

Validity and Reliability of the Muscularity Oriented Eating Test (MOET) in Turkish

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Objectives: In this study, we determine the validity and reliability of the Muscularity Oriented Eating Test (MOET) among Turkish university students, thereby creating the MOET-TR. **Methods:** First, the MOET was translated by using the translation-back translation method for cultural equivalence. Then, the validity and reliability analyses were performed on 460 university students. To analyze the stability of the scale over time, the MOET-TR was applied to approximately 20% of the sample number for a second time after 2-4 weeks. **Results:** The one-factor structure of the MOET-TR demonstrated a good agreement with the fit index values. Cronbach's for the MOET-TR was 0.88, and the ICC value was 0.84. In addition, we found a positive statistically significant relationship between the total scores obtained from the DMS, EAT-40, REZZY, and IPAQ-Short forms used to evaluate the convergent divergent validity of the MOET-TR ($p < .05$). **Conclusions:** The MOET-TR is suitable for the Turkish culture and can be used to identify individuals who have muscularity oriented eating disorders, who are uncomfortable with their body shape, and who turn their body shapes into a social phobia.

Key words: body satisfaction; muscularity oriented eating disorders; MOET; validity; reliability

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Today, with the improvements in economic conditions, urbanization, globalization, and rapid changes in lifestyle, changes occur in eating habits. Some of these changes¹ in eating attitudes and behaviors¹ may lead to eating disorders.² Eating disorders are defined as a persistent disturbance in eating or eating-related behaviors that causes changes in food consumption or absorption, significantly impairing physical or psychosocial health.³ Traditionally, authorities believed that nutritional and eating disorders affected females almost exclusively.⁴ However, studies on eating disorders reveal body dissatisfaction among some men, the consequences of which to date may be understudied;⁵⁻⁷ malnutrition among men is not well understood, and to some extent, has been neglected because of inadequate diagnosis and treatment.⁸ Therefore, most of the time symptoms are noticed in men only when they reach serious proportions.⁹

Population-based studies show that the rates of

eating disorders in men are increasing faster than among women and there is no significant difference between sexes in terms of clinical symptoms.⁴ In addition, population-based studies also show that there is no significant difference between sexes in terms of the ages of onset of eating disorders, including early onset cases (< 14 years of age).¹⁰

The fact that eating disorders are more common in women has led to the view that body image concerns are specific to women.^{5,11} However, some researchers have pointed out the bias of measurement tools. Some authorities argue that there are no suitable measurement tools to assess body perceptions in men, and the notion that these concerns are exclusive to women has been criticized.¹² These criticisms are supported by other studies showing that there is no difference between men and women in terms of body perception anxiety.^{6,10,13}

Dissatisfaction with body appearance affects individuals of all ages and sexes. It is generally defined as an individual's negative evaluation of

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his or her own body.¹⁴ Although this dissatisfaction is considered a problem specific to Western societies, it can be seen globally in other societies.¹⁵ Body dissatisfaction may cause various negative situations including eating disorders,¹⁶ unhealthy weight loss attempts,¹⁷ steroid use,¹² depression,¹⁸ and low self-esteem.¹³

Bodybuilding activities that can be shown as an example of body perception concerns in men and the muscular body structure achieved as a result of these activities are accepted by the society as an indicator of being healthy.^{12,19} Although it is evaluated positively in society, such activities may be associated with muscle perception disorder, which threatens both physical and psychological health.^{20,21} Being overly concerned with the muscles in the body, believing that you are not muscular despite being more muscular than normal, consuming large portions of food to develop muscle, and turning to ergogenic support and nutritional supplements are among the conditions encountered in muscle perception disorder. Muscle perception disorder, which negatively affects health and quality of life, has been the issue of a limited number of studies as it is a newly described problem.^{18,21,22} Many men try to increase their muscle mass and reduce body fat to emphasize their muscles more. These efforts reveal a situation characterized by different dietary practices and concerns that cannot be detected merely by symptoms of eating disorders or the urge to be muscular.²³

The muscular body structure considered ideal in men typically focuses on both muscularity (increasing muscle ratio) and leanness (low body fat).²⁴ This bi-directional body ideal brings about poor eating habits. In addition to exercising with extreme exercise programs in combination with a strict diet, individuals also take medications (eg, anabolic steroids) to improve their appearance or to increase their performance. Muscle-oriented nutritional disorders are more common in men than are other nutritional disorders.²⁵ This disordered eating behavior referred to as “bulking and cutting” includes bulking and dietary restrictions, respectively. Although scientific evidence on these practices is still emerging, as many as 60% of boys in the United States deliberately manipulate their diets to increase muscle mass.²⁶ At the same time, this situation is frequently seen in individuals and athletes who are interested in sports activities.²⁴

As in studies conducted in other countries, muscularity oriented nutritional disorders and body dysmorphism are common in the Turkish population, but it is thought that they have been overlooked because they have not been investigated sufficiently and there is no valid and reliable measurement tool to evaluate them.

Although there are many scales used to evaluate eating disorders and muscle dysmorphism separately, it was not possible previously to evaluate these 2 separate components with a single scale. The first scale developed to evaluate muscularity oriented nutritional disorders and whose validity and reliability studies were conducted is known as the Muscularity Oriented Eating Test (MOET) developed by Murray et al in 2019.²⁷ This scale, which provides a different perspective in the field of eating disorders and focuses directly on muscularity oriented nutritional disorders, is intended to be recognized and used in the Turkish society. Therefore, the purpose of this study was to adapt the MOET developed by Murray et al²⁷ for the Turkish population and to analyze its scale validity and reliability.

METHODS

Participants and Procedures

This study was conducted on a total of 460 male university students between 18 and 28 years of age who were studying at the faculties of Health Sciences, Engineering, and Natural Sciences of Ankara Yıldırım Beyazıt University between January and March 2020.

We obtained the necessary permission from Stuart B. Murray, who developed the scale, for the Turkish validity and reliability study of the MOET. To estimate validity and reliability of the MOET, the scale was initially translated from English to Turkish by 3 bilingual experts. By checking the tenses, the synchronicity of the sentences and the appropriateness of the words used, the experts independently evaluated the comprehensibility of the translation. Afterwards, the items were back-translated to English with the help of 2 different experts who graduated from the department of English Language and Literature; compatibility with the original scale was checked for comparable meaning. Finally, the scale was pre-tested in 30 university students and the final version of the scale was formed by considering the

suggestions such as “clearly stating what the macronutrients are.” In determining the sample size, it is known that in relation to the number of items, at least 5, 10,²⁹ or 15 times³⁰ the number of items in the scale should be applied. For this reason, we decided to conduct the study with at least 150 people, 10 times the number of items. At the end of the study, we reached out to 460 volunteer male students. In addition, the stability of the scale over time was analyzed by applying the MOET-TR for a second time 2-4 weeks after the questionnaire was prepared to students up to 20%-25% of the sample number.

Measures

We collected our data by interviewing the participants face-to-face with a questionnaire consisting of 5 parts. The Turkish form of the Muscularity Oriented Eating Test (MOET-TR) was applied to the individuals for purposes of assessing validity and reliability. In addition, we administered the Drive for Muscularity Scale (DMS), Stunkard Scale, REZZY Eating Disorders Scale (SCOFF), Eating Attitude Test (YTT-40) and International Physical Activity Form (IPAQ-Short) to individuals to examine content, convergent, and divergent validities of the MOET-TR.

Muscularity Oriented Eating Test (MOET). The MOET is a criterion developed by Murray et al in 2019 to detect muscularity focused on muscularity oriented eating disorder.²⁷ The scale consists of 15 items and is evaluated with a 5-point Likert scale (0 = absolutely not true, 1 = rarely true, 2 = sometimes true, 3 = generally true, 4 = always true). Before applying the scale, we asked participants to report how strongly they agreed with each item, considering their last 4 weeks. The total score of the scale is obtained by summing scores ranging from 0 (absolutely not true) to 4 (always true) according to the answers given to each item. There is no reverse item in the scale. High scores from the scale and its subfactors indicate a high level of muscularity oriented eating disorder.²⁷ We carried out validity and reliability assessment on the Turkish version of the MOET as part of this study, which we describe later in this paper.

Drive for Muscularity Scale (DMS). The original scale was developed with 2 sub-scales by McCreary and Sasse in 2000 to measure behav-

iors and attitudes towards being muscular.¹⁸ The Turkish validity and reliability study of the scale was carried out by Selvi and Bozo and it was determined that the Turkish version consisted of 3 sub-scales: 1) Attitudes towards being muscular; 2) Training behaviors to be muscular; and 3) Eating to gain muscle and using supplements.³¹ The scale consists of 15 items and is evaluated with a 6-point Likert-type scale (1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often, 6 = always). High scores on the scale and its subfactors indicate the desire to have a high level of muscle.¹⁸

Stunkard Scale. The scale is a visual psychometric scale developed in 1983 as a tool to determine body dissatisfaction in women and men.³² This scale is a visible measure of how one perceives personal physical appearance. Each figure represents a schematic silhouette of 9 males and 9 females ranging from underweight to obese. Because this study was conducted on men, we only used the section applicable only to men, and we asked participants to choose the silhouette that best reflects their current and ideal body size. A high body dissatisfaction score means low satisfaction with body size, and a low body dissatisfaction score means higher satisfaction.³²

REZZY Eating Disorders Scale (SCOFF). Morgan et al³³ developed this 5-item scale (SCOFF). Aydemir et al³⁴ conducted validity and reliability metrics on the Turkish adaptation, referred to as REZZY. In the evaluation of the scale, each item with a yes answer is given one point, and 2 or more points are associated with the risk of eating disorder. The highest score that can be obtained from the scale is 5.³³

Eating Attitude Test (YTT-40). It was developed by Garner and Garfinkel³⁵ to evaluate the attitudes and behaviors seen in anorexia nervosa in a wide spectrum. Savasır and Erol³⁶ carried out validity and reliability studies on the Turkish version in 1989.³⁶ If the total score of the YTT is below 21, it is interpreted as low risk; 21 through 30 is assessed as medium risk; a score above 30 is high risk. Whereas the maximum score that can be obtained from the test was 120, the cut-off point of the test was determined as 30, and a score of 30 or more was found to be directly related to eating disorders.

International Physical Activity Form (IPAQ-Short Form). The International Physical Activity Form (IPAQ-Short Form), which was

developed by the International Physical Activity Assessment Group³⁷ and whose validity and reliability in Turkish was performed by Öztürk,³⁸ was used to determine the physical activity status of individuals. The calculation of the total score for the short form includes the sum of time (minutes) and the frequency (days) of walking, moderate activity, and vigorous activity, and from these calculations, a score in MET-minute is obtained. A MET-minute is calculated by multiplying the minutes of activity performed by the MET score.³⁷ The MET-minute scores were determined according to kilocalories of a 60 kg person and physical activity levels were divided into 3 categories as “inactive,” “minimally active,” and “very active.”³⁷

Data Analysis

We used SPSS 25 (IBM, Armonk, NY) and AMOS 22 (IBM, Armonk, NY) for statistical analysis. Quantitative variables are summarized as mean and standard deviation ($\bar{X} \pm SD$). In the developing the MOET scale in Turkish, item

discrimination and test-retest reliability were applied together with item analyses for scale reliability in the first stage. In the second stage (validity) content validity was determined using the construct validity and convergent-divergent validity methods. These analyses were carried out with the data obtained from 460 people. The internal consistency and reliability of the scale were evaluated using Cronbach's alpha. In addition, correlations between the scale scores were examined. Relationships between ordered qualitative (categorical) variables were calculated with the Kruskal Gamma coefficient and the other relationships with the Spearman coefficient. The analysis of the data was evaluated at a 95% confidence interval and 5% significance level.

RESULTS

Item Analyses

In Table 1 one can see that there was no significant increase in the Cronbach alpha value if any item was removed. In fact, the Cronbach alpha decreased when items were removed. When an

Table 1
Item-total Score Statistics of the MOET-TR (N=460)

Scale Items	$\bar{X} \pm SS$	Scale average when item is removed	Scale variance when item is removed	Item-total score correlation coefficient	R ²	Cronbach-a when item is removed
MOET 1	0.87±1.13	15.73	110.936	0.58	0.39	0.874
MOET 2	1.53±1.18	15.08	116.647	0.31	0.14	0.885
MOET 3	1.25±1.25	15.36	112.171	0.46	0.25	0.879
MOET 4	1.4±1.34	15.20	110.180	0.50	0.33	0.878
MOET 5	1.24±1.25	15.37	109.749	0.56	0.37	0.875
MOET 6	0.61±1.01	16.00	112.488	0.59	0.45	0.875
MOET 7	1.73±1.41	14.87	110.232	0.47	0.26	0.880
MOET 8	0.86±1.14	15.75	108.865	0.67	0.54	0.871
MOET 9	1.07±1.25	15.54	112.597	0.45	0.34	0.880
MOET 10	0.73±1.13	15.88	111.904	0.54	0.41	0.876
MOET 11	1.2±1.29	15.40	105.614	0.70	0.55	0.868
MOET 12	1.1±1.26	15.51	107.104	0.66	0.51	0.870
MOET 13	0.66±1.08	15.95	113.501	0.49	0.33	0.878
MOET 14	1.17±1.24	15.43	109.174	0.59	0.42	0.874
MOET 15	1.17±1.22	15.44	108.857	0.61	0.42	0.873

Total Scale Score:

16.61±11.23

Median value = 15; min = 0; max = 60; Cronbach α = 0.883

item is removed from the scale, if the new Cronbach alpha coefficient increases by more than 5% of the general reliability coefficient, it is appropriate to exclude that item from the scale.³⁹ These decreases show that all the items in the scale should be retained. With respect to the item-total score correlations, we observed that the scale items had significant relationships with the remaining scale total score in the range of 0.311-0.707. Again, when any item was removed, any change in the mean and variance of the scale was modest.

Reliability of the MOET-TR

The reliability coefficient (Cronbach’s alpha) was found to be high ($\alpha = 0.88$). We assessed stability reliability using the test-retest method. As Table 2 shows, the test-retest averages were analyzed with Intraclass Correlation Coefficient (ICC). The ICC value was found to be 0.845, thereby showing a high degree of stability.

Validity of the MOET-TR

Content validity. The content validity of the MOET-TR was evaluated by comparing the lower and upper groups of 27% according to the total score of the scale. According to the item distinctiveness analysis given in Table 3, one sees that there is a discrimination power between upper and lower sections in terms of all scale items.

Construct validity. The MOET-TR construct validity was evaluated using confirmatory factor analysis (CFA). CFA allows testing of an existing or constructed model. When validating a measurement tool developed in a different culture, a pre-tested and verified structure is adapted. For this reason, instead of re-determining the structure of the scale, it is a more correct approach to examine the model fit of the determined latent structure and to make its

Table 3
Item Discrimination Analysis

Scale Items	Lower 27% Group (N=124)	Upper 27% Group (N=124)	t	p
MOET 1	0.17±0.51	1.91±1.18	-15.156	< .001
MOET 2	0.93±1.05	2.07±1.16	-8.183	< .001
MOET 3	0.44±0.83	2.1±1.16	-13.036	< .001
MOET 4	0.51±0.88	2.44±1.31	-13.619	< .001
MOET 5	0.26±0.66	2.29±1.12	-17.349	< .001
MOET 6	0.06±0.33	1.59±1.22	-13.462	< .001
MOET 7	0.52±0.93	2.56±1.08	-15.955	< .001
MOET 8	0.07±0.34	2.1±1.2	-18.080	< .001
MOET 9	0.32±0.85	1.85±1.29	-11.065	< .001
MOET 10	0.04±0.2	1.61±1.29	-13.459	< .001
MOET 11	0.11±0.46	2.49±1.05	-23.126	< .001
MOET 12	0.09±0.34	2.29±1.17	-20.068	< .001
MOET 13	0.08±0.43	1.55±1.33	-11.703	< .001
MOET 14	0.22±0.58	2.19±1.12	-17.497	< .001
MOET 15	0.15±0.45	2.1±1.16	-17.511	< .001

scientific explanation with CFA.^{40,41} In this study, the compatibility of the scale with its original unidimensional form was preserved and the suitability of the scale to Turkish was evaluated using a confirmatory factor analysis that can be analyzed with more than one fit index. Many fit indices are used to demonstrate the adequacy of the model tested with CFA. Table 4 presents the fit indices and the criteria for the examined fit indices for the measurement model demonstrated by the MOET-TR. Accordingly, for the confirmatory factor analysis of the MOET-TR, chi-square test (χ^2), Standardized Root Mean Square Residual (SRMR), Root Mean Square Residual (RMR), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Normed Fit Index (NFI), Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA) fit indices were examined. Generally, for the indices of GFI, CFI and NFI, a value of 0.90-0.95 indicates an acceptable fit and a value of 0.95-1.00 indicates a good fit. A value of 0.05-0.08 for RMSEA indicates an acceptable fit and a value of < 0.05 indicates a good fit. For SRMR, a value of 0-0.05 is taken as a good fit and a value of 0.05-0.10 is taken an acceptable fit criteria. The χ^2

Table 2
The MOET-TR Test-retest Intraclass Correlation Coefficient (ICC)

	N	$\bar{X} \pm SS$	Median	Min-Max	ICC
MOET test	86	14.72±10.89	12.00	0.00-45.00	0.845
MOET re-test	86	17.08±10.58	15.00	0.00-49.00	

Table 4
Statistics on the Measurement Model Fit Indices

Fit indexes	Statistics	Good fit	Acceptable fit
χ^2	198.427		
p	<.001		
χ^2/SD	2.334	0-2	2-3
SRMR	0.0416	0-0.05	0.05-0.10
RMR	0.061		
GFI	0.946	0.95-1	0.90-0.95
AGFI	0.923	0.90-1	0.85-0.90
NFI	0.917	0.95-1	0.90-0.95
CFI	0.951	0.97-1	0.95-0.97
RMSEA	0.054	0-0.05	0.05-0.08

Note.

χ^2 : chi-square test, SRMR: Standardized Root Mean Square Residual, RMR: Root Mean Square Residual, GFI: Goodness of Fit Index, AGFI: Adjusted Goodness of Fit Index, PGFI: Parsimony Goodness of Fit Index, NFI: Normed Fit Index; CFI: Comparative Fit Index, RMSEA: Root Mean Square Error of Approximation

value obtained for CFA was 198.427 ($p < .001$). The fit index values obtained for DFA were: SRMR = 0.04, RMR = 0.06, GFI = 0.95, AGFI = 0.92, NFI = 0.92, CFI = 0.95, and RMSEA = 0.05. The perfect and acceptable fit criteria for the examined fit indices show that the one-dimensional model obtained with CFA is compatible and the factor structure in the original form of the scale is also confirmed in the Turkish sample. As Figure 1 shows, factor loads for the one-dimensional model vary between 0.55 and 1.39.

Convergent and divergent validity studies also were included in the study in addition to CFA to examine the construct validity of the MOET-TR. The fact that the factor loads obtained from CFA are high enough indicates that the convergent validity of the scale has been provided. As we noted previously, the DMS, the Stunkard, the SCOFF, the YTT-40 and the IPAQ-Short Form were applied to individuals to test the convergent-divergent validity of the MOET-TR. In Table 5, positive, statistically significant correlations were found between the total scores of the MOET-TR and the DMS and its subscales – attitudes towards being muscular, training behaviors towards being

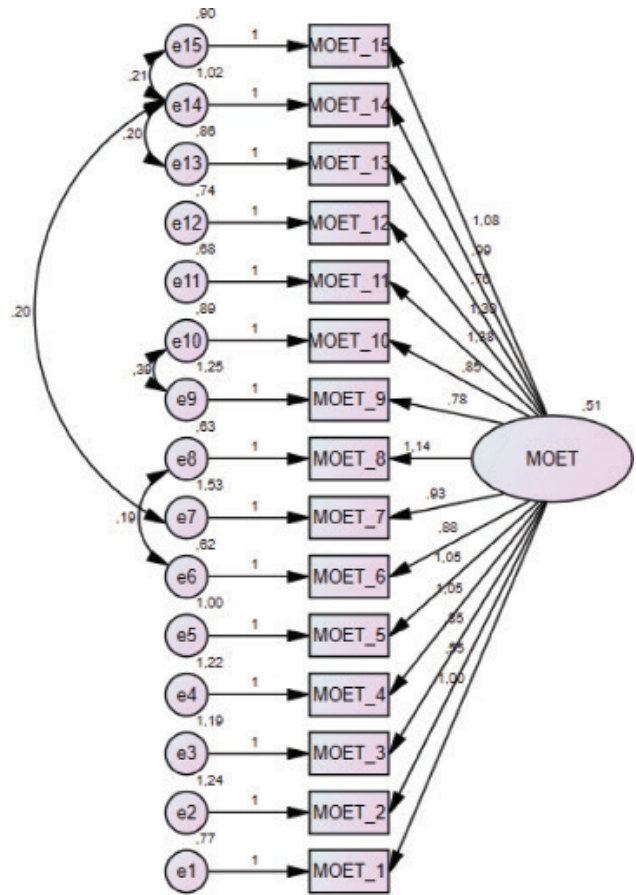


Figure 1

Structure and Regression Values for the Measurement Model of the MOET-TR

muscular, and eating towards being muscular and use of supplements, as well as the YTT-40, the REZZY, and the IPAQ-Short form ($r = 0.664$, $p < .01$; $r = 0.467$, $p < .01$; $r = 0.517$, $p < .01$; $r = 0.390$, $p < .01$; $r = 0.187$, $p < .01$; $r = 0.218$, $p < .01$; respectively). This indicates that the IOET scale has convergent and divergent validity between the MOET-TR and the other subscales and total scores. Thus, our findings of the Turkish lead us to conclude that the MOET-TR is suitable for the Turkish culture and can be used in other studies. Appendix 1 presents the original form and the Turkish form of the MOET scale.

DISCUSSION

Muscularity oriented eating disorders refer to irregular eating behaviors exhibited to reach the ideal muscle ratio. These eating disorders cause

Table 5
Relationships among the DMS, MOET-TR, YTT-40, STUNKARD, REZZY and IPAQ-short Form Scale Scores

	DMS-1	DMS-2	DMS-3	DMS Total	MOET-TR	YTT-40	STUNKARD	REZZY	IP-AQ-Short
Attitudes towards being muscular (DMS-1)	1	0.346 ^a	0.378 ^a	0.864 ^a	0.467 ^a	0.184 ^a	0.148 ^b	0.053	0.098
Training behaviors towards being muscular (DMS-2)	0.346 ^a	1	0.591 ^a	0.701 ^a	0.626 ^a	0.282 ^a	-0.120	0.110	0.341 ^a
Eating towards being muscular and use of supplements (DMS-3)	0.378 ^a	0.591 ^a	1	0.693 ^a	0.517 ^a	0.288 ^a	-0.091	0.102	0.204 ^a
Drive for Muscularity Scale (DMS Total)	0.864 ^a	0.701 ^a	0.693 ^a	1	0.664 ^a	0.299 ^a	0.042	0.098	0.235 ^a
Muscularity Oriented Eating Test (MOET-TR)	0.467 ^a	0.626 ^a	0.517 ^a	0.664 ^a	1	0.390 ^a	-0.027	0.187 ^a	0.218 ^a
Eating Attitude Test (YTT-40):	0.184 ^a	0.282 ^a	0.288 ^a	0.299 ^a	0.390 ^a	1	0.019	0.222 ^a	0.202 ^a
STUNKARD Scale	0.148 ^b	-0.120	-0.091	0.042	-0.027	0.019	1	0.116	-0.045
REZZY Eating Disorders Scale	0.053	0.110	0.102	0.098	0.187 ^a	0.222 ^a	0.116	1	0.135
International Physical Activity Form (IPAQ-Short)	0.098	0.341 ^a	0.204 ^a	0.235 ^a	0.218 ^a	0.202 ^a	-0.045	0.135	1

^ap < .01, ^bp < .05

Note.

Relationships between ordered qualitative (categorical) variables were calculated with the Kruskal Gamma coefficient and other relations with the Spearman coefficient.

bi-directional eating behaviors. Individuals focus both on increasing the visibility of muscle structure by achieving muscle development and on being leaner by reducing body fat.²³ There are strong relationships between muscularity oriented body image anxiety and eating disorder behaviors observed in men.^{42,43} A comprehensive study conducted by Calzo et al on 7067 boys and men between the ages of 13 and 26 years found that higher concerns of muscularity increased irregular eating behaviors.⁴² Another study conducted by Compete et al in men aged 18-28 showed that muscularity concerns in men may be as common as eating disorder behaviors in women (approximately 3%-4%).⁴³ In addition, in both studies, the relationship between muscularity oriented eating disorder and body dissatisfaction in men was emphasized, and muscularity oriented eating disorder behaviors and body image concerns were more common than thinness concerns.

Muscularity oriented body dysmorphism and especially nutritional disorders resulting from this condition have not yet been studied sufficiently on Turkish individuals. However, in a study of Turkish university students, Duran et al⁴⁴ found that 16.3% of the students studying at the faculty of sports sciences showed bigorectic and 28.8% orthorectic tendency. The study results indicated that individuals who are particularly interested in their bodies have more bigorectic tendencies, and at the same time, tend to have more eating disorders. Similarly, in the study conducted by Carraro et al,⁴⁵ individuals with a desire to be more muscular had an increased risk of eating disorders. In particular, eating attitudes and disorders such as orthorexia nervosa were found to be positively correlated with muscularity level and negatively associated with body fat.⁴⁶ For this reason, it is thought that muscularity oriented nutritional disorders and body dysmorphism are

common in the Turkish population, as is the case in other countries. However, it may have been overlooked due to insufficient research.

The purpose of this study was to assess the factorial structure and the construct validity of the MOET questionnaire in a sample of Turkish university students. The adaptation study of the scale started with the translation from the source language to the target language and continued with the determination of its linguistic and idiomatic equivalents and the preliminary pilot study. Finally, the Turkish form of the scale (MOET-TR) was applied to a sample group of 460 participants and analyses were performed on the data obtained. The results showed that the MOET-TR has adequate psychometric characteristics in all cases. In other words, it is a questionnaire that can be used to evaluate muscularity oriented eating disorders.

The MOET, developed by Murray et al,²⁷ is a criterion developed to detect muscularity oriented eating disorders. The Cronbach's alpha value of the MOET-TR scale was found to be 0.88. In the original study of the scale, validity and reliability analyses were performed on 2 different groups.²⁷ In the retest performed 7 days later for the first group, McDonald's omega (ω), used to test reliability, was 0.93, 95% CI [0.91, 0.94]. In the retest performed after 21 days for the second group, omega was 0.92, 95% CI [0.90, 0.93]. McDonald's omega reliability coefficient values are > 0.8 , like the Cronbach alpha values, which indicates that the scale has a good internal reliability. Accordingly, it can be said that both the original and the Turkish form of the scale have high reliability. In the original study of the scale, validity and reliability were determined using 2 different groups, and item correlations were 0.60-0.75 in Group 1 and 0.52-0.80 in Group 2. Confirmatory factor analysis was performed by accepting the scale as a single factor without disturbing the main factor structure, and it was concluded that the scale was within the limits of good fit and suitable for the Turkish culture.

In the second part of the study, the Turkish form of the scale was applied to 86 people 2-4 weeks after the first application, test-retest was performed, and the stability of the scale over time was analyzed. The ICC of 0.845 demonstrated good stability. We also found that the scores obtained from the MOET-TR were positively correlated with the scores obtained from the Drive for Muscularity

Scale (DMS) and its subscales. Similarly, a significant positive correlation was found between the total scores obtained from the Eating Attitude Test-40, the REZZY Eating Disorders Scale, and the IPAQ-Short form. Murray et al²⁷ showed that for construct validity, the MOET scores were positively correlated with the Muscle Dysmorphic Disorder Inventory (MDDI), the Drive for Muscularity Scale (DMS), the Eating Disorder Examination Questionnaire (EDE-Q), and the EDE-Q behavioral items ($p < .01$).

As a result, it is possible to say that the MOET-TR can be used to detect individuals who have muscularity oriented eating disorders and who are uncomfortable with their body shape and turn this into a social phobia. Due to the lack of a valid and reliable measurement tool that can detect muscularity oriented eating disorders in Turkey, this issue has not been studied sufficiently. In this study, the Turkish adaptation of the Muscularity Oriented Eating Test has been made and it has been determined that it is a valid and reliable measurement tool for the Turkish culture. We believe that the MOET-TR can provide a new perspective in future studies on muscularity oriented nutritional disorders in Turkey.

Human Subjects Approval Statement

This study was approved by the Ethics Committee of Ankara Yıldırım Beyazıt University with the research code 2019-410 and was found ethically appropriate. All the procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the Helsinki Declaration and its later amendments or comparable ethical standards. All the participants provided their oral or written consent prior to participation in this study.

Conflict of Interest Disclosure Statement

All the authors declare they have no conflicts of interest. The authors declare this article has not been published, nor is under publication, elsewhere.

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Appendix 1

The MOET Original and the MOET Turkish (MOET-TR) Form

	MOET Original Form (English)	MOET-TR (Turkish)
1	I have recorded the macro-nutritional values of everything that I ate	Yediğim her şeyin makro besin ögesi (karbonhidrat, protein, yağ) değerlerini kaydettim
2	I have used meal replacement supplements when I felt full.	Kendimi tok hissettiğim zamanlarda yemek yemek yerine öğün yerine geçebilecek takviyeler kullandım.
3	What I ate has influenced how I think about myself as a person.	Tükettiğim besinler 'nasıl bir insan olduğum' hakkındaki düşüncelerimi etkiledi.
4	There are definite foods I have avoided eating due to worry about how they might affect my shape or weight	Vücut şeklimi ya da kilomu etkileyebileceğinden endişe duyduğum için bazı besinleri (çikolata, cips vb.) tüketmekten kaçındım.
5	I have felt less anxious about eating out if I knew the macro-nutritional content of the food at the restaurant	Lokantadaki yemeklerin makro besin ögesi (karbonhidrat, protein, yağ) içeriklerini bildiğimde dışarıda yemek konusunda daha az endişeli hissettim.
6	I have taken my own food out with me to social events in case the food on offer is inconsistent with my diet plan	Sosyal etkinliklerde sunulan yemek diyetimle uyumlu olmaz diye yanımda kendi yemeğimi götürmeyi tercih ettim.
7	I cannot achieve my body ideal unless I exert complete control over everything I eat	Tükettiğim her besin üzerinde tam anlamıyla kontrol sağlayamadığım sürece ideal beden ölçülerime ulaşamam
8	I have pre-cooked several meals in advance to ensure that I do not deviate from my diet plan.	Diyet planımdan sapmamak için birkaç öğünü önceden hazırladım.
9	I have continued eating despite feeling full, in attempting to influence my muscularity.	Tok hissetmeme rağmen kaslılığımı etkileme çabasıyla yemeye devam ettim.
10	I have felt anxious when I run out of protein-based supplements.	Protein bazlı takviye ürünlerim bittiğinde kendimi endişeli hissettim.
11	I have been deliberately trying to limit the overall volume of some foods, so that my muscles look more defined	Kaslarımın daha belirgin görünmesi için bazı besinlerin genel tüketim miktarlarını bilerek sınırlandırmaya çalıştım (karbonhidrat, yağ vb.).
12	If I broke any of my food rules, I attempted to make up for it at my next meal.	Diyet kurallarımdan herhangi birini ihlal ettiğimde (örn; çikolata yemek) bunu bir sonraki öğünde telafi etmeye çalıştım.
13	I have felt anxious about others knowing the rules I have around what I eat.	Tükettiğim besinler hakkında koyduğum kuralları başkalarının bilmesinden endişe duydum.
14	Other people do not seem to understand how important my food choices are to me.	Diğer insanlar besin tercihlerimin benim için ne kadar önemli olduğunu anlamıyor.
15	Ensuring proper adherence to my dietary ideals is more important to me than adhering to a work schedule.	Diyet hedeflerime tam anlamıyla uymak, benim için çalışma programına uymaktan daha önemlidir.