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Orthorexia Nervosa and Physical Activity: Impact On Food Choices and Quality of Life In Healthcare Workers

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ABSTRACT

Objective: Orthorexia Nervosa (ON) which is formed by the combination of many factors such as biological, psychological and social factors, reduce the quality of life by affecting food choices. To evaluate the relationship between ON and physical activity status with food selection and quality of life among healthcare personnel at Balıkesir State Hospital in Türkiye.

Methods: Sociodemographic characteristics and nutritional status, " Orthorexia Nervosa Rating Scale (ORTO-15 Scale)," "International Physical Activity Questionnaire (IPAQ)", "Quality of Life Scale (WHOQOL-27)", "Food Consumption Frequency (FFQ)", and "3-Day Food Consumption Record Form (2 weekdays-1 weekend day)" administered in person to 400 participants.

Results: The participants exhibited signs of orthorexia in 80.2% of cases. Other healthcare professionals were most active group (22.5%), while doctors were most inactive (29.7%). Healthcare workers with orthorexic tendencies frequently consumed water, beverages, and dairy products, whereas individuals with typical eating habits commonly consumed fats. Very active health workers most frequently consume fats, inactive nurses and doctors consume water and beverages, and inactive health workers consume milk. Physical activity status affects quality of life, and as "IPAQ Total" scores increased, "General Health Status", "Physical Health" and "Environment" sub-factor scores of WHOQOL-27 increased ($p<.05$). ON also affects quality of life, and as the "Food Choice, Eating Attitudes and Behaviours" sub-factor scores of ORTO-15 increase, the "Social Relationships" sub-factor score of WHOQOL-27 increases ($p<.05$). As the "Food Choice and Value" sub-factor scores of ORTO-15 increase, the "Physical Health" sub-factor scores of WHOQOL-27 decrease ($p<.05$).

Conclusion: The high workload and stress of healthcare workers, along with poor working conditions, have led to a low quality of life and their food choices have impacted their quality of life.

Keywords: Orthorexia nervosa, health care workers, physical activity, quality of life

1. INTRODUCTION

Nutrition, starting from the womb and continuing throughout life, is an action that involves consuming nutrients that the body needs in sufficient and balanced amounts and at appropriate times to improve quality of life, enhance health, and provide protection (1). Some individuals, due to their concern over body weight and body image and their reluctance to consume foods they consider unhealthy, restrict their diet or skip meals. This can lead to inadequate and imbalanced nutrition, which may result in eating disorders and significantly affect physical health and psychosocial functioning, focusing on weight, body shape, and eating (2,3). Orthorexia Nervosa (ON), a new eating disorder, is a psychological condition characterized by an obsessive-compulsive disorder involving an excessive focus on eating healthily (4).

The prevalence of ON has been increasing recently, driven by beauty standards associated with being thin, media-promoted diets, and coverage that increased concerns over food additives, hormones, preservatives, carcinogens (5,6). Prevalence varies by country, patient groups, and assessment tools, ranging from 6.9% to 75.2% in the general population, with certain groups reaching up to 90.6% (7).

A study on healthcare professionals explored levels of ON, finding 49.5% exhibited orthorexic behaviors, attributed to desires for a particular body image and thinness (8).

For individuals with ON, the quality of food is more important than quantity and calorie content (4,6). Individuals with ON avoid foods with preservatives, artificial colors, sweeteners, pesticides, excessive fats, sugars, salts, or genetically modified ingredients due to health concerns (7). One study has shown that individuals with a high tendency towards ON prefer foods

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they consider healthy and pure, such as vegetables, fruits, and whole grains (9). Another study demonstrated that individuals with a higher tendency for ON consume more vegetables, fruits, nuts, meat and legumes, and less sweets, animal fats, and snacks compared to others (10).

Exercise and sports, while essential for health, are also important for healthy nutrition (11). Physical activity is defined as any bodily movement produced by skeletal muscles that results in energy expenditure (12).

One study investigating the physical activity levels of healthcare workers have found their physical activity level to be low, attributed to lack of free time, long and demanding work hours, and neglecting exercise (13).

In another study, the physical activity levels of healthcare professionals working in hospitals were examined and the individuals' physical activity levels were found to be low. The participants stated that the reasons for not being able to do sports were fatigue and insufficient time (14).

Since body image is important in individuals with ON symptoms, physical activity is valued, which makes physically individuals a risky group in terms of ON (15). A study on the physical activity levels of individuals with orthorexic tendencies found higher levels of physical activity compared to others, viewing physical activity not as a pleasure but as a necessary requirement (9).

Quality of life reflects an individual's perception of their physical, emotional, and social status. A study examining the quality of life of healthcare workers during the COVID-19 pandemic found their quality of life to be low (16).

Ensuring a high quality of life requires attention to food choices (17). One study has shown that individuals with restrictive eating habits and those who exclude certain foods from their diet have a lower quality of life (18).

Regular physical activity positively affects quality of life. A meta-analysis of 59 studies concluded that exercise improves individuals' quality of life and mental health (19).

Particularly for healthcare workers, challenging work conditions, lack of physical activity, unhealthy eating habits, and a high risk of professional burnout contribute to lower quality of life (13).

Therefore, in this study it was aimed to investigate the effect of orthorexia nervosa and physical activity on food choices and quality of life in health workers.

2. METHODS

The study began after receiving approval from Üsküdar University's Non-Interventional Research Ethics Committee on December 28, 2022, under the number 61351342/ December 2022-90. Participants were administered a face-to-face survey including sociodemographic characteristics, ORTO-15 Scale, IPAQ, WHOQOL-27, FFQ, and a 3-day food consumption record (2 weekdays-1 weekend day). Data analysis was performed using SPSS v26 (IBM Inc., Chicago, IL, USA).

This relational screening model and cross-sectional study was conducted between January 2023 and March 2023 using a face-to-face survey collection method. The universe of the research consisted of healthcare professional working at Balıkesir State Hospital. Based on the power analysis, a minimum sample size of 197 was deemed sufficient, and 400 individuals participated in the study.

Body weight was measured with a calibrated electronic scale, on an empty stomach, wearing thin clothing and no shoes. Height was measured with a stadiometer on a Frankfort plane without shoes, with feet side by side. BMI was calculated by dividing body weight by the square meter of height. BMI classification was made according to WHO criteria. waist circumference (cm) was measured with a tape measure.

Professional groups were divided into three categories. nurses, doctors, and other healthcare professional. The latter group included a wide range of healthcare occupations such as EMT, dietitian, dialysis technician, health officer, midwife, audiologist, medical secretary, civil servant, paramedic, pharmacist, social worker, physiotherapist, audiometrist, medical imaging specialist, psychologist, orthosis prosthesis technician, biomedical engineer, x-ray technician, anesthesia technician, radiology technician, laboratory technician, orthopedic technician, and language and speech therapist.

2.1. Orthorexia Nervosa Rating Scale (ORTO-15 Scale)

The Orthorexia Nervosa Rating Scale (ORTO-15 Scale) is a 15-item Likert-type scale developed in 2005 by Donini et al., based on a questionnaire originally created by Bratman and Knight (20,21). It was adapted to Turkish by Bağcı Bosi et al. in 2006, with validity and reliability studies conducted by Arusoğlu et al. in 2008 (22,23).

The questions are answered in the present tense on a 4-point Likert scale (always, often, sometimes and never) and investigate the obsessive behaviors of individuals in choosing, purchasing, preparing and consuming foods that they consider healthy. Answers that are the distinguishing criteria for orthorexia are given "1" point, and answers that show a tendency to normal eating behavior are given "4" points. In total, a minimum of 15 and a maximum of 60 points can be received. If the scores obtained are low, they indicate an orthorexic tendency. ORTO-15 scale score ≤40 was considered orthorexic, and those with >40 scores were considered normal (23).

2.2. The International Physical Activity Questionnaire (IPAQ)

The International Physical Activity Questionnaire (IPAQ) was adapted to Turkish by Öztürk in 2005 with validity and reliability studies conducted (24). It comes in short and long forms, with the short form consisting of 7 questions about vigorous, moderate physical activities, and walking. Physical

activity is categorized based on MET-minute scores, listed below:

Vigorous physical activity = 8.0 METs

Moderate physical activity = 4.0 METs

Walking = 3.3 METs

2.3. Categorical classification of physical activity:

Sedentary/Inactive: Physical activity less than 600 MET-minutes per week

Moderately active: Physical activity equivalent to 601-3000 MET-minutes per week

Very active: It is defined as more than 3001 MET-minutes of physical activity per week (24).

2.4. Quality of Life Scale (WHOQOL-27)

The Quality of Life Scale (WHOQOL-27) was developed by the World Health Organization in the 1980s, with a short form consisting of 27 questions covering physical health, psychological health, social relationships, and environment (25).

The validity and reliability of the Turkish version were established by Eser et al. (26). It is a Likert-type scale scored between 1-5 for the 27 questions that make up WHOQOL-27. As the score from the total score increases, the quality of life also increases (27).

2.5. Food Consumption Frequency Survey (FFQ)

The reliability of the FFQ was conducted by Uncu Soykan in 2007 (28). In this study, the consumption frequencies of frequently consumed dairy products, meat, chicken, fish, oilseeds, bread types, pastries and desserts, fruits and fruit juices, vegetables and vegetable juices in the last 28 days were questioned.

2.6. The 3-Day Food Consumption Record Form

The 3-Day Food Consumption Record Form was used to document all consumed foods and beverages over 2 weekdays and 1 weekend day, with details on the type, amount, and content of the foods verified using replicas and food atlases. Foods were classified into 7 groups according to the Türkiye Nutrition Guideline (29).

2.7. Data Analysis

In data analysis Methods included descriptive statistics for categorical variables (demographic characteristics) presented as frequency and percentage. The normality of numerical variables was checked using the Shapiro-Wilk Test. Descriptive statistics for numerical variables were presented as mean±standard deviation for normally distributed data and median (min-max) for non-normally distributed data. The Spearman's Rank Correlation Coefficient was used to examine relationships between quantitative variables for non-normally distributed data. Statistical significance levels were considered as "p<.05, p<.01, p<.001" for all calculations and interpretations, and hypotheses were tested bidirectionally. Statistical analysis was conducted using SPSS v27 (IBM Inc., Chicago, IL, USA).

3. RESULTS

In the study, 9.3% of the healthcare workers participating in the study were doctors, 35.2% were nurses, and 55.5% were other healthcare staff. The average age was 36.30±8.96 years, waist circumference was 81.98±9.64 cm, hip circumference was 97.31±9.49 cm, waist/hip ratio was 0.84±0.06 cm, and BMI was 24.75±3.34 kg/m². In the study, 33% of the healthcare workers were male and 67% were female, 63.2% were married and 36.8% were single, 6.5% had been working for ≤ 1 year, 23.0% for 1≤5 years, 15.0% for 5≤10 years, and 55.5% for more than 10 years. 9.0% worked shifts (Evening, Morning), 43.3% had fixed hours (8.00-17:00), and 47.7% worked on call. 1.2% were underweight, 55.5% had a normal weight, 34.0% were pre-obese, and 9.3% were obese. 60.4% had a low health risk based on waist circumference, 23.8% had a high health risk, and 15.8% had a very high health risk. In the study, 48.2% of the participants smoke, 43.5% do not smoke and 8.3% quit smoking. Daily cigarette smoking average of smokers is 15.04±7.60 pieces. 33.5% of the participants drink alcohol, 62.0% do not drink alcohol and 4.0% have quit drinking alcohol. Monthly alcohol consumption average of alcohol drinkers is 17.81± 19.00 glasses. In the study, 63.5% of the participants skip meals and 36.5% do not skip meals, and the most skipped meal is in the morning with 46.9% and the least skipped meal is in the evening with 4.3%. In the study, 21.5% of the participants use nutritional supplements regularly and 78.5% do not use them, and the most used nutritional supplement is Vitamin C with 27.9%. In the study, 78.4% of the doctors participating in the research were orthorexic and 51.4% were minimally active, 78.7% of the nurses were orthorexic and 50.3% were minimally active. 81.5% of other health professionals were orthorexic and 54.5% were at a minimally active level (Table 1).

According to food consumption groups, doctors participating in the research consumed water and beverages the most frequently (100%), nurses consumed water and beverages most frequently (98.6%), and other healthcare professionals consumed dairy products most frequently (99.1%). According to the occupational groups of the healthcare professionals participating in the research, dairy products are consumed most frequently by other healthcare personnel (99.1%), while meat, chicken, fish, eggs, legumes, oily seeds, and nuts are consumed most frequently by doctors (91.1%), fresh vegetables and fruits group foods are consumed most frequently by nurses (80.1%), bread and cereals group foods are consumed most frequently by other healthcare personnel (96.8%), fats group foods are consumed most frequently by other healthcare personnel (98.6%), sugar group foods were consumed most frequently by nurses (55.3%), and water and beverage group foods were consumed most frequently by doctors (100%) (not shown).

Table 1. *Descriptive statistics of demographic, anthropometric, habit, nutritional findings, orthorexia level and physical activity level findings of healthcare professionals according to professional groups*

	Doctor (n=37)		Nurse (n=141)		Other Health Professional (n=222)		Total (n=400)	
Sex	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Male	25	67.6	26	18.4	81	36.5	132	33.0
Female	12	32.4	115	81.6	141	63.5	268	67.0
Age (years) (X±SD)	34.00±7.14		34.89±9.15		37.57±8.94		36.30±8.96	
Marital Status								
Single	18	48.6	62	44.0	67	30.2	147	36.8
Married	19	51.4	79	56.0	155	69.8	253	63.2
Work Experience								
≤ 1 year	3	8.1	13	9.2	10	4.5	26	6.5
1≤5 years	14	37.8	35	24.8	43	19.4	92	23.0
5≤10 years	6	16.2	19	13.5	35	15.8	60	15.0
>10 years	14	37.8	74	52.5	134	60.4	222	55.5
Type of Work								
Shifts (Evening. Morning)	2	5.4	14	9.9	20	9.0	36	9.0
Fixed Hours (8.00-17:00 Work Hours)	2	5.4	55	39.0	116	52.3	173	43.3
On Call	33	89.2	72	51.1	86	38.7	191	47.7
BMI Group								
Underweight (<18.5 kg/m^2)	0	0.0	1	0.7	4	1.8	5	1.2
Normal Weight (18.5-24.9 kg/m^2)	18	48.6	77	54.6	127	57.2	222	55.5
Pre-obese (25-29.9 kg/m^2)	16	43.3	47	33.3	73	32.9	136	34.0
Obese (^{3}30 kg/m^2)	3	8.1	16	11.4	18	8.1	37	9.3
BMI (kg/m^2) (X±SD)	25.38±2.91		24.74±3.48		24.65±3.32		24.75±3.34	
Waist Circumference Risk Status								
Low health risk (M: <94; F: <80 cm)	27	73.0	77	54.6	138	62.2	242	60.4
High health risk (M ^{3}94 – <102; F: ^{3}80 – <88 cm)	6	16.2	39	27.7	50	22.5	95	23.8
Very high health risk (M: ^{3}102; F: ^{3}88 cm)	4	10.8	25	17.7	34	15.3	63	15.8
Waist Circumference (cm) (X±SD)	83.95±10.32		81.62±9.72		81.88±9.47		81.98±9.64	
Hip Circumference (cm) (X±SD)	97.00±11.05		97.81±10.53		97.04±8.50		97.31±9.49	
Waist/Hip Ratio Risk Status								
Risk exists (M: ≤0.90; F: ≤0.85)	25	67.6	89	63.1	149	67.1	263	65.8
No risk (M: >0.90; F: >0.85)	12	32.4	52	36.9	73	32.9	137	34.3
Waist/Hip Ratio (X±SD)	0.87±0.04		0.84±0.06		0.84±0.06		0.84±0.06	
Cigarette Smoking Status								
Yes	26	70.3	56	39.8	111	50.0	193	48.2
No	11	29.7	70	49.6	93	41.9	174	43.5
Former smoker	0	0.0	15	10.6	18	8.1	33	8.3
Frequency of Smoking (amount/day) (X±SD)	21.04±10.14		14.79±6.88		13.77±6.61		15.04±7.60	
Alcohol Drinking Status								
Yes	24	64.9	32	27.7	78	35.1	134	33.5
No	13	35.1	103	73.0	132	59.5	248	62.0
Former Drinker	0	0.0	6	4.3	12	5.4	18	4.5
Frequency of Drinking (glasses/month) (X±SD)	21.33±14.16		11.50±12.41		19.32±21.89		17.81±19.00	
Status of Skipping Meals								
Yes	23	62.2	87	61.7	144	64.9	254	63.5
No	14	37.8	54	38.3	78	35.1	146	36.5
Meals Skipped*								
Breakfast	11	47.8	24	27.6	59	41.0	94	37.0
Late Morning	11	47.8	39	44.8	69	47.9	119	46.9
Lunch	3	13.0	35	40.2	32	22.2	70	27.6
Late Afternoon	11	47.8	34	39.1	58	40.3	103	40.6
Dinner	1	4.3	1	1.1	9	6.3	11	4.3
Late Night	4	17.4	24	27.6	38	26.4	66	26.0
Status of Using Regular Supplements								

Yes	9	24.3	26	18.4	51	23.0	86	21.5
No	28	75.7	115	81.6	171	77.0	314	78.5
Supplements Used*								
Vitamin D	2	22.2	6	23.1	5	9.8	13	15.1
Vitamin C	1	11.1	6	23.1	17	33.3	24	27.9
Propolis	2	22.2	3	11.5	3	5.9	8	9.3
Level of Orthorexia								
Orthorexic	29	78.4	111	78.7	181	81.5	321	80.2
Normal	8	21.6	30	21.3	41	18.5	79	19.8
Level of Physical Activity								
Inactive	11	29.7	41	29.1	51	23.0	103	25.7
Minimally Active	19	51.4	71	50.3	121	54.5	211	52.8
Very Active	7	18.9	29	20.6	50	22.5	86	21.5

**: Multiple answers given*

Table 2. *Descriptive statistics of food group consumption of healthcare professionals according to their professional groups and food obsession levels*

	Professional Group											
	Doctor (n=37)				Nurse (n=141)				Other Health Professional (n=222)			
	Orthorexic		Normal		Orthorexic		Normal		Orthorexic		Normal	
Dairy Products	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Consumes	28	96.6	8	100.0	105	94.6	29	96.7	179	98.9	41	100.0
Does not consume	1	3.4	0	0.0	6	5.4	1	3.3	2	1.1	0	0.0
Red Meat, Chicken, Fish, Egg, Legumes, Oily Seeds and Nuts												
Consumes	26	89.7	8	100.0	97	87.4	29	96.7	166	91.7	37	90.2
Does not consume	3	10.3	0	0.0	14	12.6	1	3.3	15	8.3	4	9.8
Fresh Vegetables and Fruits												
Consumes	21	72.4	7	87.5	86	77.5	27	90.0	131	72.4	33	80.5
Does not consume	8	27.6	1	12.5	25	22.5	3	10.0	50	27.6	8	19.5
Bread and Grains												
Consumes	27	93.1	8	100.0	106	95.5	28	93.3	177	97.8	38	92.7
Does not consume	2	6.9	0	0.0	5	4.5	2	6.7	4	2.2	3	7.3
Fats												
Consumes	27	93.1	8	100.0	108	97.3	30	100.0	178	98.3	41	100.0
Does not consume	2	6.9	0	0.0	3	2.7	0	0.0	3	1.7	0	0.0
Sugars												
Consumes	8	27.6	3	37.5	59	53.2	19	63.3	89	49.2	19	46.3
Does not consume	21	72.4	5	62.5	52	46.8	11	36.7	92	50.8	22	53.7
Water and Beverages												
Consumes	29	100.0	8	100.0	109	98.2	30	100.0	179	98.9	39	95.1
Does not consume	0	0.0	0	0.0	2	1.8	0	0.0	2	1.1	2	4.9

Table 3. *Descriptive statistics of food group consumption of healthcare professionals according to their occupational groups and physical activity levels*

	Doctor (n=37)						Nurse (n=141)						Other Healthcare Professional (n=222)					
	Inactive		Minimally Active		Very Active		Inactive		Minimally Active		Very Active		Inactive		Minimally Active		Very Active	
Dairy Products	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Consumes	10	90.9	19	100.0	7	100.0	37	90.2	69	97.2	28	96.6	51	100.0	119	98.3	50	100.0
Does not consume	1	9.1	0	0.0	0	0.0	4	9.8	2	2.8	1	3.4	0	0.0	2	1.7	0	0.0
Red Meat, Chicken, Fish, Egg, Legumes, Oily Seeds and Nuts																		
Consumes	11	100.0	17	89.5	6	85.7	37	90.2	63	88.7	26	89.7	45	88.2	112	92.6	46	92.0
Does not consume	0	0.0	2	10.5	1	14.3	4	9.8	8	11.3	3	10.3	6	11.8	9	7.4	4	8.0
Fresh Vegetables and Fruits																		
Consumes	10	90.9	13	68.4	5	71.4	29	70.7	59	83.1	25	86.2	39	76.5	90	74.4	35	70.0
Does not consume	1	9.1	6	31.6	2	28.6	12	29.3	12	16.9	4	13.8	12	23.5	31	25.6	15	30.0
Bread and Grains																		
Consumes	9	81.8	19	100.0	7	100.0	40	97.6	67	94.4	27	93.1	48	94.1	119	98.3	48	96.0
Does not consume	2	18.2	0	0.0	0	0.0	1	2.4	4	5.6	2	6.9	3	5.9	2	1.7	2	4.0
Fats																		
Consumes	10	90.9	18	94.7	7	100.0	39	95.1	70	98.6	29	100.0	49	96.1	120	99.2	50	100.0
Does not consume	1	9.1	1	5.3	0	0.0	2	4.9	1	1.4	0	0.0	2	3.9	1	0.8	0	0.0
Sugars																		
Consumes	3	27.3	7	36.8	1	14.3	31	75.6	31	43.7	16	55.2	25	49.0	62	51.2	21	42.0
Does not consume	8	72.7	12	63.2	6	85.7	10	24.4	40	56.3	13	44.8	26	51.0	59	48.8	29	58.0
Water and Drinks																		
Consumes	11	100.0	19	100.0	7	100.0	41	100.0	69	97.2	29	100.0	50	98.0	119	98.3	49	98.0
Does not consume	0	0.0	0	0.0	0	0.0	0	0.0	2	2.8	0	0.0	1	2.0	2	1.7	1	2.0

Table 4. *Correlation coefficients between ORTO-15, IPAQ and WHOQOL-27 sub-factor and total scores of healthcare workers*

		Anxiety About Healthy Diet	Food Choice, Eating Habits, and Behavior	Food Choice and Value	ORTO-15 Total	IPAQ Total	General State of Health	Physical Health	Psychological	Social Relations
Anxiety About Healthy Diet	s	1.000								
	p	.								
Food Choice, Eating Habits, and Behavior	s	**0.355**	1.000							
	p	**<.001*** **	.							
Food Choice and Value	s	**0.470**	**0.256**	1.000						
	p	**<.001*** **	**<.001*** **	.						
ORTO-15 Total	s	**0.915**	**0.608**	**0.649**	1.000					
	p	**<.001*** **	**<.001*** **	**<.001*** **	.					
IPAQ Total	s	0.058	0.039	-0.054	0.014	1.000				
	p	.248	.438	.279	.776	.				
General State of Health	s	-0.005	-0.011	-0.039	-0.024	**0.126**	1.000			
	p	.914	.827	.435	.633	**.012***	.			
Physical Health	s	-0.070	-0.012	**-0.113**	-0.096	**0.316**	**0.484**	1.000		
	p	.161	.812	**.024***	.056	**<.001*** **	**<.001*** **	.		
Psychological	s	-0.057	0.041	-0.027	-0.049	0.072	**0.612**	**0.587**	1.000	
	p	.251	.418	.585	.325	.148	**<.001*** **	**<.001*** **	.	
Social Relations	s	0.041	**0.099**	0.014	0.041	0.050	**0.444**	**0.496**	**0.658**	1.000
	p	.417	**.048***	.787	.415	.323	**<.001*** **	**<.001*** **	**<.001*** **	.
Environment	s	0.062	0.019	0.066	0.035	**0.100**	**0.433**	**0.551**	**0.655**	**0.654**
	p	.213	.711	.187	.480	**.046***	**<.001*** **	**<.001*** **	**<.001*** **	**<.001*** **

*s: Spearman Rank Difference Correlation Coefficient *p<.05; ***p<.001*

All occupational groups that are orthorexic, doctors, nurses and other healthcare professional, most frequently consume water and beverages, and dairy products. Among these professional groups, doctors consume water and beverages with the highest rate, 100%. And the highest consumption of dairy products belongs to other healthcare professionals, with 98.9% (Table 2).

Non-orthorexic doctors most frequently consume dairy products, meat, chicken, fish, eggs, legumes, oily seeds and nuts, bread and cereals, oils, and water and beverages, with 100%. Nurses most frequently consume Oils and water and beverages with 100%. Other healthcare personnel consume dairy products and oils most frequently with 100% (Table 2).

In other words, all occupational groups of healthcare workers with orthorexic tendencies most frequently consume water and beverages, and dairy products. In all occupational groups, healthcare workers who eat normally consume fats most frequently (Table 2).

Inactive doctors most frequently consume, with 100%, meat, chicken, fish, eggs, legumes, oilseeds and nuts, and water and beverages. Minimally active doctors consume most frequently, with 100%, Dairy Products, Bread and Cereals, and Water and Beverages (Table 3). Very active doctors most frequently consume, with 100%, Dairy Products, Bread and Cereals, Oils, Water and Beverages. Inactive nurses most frequently consume, with 100%, Water and Beverages. Minimally active nurses most frequently consume, with 98.6%, Fat. Very active nurses most frequently consume, with 100%, Oils, Water and Beverages. Other inactive healthcare personnel most frequently consume, with 100%, Dairy Products. Other minimally active healthcare personnel most frequently consume, with 99.2%, Fats. Other very active healthcare personnel most frequently consume, with 100%, Dairy Products and Fats (Table 3).

In other words, the food group most frequently consumed by inactive doctors and nurses is water and beverages. Nurses and other healthcare professional who are minimally active consume Oils most frequently. The most active people in all occupational groups consume oils most frequently (Table 3).

As healthcare workers' ORTO-15 "Concerns About Health and Nutrition" sub-factor scores increase, ORTO-15's "Food Selection, Eating Attitudes and Behaviors", "Food Selection and Value" sub-factor and "ORTO-15 Total" scores increase, by 35.5%, 47% and 91.5%, respectively (p<.001) (Table 4).

As healthcare workers' ORTO-15 "Food Selection, Eating Attitudes and Behaviors" sub-factor scores increase, ORTO-15's "Food Selection and Value" sub-factor and "ORTO-15 Total" scores and WHOQOL-27's "Social Relations" increase, by 25.6%, 60.8%, 9.9% respectively (p<.05; p<.001) (Table 4).

As healthcare workers' ORTO-15 "Food Selection and Value" sub-factor scores increased, there was a 64.9% increase in ORTO-15's "ORTO-15 Total" scores and a 11.3% decrease in WHOQOL-27's "Physical Health" sub-factor scores (p<.05; p<.001) (Table 4).

It was found that as the "IPAQ Total" scores of healthcare workers increased, there was an increase of 12.6%, 31.6% and 10% in the "General Health Status", "Physical Health" and "Environment" sub-factor scores of WHOQOL-27, respectively (p <.05; p<.001) (Table 4).

As the WHOQOL-27 "General Health Status" sub-factor scores of healthcare workers increased, the WHOQOL-27 "Physical Health", "Psychological", "Social Relations" and "Environment" sub-factor scores increased by 48.4%, 61.2%, 44.4%, and 43.3%, respectively (p<.001) (Table 4).

As the WHOQOL-27 "Physical Health" sub-factor scores of healthcare workers increased, the WHOQOL-27 "Psychological", "Social Relations" and "Environment" sub-factor scores increased by 58.7%, 49.6% and 55.1%, respectively (p<.001) (Table 4).

It was found that as the WHOQOL-27 "Psychological" sub-factor scores of healthcare workers increased, there was a 65.8% and 65.5% increase in the WHOQOL-27 "Social Relations" and "Environment" sub-factor scores, respectively (p<.001). (Table 4).

As the WHOQOL-27 "Social Relations" sub-factor scores of healthcare workers increased, it was found that there was a 65.4% increase in the WHOQOL-27 "Environment" sub-factor scores (p<.001) (Table 4).

4. DISCUSSION

In this study, the highest average BMI, waist circumference, and waist-to-hip ratio were found among doctors. Conversely, in Arslan's study, the group with the lowest obesity rate was found to be physicians. (30). This could be explained by factors such as high workload and stress, shift work, lack of a balanced diet, snacking habits, and insufficient physical activity leading to weight gain; this increase in body weight and fat may parallel the higher waist-to-hip ratios observed (31).

The group that skipped meals the most in this study was other health professionals, particularly skipping the late morning snack. Yılmaz and Ayhan found lunch to be the most skipped meal (32). Similarly, Yılmaz noted the late morning snack as the most commonly skipped meal (31). This could be due to the demanding work schedule and shift work making it difficult to have three regular meals, the intense working conditions of healthcare workers, irregular working hours, skipping meals, and preferring sleep over breakfast due to lack of sleep (31).

Doctors were the group that most regularly used dietary supplements in this study, with vitamin D and propolis being the most used. Conversely, Koyu et al. found that pharmacists were the profession that most used dietary supplements (33). Similarly, in the study conducted by Arslan and Atmaca, healthcare workers used vitamin D and differently used vitamin C, vitamin B12 and multivitamins (34). This might be explained by doctors' knowledge in the health field, high health awareness, and sufficient knowledge about dietary supplements (35).

The most orthorexic health workers in this study were other health professional. Similarly, Tatlı's research found that auxiliary health workers were the most orthorexic (31). Conversely, Yazkan found the highest orthorexic tendency among nurses (36). This may be explained by certain professional groups in the health field increasing their obsession with healthy eating as their knowledge of balanced nutrition increases (37).

Other health professionals were found to be the most active professional group in this study. Yıldırım et al. found that doctors had higher physical activity levels than nurses (38), while Jun et al. found that doctors had lower physical activity levels compared to nurses and other support staff (14). This might be explained by some health workers in certain professions adopting physical activity as a lifestyle due to being role models and the high performance and endurance required by their professional duties and having less time due to their job descriptions (39).

Doctors were found to be the most inactive professional group in this study. Conversely, Yıldırım et al.'s study found that doctors had higher physical activity levels than nurses (38), while Jun et al. found doctors to be more inactive compared to nurses and other support staff (14). This could be explained by doctors' irregular working hours, such as patient shifts, choosing to sleep instead of engaging in physical activity during their free time, and lack of time for exercise (31).

In this study, health workers with orthorexic tendencies commonly consumed water and beverages, and dairy products, while those with normal eating habits commonly consumed fats. This could be due to the increase in consumption of beverages like tea/coffee to stay awake due to shift work and intense work pace, and because milk is a practical and readily available beverage and knowing the importance of water consumption for cellular vital activities, body functions, and maintaining body water balance (40).

In this study, inactive doctors and nurses most consumed water and beverages; inactive other health professional most consumed dairy products. Similarly, Kang and Yang's study on nurses found that individuals commonly consumed energy drinks during work hours for their stimulant effects (41). This could be because doctors and nurses increase their consumption of stimulating drinks like tea/coffee/water to stay awake during work hours (41); inactive other health professional consume dairy products and derivatives as a good source of protein and calcium (42).

In this study, the most active individuals in all professional groups consumed fats most frequently. This may be explained by healthcare workers under intense work pace having few breaks during work hours and preferring snacks and fast-food style ready meals instead of regular meals, leading to an increase in fat consumption (43).

In this study, when 'IPAQ Total Scores' increased, there was an increase in 'General Health Status, Physical Health, and Environment' sub-factor scores of WHOQOL-27. Similarly, Elmas' research found that individuals who regularly engaged in physical activity had a higher quality of life than those who did not, and statistical significance was seen in the environmental quality of life dimension (44). Conversely, Marquez's study did not find a significant relationship between the increase in 'IPAQ Total Scores' and quality of life sub-factors; however, a decrease was observed in 'Environment' scores as individuals' activity levels increased (45). This could be explained by the positive impact of physical activity on individuals' bodily, physical, and mental health (46).

In this study, as the "Food Selection, Eating Attitude and Behaviors" sub-factor scores of ORTO-15 increased, the "Social Relationships" sub-factor score of WHOQOL-27 also increased. This could be explained by individuals who pay attention to food selection and eating attitudes in healthy eating sharing their nutrition knowledge with others, believing it will improve the community's quality of life, positively affecting their social relationships (47).

As the "Food Selection and Value" sub-factor scores of ORTO-15 increased, there was a decrease in the "Physical Health" sub-factor scores of WHOQOL-27. Similarly, Sfeir et al.'s study associated individuals with orthorexic tendencies with disorders in physical health quality of life (18). This could be explained by orthorexic individuals avoiding certain foods they consider unhealthy and their excessive concerns about body weight leading to deterioration in their physical health (48).

Strengths and Limitations of the Study

This study is significant for revealing the health and quality of life status of healthcare workers, who are at the forefront during processes such as societal and natural disasters, and for contributing to the development status of communities in subsequent stages. Moreover, it serves as a pioneering study in the literature on this topic. A limitation of the study is the low participation in the survey due to the participants' busy work schedules and shift work.

5. CONCLUSION

Healthcare workers, who have sufficient knowledge about healthy eating, had high levels of orthorexia and were found to be physically inactive. The high workload and stress of healthcare workers, along with poor working conditions, have led to a low quality of life and their food choices have impacted their quality of life. There is a lack of studies on this topic in the literature, and more research with larger samples is needed.

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