

Grajek Mateusz, Sas-Nowosielski Krzysztof. Review of available diagnostic options for Orthorexia Nervosa. *Journal of Education, Health and Sport*. 2022;12(7):469-478. eISSN 2391-8306. DOI <http://dx.doi.org/10.12775/JEHS.2022.12.07.048>
<https://apcz.umk.pl/JEHS/article/view/JEHS.2022.12.07.048>
<https://zenodo.org/record/6828791>

The journal has had 40 points in Ministry of Education and Science of Poland parametric evaluation. Annex to the announcement of the Minister of Education and Science of December 21, 2021. No. The journal has had 40 points in Ministry of Education and Science of Poland parametric evaluation. Annex to the announcement of the Minister of Education and Science of December 21, 2021. No. 32343. Has a Journal's Unique Identifier: 201159. Scientific disciplines assigned: Physical Culture Sciences (Field of Medical sciences and health sciences); Health Sciences (Field of Medical Sciences and Health Sciences).

Punkty Ministerialne z 2019 - aktualny rok 40 punktów. Załącznik do komunikatu Ministra Edukacji i Nauki z dnia 21 grudnia 2021 r. Lp. 32343. Posiada Unikatowy Identyfikator Czasopisma: 201159. Przynależność dyscypliny naukowej: Nauki o kulturze fizycznej (Dziedzina nauk medycznych i nauk o zdrowiu); Nauki o zdrowiu (Dziedzina nauk medycznych i nauk o zdrowiu).

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Received: 22.06.2022. Revised: 22.06.2022. Accepted: 13.07.2022.

Review of available diagnostic options for Orthorexia Nervosa

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Abstract

Orthorexia Nervosa (ON) is one of the disorders with a psychological basis. The word 'orthorexia' comes from Greek, where 'orthos' means proper 'orexia' appetite. The disorder is characterized by an obsession with healthy eating, and as the disease worsens, significant food exclusions occur. In extreme cases of ON, the affected person forgoes eating any food, explaining it as a health concern. The degree of prevalence of ON in society is still highly questionable. Numerous studies indicate the prevalence of this problem, but there is no consistent data on the degree of severity of ON. The degree of severity of ON in the general population ranges from 6% to as high as 90%, such significant variation may be due to cultural reasons or a defect in the measurement tool. To date, a useful tool for diagnosing ON has not been developed, little that ON is still not treated as a separate disease or disorder. Therefore, the purpose of this paper is to present diagnostic possibilities in the form of psychometric tools that can be used in conducting scientific research and in psychological and dietetic practice.

Keywords: ON, psychometrics, diagnostic tools, tests, and measurement scales

Background

Orthorexia Nervosa (ON), is one of the disorders with a psychological basis. The word 'orthorexia' comes from Greek, where 'orthos' means proper 'orexia' appetite. The disorder is characterized by an obsession with healthy eating, and as the disease worsens, significant food exclusions occur. In extreme cases of ON, the affected person forgoes eating any food, explaining it as a health concern. ON is a disorder that reaps rewards in an age of ideals created by mass media and social media. Healthy eating and a slim figure are often mistakenly equated with a happy life. The determinants of ON have not been fully understood, it is indicated that psychological and socio-cultural factors play a significant role in its development [1]. ON is associated with an illusory sense of security (a desire to prevent disease), a desire for total control over life (elimination of unpredictability), conformity (a theory associated with eating in an unconscious way to achieve a culturally accepted pattern of a beautiful body), a search for spirituality and identity, and a desire to deprive one's own emotional needs [2]. Despite the increasing number of scientific publications on the problem of the occurrence of ON, there is a lack of a reliable research tool, as well as the selection of the study population, is unrepresentative for most studies [3]. Very often, studies are conducted in populations of people at risk of developing ON (vegetarians, artists, medics, students) and in the European population [4]. As a result, it is difficult to assess the authentic level of risk for ON, especially in the general population. Studies conducted to date around the world indicate that the prevalence of ON in the general population ranges from less than 1% to 58%, and in populations in the so-called 'at-risk' group the prevalence of ON reached up to 90% [5]. These studies mostly used the ORTO-15 test and its national adaptations. Many studies used additional diagnostic criteria in addition to the ORTO-15 test, which significantly reduced the diagnosed average number of people at risk for ON [6]. More realistic results of the degree of incidence of ON are provided by the Duesseldorf ON Scale (DOS) diagnostic test, which has been used for several years, and whose application shows that orthorexic tendencies may affect 1% to 7% of the population [4]. ON is searched for in vain in official disease classifications and diagnostic criteria, i.e. in ICD-10 and DSM-5. In clinical practice, it is not clear whether ON should be classified as an eating disorder or obsessive-compulsive disorder. Because the symptoms involve the consumption of food, ON can be categorized as a nonspecific eating behavior [7]. Considering the mechanism of ON, it is closer to obsessive-compulsive disorder [8].

To date, several questionnaires have been proposed to diagnose ON or its risk. Because of this, the purpose of this paper is to present diagnostic possibilities in the form of psychometric tools that can be used in conducting scientific research and in psychological and dietetic practice.

Bratman Test for Orthorexia - BOT

The BOT test was first published in 2000. The BOT consists of 10 questions. For each of them, the respondent can answer either 'yes' or 'no.' For each 'yes' answer the respondent receives 1 point, and for 'no' 0 points. A score of 0-1 points means that the respondent does not suffer from ON, 2-3 points indicate the risk of the disorder, and 4 and more are diagnosed as ON. This test has been adapted to German, Swedish, English, and Polish. In scientific practice, this test is not used very often. It is accused of not being psychometric. It does not meet the rigorous requirements for questionnaires used in scientific research and is only a screening test [6].

Orthorexia fifteen - ORTO-15

The questionnaire, created under Donini's direction, was based on the previously described BOT test. It consists of 15 questions. Each can be answered on a 4-point scale: always, often, rarely, never. Answers indicating the risk of orthorexic behavior receive 1 point, while those corresponding to a correct attitude to food receive 4. The test authors took a score of 40 points as the cutoff point. Obtaining a lower number of points indicates a tendency to ON. At present, this test and its adaptations are the most widely used in scientific research. The ORTO-15 questionnaire has seen numerous adaptations. Most adaptations of this questionnaire consisted of 15, less frequently 11 items. The German adaptation is the most abbreviated, consisting of 9 questions. In the literature, we find information about the use of different cut-off points, intending to graduate the severity of the disorders present in the background of healthy eating. The original version of the ORTO-15 test took a score of 40 as the cutoff point, while the available literature also describes information on cutoff assumptions at 45, 35, 33, and even 24 points. Critics point out that the ORTO-15 test is characterized by an overestimation of the prevalence of ON [9].

Eating Habits Questionnaire - EHQ

Another researcher who developed a diagnostic tool was Gleaves. The starting point for developing the questionnaire was the preparation of a pool of 160 statements, among which were also those present in the BOT questionnaire. A group of several clinical psychologists familiarized themselves with the subject of ON, after which they selected the 59 assertions they believed to be the most accurate. The questionnaire thus obtained was further elaborated by performing research on a group of 174 students. The factor structure of the EHQ was examined and the instrument was refined using exploratory factor analysis. The results suggested a three-factor solution with the following subscales: knowledge about healthy eating, problems related to healthy eating, and positive attitudes toward healthy eating. The subscales showed good internal consistency and test repetition reliability. The EHQ questionnaire has so far been used relatively infrequently in research on the prevalence of ON. Only since 2020 has there been an increase in the number of published studies using this tool. Validation of this questionnaire in Polish conditions, on the general population, was carried out in 2020 by Brytek-Matera and her team. The Polish version of the EHQ is a reliable questionnaire that can certainly be used to better assess ON in a general population sample [10].

Duesseldorf Orthorexia Scale - DOS

Researchers in Germany to assess the degree of ON has developed another diagnostic tool, the DOS. This test consists of 10 questions that can be answered with either 'agrees' or 'disagree.' A total of 10 to 40 points can be obtained in the test. A score of between 25 and 29 is indicative of orthorexic tendencies and a score above 30 indicates ON. Authors using the DOS questionnaire gave a good assessment of its psychometric values and indicated that it is more reliable and valid than the commonly used ORTO-15 test.

The prevalence level of ON in the general population measured using the DOS test ranges from 1 to 3.3%. The inability to distinguish between patients suffering from anorexia and those with orthorexic tendencies has been pointed out as a shortcoming of this test [11].

Newest scales

In recent years, two new tools have been developed in the field of ON diagnosis. In 2018, his team developed a survey tool called the BOS. The tool was based on Dunn and Bratman's [6] research and the available scientific literature on ON. The BOS scale consists of 64 statements. Experts in the field of ON and eating disorders commented on ON. 58 experts from 17 different countries participated in the first stage. The process was anonymous. The experts received feedback after each stage in the form of summary statistics. The consensus was reached when more than 50% of the responses agreed with the statements. The final result was a questionnaire that included 64 items examining six content areas: cognitive; emotional; behavioral; negative consequences for health; negative consequences for social and academic functioning; and differential diagnosis.

The most recently developed tool for measuring the prevalence of ON is the TOS. This tool was developed by two Spanish researchers [4]. It consists of 17 statements that can be answered on a 4-point scale (from 'don't agree at all to 'completely agree'). The questionnaire, as intended by the authors, makes it possible to distinguish pathological ON from merely its manifestations in the form of individual behaviors.

At the moment, few studies are using the BOS and TOS tests hence there is a lack of information on their possible disadvantages as well as advantages.

Summary

Also characteristic of orthorexia is the loss of the ability to feel hunger, as well as how much food is needed and when the moment of satiation occurs. Contrary to appearances, avoiding orthorexia is not so easy. Nowadays, a slim figure and a healthy, fit body are promoted at every turn. People who pay too much attention to their appearance can quickly and imperceptibly fall into orthorexia. To get out of it, one must admit to oneself that healthy eating and exercise have gotten out of hand. Physical exertion has ceased to be a pleasure and has become a punishment for deviating from the diet. It is not worth waiting for nutrient deficiencies to negatively affect health. To this end, it is worth seeking a good psychotherapist to help deal with the source of the eating disorder. People who have dealt with orthorexia eat healthily and rationally thanks to a new awareness of what such eating is all about. Patients understand after therapy that eating specific foods does not make them better people and that basing self-esteem on food is a mistake. Instead of limiting themselves to the role of a person who eats healthy, they learn how to see themselves as a person who works, lives, and plays. Eating healthy is important, but it ranks behind other, more important things on the priority list.

The degree of prevalence of ON in society is still highly questionable. Numerous studies indicate the prevalence of this problem, but there is no consensus data on the degree of ON. The degree of severity of ON in the general population ranges from 6% to as high as 90%, such significant variation may be due to cultural reasons or a defect in the measurement tool. Therefore, further research should be conducted to verify the psychometric value of individual measurement tools.

Table 1. Overview of available diagnostic options for ON

Name of the tool	Author	Questions	Interpretation
BOT	1.	<ol style="list-style-type: none"> 1. Do you spend more than 3 hours a day fretting about your diet? 2. Do you plan your meals several days in advance? 3. Is the nutritional value of your meals more important than the pleasure derived from eating them? 4. Has your quality of life deteriorated as the quality of your diet has increased? 5. Have you become stricter with yourself lately? 6. Has your self-esteem improved with healthy eating? 7. Have you given up foods you liked in favor of healthy foods? 8. Does your diet make it difficult for you to eat out, distancing you from family and friends? 9. Do you feel guilty when you fail to follow your diet? 10. Do you feel a sense of peace and control when you eat healthily? 	<p>YES - 1 point. NO - 0 points.</p> <p>Result: 1 - no orthorexia 2-3 - increased risk 4 and over - orthorexia</p>

<p>ORTO-15</p>	<p>1.</p>	<ol style="list-style-type: none"> 1. Do you pay attention to the caloric value of the foods you eat? 2. Do you feel confused/confused at the grocery store? 3. Has thinking about food been a particular concern for you in the past 3 months? 4. Are the food choices you make determined by health concerns? 5. Is taste the most important criterion for you in evaluating food? 6. Are you willing to spend more money to stock up on healthy foods? 7. Does it take you more than 3 hours a day to think about healthy food? 8. Do you allow yourself to break professed rules about nutrition? 9. Do you think your current mood influences your eating behavior? 10. Do you think that the belief in healthy eating increases your self-esteem? 11. Do you think that healthy eating affects your lifestyle (frequency of going out to restaurants, to see friends)? 12. Do you think eating healthy foods can improve your appearance? 13. Do you experience feelings of guilt when you make deviations from your set dietary rules? 14. Do you think there are unhealthy food products available on the market? 15. Do you currently eat your meals alone? 	<p>4-stage scale</p> <p>1 point for an orthorexic statement, 4 points for a statement closer to a normal eating pattern</p> <p>Result: Below 40 points - orthorexia</p> <p>(interpretation questioned, adaptation suggested depending on cultural and social context)</p>
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<p>EHQ</p>		<ol style="list-style-type: none"> 1. My eating habits are better than those of others. 2. The diet I follow has many rules. 3. My diet is better than the diets used by other people. 4. The way I prepare my meals is the healthiest way possible. 5. I strictly follow my dietary guidelines and eat only healthy foods. 6. How meals are prepared is important in my diet. 7. I am better informed than others about how to eat healthily. 8. I eat as much as my diet allows. 9. My healthy eating causes significant stress in my relationships with others. 10. I spend more than 3 hours a day thinking about healthy eating. 11. I have difficulty finding a restaurant that serves meals that are compatible with my diet. 12. Few foods are healthy for me. 13. I do not attend meetings where unhealthy food is served. 14. My diet affects the type of work I can do. 15. Since I started eating healthy, I leave the house less often. 16. I am distracted by thoughts of healthy eating. 17. During the past year, I have been told by friends/family members that I am overly concerned about healthy eating. 18. I feel a sense of control when I eat healthily. 19. I feel good when I eat healthily. 20. As time goes by, I try to eat healthier and healthier. 21. Food gives me a sense of satisfaction. 	<p>Examines internal consistency among psychomarkers:</p> <ul style="list-style-type: none"> A. knowledge of healthy eating; B. healthy eating problems; C. a positive attitude toward healthy eating.
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<p>DOS</p>		<ol style="list-style-type: none"> 1. Healthy eating is more important to me than indulging/enjoying food. 2. I have certain dietary rules that I follow. 3. I only enjoy eating foods that are considered healthy. 4. I try to avoid invitations from friends to dinner if I know that they do not attach importance to healthy eating. 5. I like the fact that I pay more attention to healthy eating than other people. 6. If I eat something I consider unhealthy, I feel bad. 7. I feel that my friends and acquaintances exclude me because of my strict dietary rules. 8. My thoughts are constantly focused on healthy eating, and the organization of my day is tailored to my healthy eating. 9. I find it hard to go against my dietary rules. 10. After eating unhealthy food, I feel nervous/anxious. 	<p>I disagree - 1 point I agree - 4 points</p> <p>Result: 24 and under - no orthorexia 25-29 - increased risk 30 and over - orthorexia</p>
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