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# Orthorexia Nervosa - unhealthy obsession on healthy lifestyle

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**ABSTRACT:**

**Introduction:** Eating disorders have expanded rapidly in recent years, with social media platforms like Instagram and TikTok playing a significant role. These platforms often showcase idealized images of healthy eating and body image, exposing young people to an overwhelming amount of information. This overstimulation can contribute to the development of various eating disorders. In our study, we focus particularly on orthorexia nervosa.

**Review methods:** Our study was conducted as a literature review, with data gathered from PubMed and Embase.

**The state of knowledge:** Orthorexia Nervosa (ON), introduced by Steven Bratman in 1997, could be defined as an unhealthy obsession with healthy eating. This obsession leads to strict dietary restrictions, where individuals often exclude certain food types, such as preservatives and GMOs, and experience significant stress and anxiety over food choices, planning, and preparation methods. The fixation on food purity can result in social isolation, anxiety, and major disruptions to daily life. In comparison to other eating disorders like anorexia nervosa and obsessive-compulsive disorder (OCD), ON is characterized by its focus on food quality rather than body image or weight.

**Conclusions:** The classification of orthorexia as a mental disorder and the need for its recognition in DSM-5 are still debated. However, growing concern about its impact on mental and physical health has led to increased research and awareness.

**KEYWORDS:** eating disorders; orthorexia nervosa; anorexia nervosa; healthy lifestyle

## INTRODUCTION:

Multiple behaviours, besides psychoactive substance ingestion, have been determined as potentially addictive. However, for many of them, there is not enough empirical evidence that they may develop into a disorder or if they should be categorized as behavioural or impulse control disorder. [1,2] Considering the above, behavioural addiction and drug addiction have a lot in common. Their fundamental aspects include loss of control and persistence in harmful practices despite the knowledge of ill consequences. [3] Both addictions are usually developed in adolescence or by young adults and are more common than in the older age groups. [4] A 2017 study showed that a combination of trait impulsivity and the presence of at least two behavioural addictions, like internet and food, increases the risk of tobacco, alcohol and marihuana use in adolescents. [5] Of all known behavioural addictions only gambling disorder is included in DSM-5 (Diagnostic and Statistical Manual of Mental Disorders) in the chapter "Substance Related and Addictive Disorders". In previous editions, it was classified as an impulse control disorder. Internet gaming disorder is also mentioned among conditions that require additional research and evidence to be officially included in the category [6]. Many other non-substance addictions, like excessive sexual activity, exercise, overeating, compulsive buying, love addiction, workaholism and technological addictions, may be included in the future. [7,8] Current studies on behavioural addictions are often severely affected by both

random and systematic errors.
Recommendations for future studies include having larger representative samples, conducting longitudinal studies, proper evaluation of disturbance variables and creating consistent diagnostic criteria with standardized diagnostic questionnaires and screening subjects. [1]
Eating disorders are a broad spectrum of mental disorders associated with severe disturbances in people's eating behaviours and have expanded rapidly in recent years. Chapter Feeding and Eating Disorders (FEDs) in DSM-5 features several diagnostic categories: anorexia nervosa, bulimia nervosa, binge-eating disorder (BED), avoidant/restrictive food intake disorder (ARFID), pica and rumination disorder. [9] Additionally, two other categories were included: Other Specified Feeding or Eating Disorder (OSFED), which refers to situations where a person has clinically significant similar symptoms to other eating disorders, but does not meet their full criteria and Unspecified Feeding and Eating Disorders (UFED), which are clinically significant feeding or eating disorders that do not meet the criteria for another eating or feeding disorder nor are similar to OSFED. [10]

## REVIEW METHODS:

This study was conducted as a literature review, with data being gathered via PubMed and Embase, and explores the latest research and approaches in eating disorders with a focus on orthorexia nervosa.

## THE STATE OF KNOWLEDGE:

*Orthorexia Nervosa*

In recent years, many scientific fields have shown a growing interest in health and healthy eating habits. As more consumers prioritize health-safe foods, there is a growing concern that this trend may lead to eating disorders, specifically orthorexia nervosa. Research over the past decade indicates a rising number of people at risk of developing orthorexia. [11,12]
Orthorexia Nervosa (ON) is the term introduced by Steven Bratman in 1997 to suggest the potential existence of this new eating disorder. The name has a Greek etymology from the word "orthos," meaning "correct". ON is defined as an obsession with healthy eating, characterized by an intense focus on food quality, preparation, and adherence to strict nutritional standards. [13]
The spotlight of ON is maintaining healthy eating habits. This demeanour is described as highly focused on the quality of the consumed food, often leading to the elimination of certain types of food from the diet. Individuals with symptoms of orthorexia nervosa often eliminate foods containing preservatives, colour additives, flavouring agents, pesticides, excessive fat, sugar, salt, or genetically modified ingredients from their diets. A strong preference for products from organic farming is also observed. While the list of acceptable foods may vary among individuals, a common feature of ON is the gradual intensification of dietary restrictions. These dietary restrictions are frequently accompanied by stress, anxiety, and self-criticism. [12,14,15] Other obsessive aspects can also be the process of food preparation, planning menus, and food purchase. Meals are prepared with extreme care. Planning a shopping list or preparing meals can take a great amount of time, even most of the day, and lead to the neglect of other obligations. The obsession to avoid any artificial, plastic, or aluminium materials, using instead

only natural, earthenware and wood ones, also occurs. The need for total control over consumed food can profoundly impact individuals' social lives and mental well-being.

The fear of not knowing the ingredients or preparation methods can lead to a cycle of avoidance, where individuals choose to stay home or limit their social interactions to maintain their eating habits. Therefore avoiding social gatherings due to concerns about the quality and safety of food prepared by others may cause feelings of isolation and anxiety. Any deviation from the strict norms can lead to feelings of fear, guilt, shame, and further dietary restrictions. [16,17,18,19]

According to Varga et al., ON should be viewed not as a separate condition but as a spectrum, with one end representing a healthy diet and the other a pathological obsession with healthy eating habits. [20] Bratman proposed two stages in the development of ON: a normal interest in healthy eating without pathological features, and orthorexia nervosa, marked by an obsessive focus on healthy eating. It is important to note that a focus on healthy eating is not inherently a disorder. The problem appears when an excessive fixation on food quality and preparation begins to include negative behavioural patterns which may lead to many negative consequences, till full-symptomatic ON. [21]

The classification of ON as a mental disorder remains a topic of debate. Researchers disagree on whether ON should be viewed as a distinct mental disorder, a subtype of other disorders such as anorexia nervosa (AN), obsessive-compulsive disorder (OCD), or Avoidant/Restrictive Food Intake Disorder (ARFID), or as a new social/behavioural addiction. [12,22]

The increasing concern about ON emphasizes the need for a clearer understanding of its characteristics, implications, and potential classification within mental health frameworks. Dunn and Bratman's argument for ON as a distinct condition highlights the importance of recognizing its unique diagnostic criteria, which include obsessive healthy eating habits, anxiety about food choices, and significant dietary restrictions that can impair daily functioning. [20,21,23]

Anorexia nervosa (AN) and ON are characterized by some common features, including perfectionism, cognitive rigidity, high anxiety, need for control, and feelings of guilt related to food. Despite shared traits, ON is characterized primarily by its exclusive focus on food quality rather than quantity, as seen in AN. This distinction highlights how individuals with ON may restrict their dietary choices in pursuit of optimal health, often leading to manifestations such as malnutrition and social isolation, without necessarily being linked to their body mass index (BMI). Moreover, ON shares some similarities with OCD, such as intrusive thoughts, repetitive rituals-like behaviours like meticulous food preparation and label-checking, and social impairment. A critical distinction is that OCD symptoms are typically egodystonic, meaning individuals often find them distressing and unwanted. In contrast, the individuals usually perceive both ON and AN symptoms positively, aligned with their self-image, leading to a reluctance to seek treatment. In understanding these differences and similarities, it becomes clear that while ON, AN, and OCD may share superficial traits, their underlying motivations, perceptions, and impacts on mental well-being can vary significantly. This differentiation is vital for proper diagnosis and treatment. [11,13,18,24]

In the context of DSM-V, ON could be potentially classified under ARFID, although current frameworks do not fully encapsulate ON. ARFID is characterized by a lack of interest in food,

avoidance of certain foods based on attributes like shape or colour, and fear of the consequences of eating. However, the anxiety related to eating in ARFID is often linked to traumatic or aversive experiences, unlike the health-focused concerns seen in ON.

The potential overlap of ON with existing classifications like ARFID or OCD reflects the complexities surrounding its identification. In particular, the motivations driving restrictive eating behaviours differ significantly between these constructs, suggesting that ON may reflect a unique pathology that requires tailored clinical attention. [25,26,27]

There is also a suggestion that ON might be a precursor to or an early stage of an eating disorder (ED), with increasingly restrictive and compulsive eating patterns potentially leading to a full-blown ED. Additionally, ON could coexist with an ED or function as a coping mechanism for it. [28,29]

Behavioural addictions, defined as compulsive and excessive non-substance-related behaviours, have also been examined concerning orthorexia nervosa. [22, 30] Though some symptoms seem to be compatible with the components of behavioural addictions (high priority given to eating habits), there is a lack of evidence for tolerance or withdrawal symptoms that are typical in substance-related addictions. Individuals with ON do not report severe withdrawal symptoms (e.g., sweating, nausea, depression) when they do not follow their eating restrictions. [31] However, the intake of "unhealthy" or forbidden foods provokes similar negative emotions such as guilt. [32] Increasingly rigid eating habits over time are also considered a manifestation of building tolerance in ON but that item has not yet been studied. Common motives for both ON and addictions include modulating anxiety and negative mood states. Components of behavioral addictions such as salience and conflict are also observed in ON. Food consumption and preparation take on significant importance in the individual's life, leading to heightened emotional, cognitive, and behavioural preoccupation, and engaging in this behaviour can create serious conflicts with family, friends, or one's responsibilities and other interests. However, individuals with ON may lack total relapse, as they often miss insight into their disorder. Maintaining a healthy diet is also generally socially accepted, contributing to a lack of awareness regarding the harmful aspects of orthorexic behaviours, while addictions often carry a significant social stigma. Both ON and addictions meet on the neurobiological ground. The role of dopamine and the mesolimbic system is referenced, as it appears to influence the reward value of food intake, paralleling mechanisms in substance addiction. Comorbidity of disorders occurs as studies have found moderate and positive associations between behavioural addictions like compulsive exercising and ON within certain populations, such as athletes. [31] While there are overlapping features between orthorexia nervosa and behavioural addiction, there is significant debate regarding the categorization and understanding of these behaviours, which requires further research. [22,30]

Several tools have been created to evaluate ON. One of the questionnaires with the widest global reach is ORTO-15 and its adaptations. The ORTO-15 questionnaire consists of 15 questions that assess the cognitive, clinical, and emotional relationship of individuals, potentially suffering from ON, with food. Its responses are scored on a 4-point Likert-type scale, which includes: "always" = 1, "often" = 2, "sometimes" = 3, and "never" = 4. Results below 40 suggest the occurrence of ON. [11, 32, 33]

As awareness of ON rises, it becomes increasingly important to evaluate the behaviours and

attitudes associated with extreme health consciousness. Defining and diagnosing ON can guide efforts for early intervention, allowing for the cultivation of healthier relationships with food and improved overall well-being.

Realizing the potential for ON to indicate a serious disorder encourages both researchers and healthcare providers to prioritize the identification and support of individuals exhibiting orthorexic tendencies. Developing assessment tools, including the ORTO-15, is vital for recognising and addressing this emerging issue and enhancing preventive educational measures. [11]

*Epidemiology*

The prevalence of orthorexia nervosa is not entirely clear. Some studies suggest it might range up to 60 % [34], others - that the spread of ON is less than 1% [35]. There are certain groups where the percentage presence of ON is higher: yoga instructors [36], dieticians, [37], nutrition students [38], exercise science students [39], patients recovering from AN or bulimia nervosa [40], athletes [41,42], healthcare workers and medical students [43], artists [44]. Athletes are particularly susceptible due to their obsessive focus on diet and exercise. Their perfectionism and willingness to have the best possible results may guide them to an obsessive focus on products' purity. Some of them rely on unverified dietetic information to improve performance. However, even dieticians, professionals with verified knowledge of nutrition, are at risk of developing orthorexia. Their knowledge can lead to an excessive focus on food quality, in addition to that they might feel professional pressure to maintain a perfect diet. Regarding sex, women are more likely to suffer from ON than men. The risk of orthorexia is higher amongst people ≤29 years old. These groups are often concerned with body image which can lead to unhealthy obsessions. Certain significance is attached also to the level of education – people with a high level of education are more prone to ON [45]. However, there is still not enough research on factors increasing the risk of orthorexia.

*Social media*

Young people who follow accounts focused on healthy lifestyle content on social media are more likely to have an eating disorder [46]. Some studies are showing a connection between orthorexia nervosa and social-media use [47,48], in particular, Instagram - a significant correlation between symptoms of ON as measured by the ORTO-15 test and Instagram use was discovered. No other social media channels were found to have this effect, although Twitter seemed to have a small protective association [47]. Why is Instagram the most impactful in this matter? It's an image-concentrated platform – remembering images is easier than remembering words [49]. Constant exposure to images of meticulously planned, health-focused meals followed by photos of perfect bodies can create a distorted body image and a drive to achieve a similar appearance through restrictive eating. The platform's emphasis on likes, comments, and followers can create social pressure to conform to certain behaviours, including a restrictive diet. In the social media world exists selective exposure, the user chooses what account to follow. What's more, social media algorithms can create echo chambers, where users are primarily exposed to content aligned with their interests. For individuals interested in health

and wellness, this can lead to an overemphasis on purity and restriction, reinforcing orthorexic tendencies.[50]

## CONCLUSIONS:

Nowadays more research regarding behavioral addictions can be observed. Because of social media and the internet people can easily access informations, that are not always backed up by reaserch. Overstimulation by news and suggestions of a fit lifestyle could lead to an unhealthy obsession with healthy eating. This disorder is defined as orthorexia nervosa. Individuals with ON often restrict their diet severely to exclude certain food types (e.g., preservatives, GMOs) and may experience stress and anxiety over food choices. This obsession can lead to social isolation and negative impacts on mental health. ON shares similarities with other disorders like anorexia nervosa (AN) and obsessive-compulsive disorder (OCD) but is distinguished by its focus on food quality over quantity. The classification of ON as a mental disorder remains debated, with some researchers considering it a potential subtype of other eating disorders or a form of behavioral addiction.

Overall, there is a need for more research regarding the classification, prevalence, and impact of ON on specific populations. It is important to develop reliable diagnostic tools to identify and address ON effectively.

## DISCLOSURES:

### Author's contribution:

Conceptualization: Marta Barg,
Methodology: Aleksandra Jędrasek, Marta Barg
Formal analysis:
Investigation: Klaudia Wojtyła
Writing - rough preparation: Aleksandra Jędrasek, Marta Barg
Writing - review and editing: Aleksandra Jędrasek, Klaudia Wojtyła
Supervision: Aleksandra Jędrasek, Marta Barg

*All authors have read and agreed with the published version of the manuscript.*

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**Conflicts of Interests:**
The authors declare no conflict of interest.

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