorexia nervosa. A cut-off point method was used for evaluation of the scale. The cut-off point of the study was determined as 25 points in the 25% percentile, and 25 points or less were evaluated as orthorexic tendency.

Body shape questionnaire (BSQ-34)

Opinions of the participants regarding body dissatisfaction were obtained by using the Body Shape Questionnaire (BSQ). The one-dimensional questionnaire was developed by Cooper et al. and consisted of 34 items (16). The items are rated on a 6-point Likert scale (1: never, 2: rare, 3: sometimes, 4: often, 5: very often, and 6: always). Minimum and maximum scores of the scale are 34 and 204 points, respectively. BSQ was reorganised into two categories: no dissatisfaction – those classified as free from body dissatisfaction, and presence of dissatisfaction - those who were classified as having some level of body dissatisfaction (slight, moderate or severe). Body dissatisfaction was classified as no dissatisfaction in those with less than 80 points, slight dissatisfaction between 80 and 110 points, moderate dissatisfaction between 110 and 140 points, and severe dissatisfaction in those with more than 140 points. Its Turkish validity and reliability study was conducted by Akdemir et al. (17).

Statistical analysis

The SPSS 22.0 (SPSS Inc., Chicago, IL, USA) programme was employed to evaluate the data and to prepare the tables. Graphs were created using GraphPad Prism 9 (GraphPad Software, San Diego, CA, USA). Quantitative variables obtained by measurement were expressed as mean ($\bar{X}$), standard deviation (SD), and maximum and minimum values; whereas categorical variables were expressed as number (n) and percentage (%). Continuous variables were compared using the independent sample t-test for two independent groups or a one-way analysis of variance (ANOVA) with the Tukey post hoc test for more than two groups. The chi-square test was used for the analysis of categorical variables. Pearson's correlation test calculates correlation when normality conditions are met. Spearman's correlation test is used when these criteria aren't met. The significance level was set at $p< 0.05$.

RESULTS

Two hundred and thirty-nine adult participants (48.9% men, 52.1% women) with a mean age of 32.39±11.57 years were included in the study. The ORTO-11 mean score of the participants was 29.54±5.98 and their BSQ-34 mean score was 83.30±45.46.

Orthorexia tendency was found in 27.6% of the participants, and body dissatisfaction in 40.6% (Table 1).

Table 1: General characteristics of the participants

Descriptive characteristics	Total (n=239)	
	X±SD	Min-Max
Age (years)	32.39±11.57	19-63
Body weight (kg)	66.93±14.59	46.50-106.50
BMI (kg/m²)	24.21±4.68	17.20-33.91
Period of education (years)	12.29±3.08	2-18
ORTO-11	29.54±5.98	19-42
BSQ-34	83.30±45.46	38-204
	n	%
Gender		
Men	117	48.9
Women	122	52.1
Marital Status		
Married	139	58.2
Single	100	41.8
BMI classification		
Underweight (BMI < 18.5)	46	19.2
Normal weight (18.5 ≤ BMI ≤ 24.9)	79	33.1
Pre-obese (25.0 ≤ BMI ≤ 29.9)	61	25.5
Obese (BMI ≥ 30.0)	53	22.2
Risk estimates for ORTO-11		
Orthorexic tendency	66	27.6
Without orthorexic tendency	173	72.4
Risk estimates for BSQ-34		
No dissatisfaction	142	59.4
Dissatisfaction	95	40.6
Slight dissatisfaction	26	10.9
Moderate dissatisfaction	32	13.4
Severe Dissatisfaction	39	16.3

X: Mean, SD: Standard deviation, n: Number of participants, %: Percentage of participants, Min-Max: minimum and maximum values, BMI: Body mass index, BSQ-34: Body shape questionnaire

BSQ-34 mean score of the participants with orthorexic tendency was 84.53±50.53, and BSQ-34 mean score of those without orthorexic tendency was 82.93±43.47 (p>0.05). Orthorexic tendency were detected in 32.5% of men participants and 23.0% of women participants (p>0.05). In addition, no significant difference was found in terms of the presence of orthorexic tendencies in the participants regarding, age, period of education, body weight, BMI and marital status (p>0.05) (Table 2).

The mean ORTO-11 score of those with no dissatisfaction was 29.80±6.47, the mean ORTO-11 score of those with slight dissatisfaction, moderate dissatisfaction, and severe dissatisfaction was 29.62±5.84, 29.34±3.39 and 28.72±5.98, respectively (p>0.05). The mean age of individuals with moderate dissatisfaction is lower than those with slight dissatisfaction or individuals with no dissatisfaction (p<0.05). The mean body weight of the participants with severe dissatisfaction was significantly higher than those with no dissatisfaction and slight dissatisfaction (p<0.001) (Table 3).

Table 2: General characteristics of the participants according to the tendency of orthorexia nervosa

	Classification of tendency of orthorexia nervosa		p
	Orthorexic tendency (n: 66)	Without orthorexic tendency (n: 173)	
	X±SD	X±SD	
Age (years)	34.60±12.65	31.54±11.06	0.068*
Period of education (Years)	12.60±2.98	12.17±3.12	0.334*
Body weight (kg)	68.57±14.88	66.31±14.47	0.285*
BMI (kg/m²)	24.24±4.44	24.20±4.78	0.757*
ORTO-11	22.46±2.24	32.24±4.59	**<0.001***
BSQ-34	84.53±50.53	82.93±43.47	0.811*
	n(%)	n(%)	
Gender			
Men	38 (32.5)	79 (67.5)	0.112**
Women	28 (23.0)	94 (77.0)	
Marital Status			
Married	32 (34.0)	107 (66.0)	0.053**
Single	34 (23.0)	66 (77.0)	

X: Mean, SD: Standard deviation, n: Number of participants, %: Percentage of participants, BMI: Body mass index, BSQ-34: Body shape questionnaire, *Independent sample t-test, **Chi-Square test, **Bold values are for p<0.05**

In Figure 1, the BMI of the participants are presented according to the body dissatisfaction classification. The mean BMI for participants who had no dissatisfaction, slight, moderate, or severe body dissatisfaction was 22.92±4.21 kg/m², 24.60±4.82 kg/m², 26.17±4.89 kg/m², and 27.29±4.24 kg/m², respectively. Also, it was found that participants who had no dissatisfaction had a lower mean BMI than the participants who had moderate and severe dissatisfaction (p<0.001). Furthermore, a significant positive correlation was found in this study between the BSQ-34 score and body weight and BMI (r:0.029, p<0.001, r:0.31, p<0.001, respectively). There was no significant correlation between ORTO-11 and BSQ-34 scores (r:-0.10, p:0.13).

DISCUSSION

Orthorexia nervosa is characterized by an obsession with healthy eating and restrictive eating behaviors. It significantly affects a person's psychological and physical health (18-19). Some researchers have stated that the underlying reason of

Table 3: General characteristics of the participants according to the body dissatisfaction classification

	Body Dissatisfaction classification				
	No Dissatisfaction	Dissatisfaction			
		Slight	Moderate	Severe	p
	X±SD	X±SD	X±SD	X±SD	
Age (years)	33.04±12.17[a]	36.27±12.07 [a]	26.28±9.63[b]	32.49±8.66[ab]	**0.006**[*]
Period of education (Years)	12.38±3.2	12.23±2.55	12.5±3.42	11.85±2.77	0.783[*]
Body weight (kg)	63.63±13.14 [a]	66.48±15.79 [a]	69.69 ± 13.67[ab]	77.52±14.35[b]	**<0.001**[*]
ORTO-11	29.80±6.48	29.62±5.84	29.34±3.39	28.72±5.98	0.792[*]
BSQ-34	51.15±11.24[a]	88.23±9.14[b]	123±7.90[c]	164.54±19.27[d]	**<0.001**[*]
	n (%)	n (%)	n (%)	n (%)	
Gender					
Men	63 (53.8)	16 (13.7)	17 (14.5)	21 (17.9)	0.329[**]
Women	79 (64.8)	10 (8.2)	15 (12.3)	18 (14.8)	
Marital status					
Married	59 (59.0)	13 (13.0)	11 (11.0)	17 (17.0)	0.683[**]
Single	83 (59.7)	13 (9.4)	21 (15.1)	22 (15.8)	

X: Mean, SD: standard deviation, n: Number of participants,%: Percentage of participants BMI: Body mass index, BSQ-34: Body shape questionnaire, [*] One-way ANOVA was used for the test of differences and Tukey's post-hoc test. Different lower letters in the same column indicate a statistical difference among the groups, [**]Chi-Square test, Bold values are for p<0.05

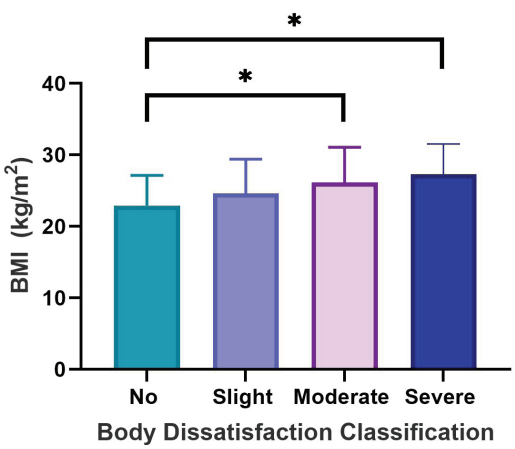

Figure 1: Distribution of BMI according to body dissatisfaction classification. Bar graphs representing BMI (kg/m2) according to body dissatisfaction classification. Data are expressed as mean±SD, and the results were analyzed using one-way ANOVA followed by post hoc analysis. *p<0.05 was considered statistically significant.

Healthy eating obsession of the individuals with orthorexia nervosa may be the concern about body appearance (20-21). However, there is little research on this subject in the literature. Therefore, more is needed. In the current study, the correlation between orthorexic tendency and body satisfaction was investigated in adults.

In a study conducted by Bagcı Bosi et al. using ORTO-15 scale in a sample including doctors, the prevalence of orthorexic tendency was found as 45.5% (22). Another study on adults doing sports via the ORTO-11 scale, they determined that the rate of the individuals showing orthorexic tendency was 29.9% (6). In this study, the ORTO-11 scale was used to evaluate the orthorexic tendency of individuals, and the rate of individuals with orthorexic tendency was found to be 26.4%, and this rate is similar to the rate reported in a previous study conducted in Turkey using the ORTO-11 scale (6). With regards to body dissatisfaction, studies have found that between 19% and 51.3% of people have body dissatisfaction (23). In this study, 40.6% of participants showed body dissatisfaction.

When BMIs of the individuals were evaluated according to their orthorexic tendencies, similar to the previous studies, no significant difference was found between the orthorexic tendencies and BMI of the participants in the current study (11, 24-25). Excessive concentration of people with the orthorexic tendency on the quality of food does not mean control of the amount of food consumed (26). In the literature, it is stated that BMI is an important determinant of body dissatisfaction (27). In their study, Karr et al. determined that there was a positive correlation between the BMI and body dissatisfaction of athletes. In other words, as the BMI of the athletes increased, their body dissatisfaction also increased (28). In the present study, body weight and mean BMI of the participants with severe dissatisfaction were statistically significantly higher than the values of those with no dissatisfaction. A positive significant correlation was found between BSQ-34 scores and body weight and BMI. As the body weight or BMI of the participants increased, BSQ-34 score also increased. That is, body dissatisfaction increased. There are conflicting results in the studies examining the cor-

relation between orthorexic tendency and body dissatisfaction (3, 5, 9-12). In another study, Bratman's orthorexia test and Sociocultural attitudes toward appearance questionnaire were employed and fit participants with orthorexic tendencies were found to be concerned about body dissatisfaction (9). In a study conducted with Chinese elders, Dusseldorf Orthorexia Scale and body dissatisfaction subscale of the Eating Disorder Inventory were used and as a result, orthorexic symptoms were significantly and negatively correlated with body dissatisfaction (5). There are also opinions in the literature that orthorexic individuals do not have body dissatisfaction. Because the main goals of orthorexic individuals are not to lose weight but to eat healthy (3). A study conducted on young adults reported that body image was not a predictor for orthorexic tendency (12). In their study, Plitcha et al., determined that there was no significant difference between body dissatisfaction classifications of the participants according to their orthorexic tendencies (11). In their study, Morais Freire et al. evaluated orthorexic tendency by using ORTO-15 scale and body dissatisfaction by using BSQ-34 scale, and found no significant correlation between ORTO-15 and BSQ-34 (10). In the current study, there was no statistically significant difference between the ORTO-11 scores of the individuals in terms of the body dissatisfaction classification, and their BSQ-34 mean scores in terms of the orthorexic tendency classification. In addition, no correlation was found between BSQ-34 and ORTO-11 scores ($p>0.05$). The results of the study are compatible with the results of previous studies (10-12). It can be asserted that the reason why individuals seek healthy food in order to reach better health standards is not body dissatisfaction and there is no direct correlation between orthorexic tendency and body satisfaction (29).

Even though there are many studies in the literature regarding orthorexia nervosa or body dissatisfaction, there are a limited number of studies that evaluate the correlation between body dissatisfaction and tendency of orthorexia nervosa. This study's findings guide future research. This is the first study in Turkey that evaluates the correlation between tendency of orthorexia nervosa and body dissatisfaction by using the BSQ-34 scale. In addition, the scales used in this study have been validated in the Turkish population. Despite its strengths and contribution to the literature, this study has limitations. First, because this is a cross-sectional study, causal conclusions about orthorexic tendencies and body dissatisfaction cannot be drawn. A longitudinal study may reveal the cause-and-effect relationship between orthorexia and body dissatisfaction. Second, the study had few participants, so its results may be limited.

CONCLUSION

It was concluded that body dissatisfaction cannot be considered a determining factor for tendency of orthorexia nervosa. Further studies are needed on this subject.

Ethics Committee Approval: This study was approved by Gaziantep Islam Science and Technology University Non-invasive Clinical Trials Ethics Committee (Date: 26.04.2022, No: 101.16.04).

Peer Review: Externally peer-reviewed.

Conflict of Interest: Author declared no conflict of interest.

Financial Disclosure: Author declared no financial support.

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