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ANALYSIS OF EATING DISORDERS IN PEOPLE WITH PRIMARY OBESITY

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The study analysed eating disorders in people with primary obesity. 91 patients with primary obesity of varying degrees were involved in the study. The analysis of eating behaviour was carried out using the Dutch Eating Behavior Questionnaire for assessment of restricted, emotional and external eating behaviour, which helps to identify these pathological types of eating behaviour. It was found that the emotional eating disorder was present only in women. In isolation or combination with other options, the restrictive type of eating disorder was most often detected, and is significantly more often recorded in young people, as well as the external type. In 36.26 % of the examined patients, the presence of all three types of eating disorders was established. The absence of eating disorders was found in 13.19 % of the surveyed. In our opinion, the obtained data justify the need for complex treatment of patients with primary obesity with the involvement of a psychotherapist, because the effectiveness of the measures depends not only on the appropriate correction of lifestyle and the prescription of adequate drug therapy, but also to a large extent on the patient's awareness of their eating disorders.

Key words: obesity, eating behaviour, Dutch Eating Behaviour Questionnaire, eating disorder.

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АНАЛІЗ ПОРУШЕНЬ ХАРЧОВОЇ ПОВЕДІНКИ В ОСІБ З ПЕРВИННИМ ОЖИРІННЯМ

У дослідженні проаналізовано порушення харчової поведінки в осіб з первинним ожирінням. У дослідження було залучено 91 особу з первинним ожирінням різного ступеня. Аналіз харчової поведінки проводився за допомогою Голландського опитувальника харчової поведінки (The Dutch Eating Behaviour Questionnaire for assessment of restrained, emotional and external eating behaviour), який допомагає виявити патологічні види харчової поведінки, а саме: обмежувальний, емоціогенний та екстернальний. Встановлено, що емоціогенний тип харчової поведінки був присутнім лише у жінок. Ізольовано або у поєднанні з іншими варіантами найчастіше виявлявся обмежувальний вид порушення харчової поведінки, який достовірно частіше зафіксований в осіб молодого віку, як і екстернальний. У 36,26 % обстежених осіб встановлено наявність усіх трьох варіантів порушень харчової поведінки. Відсутність порушень харчової поведінки встановлена у 13,19 % опитаних. Отримані дані, з нашої точки зору, обґрунтовують необхідність комплексного лікування хворих з первинним ожирінням із залученням психотерапевта, адже ефективність заходів залежить не лише від правильної корекції способу життя та призначення адекватної медикаментозної терапії, але й значною мірою від усвідомлення хворим своїх порушень у харчовій поведінці.

Ключові слова: ожиріння, харчова поведінка, Голландський опитувальник харчової поведінки, порушення.

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According to the current concept, obesity is diagnosed based on an increased health risk caused by excessive accumulation of adipose tissue exceeding normal values for a given population. The World Health Organisation (WHO) recommends diagnosing obesity in practice based on a body mass index (BMI) of 30 kg/m² or more for adults [14]. WHO experts emphasise the sharp increase in the prevalence of obesity in all age groups, especially since the 1970s, and consider the prevalence of this pathology to be a global pandemic [12].

Obesity has become a serious health problem worldwide, not only among adults but also among children and adolescents. In addition, general obesity and accumulation of subcutaneous fat in the trunk area during adolescence are positively and independently associated with atherosclerosis in adulthood. It is recognised that obesity causes a significant reduction in life expectancy, and that morbid obesity has a greater impact on mortality among young people than among the elderly. Obesity correlates with an increased risk of many adverse medical, mental and social consequences, including a close association with the risk of developing type 2 diabetes [8].

According to the results of numerous clinical and fundamental studies, the aetiopathogenesis of obesity goes beyond a simple imbalance between energy intake and expenditure. The centre for regulating appetite and satiety is located in the hypothalamus, which receives peripheral signals from adipose tissue, the gastrointestinal tract, the pancreas, and various brain structures. These signals are part of the homeostatic control system ("eat to survive"). The hedonic or reward system ("food for pleasure"), which is integrated into appetite regulation, consists of dopaminergic regulation and, accordingly, influences food-related behaviour, in particular food preferences, desire to eat, pleasure during eating, and impulse

control to avoid compulsion. At the same time, factors such as genetic and epigenetic changes, certain environmental and sociocultural elements, microbiota, and the pro-inflammatory effects of high-energy diets also contribute to the development of obesity [10].

In other words, obesity is considered a complex neuroendocrine disease, and all components of its aetiopathogenesis must be taken into account in comprehensive treatment. Meanwhile, despite the proven heterogeneity of obesity and the heterogeneous pathogenetic links of its onset and progression, lifestyle and dietary modifications are recognised as key components of therapeutic approaches [11]. It is precisely the increased availability and consumption of high-calorie foods, the prevalence of a sedentary lifestyle and stressful situations in modern society that are partly responsible for the growing prevalence of obesity in the general population [4]. Ukrainian scientists, studying the long-term existence of a positive energy balance as a risk factor for the development of obesity and metabolic disorders in children and young people, have shown that an increase in the energy value of the diet is accompanied by a change in the structure of nutrients due to increased consumption of mainly fats by males and fats and carbohydrates by females compared to people of normal weight [15].

In recent years, increasing attention has been paid to the analysis of eating disorders (ED) in obese individuals based on various questionnaires and their correction [2]. When using any questionnaire, there remains a subjective component, as patients do not always correctly analyse their behaviour or consciously give false answers. Despite the limitations of this method, surveying obese individuals and then evaluating the responses to correct ED is common practice. One of the most informative questionnaires is considered to be the Dutch questionnaire, which is widely used in various populations with certain modifications [6, 7].

Despite the results of several studies, there remain several unresolved issues and controversial points of view, in particular regarding the characteristics of ED in individuals with primary obesity.

The purpose of the study was to identify and analyse eating disorders in individuals with primary obesity based on an analysis of their responses to the Dutch questionnaire.

Materials and methods. The study was conducted in 2021–2024 at the 24th Kharkiv City Outpatient Department, that serves as the clinical base for the Department of Internal Medicine of the School of Medicine of V.N. Karazin Kharkiv National University. To identify possible ED, 91 individuals with primary obesity of varying degrees were involved in the study, including 23 men aged 18–50 and 68 women of the same age, but necessarily before the onset of menopause. The average age of the subjects was 40.51 ± 7.45 years.

Pregnant women, patients with hereditary forms of obesity, neuroendocrine diseases, severe diabetes mellitus and multiple organ failure, as well as those taking hormonal drugs, were not included in the study.

Informed consent to participate in the study was obtained from the individuals included in the study in accordance with the basic bioethical norms of the “Helsinki Declaration of the World Medical Association – Ethical Principles for Medical Research Involving Human Subjects”.

All patients underwent anthropometry, namely: measurement of height, body weight and waist circumference, followed by determination of BMI using the generally accepted formula:

$$\text{BMI} = \text{body weight (kg)} / \text{height (m)}^2.$$

The degree of obesity was determined according to the BMI value. BMI within the range of 30–34.9 kg/m² corresponded to grade I obesity; BMI within the range of 35–39.9 kg/m² corresponded to grade II obesity; BMI ≥ 40 kg/m² corresponded to grade III obesity.

To analyse the characteristics of ED, patients were divided by age according to the WHO classification, which defines ages 25 to 45 as young and 46 to 65 as middle-aged, as well as by gender and degree of obesity (Table 1).

Table 1

Distribution of patients by age, gender and degree of obesity

Patients	Number of people	Age		Obesity (grade)		
		<45 years	45–50 years	grade I	grade II	grade III
Total	91	68	23	36	39	16
Women	68	47	21	25	30	13
Men	23	21	2	11	9	3

Patients underwent general clinical, laboratory, and instrumental examinations, which, although not the purpose of this study, were taken into account in assessing the patient's condition.

To identify ED, all participants in the study were given the Dutch Eating Behaviour Questionnaire (DEBQ) for assessment of restrained, emotional and external eating behaviour, which helps to identify

mentioned pathological types of ED. This questionnaire consists of 3 scales and 33 questions. Each question has 5 answer options: “never”, “rarely”, “sometimes”, “often” and “very often”. Answers are scored on a scale of 1 to 5 points, with the exception of question 31, which has the opposite meaning and is scored in reverse. To calculate the score for each scale, add up the values of the answers for each item and divide the sum by the number of questions in the corresponding section. Questions 1–10 represent the restrictive ED, which is characterised by deliberate efforts to achieve or maintain the desired weight through self-restriction of food intake. Questions 11–23 represent the emotional ED, which is determined by the desire to eat in response to negative emotional states. Questions 24–33 characterise external ED, which involves the desire to eat not as a result of actual hunger, but in the presence of external stimuli.

The average scores for restrictive, emotional, and external eating behaviours for people of normal weight are 2.4, 1.8, and 2.7 points, respectively. If the score on one of the scales is above average, this indicates a certain type of ED in the patient.

Pearson's χ^2 criterion was used to establish differences between groups of patients formed according to gender, age and BMI.

Results of the study and their discussion. Based on the analysis of the responses provided by patients in the survey, no ED were found in 12 individuals, accounting for 13.19 % of all patients involved in the study (Table 2).

Table 2

Frequency of eating disorders depending on gender, age and degree of obesity

Eating disorder (type)	Gender		Age (years)		Obesity (grade)		
	women	men	<45	45–50	I	II	III
no violations	7	5	10	2	4	8	-
restrictive	9	2	10	1	6	4	1
emotional	2	-	1	1	-	2	-
external	1	3	4	-	2	1	1
restrictive + external	11	4	10	5	6	8	1
emotional + external	4	1	3	2	2	2	1
restrictive + emotional	9	-	5	4	3	4	2
restrictive + emotional + external	25	8	25	8	13	10	10

There were no statistically significant differences in the absence of ED depending on: gender (women vs men; $df=1$; $\chi^2=1,9665$; $p=0,16$), age (people under 45 vs people aged 45–50; $df=1$; $\chi^2=0.5423$; $p=0.46$) and degree of obesity (persons with grade I obesity vs persons with grade II obesity; $df=1$; $\chi^2=1.2312$; $p=0.27$). It is worth noting that in the group without ED, there were no patients with grade III obesity.

According to the survey results, it was found that among all patients, either in isolation or in combination with other variants, the restrictive ED prevailed, which in general (including combinations) was determined in 68 individuals (74.73 %), the emotional type was observed in 49 individuals (53.85 %), and external type was found in 57 patients (62.64 %).

Among 79 patients with ED, only 17 people (21.51 %) had one type of disorder, while the majority had two or three types..

According to the survey results, only the restrictive type was found in 11 individuals (12.09 % of all patients). This ED was significantly more common in young individuals ($df=1$; $\chi^2=15.246$; $p=0.0001$) with no statistically significant differences depending on gender ($df=1$; $\chi^2=0.3333$; $p=0.56$) and degree of obesity ($df=2$; $\chi^2=1.3465$; $p=0.51$). The remaining variants of ED were isolated in only a few cases, namely the emotional variant in 2 individuals and the external variant in 4 individuals. The emotional variant was found only in women, and the external variant only in young patients. It should be noted that the combination of these two forms was also observed in only 5 individuals (5.49 % of all patients).

Only women reported a combination of restrictive and emotional types of ED. However, no dependence of the frequency of the combination of these two forms was found either by age ($df=1$; $\chi^2=1.9433$; $p=0.16$) or by degree of obesity ($df=2$; $\chi^2=0.2261$; $p=0.89$).

A restrictive ED in combination with external one was found in 15 (16.48 %) patients with primary obesity. The presence of this combination did not depend on gender ($df=1$; $\chi^2=0.0184$; $p=0.89$) or age ($df=1$; $\chi^2=0.6176$; $p=0.43$), or degree of obesity ($df=2$; $\chi^2=1.678$; $p=0.43$).

More than a third of all participants in the study (36.26 %) were found to have all three types of ED. In the absence of differences in the frequency of this variant by gender ($df=1$; $\chi^2=0.0292$; $p=0.86$) and

age ($df=1$; $\chi^2=0.0292$; $p=0.86$), the restrictive ED in combination with emotional and external ones, taking into account the number of patients with varying degrees of obesity, was found to be significantly more common in individuals with grade III obesity ($df=2$; $\chi^2=6.6694$; $p=0.04$) compared to patients with grade I and grade II obesity.

In essence, eating behaviour is the attitude towards food and its intake in general, a stereotype of nutrition in everyday constant conditions and stressful conditions. It also involves activity focused on one's own body image and the formation of this image. It is changes in eating behaviour that primarily lead to energy imbalance and the development of obesity [5].

It should be noted that despite our use of the most widely recognised Dutch questionnaire, 13.19 % of patients with primary obesity did not show any signs of ED. The diagnosis of primary obesity in all individuals involved in this study excludes any secondary causes of obesity. In our opinion, such a significant number of patients without ED should be attributed to the inadequate assessment of most of them regarding their personal attitude to their diet or to the inaccuracy of their answers. In addition, some authors also point to factors such as food preferences, speed of eating, portion size, regularity of eating, ED and psychological shifts that can lead to the onset and progression of obesity [13]. However, these factors are not taken into account by the Dutch questionnaire.

As the results showed, restrictive ED was most often found, either on its own or in combination with other variants. Restrictive ED includes excessive self-restriction of food intake, as well as haphazard adherence to overly strict diets. In extreme cases, uncontrolled restrictive behaviour can lead to “dietary depression”. Such a situation with a strict diet cannot last for a long time and is usually followed by periods of excessive overeating.

At the same time, a person's complete inability to restrict their food intake is accompanied by an increase in body weight and, accordingly, the development of obesity. According to our data, this type of behaviour is more common in young people, regardless of gender.

Isolated emotional and external ED, as mentioned above, were found only in isolated cases. Moreover, the emotional ED was found only in women.

It is known that in emotional ED, the stimulus for eating is not hunger, but emotional discomfort, and sometimes uncontrolled eating is a reaction to stress. In other words, emotional ED is a tendency to overeat in response to states of arousal such as anger, fear and anxiety, and is usually associated with the consumption of sweet and high-calorie foods and overeating [1, 3]. The high emotionality of women explains our data on the higher prevalence of this type of ED among them, and these results are consistent with the findings of other researchers [3].

External ED involves the desire to eat in response not to internal stimuli (feelings of hunger, fullness, stomach motility, etc.), but to external signals related to eating (e.g., the appearance and smell of food, food advertising, the sight of other people eating), regardless of internal signals of hunger and satiety. That is, a person with this type of ED eats whenever possible and food is available. A vivid illustration of this type of ED is “snacking for company” and on the street, buying extra food, overeating when visiting friends and in any catering establishments. It is recognised that the availability of a wide variety of tasty food in the modern food environment leads to chronic overeating and, consequently, obesity [9]. According to the results of this study, external ED is more common in young people.

It has been previously noted that most individuals with primary obesity have two or three types of ED. At the same time, in the absence of differences in gender and age, the combination of all three forms of ED is significantly more common in people with grade III obesity compared to patients with grade I and grade II obesity. This indicates that significant ED lead not only to the onset of obesity, but also to its progression.

In our opinion, the data obtained justify the need for comprehensive treatment of patients with primary obesity with the involvement of a psychotherapist, since the effectiveness of measures depends not only on the appropriate correction of lifestyle and the prescription of adequate drug therapy, but also to a large extent on the patient's awareness of their ED and painstaking work on their correction with an expert.

Conclusions

1. As a result of a survey of patients with primary obesity using the Dutch questionnaire, 13.19 % of them did not show any ED. This may be due to the inadequate assessment by most of them of their personal attitude to their diet, untruthful answers, or the presence of factors not taken into account by the Dutch questionnaire.

2. Isolated or in combination with other variants, the restrictive ED was most often found. This ED was significantly more common in young people, with no statistically significant differences depending on gender or degree of obesity.

3. The emotional ED was found only in women, and the external type only in young patients.

4. More than a third of all participants in the study (36.26 %) were found to have all three types of ED. In the absence of differences in frequency by gender and age, this type of ED was significantly more common in individuals with grade III obesity compared to patients with grade I and grade II obesity.

Prospects for further research. The results of this study justify further research into the in-depth study of ED in patients with primary obesity in order to improve the psychotherapeutic treatment of this pathology.

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