ETHNOCULTURAL STUDIES OF ORTHOREXIA NERVOSA

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Summary

The article presents an overview of the ethnocultural plane of the phenomenon of orthorexia nervosa ON (as a pathological obsession with healthy nutrition). The aim of the article is to make a meta-analysis of ON studies in different countries of the world and to create it's causal model on the Ukrainian sample. The Western trend towards a healthy lifestyle (healthism) and healthy eating attracts the attention of researchers in other cultures. Modern studies of orthorexia nervosa on samples in China, India, Turkey and other countries of the East and Asia emphasize that orthorexia nervosa is diagnosed there as well. Deepening cultural studies of ON is a necessary direction. The study of orthorexia nervosa on the Ukrainian sample presented in the article at the beginning of 2024 showed the presence of orthorexia nervosa in most of the sample (using ORTO-15). In addition, the sample (77 respondents) was segmented by types of nutrition (vegetarianism, intermittent fasting, proper nutrition, intuitive nutrition, and others), and the average value of orthorexia was estimated in each subsample. This made it possible to establish the presence of ON in all subsamples, except for respondents who preferred the use of drugs for weight loss. The article analyzes the influence of socio-demographic factors on ON, from which the most influential ones are selected by structural equation modeling (SEM) method. A causal model of the relationship between various factors and orthorexia was created (an assessment of its quality and an interpretation of the parameters as well). The causal model confirmed that the type of diet and orthorexia have almost a quarter of the common variance, and women are also more likely to have this diagnosis. Attitudes toward food (e.g., food is pleasure; "fuel" for the body; a tool for maintaining beauty and health; or other) are correlated 15% with type of diet. The presence of the experience of experiencing ED in the past is almost a quarter interrelated with the attitude towards food.

Key words: orthorexia nervosa, causal modeling, healthism, eating disorder, vegetarianism.

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1. Introduction

The cultural perspective of orthorexia nervosa (as a pathological obsession with healthy eating) predicts the emergence and popularity of this disorder mostly among Western ethnic groups. The reason for this was the emergence and rethinking of the phenomenon of healthism, as a modern trend for a healthy lifestyle, one of the important components of which is the observance of a healthy diet. On the other hand, the development of technology and science made it possible to deepen knowledge about the chemical composition of products and to detail the role of their activity in the human body, which became one of the reasons for increasing the influence of the trend on healthy eating. To some extent, the emergence and popularity of Hellism is caused by both cultural and religious factors in certain ethnic territories. For example, most scientific research on the topic of orthorexia nervosa is concentrated in the countries of Europe and the USA. However, more and more studios on this subject are becoming popular in the countries of the East and Asia: Turkey, China and India. Different types of cultures, political systems, national religions (as opposed to state or world religions) prevent the wider spread of the trend for healthy eating, however, in contrast, the role of the Internet and social networks in its popularization over time plays an increasingly important role in its favor.

A study of orthorexia on an Indian sample *(Sethi, Singh, Garg, Singh, Sethi, 2021)* in 2021, when 448 students from the northern regions of the country were interviewed, using the ORTO-15 tool (with a normative indicator that allows establishing the presence of orthorexia – less than 40 points), established the presence of orthorexic tendencies in three quarters of the samples. In another study *(Jain, Sharma, 2021)* conducted among Indian married women (N = 128) regarding the relationship between orthorexia and life satisfaction and self-esteem, a high prevalence of orthorexic tendencies in the sample (89.8%), the absence of a significant inverse correlation between self-esteem and the presence of orthorexia ($r = -0.17$; $p > 0.05$) and between life satisfaction and orthorexia ($r = -0.052$; $p > 0.05$), linear regression models were also invalid.

Since the phenomenon of orthorexia nervosa is mostly associated with Western culture, studies of orthorexia in Chinese samples are interesting but not numerous. For example, in a study *(Zhou, Schneider, Cepeda, Storch, 2020)* among 418 Chinese university students, a minority of participants had frequent or mild symptoms of orthorexia nervosa. Women had a higher manifestation of symptoms of orthorexia nervosa than men. Manifestations of orthorexia nervosa symptoms were associated with obsessive-compulsive symptoms, anxiety symptoms, and weakly associated with depressive symptoms and fear of negative evaluation. All this indicates the need for further, more in-depth research on orthorexia nervosa in other cultures.

A meta-analysis *(López-Gil, Tárraga-López, Hershey, López-Bueno, 2023)* of more than 30,000 respondents in 18 countries of the world (based on PubMed, Scopus, Web of Science, Cochrane Database) was aimed at studying the global proportions of orthorexia in the time period from January 2005 to June 2023. Using the psychometric tool ORTO-15 averages were taken into account and the role of gender, population type (respondents focused on sports achievements, body composition; respondents from various health and nutrition programs; respondents with diseases and those following a specialized diet), body mass index (BMI) was determined), age and other socio-demographic parameters of the sample. Two standard cut-offs were taken into account: < 35 and < 45 points. The overall proportion of symptoms of orthorexia nervosa at < 35 was 27.5%. Moreover, no statistically significant differences between women and men were found. Regarding the type of population, the highest average group values were noted in people who are focused on sports achievements and body composition (34.5%). A meta-regression analysis *(Mc Comb, Mills, 2019)* (random effects and method of

moments) to assess whether eating disorder symptoms differed by mean age, body mass index, or date of data collection (continuous variables) was based on previous research on psychosocial factors associated with orthorexia nervosa, where statistically significant differences were established ($p < 0.05$).

In modern Ukrainian science, attention was paid to the study of orthorexia by: O. Shepetovsjka *(Shepetovsjka, 2012)* who studied personal traits and family characteristics of orthorexia, B. M. Sumarjuk and N. V. Ghrynjko *(Sumarjuk, Ghrynjko, 2020)* studied orthorexia in millennials, M. S. Fatjejeva *(Fatjejeva, 2019)* studied orthorexia and intuitive eating and self-awareness, L. Lotocjka *(Lotocjka, 2020)* studied orthorexia among athletes, N. Ghrynjko, Y. Yashchyshyn *(Ghrynjko, 2018)* began adapting the intuitive eating questionnaire; B. Sumarjuk, D. M. *(Sumarjuk, 2020),* O. M. Lozova *(Lozova, 2020);* O. V. Drobot (2017), and V. I. Shebanova also worked on the problem of orthorexia *(Shebanova, 2014)* which studied the remaining types of eating disorders.

Among foreign scientists, much more attention was paid to this issue: first of all, psychometric tools for the differential diagnosis of orthorexia are being developed *(Cena, Barthels, Cuzzolaro, Bratman, Brytek-Matera, Dunn, Varga, Missbach, Donini, 2019)*, factorial studies allowed us to distinguish a continuum from "healthy" to "unhealthy" orthorexia *(Barrada, Roncero, Depa, 2019)*, work on the development of clear diagnostic criteria for the disorder and psychotherapeutic approaches *(Barthels, Meyer, Pietrowsky, Barthel, Fan, 2019)* – (the gold standard is exposure and response prevention cognitive psychotherapy ERP). Research is also being conducted on the place of orthorexia among other groups of obsessive-compulsive anxiety disorders or behavioral (eating) disorders, with the aim of classifying the disorder *(Koven, Abry, 2015)*. A huge amount of research has been done on the features of orthorexia and character traits, the type of attachment and much more *(Donini, Marsili, Graziani, Imbriale, Cannella, 2004)*.

2. Task of the article

The main tasks of the article are a meta-analysis of studies on orthorexia nervosa in different countries of the world and the creation of a causal model of orthorexia nervosa on the Ukrainian sample.

3. Methods

ORTO-15, which was used in relation to a number of socio-demographic parameters that made up a sequence of categorical variables, became a methodical tool for conducting a study of nervous orotorexia on a Ukrainian sample. From these components, a causal model was built using structural equation modeling (SEM) in the form of a path diagram of regression interdependencies. Statistical data analysis was performed in the R-Studio software environment (version 2023.12.0+369).

4. The results of the research

The analysis of the structure of socio-demographic parameters of our studied sample showed the following results. 77 respondents (average age M = 36.24 years), including 13 men and 64 women, took part in the study; 6 respondents have a secondary education, 4 have a vocational education, 64 have a higher education, and 3 have a scientific degree). Among the study participants (N = 77), 46 respondents (59.74% of the sample) had an eating disorder in past.

Sample's characteristics are as follows: 6 respondents (7.7% of the sample) are practicing vegetarianism / veganism / raw food diet / Ayurvedic diet / gluten-free / sugar-free; 1 respondent (1.2%) is practicing a keto diet / paleo diet / protein diet; 12 respondents (15.58%) are practicing "proper nutrition" (proteins-fats-carbohydrates balancing) or a specialized sports diet ("gaining muscle" or "fat burn"); 3 respondents (or 3.89%) are practicing intermittent fasting / other fasting system; 1 respondent (1.29%) is practicing fasting (of any religious tradition: Christian, Vedic, Islamic or other); 6 respondents (7.79%) are following a medical diet due to illness (allergy or other); 1 respondent (1.29%) who prefers taking drugs for weight loss; 15 respondents (19.48%) noted that they simply eat whatever they want all their lives and do not think about propper nutrition; 20 respondents (25.97%) who intuitively feel what they should eat; and 12 respondents (15.58%) for whom none of the above options is suitable.

31 respondents (40.25%) noted that they are moderately affected by war stress in Ukraine; 29 respondents (37.66%) noted that the stress of the war affects them quite strongly; 9 respondents (11.68%) do not feel stress; and 8 respondents (10.38%) indicated that they are very much affected by the stress of the war. 34 respondents (44.15%) noted that for them food is "fuel" for the body (calories, proteins-fats-carbohydrates, nutrients, vitamins); 27 respondents (37.05%) noted that food is a pleasure for them; 15 respondents (19.48%) indicated that food can be useful or harmful for them; and 1 respondent noted that food for him is a means of maintaining beauty and youth; 24 respondents (31.16%) noted that they noticed changes in their eating behavior after the beginning of the invasion of Russian troops on the territory of Ukraine; 20 respondents (25.98%) noticed small changes; 16 (20.77%) almost did not notice any changes and 17 respondents (22.07%) did not notice any changes.

According to the ORTO-15 questionnaire, the descriptive statistics of which are shown in Table 1, it was established that the average score in the sample is below the normative range (at 40 points), which meets the requirements for making a diagnosis of orthorexia nervosa.

Table 2 shows means for each group according to food preferences. It can be seen from Table 2 that the highest mean score for orthorexia nervosa (which means its absence) was obtained by the subsample of those respondents who indicated that they prefer taking drugs for weight loss (M = 49). Meanwhile, the lowest indicator was obtained by the subsample of respondents who indicated that they practice intermittent fasting (or another system based on the idea of fasting) at the time of the survey, M = 30.33.

Next, a causal model was created by the method of structural equation modeling (SEM), in which all the above-mentioned parameters were tested for regression interdependence with an assessment of the quality of the model itself. The resulting causal model that best fits the available data is presented in Figure 1, and fit indices are shown in Table 3.

The obtained indicators by the method of Structural Equation Modeling (SEM) allow us to accept the null hypothesis about the correspondence of the model to the obtained data, because Chi-square > 0.05. The model indices specify the fit parameters. In addition, the visualization of the causal model in Picture 1 demonstrates the regression interdependencies between its parameters.

Table 1

«Descriptive statistics for ORTO-15»

M	36.09
Md	37
Mo	35
Sd	4.84
Min	23
Max	49
Se	0.27
Sk	-0.31
Kr	0.43
N	77
Shapiro-Wilk normality test	W = 0.98316 p = 0.4022

Table 2

«Means for each of the ORTO-15 group»

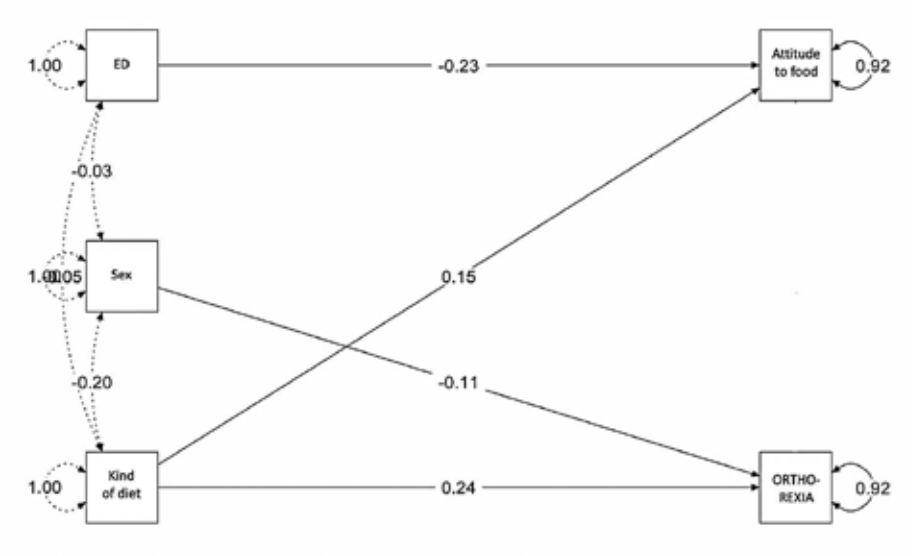
Groups	M
1 – vegetarianism / veganism / raw food / Ayurvedic diet / gluten-free / sugar-free	34.83
2 – keto diet / paleo diet / protein diet	31
3 – “proper nutrition” (proteins-fats-carbohydrates balancing) or a specialized sports diet ("gaining muscle" or "fat burn")	34.08
4 – intermittent fasting / other system of fasting	30.33
5 – practicing fasting (of any religious tradition: Christian, Vedic, Islamic or other)	35
6 – follow a medical diet due to an illness (allergy or other)	36
7 – prefer taking drugs for weight loss	49
8 – they eat what they want and don’t think twice	38.87
9 – intuitively feel what to eat	35.05
10 – neither option is suitable	37.92

Table 3

«Indices of absolute conformity»

Absolute fit indices	**RMSEA**	0
	SRMR	0.02
	Chi-square	0.59
Incremental indices	**CFI**	1
	TLI	1.4

Thus, interpreting the obtained results, the following levels of interdependencies can be observed: "kind of diet" (vegetarianism, intermittent fasting, proper nutrition, intuitive nutrition, fasting and others) and orthorexia share almost a quarter of the common variance (R = 0.24); gender (1 – male and 2 – female) and orthorexia have an inverse regression relationship, which means that women are more likely to have this diagnosis. Also, "kind of diet"



Pic. 1. Causal modeling of orthorexia nervosa

and “attitude to food” (food is pleasure; "fuel" for the body; a tool for maintaining beauty and health, etc.) are related by 15%. The presence of the experience of ED in the past (1 – no or 2 – yes) has an inverse regression relationship with the attitude to food (R = -0.23).

Prospects for further research. This article is the first in a series of extensive dissertation thesis research on psychogenic factors in the etiology of orthorexia nervosa. It is devoted to the review of world research in this area and to emphasizing the need to deepen knowledge about the cultural aspects of orthorexia nervosa. Further research in this area will be aimed at creating causal modeling of a number of factors of orthorexia nervosa associated with traumatic childhood experiences, dysfunctional schema-modes, and attachment types.

5. Conclusions

Therefore, the popularization of the Western trend for a healthy lifestyle (helsism), which includes following a healthy diet, is becoming noticeable in other cultures. Modern studies of orthorexia nervosa on samples in China, India, Turkey and other countries of the East and Asia emphasize that orthorexia nervosa is diagnosed in them as well. This indicates the need to deepen the cultural studies of orthorexia nervosa. In our study of orthorexia nervosa on a Ukrainian sample at the beginning of 2024, it was also established that most of the randomized sample received test results according to (ORTO-15), according to which the diagnosis of orthorexia nervosa is established. The study was aimed at analyzing the influence of socio-demographic factors on orthorexia nervosa. 77 respondents were surveyed and asked to choose the type of diet they currently practice (vegetarianism; intermittent fasting; proper nutrition; various types of diets: keto, paleo, gluten-free; and others). In addition, a number of socio-demographic parameters were included in the analysis, from which the most influential ones were selected by modeling structural equations. A causal model of the relationship between various

factors and orthorexia was created, with an assessment of its quality and an interpretation of the parameters. It was found that the “kind of diet” (vegetarianism, intermittent fasting, proper nutrition, intuitive nutrition, fasting and others) and orthorexia share almost a quarter of the common variance, women are more likely to have this diagnosis. Also, the “kind of diet” is interconnected by 15% with the “attitude to food” (food is pleasure; "fuel" for the body; a tool for maintaining beauty and health; and others). The presence of the experience of ED in the past is almost a quarter interrelated with the “attitude to food”. In contrast to the “kinds od diet”, subsamples of respondents who did not adhere to any diet kind and those who used weight loss drugs were evaluated for comparison – their group mean score for orthorexia nervosa were found to be higher. In the only case, only in the subsample of respondents who indicated that they use drugs for weight loss, the mean group score had a range in which the orthorexia nervosa was not diagnosed (M = 49).

References

1. Ghrynjko, N., Sumarjuk, B. M. (2018) Psykhologhichni osoblyvosti osib iz porushennjamy kharchovoji povedinky [Psychological features of persons with eating disorders] (PhD Thesis), Zaslavsjkyj O. Ju.
2. Lotocjka, L., Lotocjka-Dudyk, U., & Brejdak, Ju. Lesja Lotocjka. (2020). Aktualjni pytannja ghumanitarnykh nauk [Current issues of the humanities], 2020-159.
3. Lozova, O. M., Drobot, O. V., & Fatjejeva, M. S. (2020) Paradoksy potrebovo-motyvacijnoji sfery osib z nervovoju ortoreksijeju [Paradoxes of the need-motivation sphere of persons with orthorexia nervosa], Vrachebnoe delo, (7), 104-110.
4. Satursjka, D. M. (2020). Rolj centriv ghromadsjkogho zdorov’ja u profilaktyci rozladiv kharchovoi povedinky [The role of public heath centers in the prevention of eating disorders], (Doctoral dissertation).
5. Sumarjuk, B. M., & Ghrynjko, N. (2020). Ortoreksija ta milenialy [Orthorexia and millennials]. (Doctoral dissertation), Bukovynsky State Medical University.
6. Fatjejeva, M. S. (2019). Doslidzhennja porushenj kharchovoji povedinky (ortoreksija) u formati vyvchennja suchasnykh subkuljtur [Study of eating disorders (orthorexia) in the format of studying modern subcultures]. Pedaghoghika i psykhologhija: aktualjni problemy doslidzhenj, 131.
7. Shebanova, V. I. (2014). Ipokhondrychnyj dyskurs suchasnosti jak bazova osnova vykryvlenoji turboty pro sebe (nav’jazlyve praghnennja znyzhennja vaghy) [Hypochondriac discourse of modernity as the basic basis of distorted self-care (obsessive desire to reduce weight)]. Zbirnyk naukovykh pracj" Problemy suchasnoji psykhologhiji", (25).
8. Shepetovsjka O. (2012). Ortoreksija nevrozu–osobystisni rysy ta simejni kharakterystyky [Orthorexia neurosis – personal traits and family characteristics]. Psychological Prospects Journal 20 (2012): 280–285.
9. Cena, H., Barthels, F., Cuzzolaro, M., Bratman, S., Brytek-Matera, A., Dunn, T., ... & Donini, L. M. (2019). Definition and diagnostic criteria for orthorexia nervosa: a narrative review of the literature. Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity, 24, 209–246.
10. Depa, J., Barrada, J. R., & Roncero, M. (2019). Are the motives for food choices different in orthorexia nervosa and healthy orthorexia?. Nutrients, 11(3), 697.
11. Donini, L. M., Marsili, D., Graziani, M. P., Imbriale, M., & Cannella, C. (2004). Orthorexia nervosa: a preliminary study with a proposal for diagnosis and an attempt to measure the

dimension of the phenomenon. Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity, 9, 151–157.
12. He, J., Ma, H., Barthels, F., & Fan, X. (2019). Psychometric properties of the Chinese version of the Düsseldorf Orthorexia Scale: Prevalence and demographic correlates of orthorexia nervosa among Chinese university students. Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity, 24, 453–463.
13. Jain, A., & Sharma, U. (2021). Prevalence and Relationship of Orthorexia Nervosa with Self-Esteem and Lifestyle Satisfaction in Indian Married Women. The International Journal Of Indian Psychology, 9(3), 2349–3429.
14. Koven, N. S., & Abry, A. W. (2015). The clinical basis of orthorexia nervosa: emerging perspectives. Neuropsychiatric disease and treatment, 385–394.
15. López-Gil, J. F., Tárraga-López, P. J., Hershey, M. S., López-Bueno, R., Gutiérrez-Espinoza, H., Soler-Marín, A., ... & Victoria-Montesinos, D. (2023). Overall proportion of orthorexia nervosa symptoms: A systematic review and meta-analysis including 30 476 individuals from 18 countries. Journal of Global Health, 13.
16. McComb, S. E., & Mills, J. S. (2019). Orthorexia nervosa: A review of psychosocial risk factors. Appetite, 140, 50–75.
17. Rosseel, Y. (2012) lavaan: An R package for structural equation modeling. Journal of statistical software. 48, 1–36.
18. Sethi J, Singh M, Garg M, Singh P, Sethi U. (2021). Preliminary screening for orthorexia nervosa in undergraduate student population of north India using ORTO-15 questionnaire. J Prev Med Holist Health 2021;7(2):79–83.
19. Zhou, X., Schneider, S. C., Cepeda, S. L., & Storch, E. A. (2020). Orthorexia nervosa in China: An exploration of phenomenology and clinical correlates among university students. Journal of Cognitive Psychotherapy, 34(3), 225–241.