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Assessment of the prevalence of orthorexic behaviours among selected groups of young women

Ocena rozpowszechnienia zachowań ortorektycznych wśród wybranych grup młodych kobiet

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Abstract

Objective. The aim of this study is to determine the orthorexic behaviours among different groups of young women in Poland.

Materials and Method. A cross-sectional study was conducted among three groups: fitness instructors (n = 96), current and graduate students of nutrition sciences or dietetics (n = 113), and a control group consisting of young women professionally unrelated to nutrition and sports activities (n = 100). The Polish version of the Orthorexia Nervosa Questionnaire (ORTO-15) was used to determine the prevalence of the orthorexic behaviours.

Results. There was no statistical difference between the three groups of participants, and all groups had a mean ORTO-15 score above the 35 cut-off. The percentage with scores below 35 indicates the risk of orthorexic behaviours was 15% among fitness instructors, 13% among nutrition students and graduates, and 15% in the control group. BMI indicating excess body weight (≥ 25 kg/m^2) was associated with almost 2.7-fold (95% CI 1.14–6.55) higher risk of orthorexic behaviours. Women who followed a special diet were 2.4 times more likely to be at risk of orthorexic behaviours (95% CI 1.29–4.44) than those who did not report diet modifications.

Conclusions. The study found no differences in the risk of orthorexia behaviours among fitness instructors, nutrition students, and graduates, indicating no statistically significant association between professional or educational involvement in nutrition or fitness and the risk of developing orthorexia. However, greater time devoted to physical activity, higher BMI, and adherence to special diets were associated with an increased risk of orthorexia behaviours.

Key words

diet, women, feeding and eating disorders, orthorexia nervosa

Streszczenie

Wprowadzenie i cel pracy. Celem niniejszego badania było określenie tendencji do występowania zachowań ortorektycznych wśród różnych grup młodych kobiet w Polsce.

Materiał i metody. Badanie przekrojowe przeprowadzono wśród trzech grup: instruktorek fitness (N = 96), obecnych studentek i absolwentek kierunków związanych z żywieniem lub dietetyką (N = 113) oraz grupy kontrolnej składającej się z młodych kobiet niezwiązanych zawodowo z żywieniem i aktywnością sportową (N = 100). Do określenia częstości występowania zachowań ortorektycznych wykorzystano polską wersję kwestionariusza ORTO-15.

Wyniki. Nie stwierdzono różnicy istotnej statystycznie między wynikami uzyskanymi przez kobiety należące do poszczególnych grup, a średni wynik ORTO-15 wynosił powyżej wartości granicznej 35 pkt. Odsetek osób z wynikiem poniżej 35 pkt, wskazujący na ryzyko wystąpienia zachowań ortorektycznych, wynosił 15% wśród instruktorek fitness, 13% wśród studentek i absolwentek kierunków związanych z żywieniem oraz 15% w grupie kontrolnej. Wartość wskaźnika BMI odpowiadająca nadwadze (≥ 25 kg/m^2) wiązała się z prawie 2,7-krotnym (95% CI 1,14–6,55) wzrostem ryzyka wystąpienia zachowań ortorektycznych. Kobiety stosujące specjalną dietę były 2,4 raza bardziej narażone na ryzyko wystąpienia zachowań ortorektycznych (95% CI 1,29–4,44) niż kobiety, które nie zgłaszały zmian w diecie.

Wnioski. Badanie nie wykazało różnic w ryzyku wystąpienia zachowań ortorektycznych wśród instruktorek fitness, studentek kierunków związanych z żywieniem i absolwentek, wskazując na brak statystycznie istotnego związku między wykształceniem zawodowym lub akademickim a ryzykiem wystąpienia ortoreksji. Jednak większa ilość czasu poświęcana na aktywność fizyczną, wyższy wskaźnik BMI oraz przestrzeganie specjalnych diet wiązały się ze zwiększonym ryzykiem wystąpienia zachowań ortorektycznych.

Słowa kluczowe

dieta, kobiety, zaburzenia odżywiania, ortoreksja

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INTRODUCTION

Orthorexia nervosa (ON) is described as an obsessive need to consume healthy food, a pathological fixation with the consumption of healthy food, or increased concern for a healthy diet [1]. People affected by orthorexia exclude from their diets products that they perceive as 'unclean' due to the content of herbicides, pesticides, or artificial additives. Their fears are also aroused by different techniques and materials used in food production [2].

ON usually starts with a slight change in eating habits that is intended to help in the management of a specific disease or to improve general health. Over time, a growing concern about the health benefits of food arises, and daily activities become dominated by constant thinking about food, planning meals, and shopping for groceries. People suffering from ON are characterized by high self-discipline and a sense of moral superiority over those who do not eat in a healthy way, and eventually the diet becomes the most important part of their lives [3]. The risk groups of ON are primarily those who follow a vegetarian diet [4], are actively involved in the fight for animal rights, or professionally deal with organic food or transgenic organisms [3]. The risk group also includes dieticians and nutritionists [5, 6]. Some studies suggest that there is a link between ON and exercise habits [7–9], but the studies involved fitness participants or gym members, not fitness instructors. Fitness instructors seem to be a skipped group.

This gap in the literature is particularly important given the unique professional and socio-cultural context of fitness instructors, especially female instructors, who are not only exposed to strong body image norms, but also act as role models for health-related behaviours. Their occupational environment may reinforce rigid beliefs about healthy eating and optimal body composition, potentially increasing vulnerability to orthorexic tendencies. Despite this, the specific characteristics and prevalence of ON among fitness instructors – particularly women – remain unexplored. Therefore, investigating this group is not only justified but also constitutes a novel contribution to the existing body of knowledge, as it extends current research beyond general physically active populations and fitness participants to a professional subgroup with distinct risk factors. Because fitness instructors are professionally associated with physical activity and the promotion of a healthy lifestyle, they may be at increased risk of ON. However, to the best of our knowledge, no studies have specifically assessed orthorexic behaviours in this group. Moreover, the literature emphasizes the importance of appropriate responses of fitness centre employees to suspected eating disorders or excessive exercise among clients [10], further highlighting the relevance of examining this population.

OBJECTIVE

The aim of this study is to compare different groups to determine whether fitness instructors or current and graduate students of nutrition sciences or dietetics are at a greater risk of orthorexic behaviours than the general population. In addition, it aims to determine factors predisposing to orthorexic behaviours in order to define the population that requires appropriate ON diagnosis.

MATERIALS AND METHOD

This cross-sectional study was conducted using the Computer-Assisted Web Interview (CAWI) method. The information about the opportunity to participate in the study was posted on social media and online forums. The participation was voluntary, and volunteers did not receive any financial compensation for their contribution to the survey. No identifying information was collected. An online questionnaire was preceded by information about the study, including anonymity and voluntariness of participation. The study was conducted in accordance with the Helsinki Declaration, and consent for participation in the study was obtained from the surveyed party by filling in a questionnaire.

The study population consisted of three groups: fitness instructors (n = 96), current and graduate students of nutrition sciences or dietetics (Faculty of Human Nutrition at the Warsaw University of Life Sciences) (n = 113), and young women professionally unrelated to nutrition and sports activities as a control group (n = 100). The inclusion criterion was adult age (> 18 years). The exclusion criteria were: aged under 18 and above 35 years old, and male.

An online questionnaire was used to collect socio-demographic characteristic data: gender, age, education, place of residence (countryside; small city < 100,000 inhabitants; big city > 100,000 inhabitants), height, and weight (based on self-report), and the number of hours of physical activity per week (h/week), number and frequency of meals, and use of dietary supplements. Respondents were asked about their use of a 'special diet' (closed-ended question: yes/no), defined as any particular dietary pattern that deviates from the standard diet. If they answered 'yes', they were asked to elaborate in an open-ended question.

The orthorexic behaviours was assessed using the validated Polish version of the of the Orthorexia Nervosa Questionnaire (ORTO-15), which demonstrated an internal reliability with Cronbach's alpha coefficient equal to 0.644, and was admitted as a reliable and valuable instrument to assess obsessive attitudes related to healthy and proper nutrition in the Polish population [11, 12]. The ORTO-15 test consists of 15 questions, and answers (always/often/sometimes/never) are scored from 1–4 points. A score equal to 1 corresponds to a tendency of ON in the eating behaviour, while a score equal to 4 points indicates normal eating habits. A score below 35 points indicates the risk of ON (maximum score – 60 points) [13].

Statistical analysis was performed using STATISTICA 12 and SPSS (version 23.0 for Windows) software. The differences between the mean values of the calculated parameters were investigated by means of variance and NIR analysis. Chi-square test was used for qualitative variables. To assess the normal distribution of the quantitative variables, the Shapiro-Wilk test was employed. To examine the associations between ON (ORTO-15 score) and factors that may constitute determinants of orthorexia, the univariate (Model 1: crude data) as well as multivariate-adjusted (Model 2) odds ratios (ORs) with 95% confidence intervals (95% CIs) were calculated using logistic regression models. The multivariate-adjusted models included the following variables: age of participants and physical activity (continuous variable), Body Mass Index (< 18.4, 18.5–24.9, ≥ 25 kg/m^2), education level (primary, secondary, higher), residential area (countryside and small city, big city), using special diet (no, yes), number

of meals consumed per day (1–2, 3–4, ≥ 5), avoidance of selected food products (no, yes), dietary supplements use (no, use). A p-value ≤ 0.05 was considered statistically significant.

RESULTS

The study involved 309 women aged 18–35 years; average age – 24.9 years (SD=3.3). Table 1 shows the general characteristics of the studied groups. Average age, BMI, and the number of hours per week spent on physical activity were significantly different among the studied groups. In the group of fitness instructors and the control group, the majority of respondents came from large cities, whereas in the group of nutrition students and graduates, more women reported living in rural areas. There were no statistically significant differences at the level of education.

Table 1. Characteristics of the study population (N=309)

	Fitness instructors N=96	Nutrition students and graduate N=113	Control N=100	P value
Age (years)				
Mean ± SD	26.2 ± 3.8[a]	23.7 ± 2.5[b]	25.0 ± 3.2[c]	<0.001*
(min-max)	(18–35)	(19–31)	(18–34)	
BMI (kg/m^2)				
Mean ± SD	21.1 ± 2.1[a]	21.0 ± 2.2[a]	22.3 ± 3.5[b]	<0.001*
(min-max)	(16.1–28.7)	(16.0–28.1)	(16.7–34.3)	
Weight categories N (%)				
Underweight (< 18.4)	8 (8.3%)	12 (10.6%)	10 (10.0%)	0.004**
Normal weight (18.5–24.9)	83 (86.5%)	94 (83.2%)	70 (70.0%)	
Overweight/obese (≥ 25)	5 (5.2%)	7 (6.2%)	20 (20.0%)	
Physical activity (h/week)				
Mean ± SD	6.0 ± 5.6[a]	4.3 ± 2.7[b]	4.0 ± 3.8[b]	0.002*
(min-max)	(0–36)	(0–15)	(0–30)	
Education N (%)				
Primary and secondary	18 (18.7%)	30 (26.5%)	25 (25.0%)	0.385**
Higher	78 (81.3%)	83 (73.5%)	75 (75.0%)	
Residence N (%)				
Countryside	3 (3.1%)	15 (13.3%)	6 (6.0 %)	0.037**
Small city	12 (12.5%)	19 (16.8%)	12 (12.0%)	
Big city	81 (84.4%)	79 (69.9%)	82 (82.0 %)	
ORTO-15	38.2 ± 3.7	38.3 ± 3.7	38.0 ± 3.6	0.862
ORTO-15				
Score < 35 points	14 (14.6%)	15 (13.3%)	15 (15.0%)	0.931
Score ≥ 35 points	82 (85.4%)	98 (86.7%)	85 (85.0%)	

SD – standard deviation;
*The variance analysis;
**Ch^2 Test;
[abc] – statistically significant differences between groups based on the NIR test, p ≤ 0.05.

The mean ORTO-15 score for all participants was 38.1 ± 3.7. Mean ORTO-15 scores for fitness instructors were 38.2 ± 3.7, for current and graduate students of nutrition sciences or dietetics, 38.3 ± 3.7, and for the control group, 38.0 ± 3.6. There was no statistical difference between the three groups of participants, and all groups had a mean ORTO-15 score above the 35 cut-off. The percentage of fitness instructors with scores below 35 indicating the risk of ON was 15%, the percentage of nutrition students and graduates – 13%, and the control group – 15% (Fig. 1).

There was a statistically significant difference between ORTO-15 scores, depending on physical activity (p=0.007),

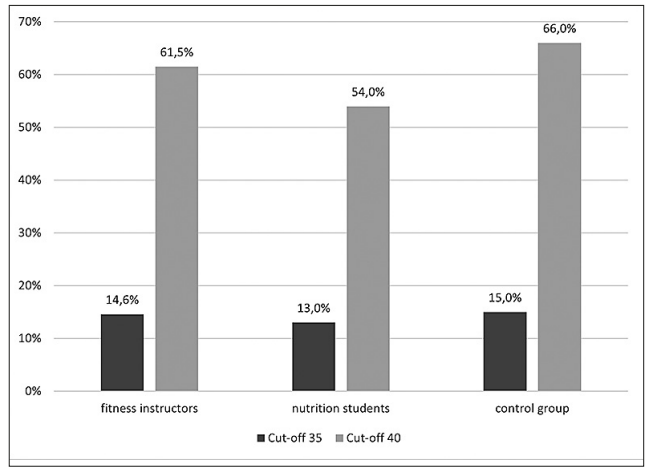

Figure 1. The prevalence of ON risk among women based on different ORTO-15 tests cut-off

use of a special diet (p < 0.001), or eating regular meals (p=0.020) in the whole study group. Analysis of variance in individual groups did not show statistical differences in the ORTO-15 test results for physical activity. In all three groups, statistically significantly lower scores of ORTO-15 were reported for individuals declaring the use of a special diet. Interestingly, only in the control group were significant differences in ORTO-15 test results observed for eating regular meals (p=0.045) and avoiding selected foods (p=0.029). Other factors, such as age, BMI, education level, place of residence, number of meals per day, or dietary supplements, were not statistically associated with the traits of ON (Tab. 2).

Table 3 presents the results of the logistic regression analysis for the orthorexia risk that was assessed through the ORTO-15 test. There were no statistically significant relationships among the groups' memberships (fitness instructor, student, or graduate student in nutrition, or control group) and ON. In the study group, neither age nor physical activity was statistically related to the occurrence of ON. BMI within the overweight/obese range (≥ 25 kg/m^2) was associated with almost 2.7-fold (95% CI 1.14–6.55) higher risk of ON compared with those with a BMI in the normal range. In addition, those who declared to be on a special diet were 2.4 times more likely to be at risk of orthorexia (95% CI 1.29–4.44) than those who did not report diet modifications. Other factors, such as education, place of residence, multiple meals per day, avoiding selected foods, or dietary supplements, were not statistically associated with the risk of ON.

DISCUSSION

A recent study suggests that Orthorexia nervosa is not a common condition, and the existing tools overestimate ON prevalence [14]. Dunn et al. [15] estimate that ORTO-15 diagnosed 71% of cases of ON, but among these, only 20% demonstrated dietary practices, and just 1% could be diagnosed with ON. They emphasized that the ORTO-15 test is unlikely to distinguish between healthy and obsessive healthy eating behaviour. In the light of these limitations, our the findings of the current study should be interpreted as an assessment of 'orthorexic tendencies' and potential risk levels within the studied groups, rather than as clinical diagnoses.

The presented study suggests that orthorexic behaviours

Table 2. ORTO-15 tests result according to characteristics

	Fitness instructors N=96			Nutrition students and graduate N=113			Control N=100		
	n	mean ± SD	P value	n	mean ± SD	P value	n	mean ± SD	P value
Age (years)									
≤ 25	49	38.2 ± 3.9	0.941	88	38.3 ± 3.7	0.724	55	37.6 ± 3.1	0.179
> 25	47	38.1 ± 3.4		25	38.0 ± 4.1		45	38.5 ± 4.1	
Physical activity (h/week)									
≤ 2h	27	38.9 ± 3.2	0.213	24	39.3 ± 3.7	0.069	38	38.3 ± 3.7	0.245
3–5h	26	38.5 ± 3.7		63	38.4 ± 3.6		44	38.2 ± 3.4	
≥ 6h	43	37.4 ± 3.8		26	36.9 ± 4.0		18	36.7 ± 3.6	
BMI (kg/m^2)									
Underweight (< 18.4)	8	35.5 ± 2.8	0.094	10	38.1 ± 3.9	0.635	9	37.0 ± 2.9	0.657
Normal weight (18.5–24.9)	83	38.4 ± 3.6		96	38.4 ± 3.8		71	38.2 ± 3.8	
Overweight/obese (≥ 25)	5	37.8 ± 5.4		7	37.0 ± 3.2		20	37.9 ± 2.9	
Education									
primary and secondary	18	38.4 ± 5.0	0.713	30	37.9 ± 3.5	0.488	25	37.8 ± 2.9	0.700
higher	78	38.1 ± 3.3		83	38.4 ± 3.8		75	38.1 ± 3.8	
Residence									
countryside	3	37.3 ± 7.6	0.732	15	38.3 ± 4.8	0.633	6	37.7 ± 2.6	0.955
small city	12	37.5 ± 3.8		19	37.5 ± 3.8		12	37.8 ± 4.7	
big city	81	38.3 ± 3.5		79	38.4 ± 3.5		82	38.0 ± 3.5	
Using of special diet									
Yes	27	36.4 ± 3.6	0.003**	15	35.9 ± 3.6	0.009**	23	36.5 ± 3.0	0.023*
No	69	38.8 ± 3.5		98	38.6 ± 3.6		77	38.4 ± 3.6	
Number of meals per day									
1–2	3	42.0 ± 2.0		1	40.0		6	38.3 ± 2.4	
3–4	31	38.9 ± 3.2	0.108	63	38.5 ± 3.4	0.674	60	37.8 ± 3.9	0.879
5–6	59	37.6 ± 3.9		48	38.0 ± 4.1		33	38.4 ± 3.3	
> 6	3	37.3 ± 1.5		1	35.0		1	37.0	
Eating regular meals									
No	15	39.3 ± 3.8	0.361	22	39.2 ± 2.8	0.384	39	38.8 ± 3.6^a	0.045*
Yes, quite regularly	66	38.0 ± 3.4		84	38.1 ± 4.0		55	37.7 ± 3.5^{ab}	
Yes, only at scheduled times	15	37.5 ± 4.6		7	37.3 ± 3.0		6	35.2 ± 1.8^b	
Avoidance of selected food products									
Yes	27	38.7 ± 3.4	0.396	33	38.2 ± 3.0	0.954	40	37.1 ± 3.4	0.029*
No	69	38.0 ± 3.8		80	38.3 ± 4.0		60	38.6 ± 3.6	
Dietary supplements use									
Yes	45	37.8 ± 3.2	0.405	32	38.2 ± 3.5	0.877	16	38.3 ± 4.0	0.705
No	51	38.5 ± 4.0		81	38.3 ± 3.8		84	37.9 ± 3.5	

SD – standard deviation;
* statistically significant differences, p ≤ 0.05;
** statistically significant differences, p ≤ 0.01;
^{abc} – statistically significant differences between groups based on the NIR test, p ≤ 0.05.

are not more pronounced among fitness instructors, nutrition students, or graduates, compared to other groups of women. In our study, the percentage of women from all groups with scores below 35, indicated as a risk of ON, was similar and did not exceed 15%. This percentage is lower than observed in previous studies concerning dieticians. In a study in Greece involving 176 undergraduate dietetic students, this percentage was above 60% [5]. Similarly, Gubiec et al. [16] found 60% of ON among 155 students from the Faculty of Nutrition of the Medical University of Łódź in Poland. The results of the above-mentioned studies were based on the Bratman Test for Orthorexia (BOT). We found that the group of Polish fitness instructors was characterized by a lower number of ORTO-15 scores, compared with other studies conducted among athletes [17]. There is a probability that caring about an athletic and slim figure and a high level of consistent physical activity can be an important determinant in the development of ON. In the current study, a higher risk of orthorexia behaviours was observed among women with higher BMI. Several studies show a small or very weak association between orthorexia and BMI, suggesting that BMI alone is not a good predictor of orthorexia risk [18,19]. A recent review found that both high and low BMI were associated with orthorexia in various studies, but the overall results were inconclusive [20].

The findings obtained in the current study highlight that the time devoted to physical activity may play a more important role in assessing orthorexia behaviours than occupation alone. Clifford and Blyth [21] also showed a significant correlation between the occurrence of ON and the number of hours spent on physical activity. More orthorexic symptoms were associated with more frequent physical activity. This is also confirmed by other studies conducted in the student population [8], among athletes [22], or gym attendees [7]. Clifford and Blyth [21] additionally found that 76% of student athletes scored below 40. In a sample of 193 adult gym members who answered a questionnaire based on a Portuguese version of ORTO-15, ON behaviour was documented in 51.8% of participants (40-point cut-off) [7]. But in a study in a large group of active members of German fitness studios (n = 1,008), ON was prevalent in only 3.4%, based on the results of the Düsseldorf Orthorexic Scale (DOS) [9].

Table 3. Logistic regression analysis of the association between orthorexia behaviors (ORTO-15 score) and background factors, presented as odds ratios with 95% confidence intervals

Variable	n	Model 1*		P value	Model 2†		P value
		OR	95% CI		OR	95% CI	
Group							
A (Fitness instructors)	96	0.82	0.46–1.47	0.509	0.82	0.43–1.60	0.567
B (Students and graduates)	113	0.60	0.35–1.05	0.075	0.66	0.36–1.21	0.182
C (Control group)	100	Ref.			Ref.		
Age (years)		1.02	0.95–1.10	0.527	1.00	0.91–1.09	0.948
Physical activity (h/week)		1.04	0.98–1.10	0.224	1.04	0.98–1.11	0.225
Body Mass Index (kg/m^2)							
Underweight (< 18.4)	30	1.78	0.79–4.05	0.167	1.95	0.83–4.55	0.124
Normal weight (18.5–24.9)	247	Ref.			Ref.		
Overweight/obese (≥ 25)	32	2.73	1.14–6.55	0.025	2.57	1.03–6.38	0.042
Education							
Primary and secondary	73	Ref.			Ref.		
Higher	236	1.00	0.59–1.72	0.987	1.04	0.53–2.05	0.912
Residence							
Countryside and small city	67	Ref.			Ref.		
Big city	242	1.14	0.66–2.00	0.638	1.08	0.59–1.97	0.810
Using a special diet							
No	65	Ref.			Ref.		
Yes	244	2.39	1.29–4.44	0.006	2.17	1.11–4.23	0.023
Number of meals per day							
1–2	10	0.47	0.13–1.75	0.262	0.42	0.11–1.60	0.201
3–4	154	Ref.			Ref.		
≥ 5	145	1.23	0.77–1.97	0.376	1.10	0.66–1.84	0.707
Avoidance of selected food products							
No	100	Ref.			Ref.		
Yes	209	1.27	0.78–2.07	0.345	1.10	0.65–1.86	0.733
Dietary supplements use							
No	93	Ref.			Ref.		
Yes	216	0.94	0.57–1.54	0.804	0.90	0.52–1.55	0.694

Abbreviations: OR – odds ratio; CI – confidence interval; Ref. – reference category.
*Univariate model: only one variable at a time in the model.; †Saturated model: all variables addressed at the same time in the model.

In the current study, a higher risk of orthorexia behaviours was observed among women following special diets. Other studies also showed a higher prevalence of ON in participants who followed a special diet [7, 23], but there are also studies that show no significant differences in ON symptomatology [6]. Available research also indicates an association of ORTO-15 scores and vegetarianism [24]. In a sample of 466 Spanish people with Vegetarian, Vegan, and Non-Vegetarian Dietary Patterns, those who followed a vegan or vegetarian diet were more likely to exhibit orthorexia tendencies than omnivores [24].

In the current study, other factors were not associated with orthorexic behaviour. Donini et al., creators of the ORTO-15 test, [12], in a study among the Italian population, observed an increased risk of ON related to the increase in age, which is explained by paying more attention to health. Different results were obtained using the Bratman questionnaire. It has been shown that the risk of ON decreases significantly with the age of the women. Many other authors using ORTO-15 did not show significant relations between age and the prevalence of ON. Donini et al. [12] found a statistically significant correlation between the education level and the development of orthorexia. In their study conducted among 404 inhabitants of Rome, people with a lower education level were more likely to present ON symptoms than those with a higher education level. Gubiec et al. [16] did not observe a significant impact of the increase in the education of students of dietetics on the differences between the average student outcomes, at the beginning and the end of studies. Furthermore, in this research, the results obtained by the students of nutritional education did not differ significantly from the results obtained by other groups of women, which may indicate that nutritional knowledge does not significantly affect the risk of ON.

The risk of occurrence of orthorexia and other eating disorders increased during the COVID-19 pandemic [25, 26], recent studies indicate the impact of pandemic-related anxiety on the increased risk of orthorectic tendencies. During the pandemic, many people began to pay excessive attention to the impact of food on health which, together with increasing anxiety and quarantine, may have fostered an overly restrictive focus on dietary recommendations [25]. Although the current study did not take into account the incidence of COVID-19 and fear of SARS-CoV-2 infection, it can be assumed that in the post-pandemic era, the problem is even greater and is worthy of greater attention. More research is needed to detect groups at higher risk and to improve access to specialists in this time of high levels of anxiety.

Limitations of the study. 1) Use of the ORTO-15 is widely debated as a screening tool, and there is a lack of consensus around what cut-off point is suggestive of pathology; therefore, the results do not provide a clinical diagnosis and assessment of the prevalence of ON, and only indicate the presence of orthorexic behaviours in study groups. 2) Participants were not evaluated for psychopathology, obsessive traits, or specific food choices or patterns that could have influenced survey responses. 3) Participants were recruited through convenient sampling, so their relevance to the general population is unknown. The sample size was not calculated. The findings are limited to the studied group and should be interpreted with caution, and cannot be generalized to the broader population.

There are several possible avenues for future. Studies which should take into account more detailed characteristics of the population of fitness instructors. These should include: 1) detailed analysis of physical activity, including the amount of exercise performed through classes with clients, type of classes, and exercising besides instruction; 2) a detailed analysis of eating habits and food attitudes; 3) anthropometric measurements or body composition data should be noted and recorded; 4) a higher number of participants should be included.

While assessing the traits of ON, the use of these and other measuring tools should be considered, including tools for assessing other eating disorders.

CONCLUSIONS

In conclusion, the study suggests that orthorexia behaviours are not more pronounced among fitness instructors, nutrition students, or graduates, compared to other groups of women. These findings indicate that there is no statistically significant association between professional or educational involvement in nutrition or fitness, and the risk of developing ON.

However, the findings highlight that the time devoted to physical activity may play a more important role in assessing orthorexia behaviours than occupation alone. Additionally, a higher risk of orthorexia behaviours was observed among women with a higher BMI and those following special diets, suggesting that individual behavioural and lifestyle factors may be more relevant determinants.

The obtained results underscore the need for further research, particularly the use of more precise and validated screening tools for ON, to better understand the underlying mechanisms and risk factors associated with this condition.

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