Black Sea Journal of Health Science
doi: 10.19127/bshealthscience.1205092

Open Access Journal
e-ISSN: 2619 - 9041

Research Article
Volume 6 - Issue 2: 224-232/ April 2023

EVALUATION OF EATING ATTITUDES, NUTRITIONAL STATUS, AND ANTHROPOMETRIC MEASUREMENTS OF WOMEN WHO EXERCISE: THE CASE OF KARABÜK

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Abstract: Unhealthy nutrition attitudes and behaviors are quite common among women. The development of such behaviors involves a high risk for existing health conditions of slightly obese and obese individuals. The way to a better quality of life is through doing regular physical activity, having a healthy diet, and changing eating attitudes. In this context, this study was conducted to examine the nutritional status and eating attitudes of women who applied to a private clinic and exercised. A total of 111 women between the ages of 18-45 who applied to a private nutrition and diet clinic in Karabük province in Türkiye and engaged in regular physical activity (at least 150 minutes per week or more) were included in the study. The data were collected using a questionnaire including the participants' demographic data, anthropometric measurements, 3-day food consumption records, physical activity habits and Eating Attitude Test (EAT-40) scale. The measurements were performed with the Inbody 120 device, which performs detailed body analysis. SPSS 23.0 (IBM SPSS Statistics) was used in the analysis of the data. The "Independent Sample-t" test (t-table value) was used to compare the measurement values of two independent groups. Eating attitudes of women differ according to age, educational status and BMI groups. Of the women with normal eating behavior, 50.6% are married, 46.1% are between the ages of 30-34, 49.4% are university graduates, and 61.8% are within the normal BMI range ($P<0.05$). According to the participants' EAT-40 scores, it was observed that body weight, height, body fat and lean mass amount differed according to eating attitudes, but BMI and body fat percentage did not differ according to eating attitudes. There is a positive relationship between body weight and height, body fat, lean body mass and BMI, a negative relationship between body weight and body fat percentage, a positive relationship between body fat and BMI, a negative relationship between body fat and lean body mass and BMI, and a positive relationship between lean body mass and BMI ($P<0.05$). A positive relationship was found between healthy nutrition and eating attitudes of women who exercised. Future studies on the effects of eating attitudes and dietary habits of women exercising on anthropometric measurements are important.

Keywords: Exercise, Nutrition, Eating attitude, Body mass index

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Received: November 15, 2022
Accepted: January 11, 2023
Published: April 01, 2023

Cite as: Göbel P, Doğan Güney H. 2023. Evaluation of eating attitudes, nutritional status, and anthropometric measurements of women who exercise: the case of Karabük. BSJ Health Sci, 6(2): 224-232.

1. Introduction

Physical activity is known for its beneficial effects on a spiritual, psychological, and vigorous life. Individuals who engage in regular physical activity improve their physical health, as well as their negative symptoms such as depression and sleep disorders (Kuller et al., 2012). Obesity-based chronic diseases reduce the quality of life and are an important risk factor for morbidity and mortality. Changes in exercise and nutritional habits, which are recommended as lifestyle interventions in the treatment of diseases such as type 2 diabetes, cardiovascular diseases, hypertension, and hyperlipidemia are seen as the key element of medical care (Kim et al., 2016; Fuentes and Silveyra, 2019). According to World Health Organization (WHO) guidelines, at least 150 minutes of moderate-intensity or 75 minutes of high-intensity physical activity per week is recommended for healthy adults. Despite these recommendations, the positive effects of doing exercise on health are often underestimated (WHO, 2015; Nosaka et al., 2021).

Adequate and balanced nutrition is a very important criterion to improve performance, condition, reduce post-exercise fatigue, and prevent injury in those who do regular physical activity. A well-balanced nutritional therapy and physical activity are important for quality health (Chooi et al., 2019; Nosaka et al., 2021; Waliiko et al., 2021). The path to a better quality of life is through regular physical activity and a healthy diet. Regular physical activity not only improves skeletal muscle systems and many metabolic functions of individuals, but also reduces risks of health problems such as hypertension, diabetes, osteoporosis, obesity, and cardiovascular diseases (De Lorenzo et al., 2006; Dos Santos Fechine et al., 2021). Studies show that the most

important way to increase the optimum benefit and performance from exercise is provided by a sustainable and healthy diet (Chooi et al., 2019; Nosaka et al., 2021; Waliiko et al., 2021; Dos Santos Fechine et al., 2021). Individuals who exercise give importance to their nutrition in order to look better, feel better, improve their performance or prevent the deterioration of homeostasis with strenuous exercise (De Lorenzo et al., 2006; Kapoor et al., 2019).

Developing behavioral competence and self-efficacy, as well as knowledge, attitudes, and beliefs about healthy diet, is often the first step in behavioral changes. It is known that attitudes affect and direct individuals' behaviors (Kapoor et al., 2019; Haghighat et al., 2021). Knowledge, attitudes, and behaviors are acquired through individual and social life experience and take part in determining the actions of an individual. These can be stimulated or modified, thereby they can improve a person's behaviors and lifestyle (Haghighat et al., 2021).

Unhealthy nutrition attitudes and behaviors are quite common among women. The development of such behaviors involves a high risk for existing health conditions of slightly obese and obese individuals (Haghighat et al., 2021; Rocha-Rodrigues et al., 2021). The three most frequently studied areas of eating attitudes are uncontrolled eating, cognitive restriction, and emotional eating. Uncontrolled eating refers to the tendency to overeat due to the feeling of losing control. Cognitive restriction suggests a tendency to consciously restrict food intake, rather than using physiological cues (hunger and satiety) as eating regulators. Emotional eating refers to the tendency to eat in response to emotional triggers rather than actual physiological needs (Estruch et al.,2006; Rocha-Rodrigues et al., 2021; Afrin et al., 2021). Most of the studies on this subject focus on women compared to men (Estruch et al., 2006; Rocha-Rodrigues et al., 2021; Afrin et al., 2021; Tsilidis et al., 2022). In the light of the literature reviewed, there is a need for studies examining the relationship between the nutritional status, eating attitude and nutritional quality of women who do regular physical activity. This study focuses on the nutritional status and eating attitudes of women who applied to a private clinic and exercised.

2. Materials and Methods

2.1. Subject and Procedures

The sample of the study consisted of women who applied to a private nutrition and diet clinic in Karabük province in Türkiye between November and December 2022 and did regular (at least 150 minutes and more per week) physical activity. The data were collected using a questionnaire including the participants' demographic data, anthropometric measurements, 3-day food consumption records (2 days on weekdays and 1 day on the weekend), physical activity habits and Eating Attitude Test (EAT-40) scale. Detailed body analysis of the participant was carried out by the (Inbody 120) device. The questionnaire was administered face-to-face to the volunteer participants, and it took approximately 15 minutes to complete the questionnaire.

The questionnaire consists of three parts;

i. A questionnaire (24 questions) including demographic information, anthropometric measurements, food consumption record, physical activity habits and food consumption habits,

ii. 3-Day food consumption record,

iii. Eating attitude test (EAT-40).

A total of 111 women between the ages of 18-45 were included in the study group. Male participants, women who are outside the age range of 18-45 years, those who exercise less than 150 minutes per week, and individuals with any chronic disease were excluded from the study.

2.2. Eating Attitude Test (EAT-40)

The Eating Attitude Test (EAT-40) is the most common self-report tool used to screen large populations for observed attitudes and symptoms. The Eating Attitude Test-40 was formed to measure the eating behaviors and attitudes of patients with eating disorders and the symptoms of possible disorders in eating behavior in normal individuals. The original version of the scale was developed by Garner and Garfinkel as a self-assessment scale for their own eating habits in order to define problematic eating behaviors and to objectively measure bulimia and anorexia nervosa symptoms (Garner et al., 1979). The Turkish validity and reliability studies were conducted by Savaşır and Erol (1989). Five factors emerged in the scale: preoccupation with food, bulimia and body size, dieting, oral control, and conflicting thoughts and feelings about food. The items were rated on a 6-point Likert scale consisting of "never", "rarely", "sometimes", "often", "very often" and "always" options. In terms of pathology, it was evaluated by giving 3 points for "always, very often, often" answers, 2 points for "rarely" answers and 1 point for "never" answers. A maximum of 120 points could be obtained from the test, and over 30 points were considered significant. Having a total score of 30 points or more after the rating was scored was considered to be directly related to the level of psychopathology. The distinction score for the diagnosis of anorexia was determined as 30. The Cronbach Alpha reliability coefficient of the scale was found to be 0.70 (Savasir and Erol, 1989). The psychometric properties of the scale were reported to be at an acceptable level. The factor structure of the scale was re-examined by Elal et al. (2000) and a three-factor structure similar to the original was found (Elal et al., 2000). In this study, The Cronbach Alpha internal consistency ratio of the scale was found to be 0.79.

2.3. Anthropometric Measurements

Body weight (kg) and height (cm) of the participants were measured by the researchers. Body weights of the

participants were measured in the morning on an empty stomach and wearing light clothing. Total body weight, total body fat, total body fluid, muscle-fat analysis (weight, skeletal muscle weight, body fat weight), and visceral fat level (fat level around the internal organs) were measured with the body analyzer Inbody 120. When measuring height with a non-flexible steel tape measure, back and shoulders touched the wall, feet were together and faced forward. Body Mass Index (BMI) was calculated by dividing body weight (kg) by the square of height (m) (BMI=kg/m^2). According to the World Health Organization, a BMI below 18.5 kg/m^2 is classified as underweight, between 18.5-24.9 kg/m^2 as normal, between 25-29.9 kg/m^2 as overweight, and above 30 kg/m^2 as obese (Von Mutius et al., 2001).

2.4. Statistical Analysis

The statistical analyzes were performed using a package program called SPSS 23.0 (IBM SPSS Statistics). Frequency tables and descriptive statistics were used to interpret the findings. Parametric methods were used for the measurement values suitable for normal distribution. "Independent Sample-t" test (t-table value) was used to compare the measurement values of two independent groups in accordance with parametric methods. χ^2-cross tables were used to examine the relationship between the qualitative variables. Pearson correlation analysis was used to examine the relationship between the measurement values. Correlation coefficients were interpreted as r=0; no correlation, r=0.01-0.29; low level correlation, r=0.3-0.7; moderate level correlation, r=0.71-0.99; high level correlation, r=1; perfect correlation. In the analysis results, the comparison tests were interpreted at 95% confidence level and 0.05 significance value, while the correlation tests were interpreted at 95% and 99% confidence levels and 0.05 and 0.01 significance values.

3. Results

Table 1 shows the analysis results of some characteristics of the participants and their comparison in terms of EAT-40 scores and BMI values. Among the participants, of the women with normal eating behavior 45 (50.6%) were married. It was analyzed that marital status did not differ depending on the eating attitude (P > 0.05). Among the participants, of the women with normal eating behavior, 44 (49.4%) were university graduates, 15 (16.9%) had master's degrees, and 30 (33.7%) had doctoral degrees. Among the participants, of the women with normal eating behavior 1 (1.1%) was underweight, 55 (61.8%) were normal, and 33 (37.1%) were overweight. Of the women with impaired eating behavior, 21 (95.5) were normal and 1 (4.5%) was overweight. Age, educational status, and BMI groups differed statistically significantly in terms of their eating attitudes (P< 0.05). Of the women with normal body mass index, 39 (51.3%) were married and 37 (48.7%) were single. When evaluated in terms of age groups, 39 (51.3%) of women with normal weight were in the 30-34 age range, and 18 (23.7%) were in the 35-39 age range. While 55 (61.8%) of the women whose eating attitudes were evaluated as normal were at normal weight, 33 (37.1%) were overweight. No statistically significant relationship was found between BMI classes and marital status (P > 0.05). A statistically significant relationship was found between BMI classes and age, educational status and eating attitude test scores (P<0.05) (Table 1).

Table 1. Some demographic characteristics of the participants, eat results and distribution of BMI groups

Variable		EAT						BMI							
		<30 (NE)		>30 (IE)				<18.5		18.5-24.9		>25			
		N	%	N	%	Analysis	P	N	%	N	%	N	%	Analysis	P
Marital Status	Married	45	50.6	11	50.0	0.020	0.962	1	100.0	39	51.3	16	47.1	1.161	0.560
	Single	44	49.4	11	50.0			0	0.0	37	48.7	18	52.9		
Age (years)	25-29	24	27.0	0	0.0			1	100.0	9	11.8	14	41.2		
	30-34	41	46.1	12	54.5			0	0.0	39	51.3	14	41.2		
	35-39	19	21.3	0	0.0	43.908	0.000*	0	0.0	18	23.7	1	2.9	27.177	0.001*
	40-49	0	0.0	10	45.5			0	0.0	9	11.8	1	2.9		
	50-54	5	5.6	0	0.0			0	0.0	1	1.3	4	11.8		
Educational Status	University	44	49.4	0	0.0			1	100.0	34	44.7	9	26.5		
	Master	15	16.9	16	72.7	30.820	0.000*	0	0.0	27	35.5	4	11.8	21.057	0.000*
	Doctoral	30	33.7	6	27.3			0	0.0	15	19.7	21	61.8		
BMI (kg/m^2)	<18.5	1	1.1	0	0.0			1	100.0	55	72.4	33	97.1		
	18.5-24.9	55	61.8	21	95.5	10.592	0.004*	0	0.0	21	27.6	1	2.9	9.260	0.010*
	>25	33	37.1	1	4.5										

*Pearson Chi-Square Test, P<0.05. EAT= eating attitude test, BMI= body mass index, NE= normal eating, IE= impaired eating)

Table 2 shows the results of the analysis regarding the comparison of some characteristics of the participants in terms of eating attitude test scores. Accordingly, the mean body weight of women with normal eating behavior was 65.98±8.84 kg and their mean height was 166.49±6.58 cm. While the mean BMI was 23.85±3.26 kg/m^2, of the women with impaired eating behavior, the mean body weight was calculated as 60.07±7.15 kg, the mean height as 161.00±4.58 cm, and the mean BMI as 23.11±1.86 kg/m^2. The participants differed in terms of

BMI, body fat percentage, and eating attitude (P > 0.05). The participants also differed statistically significantly in terms of body weight, height, fat (kg) and lean mass amount and eating attitudes (P<0.05). (Table 2).

Table 3 shows the results of the chi-square comparison test between the sports-related features and the eating attitude test classes. 67 (75.3%) of women with normal eating attitude and 12 (54.5%) of women with impaired eating attitude stated that they exercised at home. Among the participants, 69 (77.5%) of the women with normal eating attitude and 10 (45.5%) of the women with impaired eating attitude stated that they exercised 1-2 times a week. Among the participants, 38 (42.7%) of the women with normal eating attitudes walked and 16 (18.0%) did yoga / pilates, while 12 (54.5%) of the women with impaired eating attitude walked and 10 (45.5%) did yoga / pilates. No statistically significant relationship was found between the eating attitude test classes and the place where exercise was done, the frequency of exercise, the duration of doing sports and the reasons for tending to sports (P > 0.05). A statistically significant relationship was found between the eating attitude test classes, the mean duration of doing sports and the type of sports performed (P<0.05) (Table 3).

Table 2. Comparison of some physical characteristics of the participants according to eating attitude test results

	Eating Attitude Test-40			
	<30 (Normal eating)	>30 (Impaired eating)	Analysis	P
Body Weight (kg)	65.98±8.84	60.07±7.15	3.306	0.002*
Height (cm)	166.49±6.58	161.00±4.58	3.693	0.000*
BMI (kg/m^2)	23.85±3.26	23.11±1.86	10.380	0.302
Fat (kg)	22.35±4.10	20.29±4.09	2.110	0.042*
Fat (%)	34.14±6.01	33.97±6.97	0.101	0.920
Lean mass (kg)	43.63±8.40	39.78±7.30	2.152	0.038*

*P<0.05, Independent Sample-t test

Table 3. Comparison of the participants' exercise-related data according to eating attitude test results

Variable		Eating Attitude Test-40				Analysis	p
		<30 (Normal eating)		>30 (Impaired eating)			
		n	%	n	%		
Place of Exercise	Home	67	75.3%	12	54.5%	4.331	0.115
	Gym	21	23.6%	10	45.5%		
	Other (specify)	1	1.1%	0	0.0%		
How Long is Exercise Done?	0-1 year	31	34.8%	6	27.3%	2.070	0.546
	1-2 years+3-4 years	15	16.9%	6	27.3%		
	4-6 years	5	5.6%	0	0.0%		
	6 years and above	38	42.7%	10	45.5%		
Frequency of Exercise	Every day	12	13.5%	6	27.3%	8.965	0.070
	3-4 times a week	8	9.0%	6	27.3%		
	1-2 times a week	69	77.5%	10	45.5%		
Mean Exercise Duration	30 min or less	47	52.8%	0	0.0%	28.296	0.000*
	Between 30-60 min	36	40.4%	22	100.0%		
	60 min and over	6	6.7%	0	0.0%		
Exercise Type	Trekking	38	42.7%	12	54.5%	14.217	0.005*
	Cardio	13	14.6%	0	0.0%		
	Yoga/Pilates	16	18.0%	10	45.5%		
	Fitness	16	18.0%	0	0.0%		
	Other (EMS. HIIT Sport)	6	6.7%	0	0.0%		
Reason for Doing Exercise	To be healthy	17	19.1%	4	18.2%	5.102	0.164
	To be active	33	37.1%	13	59.1%		
	To keep fit	29	32.6%	5	22.7%		
	To lose weight	10	11.2%	0	0.0%		

*P<0.05, Pearson Chi-Square Test

Table 4 shows the examination of the relationship between the participants' body weight, height, body fat, lean body mass, BMI, and Eating Attitude Test scores. A positive, poor, statistically significant relationship was found between body weight, height, and body fat (r=0.342. r=0.356; P=0.000). A negative, poor, statistically significant relationship was found between body weight and body fat percentage (r=-0.298; P=0.001). A positive, highly statistically significant relationship was found between body weight, lean body mass, and BMI (r=-0.884. r=0.833; P=0.000). A positive, poor, statistically significant relationship was found between height and lean body mass (r=0.334; P=0.000). A positive, poor, statistically significant relationship was found between body fat and BMI (r=0.361; P=0.000). A negative, highly statistically significant relationship was found between body fat percentage and lean body mass (r=-0.702; P=0.000). A negative, poor, statistically significant relationship was found between body fat percentage and BMI (r=-0.201; P=0.034). A positive, highly statistically significant relationship was found between lean body mass and BMI (r=0.704; P=0.000). No statistically significant relationship was found between EAT scores and the variables (Table 4).

Table 4. Examining the relationships between some physical characteristics of the participants

		BW (kg)	H (cm)	BF (kg)	BF (%)	LBM (kg)	BMI (kg/m²)	EAT-40
BW (kg)	r	1	0.342**	0.356**	-0.298**	0.884**	0.833**	-0.043
	p		0.000	0.000	0.001	0.000	0.000	0.658
H (cm)	r	0.342**	1	0.057	-0.148	0.334**	-0.230*	-0.005
	p	0.000		0.551	0.121	0.000	0.015	0.958
BF (kg)	r	0.356**	0.057	1	0.770**	-0.122	0.361**	-0.123
	p	0.000	0.551		0.000	0.202	0.000	0.200
BF (%)	r	-0.298**	-0.148	0.770**	1	-0.702**	-0.201*	-0.101
	p	0.001	0.121	0.000		0.000	0.034	0.291
LBM (kg)	r	0.884**	0.334**	-0.122	-0.702**	1	0.704**	0.016
	p	0.000	0.000	0.202	0.000		0.000	0.866
BMI (kg/m²)	r	0.833**	-0.230*	0.361**	-0.201*	0.704**	1	-0.050
	p	0.000	0.015	0.000	0.034	0.000		0.603
EAT-40	r	-0.043	-0.005	-0.123	-0.101	0.016	-0.050	1
	p	0.658	0.958	0.200	0.291	0.866	0.603	

BW= body weight, H= height, BF= body fat, LBM= lean body mass, BMI= body mass index, EAT= eating attitude test. *P<0.05, **P<0.01.

Table 5 shows the mean of energy and nutrients that the participants took in daily diet. The participants' mean daily energy intake was 1255.97±390.63 kcal. The percentages of carbohydrates and proteins that the participants took with their daily diet were calculated as 38±9% and 21±4%, respectively. The participants' mean value of daily dietary fat intake was 57.90±20.86 g. The mean percentage of the diet from fat was found to be 41±8. The amount of energy from polyunsaturated fatty acids (PUFA) in the participants' daily diets was determined as 10.40±5.24. It was observed that the mean cholesterol value that the participants took in their daily diet was 593.14±270.04 g. When the participants' fiber consumption was examined, it was determined that the mean daily fiber intake was 15.83±6.16 g. When the women's daily dietary vitamin intake was examined, the mean intake of vitamin A was found to be 1306.06±1953.82 RE. It was observed that the participants' mean intake of vitamin A met 145.1% of the recommended level. When the participants' mean daily dietary vitamin E intake was examined, it was found that it was 11.58±5.01 mg, meeting 77.2% of the recommended amount. The mean of thiamine taken by the participants with daily diet was calculated as 0.82±0.26 mg. It was determined that thiamine intake levels met 74.9% of the recommended amount. The participants' riboflavin intake was determined as 1.55±0.71 mg per day, which was found to meet 155.3% of the recommended amount. The participants' mean daily consumption of B6 vitamins was found to be 1.39±0.46 mg. Consumption amount of vitamin B6 met 81.7% of the recommended amount. When the participants' daily dietary intake of vitamin B6 was examined, it was found that they consumed 1.4±0.33 mg. When the participants' daily consumption of vitamin C was evaluated, it was determined that it met 138.3% of the recommended amount with an average of 124.43±71.73 mg. When the participants' daily dietary mineral intake and meeting percentages were examined, it was calculated that the magnesium intake was 219.63±66.11mg. The participants' magnesium intake levels met 52.3% of the recommended amount. Daily dietary sodium intake was 3329.07±6816.28 mg. The participants' dietary sodium intake met 221.9% of the recommended amount. When the participants' daily potassium intake was examined, it was determined that

they consumed 2536.59±773.79 mg of potassium. It was determined that this amount met 97.6% of the recommended amount. The participants' dietary calcium intake amount met 49.4% of the recommended amount and was determined as 493.67±221.07 mg. The participants' phosphorus and zinc intake amount of individuals for phosphorus; 987.93±375.95 mg, 8.66±3.59 mg for zinc. It was observed that the participants' phosphorus intake amount was 987.93±375.95 mg, and zinc intake amount was 8.66±3.59 mg. The percentages of meeting the recommended amount for zinc and phosphorus were 141.1% and 78.7%, respectively. While the mean daily dietary iron intake amount was found to be 9.54±2.93 mg, it was found that it met 119.2% of the recommended amount (Table 5).

Table 5. Comparison of the participants' daily dietary energy and other nutrients with DRI

	X̄±SD (n=111)	Lower	Upper	DRI Suggestions	DRI Meeting (%)
Energy (kcal)	1255.97±390.63	325.32	2052.01	2000	62.8
Water (g)	1320.8±443.51	340.69	2379.03	2500	52.8
Protein (g)	64.94±23.58	15.53	123.25	56	116.0
Protein (%)	21±4	13	29		
Fat (g)	57.90±20.86	16.13	104.00	65	89.1
Fat (%)	41±8	16	55		
CHO (g)	116.15±49.68	28.28	286.13	310	37.5
CHO (%)	38±9	22	57		
Fiber (g)	15.83±6.16	4.59	33.86	25	63.3
Alcohol (g)	0.03±0.14	0.00	.80	0	
Polyunsaturated fattty a.(g)	10.40±5.24	2.74	24.03	1.4	742.7
Cholesterol (mg)	593.14±270.04	140.00	1110.20	300	197.7
Vitamin A (µg)	1306.06±1953.82	206.70	11172.90	900	145.1
Carotene (mg)	3.64±2.19	.18	10.61	5.6	64.9
Vitamin E (mg)	11.58±5.01	2.64	30.86	15	77.2
Thiamine (mg)	0.82±0.26	.24	1.34	1.1	74.9
Riboflavin (mg)	1.55±0.71	.39	3.55	1	155.3
Pyridoxine (mg)	1.39±0.46	.30	2.37	1.7	81.7
Folate. Total (µg)	310.44±110.43	85.55	663.10	400	77.6
Vitamin C (mg)	124.43±71.73	28.90	345.61	90	138.3
Sodium (mg)	3329.07±6816.28	688.00	53007.00	1500	221.9
Potassium (mg)	2536.59±773.79	647.50	3902.50	2600	97.6
Calcium (mg)	493.67±221.07	86.77	1109.30	1000	49.4
Magnesium (mg)	219.63±66.11	66.27	382.25	420	52.3
Phosphorus (mg)	987.93±375.95	261.93	2255.30	700	141.1
Iron (mg)	9.54±2.93	3.73	17.09	8	119.2
Zinc (mg)	8.66±3.59	2.20	17.79	11	78.7
Basal metabolism (kJ)	5727	5727	5727		
Activity metabolism (kJ)	2210	2210	2210		

DRI= dietary reference intake

4. Discussion

Our study was conducted to examine the relationship between nutritional status, eating attitudes, and anthropometric measurements of women who exercise and to focus on women's eating attitudes. From an epidemiological point of view, eating disorders are more common among women. In the literature review, the EAT-40 total score of the "25-34" age group is significantly higher than the other age groups. Individuals in this age range are still in the early stages of their careers or have just reached stability at work. They live within the framework of marriage, employment opportunities, child-rearing, or a combination of these. It is thought that the hustle and bustle of living standards affect eating behavior. People tend to change their eating habits to cope with stress. Therefore, the reason for these people's abnormal eating attitude may be high life stress (Coulthard et al., 2021). In this study, women's eating attitudes differ depending on age, educational status, and BMI groups. Among the participants in the study, of the women with normal eating behavior, 50.6% were

married, 46.1% were between the ages of 30-34, 49.4% were university graduates, and 61.8% were within the normal BMI range.

It was reported that key risk factors for the development of obesity include "eating disorders, high-energy density diets, low physical activity, and adopting a sedentary lifestyle." WHO recently recommends development of preventive and control measures at both the individual and national levels (Doyle AC et al., 2007; WHO, 2015). Exercise (fitness. yoga, cycling, etc.) is the most common method of weight control, especially among women aged 40-49, where the prevalence of obesity is highest. These observations support WHO guidelines that recommend promoting "regular participation in physical activity as a primary method for weight control in obese individuals". Body weight control approaches may differ depending on demographic variables such as gender, age, marital status, economic status, and educational level (Sofi et al., 2008; Esposito et al., 2010). In a study conducted to evaluate the relationship between disordered eating attitudes and self-esteem and physical activity in young adults in Poland and Italy, it was found that high levels of anxiety about eating attitudes are associated with knowledge and psychological attitudes about healthy eating, and irregular eating attitudes negatively affect body image and motivation to do sports (Sofi et al., 2008). In our study, the reasons for women to tend to exercise were determined mostly to be active and to be healthy. Moreover, the participants who do not have an eating disorder according to the results of EAT-40, care about maintaining their form.

Regular exercise is also to some extent related to eating attitudes. In their study on factors that have a potential effect on eating attitudes, Erol et al. (2002) found that women's BMI, eating attitudes and eating behaviors were not related. Compared to men, eating attitudes, and eating behaviors of women are strongly associated with BMI indices. Moreover, adolescent girls and young women are more likely to suffer from eating disorders, and college women have the highest rate of eating disorders (Al Banna et al., 2021). Furthermore, studies show that the risk of eating disorders increases with work stress and increase in BMI (Erol et al., 2002; Doyle AC et al., 2007). In our study, Table 2 shows that the participants' body weight, height, fat (kg) and lean mass amount differed, while BMI and body fat percentage did not differ depending on their eating attitude.

The type of physical activity preferred encourages participation in physical activity. Participation in physical activity is associated with a better perception of body size (Villarejo et al., 2012; Kessler et al., 2014). In their study conducted with 251 people, Tertre et al. (2015) observed that university women who perceived their body image negatively liked physical activity less and reported less healthy eating behaviors. They found that women who both loved and did physical activity had lower body perception and healthier diet quality (Tertre et al., 2015). The prevalence rates of irregular nutrition vary depending on the type of sport. In the literature, athletes who do sports in the endurance, aesthetic, and weight categories are associated with a higher risk of developing eating disorders than the general population. In another previous study, it was concluded that women, especially those who do aesthetic sports, are a group with a high risk of developing eating disorders and should be taken seriously (Dıncan et al., 2017; Mustelin et al., 2017). In our study, while there are differences between the eating attitude test and the mean duration of doing sports and the type of sport in Table 3, there is no difference between the place of exercise, frequency of exercise, how long the exercise is done, and reasons for doing sports. Women with normal eating attitudes often do exercise at home 1-2 times a week. Women with impaired eating attitudes often go trekking, do yoga/pilates, and exercise 1-2 times a week.

In a study conducted by Bak-Sosnowaska et al. (2021) on obese women aged 18 to 65 years with BMI ≥30 kg/m^2, to evaluate whether a certain type of regular exercise is associated with obtaining certain psychological benefits, they observed an increase in the cognitive limitations of obese women and a decrease in their emotional eating. They found that after 3 months of regular physical activity, individuals perceived their own bodies as thinner, their concerns about body shape were reduced, and endurance training had more significant effects than endurance strength training (Bak-Sosnowska et al., 2021). In our study, the relationship between the participants' body weight, height, body fat, body fat percentage, lean body mass, BMI, and EAT-40 scores were examined in Table 4. There is a positive relationship between body weight and height, body fat, lean body mass and BMI; a negative relationship between body weight and body fat percentage; a positive relationship between body fat and BMI; a negative relationship between body fat and lean body mass and BMI; and a positive relationship between lean body mass and BMI. There is no difference between EAT-40 scores and the variables.

According to Türkiye Specific Food and Nutrition Guide (Turkish Nutritional Health Survey), it is stated that 55-60% of total energy should come from carbohydrates, 10-15% from protein, and 25-30% from fats (TUBER, 2015). In our study, the percentage of energy from carbohydrates was found to be 38±9%, from protein as 21±4%, and from fat as 41±8%. It was determined that the percentage of individuals' daily energy coming from carbohydrates and protein was below the recommendations, and the percentage of their daily energy from fat was above the recommendations. This may be an indication that they adopted low-carbohydrate and high-fat diets, which are popular diets lately. However, this finding does not reflect the general Turkish population due to the limitations in the number and diversity of the individuals in the study group. According to the results of the TBSA study, it was found that, in female individuals aged 31-50 across Türkiye, the

rate of energy coming from carbohydrates was 51.7%, the percentage coming from protein was 13.1%, and the percentage coming from fat was 35.1% (Türkiye Nutrition and Health Survey, 2014). It is known that daily cholesterol intake with a healthy diet should be ≤300 mg (TUBER, 2015). In our study, it was observed that the daily cholesterol intake of individuals was 593.14±270.04 mg, which is above the recommendations. The daily cholesterol intake in female individuals aged 31-50 in Türkiye was determined as 182 mg (Bąk-Sosnowska et al., 2021). In our study, it is thought that the participants' both low-carbohydrate and accordingly high-fat food preferences and high consumption of food outside home contributed to cholesterol intake. This can harm cardiovascular health in the long run. The amount of fiber to be taken daily is recommended as 25 mg (33). In our study, it was found that the daily fiber consumption of the participants was below the recommendations (15.83±6.16 mg). The reason for this is thought to be due to the limited consumption of carbohydrates. When the percentages of meeting the recommendations of the vitamins and minerals that the participants took with their daily diet were evaluated; it was observed that vitamins A, B2 and C vitamin consumption; and sodium, phosphorus and iron mineral consumption were met above the recommendations. In our study, the mean energy intake of the participants with daily diet was determined as 1608±291.70 kcal. The total energy needs of individuals are 1255.97±390.63 kcal. The mean BMI values of the participants in the study group were 23.11±1.86 kg/m^2 as normal. Since the current body weight of the participants was used while calculating BMR, it is thought that the low BMR level is due to the normal BMI values of the participants.

Differences found in the literature can be attributed to age, individual personality, different sample size or group composition, contextual differences, or various methods used to assess eating problems. Despite the strengths and novelty of this study, it has some limitations, too. The current study was conducted only with healthy active women and therefore cannot be attributed to men, youth, or clinical populations. Due to the small sample size, the generalization of the results is even more limited. It is important that these results be validated in future studies with larger samples, i.e., other athletes such as men, youth or participants from other sports. It may also be good to do long-term follow-up studies to check whether these results are maintained or changed over the years.

5. Conclusion and Recommendations

The importance of exercise and nutritional habits is better understood day by day and the number of studies is increasing with each passing day. It is important to further investigate the impact of factors such as psychological factors, body image, mood, depression, or motivation on women's eating attitude and nutritional status. Individuals who regularly engage in physical activity may become interested in popular diets for various reasons. Low-carbohydrate and high-fat diets are not sustainable and may cause more harm than good to the individual in the long run. For this reason, a multidisciplinary working environment should be created for dietitians, doctors, nurses, and sports coaches working in the field of health and sports, seminars should be given, and the society should be informed of healthy nutrition. More studies are needed on the effects of eating attitudes and dietary habits of women who do exercise on anthropometric measurements.

Author Contributions

Percentages of the author(s) contributions is present below. All authors reviewed and approved final version of the manuscript.

%	P.G.	H.D.G.
C	40	60
D	50	50
S	50	50
DCP		100
DAI	100	
L	50	50
W	50	50
CR	60	40
SR	80	20
PM	50	50
FA	50	50

C= concept, D= design, S= supervision, DCP= data collection and/or processing, DAI= data analysis and/or interpretation, L= literature search, W= writing, CR= critical review, SR= submission and revision, PM= project management, FA= funding acquisition.

Conflict of Interest

The authors declared that there is no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

Ethical Approval/Informed Consent

The participants were informed that their information would be kept confidential and used only for scientific purposes. For the study, the Ethics committee approval was obtained from Karabük University Non-Interventional Clinical Research Ethics Committee with the decision numbered 2022/1157. The study was conducted in accordance with the principles of the Declaration of Helsinki. Informed consent forms were obtained from all individuals included in the study.

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