



RISK OF EATING DISORDERS AND BODY DISSATISFACTION AMONG GYM-GOERS IN ANKARA, TURKEY

RISCO DE TRANSTORNOS ALIMENTARES E INSATISFAÇÃO CORPORAL ENTRE FREQUENTADORES DE ACADEMIAS EM ANKARA, TURQUIA

RIESGO DE TRASTORNOS ALIMENTARIOS E INSATISFACCIÓN CORPORAL DE ASIDUOS AL GIMNASIO EN ANKARA, TURQUÍA

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ABSTRACT

Introduction: Although regular exercise is widely recommended to promote optimal health, it is thought that gym-goers are at risk for body dissatisfaction and eating disorders. **Objective:** This study assessed the risk of eating disorders and the prevalence of body dissatisfaction in gym-goers enrolled in a gym located in the city of Ankara, the capital of Turkey. **Methods:** This cross-sectional study was conducted with 206 gym-goers, 102 males (mean age of 25.8±7.86 years) and 104 females (mean age of 26.5±9.07 years), who regularly exercised at least twice a week at this gym during the years 2018 to 2019. Demographic characteristics and exercise status of the participants were collected through face-to-face interviews via a questionnaire form. The REZZY (SCOFF) questionnaire was administered to determine the risk of eating disorders and the Stunkard Figure Rating Scale was administered to determine body dissatisfaction. **Results:** The mean REZZY score in females (1.4±1.21) was higher than in males (0.8 ± 1.05) (p<0.01). In males, 26 out of 102 (25.5%) had a score indicating a risk of eating disorders. In females, 44 out of 104 (42.3%) had a score indicating a risk of eating disorders. The risk of eating disorders is higher in females than in males (p<0.05). While 49.0% of males stated that their current body size is greater than the ideal body size, 76.0% of females said that their current body size is greater than the ideal body size. **Conclusion:** Consequently, it was determined that gym-goers were a risk group in terms of eating disorders and body dissatisfaction. **Level of Evidence: III; Cross-sectional study.**

Keywords: Exercise; Physical activity; Eating disorders; Body dissatisfaction; Nutrition.

RESUMO

Introdução: Embora o exercício regular seja amplamente recomendado para promover a saúde ideal, acredita-se que os frequentadores de academia correm o risco de ter insatisfação corporal e distúrbios alimentares. **Objetivo:** Este estudo avaliou o risco de transtornos alimentares e a prevalência de insatisfação corporal em frequentadores de uma academia localizada na cidade de Ancara, capital da Turquia. **Métodos:** Este estudo transversal foi realizado com 206 frequentadores de uma academia, 102 homens (média de idade 25,8 ± 7,86 anos) e 104 mulheres (média de idade 26,5 ± 9,07 anos), pelo menos duas vezes por semana nessa academia, durante os anos de 2018 a 2019. As características demográficas e a situação de exercício dos participantes foram coletadas por meio de entrevistas pessoais com um formulário. O questionário REZZY (SCOFF) foi administrado para determinar o risco de transtornos alimentares e a Escala de Classificação de Silhuetas de Stunkard foi administrada para determinar a insatisfação corporal. **Resultados:** O escore REZZY médio no sexo feminino (1,4 ± 1,21) foi maior do que no masculino (0,8 ± 1,05) (p < 0,01). No sexo masculino, 26 de 102 (25,5%) tiveram pontuação indicativa de risco de transtornos alimentares. No sexo feminino, 44 de 104 (42,3%) tiveram pontuação indicativa de risco de transtornos alimentares. Esse risco é maior em mulheres do que em homens (p < 0,05). Enquanto 49,0% dos homens afirmaram que a forma corporal atual é maior do que o ideal, 76,0% das mulheres disseram que essa forma corporal atual é maior do que o ideal. **Conclusões:** Por conseguinte, determinou-se que os frequentadores de academias constituíam um grupo de risco de transtornos alimentares e insatisfação corporal. **Nível de Evidência: III; Estudo tansversal.**

Descritores: Exercício físico; Atividade física; Transtornos da alimentação; Insatisfação corporal; Nutrição.

RESUMEN

Introducción: Aunque se recomienda ampliamente el ejercicio regular para promover un buen estado de salud, se cree que los asiduos al gimnasio corren el riesgo de sufrir insatisfacción corporal y trastornos alimentarios. **Objetivo:** Este estudio evaluó el riesgo de trastornos alimentarios y la prevalencia de insatisfacción corporal en los asiduos de un gimnasio ubicado en la ciudad de Ankara, capital de Turquía. **Métodos:** Este estudio transversal se realizó con 206 participantes, 102 hombres (edad promedio de 25,8±7,86 años) y 104 mujeres (edad promedio de 26,5±9,07 años), que practican ejercicios regularmente al menos dos veces por semana en este gimnasio durante los años 2018 a 2019. Las características demográficas y el estado de ejercicio de los participantes fueron recopilados a través de



entrevistas personales con un formulario. Se aplicó el cuestionario REZZY (SCOFF) para determinar el riesgo de trastornos alimentarios y la Escala de Calificación de Siluetas de Stunkard para determinar la insatisfacción corporal. Resultados: La puntuación REZZY promedio en las mujeres ($1,4 \pm 1,21$) fue mayor que en los hombres ($0,8 \pm 1,05$) ($p < 0,01$). En los hombres, 26 de 102 (25,5%) tenían una puntuación que indicaba riesgo de trastornos alimentarios. En las mujeres, 44 de 104 (42,3%) tenían una puntuación que indicaba riesgo de trastornos alimentarios. El riesgo de trastornos alimentarios es mayor en mujeres que en hombres ($p < 0,05$). Mientras que el 49,0% de los hombres afirmó que su tamaño corporal actual es mayor que el tamaño corporal ideal, el 76,0% de las mujeres afirmó que su tamaño corporal actual es mayor que el tamaño corporal ideal. Conclusión: Se determinó que los participantes de este estudio constituían un grupo de riesgo en cuanto a trastornos alimentarios e insatisfacción corporal. **Nivel de Evidencia III; Estudio transversal.**

Descriptor: Ejercicio físico; Actividad física; Trastornos alimentarios; Insatisfacción corporal; Nutrición.

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INTRODUCTION

There is strong evidence for the benefits of exercise on physical health, mental health, and aging. However, weight control and body image perception are the main reasons for especially young men and women to start exercising. This may cause an increase in body dissatisfaction, especially in individuals with abnormal eating behaviors.¹ Body image perception is expressed as an individual's perception, thoughts and feelings about their own body.² Body dissatisfaction is a disorder of the attitudinal component of body image.³ Body dissatisfaction arises from the difference between ideal and current body weight. It is associated with negative psychological states and behaviors.⁴ Gyms are gaining more and more importance in the social context. Since they are social environments that are strongly influenced by current beauty standards, exercise in this environment is associated with increased body image concerns. Men and women exercising in the gym have moderate to high body dissatisfaction.¹

Body dissatisfaction can lead individuals to adopt abnormal eating behaviors to achieve their goals.⁵ Changes in eating attitudes and behaviors can cause many problems, especially eating disorders. Eating disorders are a condition that has increased in the last 50 years, and are manifested by the concerns of individuals about their eating habits, body weight and physical appearance. The desire of individuals to reach their ideal body size and their tendency to diet constantly are shown as the reason for the prevalence of eating disorders.⁶ Initially, most of the research on eating disorders focused on young girls, adolescents, and women. Nowadays, researchs have increased in adult men and especially in adults who are interested in different sports. It has been shown that athletes and individuals who exercise regularly are susceptible to eating disorders. There are studies proving that the prevalence of eating disorders is higher in athletes than in the general population.^{7,8} The prevalence of eating disorders in athletes ranges from 1% to 62% in the literature.⁹ The prevalence of eating disorders is higher in elite athletes who do aesthetic sports such as gymnastics, skating, diving and dance, based on aesthetic concerns.¹⁰ Studies on eating disorders have also been carried out in individuals from different occupational groups who continue their regular exercise program in their normal lives. There are studies showing that the prevalence of eating disorders is high in individuals who start the gym with weight and body image concerns.^{11,12} It was determined that anxiety, social dysfunction and eating disorders are higher in women who exercise excessively. In a study conducted with 337 individuals exercising in the gym, 47.5% of their were found to have risk of eating disorders.¹³ In a similar study, the risk of eating disorders was determined as 25.8%.¹

In this study, we aimed to evaluate the risk of eating disorders and prevalence of body dissatisfaction among gym-goers in the Ankara, Turkey.

METHODS

This is a cross-sectional study carried out with volunteers of both sexes, enrolled in a gym located in the city of Ankara, Turkey during the years 2018 to 2019. Based on G-Power statistical software 3.1.9.4, the sample size was found to be 110-196 individuals in an 85-95% confidence interval. A total of 206 volunteers, 102 male and 104 female, gym-goers were included in the study. The exclusion criteria were as follows: being under 19 years of age, having a physical or mental disability, psychoactive drug use in the last 6 months, involuntary weight loss, malnutrition due to any disease, pregnancy or lactation status, and the absence of continuing with a regular exercise program (at least twice a week and at least 30 minutes in 1 session). Volunteers who exercised regularly in the relevant gym and did not have any exclusion criteria were included in the study.

An approval was obtained from the Gazi University Ethics Committee under approval number 2017-133. The participants were notified about the study with an informed consent form. They also stated that they were volunteers for this study. This research involving human subjects is according to the principles of Helsinki Declaration. The demographic characteristics and exercise status of the participants were collected with face-to-face interviews via the questionnaire form.

The REZZY (SCOFF) questionnaire is a simple, memorable, easy to administer and score, designed to raise suspicion and determine risk status rather than diagnosing an eating disorder.¹⁴ It, developed by Morgan et al., consists of a total of five questions.¹⁵ Its Turkish validity and reliability were determined by Aydemir et al., and the questionnaire name was determined as REZZY in its Turkish adaptation. In the assessment of the questionnaire, one point is given for every "yes" and a score of ≥ 2 indicates the risk of eating disorders.¹⁶

Stunkard Figure Rating Scale is a psychometric scale developed in 1983 as a means of determining body dissatisfaction in men and women. This scale is a visible measure of how a person perceives their physical appearance. Each figure represents schematic silhouettes of nine men and nine women, ranging from underweight to overweight. Participants are asked to choose the silhouette that best reflects their current body size and ideal body size. The body dissatisfaction score is calculated by subtracting the score of the silhouette chosen for the ideal body size from the score of the silhouette selected for the current body size. A high body dissatisfaction score indicates lower satisfaction with body size, while a low body dissatisfaction score indicates higher satisfaction.¹⁷

Numerical variables were expressed as mean (\bar{x}), standart deviation (SD) and categorical variables were expressed as number (n) and percentage (%). The Kolmogorov Smirnov test was used to determine if the variables were normally distributed. The differences between categorical variables were evaluated using the chi-squared test. An

independent Student's t-test or Mann-Whitney U test were used to compare mean values. All statistical analyses were performed using SPSS software (version 15.0). In all analyses, the significance level was taken as $p < 0.05$ or $p < 0.01$.

RESULTS

This study was conducted on a total of 206 individuals, 102 males and 104 females, aged between 19-55, who regularly exercise in a gym in Ankara, Turkey. The mean age was 25.8 ± 7.86 for males and 26.5 ± 9.07 for females. When evaluated in terms of marital status, 85.3% of males were single, while 81.7% of females were single. In addition, 70.6% of males had a university or upper degree, while this rate for females was 78.3%. When evaluated in terms of income status, 73.5% of males and 69.2% of females stated that have moderate income levels.

Exercise frequency and duration of males were 3.7 ± 1.35 d/wk and 287.8 ± 133.38 min/wk, respectively. Exercise frequency and duration of females were 2.9 ± 1.11 d/wk and 206.6 ± 116.08 min/wk, respectively. There was a significant difference between the frequency and duration of exercise according to gender ($p < 0.01$). Males exercised more frequently and for longer than females (Table 1).

The mean score of REZZY questionnaire was 0.8 ± 1.05 in males and 1.4 ± 1.21 in females. There was a significant difference between males and females ($p < 0.01$). Female gym-goers were at greater risk of eating disorders than males. When evaluated according to the cut-off score, 25.5% of males and 42.3% of females had a score above the cut-off score. This difference between the risk of eating disorders by gender was statistically significant ($p < 0.05$). Females had a higher risk of eating disorders than males. While the total score of eating disorder risk was 1.1 ± 1.16 in overall sample, the risk of eating disorder was determined in 34.0% of the individuals (Table 2).

Body dissatisfaction of gym-goers was evaluated with the Stunkard Figure Rating Scale. According to this scale, while the current body size score for males was 4.4 ± 1.47 , this score was 4.1 ± 1.64 for females. Ideal body size score of males and females were 3.8 ± 0.91 and 2.6 ± 0.85 , respectively. Body dissatisfaction score was 2.1 ± 0.71 for males and 2.0 ± 0.49 for females. The current body size score of the all participants was 4.3 ± 1.56 and ideal body size score was 3.2 ± 1.07 and body dissatisfaction score was 2.0 ± 0.61 . Current body size score was higher in males than females ($p < 0.01$) and ideal body size score was lower in females than males ($p < 0.01$) (Table 3). Accordingly, 21.6% of the males were satisfied with their current body size. In addition, 49.0% of the males stated that their

current body size was more than the ideal body size, while 29.4% stated that their current body size was less than the ideal body size. Also, 11.5% of females were satisfied with their body size. On the other hand, 76.0% of them said that their current body size was more than the ideal body size, 12.5% of them declared that their current body size was less than the ideal body size. There was statistically significant difference in the body satisfaction classification between males and females ($p < 0.01$) (Table 4).

There was no statistically significant difference between the risk of eating disorders and body dissatisfaction according to the marital status, educational status and income status of participants ($p > 0.05$).

Table 3. Distribution of the gym-goers regarding the Stunkard Figure Rating Scale.

	Males (n:102)	Females (n:104)	Total (n:206)	p
	\bar{X} (SD)	\bar{X} (SD)	\bar{X} (SD)	
Current body size score	4.4 (1.47)	4.1 (1.64)	4.3 (1.56)	0.036*
Ideal body size score	3.8 (0.91)	2.6 (0.85)	3.2 (1.07)	0.000**
Body dissatisfaction score	2.1 (0.71)	2.0 (0.49)	2.0 (0.61)	0.373

Mann-Whitney U test, * $p < 0.05$, ** $p < 0.01$.

Table 4. Distribution of the gym-goers regarding body satisfaction classification.

	Male (n:102)		Female (n:104)		Total (n:206)		χ^2	p
	S	%	S	%	S	%		
CBS<IBS	30	29.4	13	12.5	43	20.9	16.164	0.000**
CBS=IBS	22	21.6	12	11.5	34	16.5		
CBS>IBS	50	49.0	79	76.0	129	62.6		

Chi-squared test, ** $p < 0.01$. CBS: Current body size, IBS: Ideal body size.

DISCUSSION

According to the physical activity guidelines developed by the American College of Sports Medicine for adults aged 18-65, all healthy adults need moderate-intensity physical activity for a minimum of 30 minutes on 5 days each week or vigorous-intensity physical activity for a minimum of 20 minutes on 3 days each week to protect and improve health.¹⁸ If the frequency and duration of exercise increases beyond positive effects, it can harm the body, control the whole body and reduce the quality of life.¹⁹ Exercise frequency of the males was 3.7 ± 1.35 d/wk and exercise duration was 287.8 ± 133.38 min/wk. Exercise frequency and duration of females 2.9 ± 1.11 d/wk ve 206.6 ± 116.08 min/wk, respectively (Table 1). In both males and females, the weekly exercise duration was above the recommended minimum duration (150 min/wk). Similarly, in studies conducted in different countries, the exercise duration and frequency of gym-goers are above the recommendations.^{20,21}

While exercise is an important part of wellness, there is evidence that some gym-goers exercise to a degree that could endanger their health. In some cases, these individuals may be exercising to lose weight or to compensate for binge eating episodes as part of the eating disorder.²² As a result of the REZZY questionnaire applied to determine the risk of eating disorders in this study, the total score was found to be 0.8 ± 1.05 in males and 1.4 ± 1.21 in females. Accordingly, the risk of eating disorders was found in 25.5% of males and 42.3% of females in this study. It was determined that the risk of eating disorders was higher in females compared to males (Table 2). The finding of a high risk of eating disorders in gym-goers in our study supported studies confirming the relationship between exercise and eating disorders.^{4,23} In a study conducted with 152 males and 685 females who exercise regularly, 3% of males and 11% of females were found to be at risk of eating disorders, and females had a higher risk of eating disorders than males.²⁴ Although it is believed that most of gym-goers have health-supportive exercise behaviors, it is seen that the risk of eating disorders is high among them, especially women.⁴ In our study, the risk level of this group is high for both men

Table 1. Frequency and duration of exercise in gym-goers.

	Males (n:102)		Females (n:104)		p
	$\bar{X} \pm SD$	Min-Max	$\bar{X} \pm SD$	Min-Max	
Exercise frequency (d/wk)	3.7 ± 1.35	2-7	2.9 ± 1.11	2-7	0.000**
Exercise duration (min/wk)	287.8 ± 133.38	90-630	206.6 ± 116.08	100-720	0.000**

Mann-Whitney U test, ** $p < 0.01$.

Table 2. Distribution of the gym-goers regarding the risk of eating disorders.

	Males (n:102)		Females (n:104)		Total (n:206)			p ^b
	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD	p ^a	
REZZY Total score	0.8	1.05	1.4	1.21	1.1	1.16	0.001**	
<2 (no risk)	76	74.5	60	57.7	136	66.0		
≥ 2 (risk)	26	25.5	44	42.3	70	34.0	6.492	0.011*

*Mann-Whitney U test, ^bChi-squared test, ^a $p < 0.05$, ** $p < 0.01$.

and women, since the majority of the participants were young men and women, who were considered to be risk groups, and gyms were environments where excessive exercise and certain diets were applied.

Body dissatisfaction occurs when there is a mismatch between a person's own body image, particularly body shape and weight, and their perceived ideal body. Prevalence of dieting and body dissatisfaction are high, especially in physically active women and athletes, despite not being overweight or obese.^{1,3} Neves et al. found the prevalence of body dissatisfaction in female gymnasts to be 50%.²⁵ Matthiasdottir et al. evaluated body dissatisfaction in 5832 women of different ages and reported that approximately 50% of women were dissatisfied with their weight and 64% of normal-weight women believed they should lose weights.²⁶ Gyms provide a common exercise area for one-third of the exercises performed. However, exercise in this area was found to be associated with body image concern, especially for women. This may be because gyms provide an atmosphere where the female body is showcased and are places where there is an overemphasis on weight loss and how the body should be. This is explained by the fact that gyms are places that emphasize weight loss and ideal body shape.²⁷ While the current body size score of males was 4.4 ± 1.47 , it was found to be 4.1 ± 1.64 for females. The ideal body size score was 3.8 ± 0.91 in males and 2.6 ± 0.85 in females (Table 3). Similarly, in a study conducted with 734 individuals who were undergraduate students of sports sciences, the current body size score of males was 3.8 ± 1.60 , while it was 4.7 ± 1.60 for females. Also, the ideal body size score was 3.6 ± 1.20 in males and 3.4 ± 1.20 in females.²⁸ In addition, in our study, 49.0% of males and 76.0% of females stated that their current body size was greater than the ideal body size. In addition, females had more body dissatisfaction

than males (Tablo 4). Similarly, many studies show that both active and inactive women are at greater risk of body dissatisfaction than men.^{3,29} This can be explained by the fact that women are exposed to more body changes and hormonal changes throughout their lives, resulting in higher body dissatisfaction.³⁰ Body dissatisfaction is recognized as a risk factor for the development of impaired eating behavior and eating disorder. For this reason, the importance of evaluating and reducing body dissatisfaction in gym-goers who are overly concerned with their body image should be emphasized.

CONCLUSION

In conclusions, it was observed that the risk of eating disorders and the prevalence of body dissatisfaction were high among gym-goers. It is necessary to make essential interventions and develop strategies in order to prevent eating disorders that may occur in individuals who are determined to have an eating disorders risk. When individuals are evaluated according to body dissatisfaction, it was determined that they generally see themselves as overweight even if they are of normal weight. Considering that body dissatisfaction is the basis of eating disorder, gym-goers should be carefully monitored and precautions should be taken when necessary. Diet, exercise and weight control are important for maintaining a healthy life. In order to ensure the optimum compatibility of all components, gym-goers need support from dietitians and exercise professionals. In addition, it may be recommended to organize guidelines in order to give warnings about nutrition and physical activity for individuals exercising in gym.

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