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RESULTS OF EATING DISORDER ASSESSMENT WITH THE DUTCH EATING BEHAVIOR QUESTIONNAIRE (DEBQ) AND ZANG ANXIETY SCALE IN YOUNG OBESE PATIENTS

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ABSTRACT

The purpose of the study was to study the value of international questionnaires in assessing eating disorders in young obese individuals.

Material and research methods. The study included 200 patients with grade 1-3 obesity. Of these, 60 patients were selected (22 women, 38 men, mean age 26.8±1.7 years) according to the study protocol. The control group consisted of 20 healthy individuals.

Patients were divided into 3 groups depending on BMI: group I, n=20, BMI >= 30 and < 35 kg/m2, group II, n=20, BMI >= 35 and < 40 kg/m2, group III, n=20, BMI > 40 kg/m2.

Blood tests were performed to assess blood biochemical parameters (ALT, AST, bilirubin, lipid spectrum, etc.)

The study also used instrumental examination methods - ultrasound of internal organs, indicators of the quality of life of patients (Dutch Eating Behavior Questionnaire, Zang Scale for self-assessment of anxiety and a questionnaire developed by us), as well as statistical methods.

Research results. in patients of group 1, in 60% of cases, the scores of the DEBQ questionnaire for restrictive eating behavior were significantly higher than normal values ($p < 0.05$). These patients are afraid to eat in order not to gain weight or are guided by considerations of “utility”. In group 2, these values were below normal, which indicates that these patients eat uncontrollably, without restrictions, with little awareness of what and how they eat (20% of observations). And these scores were lowest in group 3 of patients, which means eating disorders (40%). In total, out of 60 patients, RRP was detected in 56 (93.3%).

Conclusions. 1. The Dutch Eating Behavior Questionnaire (DEBQ) is the most sensitive and informative for determining the quality of life and the presence of anxiety disorders in obese patients. 2. Assessing indicators of quality of life, eating disorders and anxiety disorders using the Zang anxiety scale, the Dutch Eating Behavior Questionnaire (DEBQ), as well as assessing the quality of life using the questionnaire we developed can act as criteria for the clinical and functional severity of the condition and the effectiveness of the therapy in obese patients.

Background. Eating disorders are severe mental illnesses that are difficult to treat and that often have a chronic course. They are associated with tremendous impairment at the psychological, physical, interpersonal and social levels, as well as significant direct and indirect costs. Prevention and early intervention are therefore of paramount importance.

Eating disorders (EDs) such as anorexia nervosa, bulimia nervosa and compulsive overeating are severe mental illnesses associated with significant disease burden and substantial health care costs [1 , 2]. Mortality increases in all emergency departments and is the highest among all psychiatric disorders in anorexia nervosa. EDs mainly develops in adolescence and young adulthood [3 , 4] and affects both males and females. The prevalence of full and subthreshold EDs is estimated at 15% in young women and 3% in young men [5]. In addition, many young people report attitudes and behaviors associated with EDs without meeting full diagnostic criteria. EDs is associated with severe psychological and physical impairment and can also affect many other areas of young people's lives, for example, leading to social isolation, reduced academic and vocational performance, and a general loss of quality of life [2] .

The symptoms of EDs are highly comorbid with many other mental health problems such as depression, PTSD and anxiety. Earlier studies have shown an increase in the prevalence of EDs regardless of age, gender, and culture . Socio-demographic factors have been found to be associated with EDs. The most consistent factors associated with higher prevalence and incidence of EDs were: female gender, younger age, sexual and physical abuse, participation in aesthetic or weight-oriented sports, and heredity. The mortality rate is highest in people with EDs compared to other psychiatric disorders , with a higher rate among patients with anorexia nervosa. Suicide attempts and suicidal ideation are also high in patients with EDs.

Despite significant progress in prevention and treatment research over the past decades, modern public health care cannot significantly alleviate the burden of RPP at the population level due to the limited efficacy, accessibility and coverage of evidence-based interventions [6, 7] . Although there are effective treatments for various forms of EDs, only a minority of patients actually benefit and recover. A major problem in the treatment of EDs is that less than 25% of people with EDs actually seek and receive professional help. In many cases, there is a significant delay between the onset of symptoms and seeking medical attention, leading to an increased risk of chronicization [8]. A recent systematic review found that seeking help for RPP is hindered by barriers such as stigma and shame, denial and failure to recognize the severity of the disease, negative attitudes toward seeking help, lack of encouragement from others to seek help, and limited knowledge. of treatment resources [9].

The challenges faced by people with eating disorders who are overweight are complex and important. These challenges include delayed identification, misdiagnosis at assessment, subsequent inappropriate and inadequate treatment, widespread stigma, and the emergence of new disorders (e.g., anorexia nervosa without low weight).

Eating disorders are widespread and their prevalence is increasing. The estimated lifetime prevalence is 8.4% for women and 2.2% for men [10]. In Australia, the 3-month point prevalence is about 0.5% for low weight anorexia nervosa (AN), 1% for bulimia nervosa (BN) and 1.5% for treatment compulsive overeating (CO, broadly defined using ICD criteria) and

3.2% for SRPPD [including anorexia nervosa (without low weight.)) prevalence of 2.5%. In addition, about 10% of people suffer from recurrent overeating.

Higher weight people are at increased risk for eating disorders compared to lower weight people, but for many reasons, including poor medical awareness and weight-related stigma in higher weight people. Early intervention provides the best chance of recovery when a person has an eating disorder. Despite this, it is noted that screening approaches have a limited evidence base, particularly in children and adolescents, and more research is needed to establish risks and benefits. Therefore, it is crucial to identify eating disorder symptoms and offer intervention as soon as possible [11] to all individuals experiencing eating disorder symptoms, regardless of weight.

Notably, higher weight individuals experience cognitive factors associated with eating disorders, including overestimation and preoccupation with weight, shape, food, and control, as well as the distress associated with these cognitive impairments.

Eating disorders have complex biological, social, and psychological determinants [12]. These include strong heredity and a number of risk factors that are common to and overlap with a predisposition to larger body size, such as a history of trauma in the formative years of life

EDs include anorexia nervosa, bulimia nervosa, CO, avoidant restrictive eating disorder (ARED), specific eating or eating disorders (SEED), and unspecified eating or eating disorder (UEBD). Only one of these, anorexia nervosa, is defined by weight (i.e., underweight criteria).

Because of the pervasive stigma associated with weight, people living in large groups are often stigmatized and discriminated against because of their weight. Dissatisfaction with one's body may be a natural consequence of constant negative evaluation rather than irrational fear or distortion. People with higher weight have also often experienced weight-related trauma, such as bullying in high school or weight-related emotional abuse. Experiences of stigma and discrimination can make people reluctant to talk about their weight or diet for fear of further shame and/or mistrust, and these issues should be approached respectfully, taking into account previous negative experiences.

For some people with eating disorders, treatment for weight loss may be contraindicated or may exacerbate the eating disorder. Whenever possible, weight loss attempts or bariatric surgery plans should be conducted in an environment that allows the eating disorder to be controlled. Therefore, it is critical to communicate the diagnosis, medical and psychiatric risks to other appropriate treating professionals, especially if there are prescriptions for weight loss treatments and/or bariatric surgery plans. Referral to support organizations for loved ones, family, and parents is also recommended.

Therefore, we have formulated the following objective of the research paper.

The aim of the study was to investigate the significance of international questionnaires in the assessment of eating disorders in young obese individuals.

Material and methods of the study. 200 patients with obesity of 1-3 degrees were included in the study. From them 60 patients (22 women, 38 men, mean age 26.8±1.7 years) were selected according to the study protocol. The control group consisted of 20 healthy individuals.

Patients were divided into 3 groups depending on BMI: Group I, n=20, BMI >= 30 AND < 35 kg/m2, Group II, n=20, BMI >= 35 AND < 40 kg/m2, Group III, n=20, BMI > 40 kg/m2.

Inclusion criteria: obesity 1-3 degree, men and women, age between 18 and 44 years.

Exclusion criteria: type 1 and 2 diabetes mellitus, acute and chronic kidney, liver and heart diseases, connective tissue diseases, vasculitis, cancer, children, adolescents, persons older than 44 years.

At both baseline and follow-up assessment, weight (kg), height and waist circumference (cm), hip circumference (cm), neck circumference (cm) were measured on the same day and immediately before the psychological assessment.

Blood tests were performed to assess levels of total cholesterol (as well as high-density lipoprotein (HDL) and low-density lipoprotein), triglycerides, alanine aminotransferase, glucose, and glycated hemoglobin. In addition, blood levels of insulin, C-peptide, TTG, and free thyroxine were examined. Blood sampling was done in the morning (8-9 am) and all participants fasted for 8 hours before the test. Vital signs such as diastolic blood pressure and systolic blood pressure were also assessed.

In the study we also used instrumental methods of examination - ultrasound of internal organs, indicators of patients' quality of life (questionnaires: Dutch Eating Behavior Questionnaire, Zang Scale for self-assessment of anxiety and a questionnaire-questionnaire developed by us), as well as statistical methods.

We compared the frequency of EDs (anorexia nervosa, bulimia nervosa, compulsive overeating and other specific eating and food behavior disorders) and their symptoms in 60 patients with obesity of 1-3 degrees.

Statistical calculations were performed in Microsoft Windows software environment using Microsoft Excel-2007 and Statistica version 6.0, 2003. The obtained data are reflected in the thesis in the form of M±m, where M is the mean value of the variation series, m is the standard error of the mean value. The reliability of differences between independent samples was determined by the Mann-Whitney method.

Results of research and their discussion. Table 1 gives the distribution of examined patients according to sex and age.

Table 1 The distribution of examined patients according to sex and age.

Age, years	The number of man	The number of woman
18-44 (young age)	38(63,3%)	22(36,7%)
45-59 (middle age)	-	-
60-74 (old age)	-	-
75 > (old age)	-	-
Total : n = 60	38(63,3%)	22(36,7%)

Table 2 shows the clinical and anamnestic characteristics of the patients included in the study. Patients were categorized into 3 groups depending on BMI.

Table 2. Clinical and anamnestic characteristics of patients included in the study

Characteristic/indicator	I group n=20,	II group n=20, M±SD	III group n=20,	P

	M±SD 1 grade obesity	2 grade obesity	M±SD 3 grade obesity	
woman/man	9/11	8/12	5/15	>0,05 >0,05 >0,05
The basic didease: Obesity	9/11	8/12	5/15	>0,05 >0,05 >0,05
Co-morbidity — AH, n	1/1	2/3	4/8	<0,05 <0,05 <0,05
Hereditary predisposition to obesity, n	-/-	1/3	3/7	<0,05 <0,05 <0,05
Smoking, n	- /6	-/7	-/7	>0,05 >0,05 >0,05
Duration of obesity, years	8,2±1,7	12,8±2,4	16,5±3,5	<0,05 <0,05 <0,05
SAP, мм Hg	117,5±8,7	133,8±7,9	139,5±8,3	<0,05 <0,05 <0,05
DAD, мм Hg	72,1±3,8	83,4±6,7	90,4±4,9	<0,05 <0,05 <0,05
pulse, beats per minute	70,6±1,3	73,6±4,6	74,3±3,5	>0,05 >0,05 >0,05
BMI, кг/м2	29,7 ±4,7	31,9 ±3,8	36,4 ±3,5	<0,05 <0,05 <0,05

As can be seen from Table 2, there was a significant difference in comparison with the control with respect to CAD, DA, BMI in the studied patients ($p<0.05$). At the same time, in group 3 there were more frequent hereditary aggravation of obesity, AH, bad habits (smoking), and the prevalence of obesity compared to other groups.

Further we studied the biochemical characteristics of the patients (Table 3).

Table3. Average blood biochemical parameters of patients in the studied groups

Indicator	I group n=20, M±SD 1 grade obesity	2 group n=20, M±SD 1 grade obesity	3 group n=20, M±SD 1 grade obesity	Control n=20	p
Fasting glucose, mmol/L	4,4±0,6	4,2±0,7	4,3±0,5	4,2±0,7	>0,05 >0,05 >0,05
Total bilirubin, μmol/L	18.5±1.4	19.7±1,3	17.6±1,2	18.4±1.6	>0,05 >0,05 >0,05
Urea, μmol/L	4,8±1,3	3,6±3,1	5,2±1,3	4,4±1,2	>0,05 >0,05 >0,05
Creatinine, μmol/L	77±6,9	80,6±9,6	75,6±8,2	75±6,2	>0,05 >0,05 >0,05
Total cholesterol, mmol/L	4,6±1,3	4,3±1,1	6,7±1,5	4,4±1,2	>0,05 >0,05 <0,05
LDL, mmol/L	3,8±0,9	3,7±0,2	5,9±0,2	3,6±0,9	>0,05 >0,05 <0,05
HDL, mmol/L	1,2±0,6	1,6±0,4	1,9±0,3	1.5±0,1	>0,05 >0,05 <0,05
Triglycerides, mmol/L	1,4±0,8	1,5±0,4	3,3±0,6	1.1±0,8	>0,05 >0,05 <0,05

As can be seen from Table 3, fasting glycemia, total bilirubin, urea, creatinine were normal in all groups, while lipid spectrum parameters (total cholesterol, LDL, HDL, and LDL cholesterol) were significantly higher in group 3 patients compared to controls.

Further, we performed the analysis of eating disorders in the studied patients (Table 4)

Table 4: Analysis of eating disorders in the studied patients

EDs	I group n=20, M±SD 1 grade obesity	2 group n=20, M±SD 1 grade obesity	3group n=20, M±SD 1 grade obesity	Total
Anorexia nervosa (AN)	-	-	-	-
Bulimia nervosa (BN)	1 (5%)	3 (15%)	6 (30%)	10 (16.7%)

Compulsive overeating (CO)	2 (10%)	7 (35%)	10 (50%)	19 (31.7%)
Cleansing disorder (CD)	5 (25%)	8 (40%)	4 (20%)	17 (28.3%)
Specific eating or eating disorders (SEED) without cleansing	12 (60%)	2 (10%)	-	14 (23.3%)

As can be seen from Table 4, AN did not occur in our observation. BN was predominant in group 3 patients (30% of cases in the group) as was CO (50%). Cleansing disorder was more common in group 2 (40%) and SEED in group 1 (60%).

Individuals without eating disorders may also experience cognitive and behavioral symptoms of EDs (e.g., dissatisfaction with their bodies, food/weight concerns) associated with psychological distress and increased risk of developing eating pathology later in life. To determine whether these symptoms are exacerbated in individuals with MDD/ANH, we examined EDs scores as measured by 2 questionnaires in our patients (Tables 5-6).

Table 5. Results of the Dutch Eating Behavior Questionnaire (DEBQ) study(M ± m)

Groups	**RESTRICTIVE EATING BEHAVIOUR (normal score 2.4)**	**EMOTIONAL EATING BEHAVIOUR (normal score 1.8)**	EXTERNALIZING EATING BEHAVIOUR (normal score 2.7)
I group n=20, M±SD 1 grade obesity	3,6±0,8 * (12 patients, 60%)	1,7±0,6 (5 patients, 25%)	2,6±0,8 (3 patients, 15%)
I group n=20, M±SD 1 grade obesity	1,8±0,5 (4 patients, 20%)	2,6±0,8* (4 patients, 20%)	1,6±0,4 (12 patients, 60%)
I group n=20, M±SD 1 grade obesity	0,6±0,03* (8 patients, 40%)	3,2±0,5* (4 patients, 20%)	1,6±0,4 (4 patients, 20%)
Total	24 (40%)	13 (21.7%)	19 (31.7%)

Table 5 shows that in group 1 patients, in 60% of cases the DEBQ questionnaire scores for restrictive eating behavior were significantly higher than the norm ($p < 0.05$). These patients are afraid to eat to avoid gaining weight or are guided by "utility" considerations. In group 2, these values were lower than normal, indicating that these patients eat uncontrollably, without restriction, and are poorly aware of what and how they eat (20% of observations). And these scores were lowest in group 3 patients, which means eating disorder (40%). In total, out of 60 patients, EDs was detected in 56 (93.3%).

Eating style - "emotional eater": this is indicated by an increase in scores on the characteristic of emotional eating behavior issues, which was observed in 20% of patients in groups 2 3 and in 25% of patients in group 1. In group 1, these values were normal.

If the values of externalized eating behavior are higher than normal, the patient is likely to be a "relentless" eater, who finds it difficult to stop eating, it is difficult to hold back at the sight of tasty or simply lying in plain sight food. Such character of EDssprevailed in group 2 - 60%.

The next step of our research was to evaluate the results of the Zang Scale for self-assessment in the studied groups (Table 6).

Table 6: Results of the Zang Scale for self-rated

Groups	**60-74 points Severe anxiety disorder or severe anxiety disorder**	**60-74 points Severe anxiety disorder or severe anxiety disorder 75-80 points Anxiety disorder of extreme severity**	**75-80 points Anxiety disorder of extreme severity**
I group n=20, M±SD 1 grade obesity	48,3±3,8 (10 patients, 50%)	63,4±7,6 (2 patients, 10%)	-
I group n=20, M±SD 2 grade obesity	52,8±7,8 (5 patients, 15%)	69,4±6,9 (8 patients, 40%)	79,8±9,2 (7 patients, 35%)
I group n=20, M±SD 2 grade obesity	57,3±8,3 (7 patients, 35%)	73,8±7,4 (patients, 25%)	78,8±8,7 (8 patients, 40%)
Total	22 (36.7%)	15 (25%)	15 (25%)

Примечание: * - это p – критерий достоверности при сравнении со значениями нормы

The study showed that, in general, mild anxiety disorder was detected in 22 (36.7%), severe anxiety disorder in 15 (25%), and anxiety disorder of extreme severity in 15 (25%). At the same time, the most pronounced changes in this sphere were found in group 3 patients, where anxiety disorder of extremely severe severity was found in 40% of cases. In general, anxiety disorder of one or another degree was detected in 52 (86.6%) out of 60 patients.

Finally, we performed a correlation analysis of the performed studies (Table 7).

Table 7. Correlation relationship (R) of DEBQ eating behavior questionnaire scores and Zang anxiety scale.

Disorders	EAB	REB	EPAB
MAD	0,25	0,28	0,27
mMAD	0,37	0,42*	0,48*
SAD	0,62*	0,65*	0,68*

Note: КУИ - restrictive eating behavior, EAB - emotional eating behavior, EPAB - externalized eating behavior, MAD- mild anxiety disorder, mMAD - mild-to-moderate anxiety disorder, SAD - severe anxiety disorder, * is p - criterion of validity , $p < 0.05$

As can be seen from Table 7, significant correlations were found between the applied questionnaires, namely between severe anxiety disorder and different types of eating disorders. That is, all types of eating disorders were found in severe anxiety disorder. In addition, there was a significant positive correlation between severe anxiety disorder and eating disorders of the REB and EPAB types (2).

Thus, the performed studies confirmed the literature data that patients with eating disorders are diagnosed with latent anxiety disorder, which significantly worsens the quality of life of obese patients.

Conclusions. 1. The Dutch Eating Behavior Questionnaire (DEBQ) is the most sensitive and informative for determining quality of life and the presence of anxiety disorders in obese patients. 2. Assessment of quality of life, eating disorders and anxiety disorders using the Zang anxiety scale, the Dutch Eating Behavior Questionnaire (DEBQ), as well as assessment of the quality of life using the questionnaire developed by us can serve as criteria of clinical and functional severity of the condition and the effectiveness of therapy in patients with obesity.

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