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Assessment of the risk of orthorexia in a group of people associated with the profession of a dietitian

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ABSTRACT

Introduction: Nowadays, due to social media, cultural and social factors, there is an increasing trend in the occurrence of eating disorders. One of them is orthorexia, defined as excessive thinking and concentration on food perceived as healthy. A group particularly at risk of this disorder is considered to be people associated with the profession of a dietitian.

The aim of the study was to assess the risk of orthorexia in a group of people associated with the profession of a dietitian.

Materials and methods: The study was conducted in a group of 303 people associated with the profession of a dietitian. The study was conducted using an original questionnaire enriched with the previously validated ORTO-15 questionnaire. The cut-off point was set at 35 points. The lower the result, the higher the risk of orthorexia. The study shows that the study group belonged to the risk group of people affected by orthorexia.

Results: Almost half of the study group – 54.1% (n = 164) received a result from the ORTO-15 questionnaire indicating the occurrence of orthorexia. What is more, it was noticed that the largest number of respondents – 62.6% (n = 67) who were diagnosed with a high risk of orthorexia were in the age group of 19–24, while the smallest group in this respect were people from the age group of 35–60 – 47.1% (n = 32). Additionally, the study shows that in the group of people with a BMI indicating excessive body weight, the risk of orthorexia was found among 66.7% (n = 18) of the respondents, while among people with a BMI indicating a normal body weight, 52.9% (n = 146) of the respondents.

Conclusions: Based on the study, it was noticed that the occurrence of eating disorders is influenced by many factors, and one of them is the profession.

Keywords: orthorexia; eating disorder; dietetician; risk factors.

INTRODUCTION

Eating disorders are becoming an increasingly serious public health problem, especially in developed countries where health and nutrition trends are commonplace. Currently, there are several scales used to classify eating disorders, such as: the International Statistical Classification of Diseases and Related Health Problems 11th Revision (ICD-11) and the Diagnostic Criteria for Mental Disorders, Fifth Edition (DSM-5). Unfortunately, they only refer to the most popular eating disorders, such as anorexia nervosa and bulimia nervosa. Newly recognized eating disorders such as orthorexia are not currently included in the ICD-11 or DSM-5 classification systems. This exclusion is largely due to diagnostic challenges and the lack of universally accepted diagnostic criteria. However, based on expert opinions, it can be concluded that there is a potential for its inclusion in the future official diagnostic framework [1, 2]. Currently, several diagnostic tests are used to diagnose orthorexia, and the most popular of them is the ORTO-15 questionnaire [2]. Unfortunately, it has recently been subject to the greatest criticism. The prevalence of orthorexia in the world is estimated at 1–60%. According to the definition, orthorexia is a disorder characterized by excessive thinking and concentration on food perceived as healthy. People suffering from orthorexia exclude only a few food products from their daily diet in the first stages of the disease, but as the disease progresses, the group of permitted products narrows significantly. In addition, people suffering from orthorexia read food labels perfectly or use only a few methods of heat treatment. Fearing a lack of knowledge about the nutritional value of food, people with orthorexia decide to give up participating in social life [3, 4]. The consequences of this are not only somatic diseases such as malnutrition or weakened muscle strength, but also psychosocial ones such as isolation, low self-esteem, depression or the development of other eating disorders [3, 5, 6]. People with orthorexia react to any deviation from the established plan with excessive frustration, anger, sadness or embarrassment and introduce an even more restrictive diet or even starvation [7]. It is worth mentioning that the occurrence of eating disorders, including orthorexia, is influenced by many factors, such as social media, culture or profession [3, 5, 8, 9, 10]. Unfortunately, despite the increasing scale of dissemination orthorexia and its lack of inclusion in classifications, there are still no clearly defined treatment standards [11].

The aim of the study was to assess the risk of orthorexia in a group of people associated with the profession of a dietitian.

MATERIALS AND METHODS

The study was conducted using social media on groups associating people associated with the profession of a dietitian. The

criterion for inclusion in the study was having the status of a student and/or completing education in the field of food and nutrition and/or activity in the profession of a dietitian. The study involved 303 people, including 287 women and 16 men aged 23–83.

Before starting the study, the questionnaire was validated among people not involved in the study. The questionnaire consisted of 3 parts. Part I included a personal data sheet where respondents were asked to provide their body mass and height at the time of the study, based on which the body mass index (BMI) was calculated. The next part consisted of questions regarding the type of education, job or specialization. Part III of the questionnaire included a tool for diagnosing orthorexia, which was the ORTO-15 questionnaire in the Polish version. This questionnaire consisted of 15 questions, to which respondents could choose 1 of 4 answer options: always, often, sometimes, never. Points were awarded for each answer. Answers interpreted as behaviors that may indicate orthorexia received 1 point, while answers indicating proper nutrition principles – 4 points. The total sum of points that could be obtained was in the range of 15–60 points. The cut-off point was a value of 35 points. The lower the result, the higher the risk of orthorexia. The results were collected and then analyzed using Microsoft Excel and Statistica software version 14.1. In order to determine the value indicating the statistical significance of the obtained results, the following statistical tests were performed: NW χ^2 test, and Pearson χ^2 test, Gamma and Pearson correlation.

RESULTS

The study involved 303 people aged 19–59. The largest group were people aged 25–34 – 42.2%. The analysis shows that based on the BMI, 276 (91.1%) of the study group had a healthy body weight, 27 (9.8%) were overweight, and none of the study group was underweight or obese (0.0%) – Table 1.

After summing up all the answers provided by the respondents in the part of the questionnaire covering the diagnostic tool in the form of the ORTO-15 questionnaire, in accordance with the guidelines, it was found that the studied group belonged to the risk group of people affected by orthorexia. Almost half of the studied group 54.1% (n = 164) obtained 35 points or less. The obtained result indicates the occurrence of orthorexia (Fig. 1).

The study used the standardized OTRO-15 questionnaire, which was used to assess the risk of orthorexia. The average number of points obtained among all the examined persons was 34.89 points (Tab. 2).

After analyzing the answers given in the ORTO-15 questionnaire, taking into account the division into age groups, it was noticed that the largest number of respondents – 62.6% (n = 67), who were diagnosed with a high risk of orthorexia were in the age group of 19–24, while the smallest group in this respect were people from the age group of 35–60 – 47.1% (n = 32). However, no statistically significant difference was found in the occurrence of orthorexia between the age groups of 19–24, 24–35 and 35–60; p = 0.0799 (Tab. 3).

TABLE 1. Characteristics of the study group

Variables	Data metrics	n	n (%)
Age (years) n = 303	19–24	107	35.1
	25–34	128	42.2
	35–60	68	22.4
BMI (kg/m²) n = 303	<18.5	0	0.0
	18.5–24.9	276	91.1
	25.0–29.9	27	9.8
	30.0–34.9	0	0.0
	35.0–39.9	0	0.0
	>40.0	0	0.0
Education n = 303	middle and lower	81	26.7
	higher	22	73.3
Professional status n = 323	a person active in the profession of a dietician	173	57.1
	student	135	55.4
	people who do not work in dietetic practice	15	4.9
Length of service (years) n = 173	up to 5 years	110	63.6
	5–9 years	36	20.8
	over 10 years	27	15.6
Specialty n = 274	psychodietitian	60	21.9
	clinical dietitian	131	47.8
	other specialty	56	20.4
Year of study n = 131	I year I degree	36	43.4
	II year I degree	17	20.5
	III year I degree	30	36.1
	I year II degree	23	47.9
	II year II degree	25	52.1
Degree of study n = 131	bachelor's degree	83	61.5
	master's degree	48	35.6

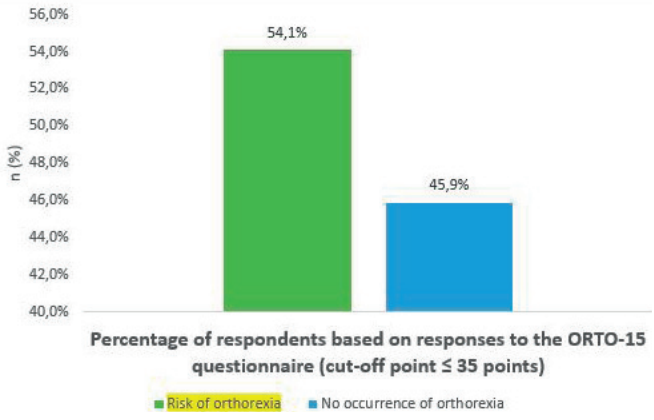

FIGURE 1. Characteristics of the occurrence of orthorexia based on the answers provided in the ORTO-15 questionnaire (n = 303)

TABLE 2. Characteristics of the occurrence of orthorexia by age of the examined persons (n = 303)

Variable	Mean	Standard deviation	Minimum	Maximum
ORTO-15 in the study group (cut-off point ≤35 points)	34.89	3.7490	25.00	44.00

After analyzing the answers given in the ORTO-15 questionnaire, taking into account the division into BMI of the respondents, it was noticed that in the group of people with BMI indicating excessive body weight, the risk of orthorexia was found among 66.7% (n = 18) of the respondents, while among people with BMI indicating normal body weight, it was found in 52.9% (n = 146) of the respondents. The frequency of orthorexia was not found to differ significantly between the groups of respondents with different BMI values; p = 0.1657 (Tab. 4).

Based on the results obtained from the analysis of the answers provided in the ORTO-15 questionnaire, it was noted that orthorexia affected 58.5% (n = 79) of students and 51.5% (n = 89) of respondents who declared that they were active in the profession of a dietician. No statistically significant difference was found in terms of the occurrence of orthorexia between people professionally active in the profession of a dietician and people professionally active in the profession of a dietician; p = 0.1684 (Tab. 5).

The analysis of the ORTO-15 questionnaire showed that first--year students of first-cycle studies are the most numerous group – 66.7% (n = 24) in terms of the occurrence of orthorexia, while the smallest group turned out to be students of the second year of second-cycle studies – 48% (n = 12). No statistically significant difference was found in terms of the occurrence of orthorexia between people attending the first year of first-cycle studies, the second year of first-cycle studies, the third year of first-cycle studies, the first year of second-cycle studies and the second year of second-cycle studies; p = 0.6485 (Tab. 6).

DISCUSSION

The incidence of eating disorders, including orthorexia, is increasing. The increasing trend in prevalence is influenced by many factors, such as social media, culture, and the social environment. Despite the prevalence of the problem, unfortunately, there is still a lack of data on the prevalence, factors causing diagnosis, and methods of treating psychological orthorexia. Based on the scientific literature, orthorexia can currently only be diagnosed on the basis of several diagnostic tests. One of them is the ORTO-15 questionnaire, which includes 3 factors: cognitive, clinical, and emotional. It was also used in our own study due to its high sensitive (91.1%) [12, 13].

There are also numerous publications in the scientific literature questioning the usefulness of this tool. According to the authors of the study, the ORTO-15 questionnaire has many limitations. It was developed before the official definition of orthorexia was adopted, and additionally, the reference group was the American population, which further undermines the validity of the questionnaire in terms of the adequacy of the tool for the general population. Another problem is the instability of the psychometric properties of the tool. Many authors of studies conducted on the prevalence of orthorexia indicate that the wording of the questions, their reverse scoring or discrepancy raise many doubts. In the latest scientific studies, it was proposed to remove some items of the questions, thus creating new 6-, 7-, 9-, 11-, 12-point versions of the ORTO-15. Shortening the questionnaire poses another problem in the adequate interpretation of the results. Moreover, the appropriate cut-off point has not been standardized to date. Studies using a 40-point cut-off often significantly overestimate the prevalence of orthorexia compared to the 35-point cut-off, which was also noted in our study. However, in our study we decided to choose this tool because it was one of the most frequently used questionnaires to date, which allowed us to make comparisons with other studies. In addition to the ORTO-15 questionnaire, one of the more popular alternative diagnostic tools is the DOS questionnaire. Importantly, in the world of science, this measurement method has gained recognition for its high consistency, reliability and psychometric values [14, 15, 16].

Analyzing the results, it was noted that in our own study among 303 examined persons, the risk of orthorexia with a cut--off point of 35 points was found in 54.1% of the examined persons and 93.4% with a cut-off point of 40 points. Similar results were obtained in the works of Ławska and Mirski, where with the use of a 35-point cut-off point, the frequency of orthorexia ranged 49–58% [17]. An equally high result of the prevalence of orthorexia was obtained in the studies of Souza and Rodrigues where with the adoption of a 40-point cut-off point, orthorexia concerned 77–88.7% of the examined persons [18]. Different results were obtained in a study where, based on the results of the ORTO-15 questionnaire with a cut-off value of ≤35, only 13.7% of secondary school students in Sosnowiec had the condition [19].

TABLE 3. Characteristics of the occurrence of orthorexia by age of the respondents (n = 303)

ORTO-15 questionnaire		Age groups				p-value
		19–24	25–34	35–60	grand total	
Risk of orthorexia	no	37.4% (40)	49.2% (63)	52.9% (36)	139	0.0799
	yes	62.6% (67)	50.8% (65)	47.1% (32)	164	
	general	107	128	68	303	

TABLE 4. Characteristics of the occurrence of orthorexia according to the body mass index (BMI) value of the examined persons (n = 303)

ORTO-15 questionnaire – interpretation		Body weight based on BMI			p-value
		BMI normal body mass	BMI excess body weight	grand total	
Risk of orthorexia	no	47.1% (130)	33.3% (9)	139	0.1657
	yes	52.9% (146)	66.7% (18)	164	
	general	276	27	303	

TABLE 5. Characteristics of orthorexia occurrence according to professional activity (n = 308)

ORTO-15 questionnaire – interpretation		Professional status			p-value
		a person active in the profession of a dietitian	student	grand total	
Risk of orthorexia	no	48.6% (84)	41.5% (56)	140	0.1684
	yes	51.5% (89)	58.5% (79)	168	
	general	173	135	308	

TABLE 6. Characteristics of the study group by year and degree of study (n = 131)

ORTO-15 questionnaire – interpretation		Year and degree of study						p-value
		1st year, 1st degree	2nd year, 1st degree	3rd year, 1st degree	1st year, 2nd degree	2nd year, 2nd degree	grand total	
Risk of orthorexia	no	33.3% (12)	35.3% (6)	43.3% (13)	43.5% (10)	52.0% (13)	36	0.6485
	yes	66.7% (24)	64.7% (11)	56.7% (17)	56.5% (13)	48.0% (12)	95	
	general	36	17	30	23	25	131	

One of the factors influencing the occurrence of orthorexia is social media. The cult of a perfectly slim figure, healthy eating and physical activity promoted by many influencers causes complexes among many users. Since the largest group of social media users are young people, it can be stated that this is why the highest percentage of people suffering from orthorexia is usually observed in the youngest age group [20]. This statement is also supported by the results obtained in our own study. A greater prevalence of orthorexia was observed in the group of people aged 19–24 – 62.2%, while this value decreased with increasing age and so the lowest risk of orthorexia was found in the group of people studied aged 35–60 – 47.1%. However, the obtained results were not statistically significant. Similar results were obtained in a study of high school students in Sosnowiec, where the highest risk rate of orthorexia occurred in the group of junior high school students, while the lowest intensity of orthorexic behaviors in the group of high school students [19]. Similar results as in the study of high school students. The prevalence of orthorexia in relation to age was observed in a study where the highest percentage of people at risk of orthorexia was found among those under 30 years of age – 34.3%, and lower in the group of older people – 27.9% [21]. Similar results were obtained in a study conducted in a sample of the population of Italian universities, where it was observed that in the group of people aged ≤29 years there was a higher percentage of people with symptoms of orthorexia compared to older people (34.3% vs. 27.9%), while maintaining the cut-off point at <35 [22]. Moreover, in our own study, analyzing the level of orthorexia prevalence among people undertaking education related to nutrition based on the year and level of study of the respondents, it was noted that people in the first year of first-cycle studies showed the highest risk of orthorexia – 66.7%, although this result was not statistically significant. Similar results were obtained in the study, where based on the answers obtained in the ORTO-15 questionnaire, it was found that students starting the first semester of studies were characterized by a higher risk of orthorexia – 87.5% than students attending the seventh semester of studies – 25% of the respondents [23]. Different results were obtained in the group of students of the Faculty of Nutrition and Dietetics of the University of Istanbul, where the highest percentage of people with orthorexia started the second year of studies – 36.1% [24]. The highest prevalence of orthorexia among people starting the first or second year of studies may result from the fact that this is the largest group of social media users, but also from the specificity of the education undertaken. It is at this stage of education that

dietetics students are most familiar with and already have partial knowledge about nutrition and its impact on health, which is why orthorexia behaviors may begin to develop among them.

Eating only "healthy" and "clean" food, apart from malnutrition, can paradoxically also lead to excessive body weight. People with higher body weight, wanting to change their appearance, take actions that can lead to a higher risk of orthorexia. In this way, they successively exclude other groups of products that they consider non-nutritional from their daily diet. Wanting to satisfy their need for appetite, they consume only "healthy" food in excessive amounts, thus leading to gaining excessive body weight [25, 26]. In our own study, a higher risk of orthorexia was observed in the group of people with a BMI indicating excessive body weight – 66.7% than among those with a normative body weight – 52.9%. It is worth noting that the obtained results were not statistically significant. Similar results were obtained in a study conducted among medical students in Turkey, where it was observed that with an increase in BMI, the ORTO-11 result decreased, and thus the risk of psychological orthorexia increased. In addition, the difference between BMI groups in terms of the tendency to orthorexia was statistically significant [27]. Similar results were obtained in a pilot study by Hyrnik et al. conducted among a group of undergraduate students of nutrition and dietetics, postgraduate students, graduates and dietitians at 6 universities in Jordan. The cited study shows that orthorexia was found among 30.5% of the subjects with a normal body weight and 35.5% of the subjects with a body weight indicating overweight. Based on the presented results, it was found that with an increase in the BMI value, the tendency to orthorexia nervosa (ON) increased significantly [28]. In a study conducted among Italian students, different results were also obtained. In people with a low BMI, orthorexia was more frequently found in comparison to those with a BMI indicating excessive body weight (42.8% vs. 34.2%) [21].

The group of people involved in food and nutrition due to the specificity of their profession is particularly vulnerable to the occurrence of eating disorders. Dietitians devote a large part of their daily lives to transferring knowledge about healthy eating and monitoring the modifications introduced in the diet of their clients, which may ultimately affect their excessive absorption of healthy food [29, 30]. In our study, orthorexia affected 51.5% of the respondents who declared that they were active in the profession of a dietitian. Similar results regarding the prevalence of orthorexia were obtained in a study conducted among registered dietitians in the United States, where it was found that less than 50% of the respondents obtained a high risk of ON, and this result was obtained based on the ORTO-15 questionnaire with a cut-off level of ≤ 40 points [31]. Similar results were obtained in a study among Turkish dietitians, where the incidence of orthorexia was estimated among 52.9% of dietitians [29]. The scientific literature still lacks research on the prevalence of orthorexia in the dietetics profession, which is why, in the authors' opinion, more research is needed to assess the scale and develop effective treatment methods.

LIMITATIONS

Lack of dimensional analysis – the study did not differentiate between the cognitive, emotional, and behavioral components of orthorexia, which limits the interpretability of the results and a nuanced understanding of the phenomenon.

CONCLUSIONS

1. The highest percentage risk of orthorexia was noted in the group of people associated with the dietetic profession among the respondents aged 19.
2. In the group of people associated with the dietetic profession, more than half of the people with excess body weight showed an increased risk of orthorexia (66.7%).
3. In the group of people associated with the profession of dietitian, the highest percentage risk of orthorexia was found among the respondents who were in the first year of bachelor's studies (66.7%).

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