

Therapy

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GENDER-AGE AND CLINICAL-DYNAMIC ASPECTS OF THE COURSE OF DEPRESSIVE DISORDERS IN OBESE PATIENTS

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Obesity and depression are global health problems. According to WHO estimates, depression is experienced by 3.8% of the population, including 5.0% of adults (4.0% of men and 6.0% of women) and 5.7% of people over the age of 60. About 60.0% of the population of economically developed countries is overweight, 25.0–30.0% are suffering from obesity. Taking into account the great medical and social importance and the insufficient study of the peculiarities of the structure, clinical course, and management of depression in patients with abdominal obesity, the purpose of the study is to analyse and compare the structure, gender-age, and clinical-dynamic features of the course of depressive disorders in obese patients. 140 people were examined. Patients were divided into two clinical groups. The 1st group included 70 women with abdominal obesity and average BMI (34.6±1.42) kg/m², the 2nd group – 70 men with abdominal obesity and average BMI (34.6±1.42) kg/m². Examination of patients included: a detailed collection of complaints and anamnesis of patients; a questionnaire to identify depressive disorders according to Beck's Depression Inventory; clinical and objective examination; measurement of anthropometric and physiological indicators; and laboratory and statistical research. The results of the study established that in young people (25–44 years old), depression was recorded 3.80 times ($\chi^2=24.86$, $p=0.00001$) more often in women than in men, while the number of depressive disorders at the age of 45–59 among men was 2.42 times ($\chi^2=20.94$, $p=0.00001$) more often than among women. The emotional type with an episodic and more severe course of depression prevailed in women, while physical manifestations of depression were characteristic of men. In particular, aggression, which was registered 2.00 times ($\chi^2=4.54$, $p=0.00001$) more often than in women. In order to effectively provide treatment to patients with abdominal obesity and depression, not only the course and type of depressive disorders but also the gender and age characteristics of the patients must be taken into account.

Keywords: *obesity, depression, gender-age characteristics, body mass index.*



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Introduction

Obesity and depression are global health problems. According to the calculations of the authors of the study, these problems translate into trillions of dollars in annual damage. Excess weight increases the risk of developing a depressive disorder, but with an established depressive syndrome, it is much more difficult for the patient to fight excess weight through exercise. Depression is characterized by long periods of depressed mood or a loss of interest in habitual activities or the ability to enjoy them [1]. According to estimates, depression is experienced by 3.8% of the population, including 5.0% of adults (4.0% of men and 6.0% of women) and 5.7% of people over the age of 60 [2; 3]. About 280 million people worldwide suffer from depression. Among women, the prevalence of depression is approximately 50.0% higher than among men [4; 5]. More than 10.0% of pregnant women and women who have just given birth worldwide experience depression. More than 700,000 people commit suicide every year. Suicide is the fourth leading cause of death in the age group of 15–29 years [6–8]. Despite the availability of proven and effective methods of treatment for mental disorders, more than 75.0% of people in low- and middle-income countries do not receive any treatment [9]. Factors preventing effective treatment include insufficient investment in mental health care, a lack of trained medical workers, and social stigmatization of people suffering from mental disorders. Currently, there is no doubt that the pathological increase in the volume of adipose tissue in the body (obesity) goes far beyond the scope of a purely aesthetic problem and is the cause

of the development of a number of serious, often irreversible, and fatal diseases. According to the World Health Organization (WHO), in 2008, there were about 1.4 billion overweight adults in the world, with 500 million people (200 million men and 300 million women) suffering from obesity [10; 11]. In 2018, a statistical analysis by WHO experts concluded that in six years, the number of overweight people on the globe will rise to 1.9 billion, and the number of obese people – to 600 million [12]. Currently, about 60.0% of the population of economically developed countries is overweight, and 25.0–30.0% is obese. A similar trend is observed in children: excess body weight is observed in 15.0–25.0%. The presented data illustrate the exceptional social significance of the increase in obesity in the world and allow us to consider it, along with many other problems, as requiring an urgent solution not only within the framework of the health care system but also within the scope of long-term state policy [13].

The relationship between depression and obesity is confirmed by a large number of studies. The results of an American meta-analysis showed that obese patients have a 37.0% higher risk of developing depression, while depressed patients have an 8.0% higher risk of developing obesity [14; 15]. The evidence base for the connection between obesity and depressive disorders is primarily due to common pathophysiological links, which have common genetic determinants and provide common mechanisms for the formation of the risk of developing depression and metabolic disorders: 1) the corticotropin-releasing hormone system (CRH); 2) a system of secondary messengers with the participa-

tion of cAMP and G-proteins; 3) a system of orientation of the axon growth direction; 4) serotonin and dopamine neuromediation; 5) a dopamine-DARPP32 feedback system within the system of secondary messengers, including cAMP; 6) a system of circadian rhythms; 7) a leptin system. Given the great medical and social importance and the insufficient study of the structure of both nosologies depending on the gender and age characteristics of the patients, the research topic is quite relevant.

The **purpose** of the research was to analyze and compare the structure, gender, age, and clinical-dynamic features of the course of depressive disorders in obese patients.

Materials and Methods

140 people (70 women and 70 men) were examined at the University Clinic of the Black Sea National University. The age of women ranged from 18 to 60 years (the average age was $[39.1 \pm 1.3]$ years), and the age of men was from 19 to 60 years (the average age was $[40.0 \pm 1.2]$ years). Patients were divided into two clinical groups. The 1st group included 70 women with abdominal obesity and average Body Mass Index (BMI) (34.6 ± 1.42) kg/m^2 , the 2nd group – 70 men with abdominal obesity and average BMI (34.6 ± 1.42) kg/m^2 .

Examination of patients included: a detailed collection of complaints and anamnesis of patients; consultation with a psychologist; clinical and objective examination; measurement of anthropometric and physiological indicators; laboratory and statistical studies.

The anthropometric study included: determination of body height and weight; calculation of body mass index (kg/m^2); measurement of waist and hip circumference; "waist circumference/thigh circumference" index; physiological: measurement of blood pressure (presence of arterial hypertension); heart rate; and respiration

rate (RR). Laboratory and instrumental research results were taken from the outpatient cards of patients.

The Beck Depression Inventory (BDI) was used to assess the presence of depressive disorders. The scale contains 21 categories of symptoms and complaints that are among the most frequently encountered in patients with depression. Each category consists of 4–5 approved items corresponding to specific signs of depression. The statements are distributed taking into account the increase in significance of the contribution of the determined indicators to the overall severity of depression. The questionnaire was filled out by the patient himself. Each point of the scale category is evaluated from 0 to 3 points; the total score is from 0 to 62. Analysis of the test results: from 0 to 9 – absence of depressive symptoms; from 10 to 15 – mild depression (sub depression); from 16 to 19 – moderate depression; from 20 to 29 – severe depression (of moderate severity); from 30 to 63 – severe depression.

The diagnosis of depression is syndromic and is based on three characteristics: the symptoms must be recognizable, the duration must be longer than 2 weeks, and there must be a negative impact on social, personal, and professional life. Diagnostic criteria for a depressive disorders were established according of Diagnostic and Statistical Manual of Mental Disorders (DSM-5).

The study was approved by the commission on ethics and bioethics of Medical Institute of the Petro Mohyla Black Sea National University. The study was conducted in accordance with the basic bioethical norms of the Helsinki Declaration of the World Medical Association on Ethical Principles of Scientific and Medical Research, as amended (2000, amended in 2008), the Universal Declaration on Bioethics and Human Rights (1997), the Council of Europe Convention on Human Rights and Biomedicine (1997). All parti-

Participants were informed about the aims, organization, methods of the study and signed an informed consent to participate in it, and all measures were taken to ensure patient anonymity.

Statistical processing of the research results was carried out by the methods of variational statistics implemented by the standard package of application programs SPSS 13.0 for Windows (USA). Pearson's chi-squared test (χ^2) was used to compare the distribution of shares of two variables. The difference was considered significant if the achieved significance level (p) was lower than 0.05.

Results and Discussion

During the research, it was possible to establish that the causes, course and structure of depressive disorders differed between men and women. Risk factors of depression in patients were: family history in 19 (27.1%) women and 16 (22.9%) men; hormonal dysfunction – in 11 (14.6%) women and 6 (8.6%) men; the presence of chronic somatic diseases (such as hypertension, chronic gastritis, osteoporosis) – in 7 (10.0%) women and 14 (20.0%) men; disorder of circadian rhythms – in 7 (10.0%)

women and 3 (4.3%) men), social factors (family problems, divorce) – in 11 (15.7%) women and 5 (7.1%) men; economic factors (loss of job, ect.) – in 4 (5.7%) women and 17 (24.3%) men. Some patients experienced various neurological disorders, e.g., traumatic brain injury (in 1 [1.4%] woman and 3 [4.0%] men), migraine (in 4 [5.4%] women, chronic stroke (in 2 [2.7%] women and 3 [4.0%] men), multiple sclerosis (in 2 [2.7%] woman), Parkinson's disease (in 2 [2.6%] men), brain tumors (meningioma – 1 [1.4%] women, pituitary adenoma – 1 [1.4%] man), enterovirus meningoencephalitis – 1 [1.4%] woman. It is worth noting that social factors and hormonal imbalance were the leading risk factors of depression in women, while in men the main factors for depression occurrence were economic ones and the presence of comorbid chronic somatic diseases (Fig.).

The research work recorded that a mild depressive episode was 4.00 times ($\chi^2=5.87$, $p=0.02$); more often in obese women than in men; moderate depressive episode 3.00 times ($\chi^2=1.09$, $p=0.01$) more often in obese women than in men; severe depressive

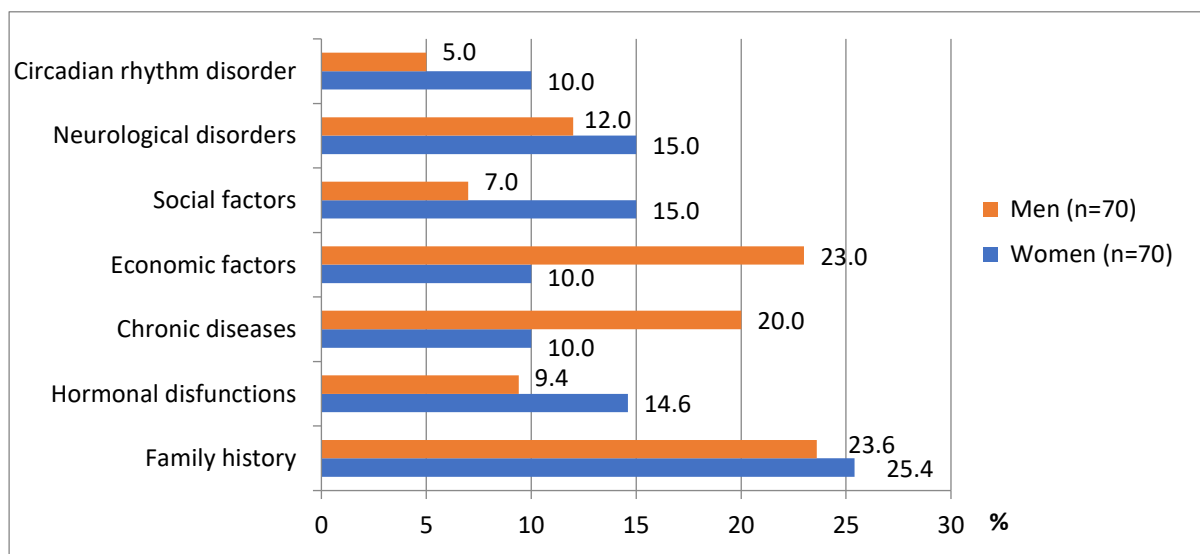


Fig. Risk factors of depressive disorders in clinical groups.

Note: chronic diseases included hypertension, chronic gastritis and osteoporosis.

episode with psychotic symptoms 2.00 times more often in obese women than in men ($\chi^2=6.87$, $p=0.03$). Recurrent depressive disorder with a mild course was recorded 4 times ($\chi^2=8.90$, $p=0.04$) more often in obese men than in women; recurrent depressive episode with an average course of 4.00 times ($\chi^2=6.66$, $p=0.03$); more often in obese men than in women; recurrent depressive disorder with a severe course without psychotic symptoms was registered 6.25 times ($\chi^2=2.89$, $p=0.001$). times more often in obese men than in women (Table 1).

During a detailed patient history, it was recorded that women complained of nervousness 4 times ($\chi^2=2.380$, $p=0.041$) more often; weight gain 4.5 times ($\chi^2=6.091$, $p=0.003$) more often, sleep disorders 4 times ($\chi^2=3.312$, $p=0.049$) more often, anxiety 2.0 times ($\chi^2=3.045$, $p=0.03$) more often, also recorded in women than men. While men were 2.5 times ($\chi^2=0.221$, $p=0.004$) more likely to be aggressive and 1.5 times ($\chi^2=2.082$, $p=0.01$) more likely to be abusing psychoactive substances on the background of depression (Table 2).

In young women (25–44 years old), depression was recorded 3.80 times ($\chi^2=24.86$, $p=0.00001$) more often than in men. While the number of depressive disorders at the age of 45–59 among men was recorded 2.42 times ($\chi^2=20.94$, $p=0.00001$) more often than among women (Table 3).

Research has shown that, in general, the symptoms of depression are the same in women and men, but there are certain differences in their frequency and prevalence in the structure of depression. Depressive episodes are longer and more frequent in women than in men. In the study, it was revealed that classical depression is comparable in frequency of prevailing symptoms in women and men, however, anxiety depression with somatic symptoms occurs twice as often in women. Clinical manifestations of depression in women were characterized by: increased appetite, hypersomnia, loss of sensitivity; women more often than men reported sexual desire disorder, women had a higher frequency of sleep disorders (difficulty falling asleep, altered sleep duration), somatic complaints (loss of appetite, chest pain, headache), an-

Table 1. The structure of the distribution of depressive disorders in patients of different clinical groups, depending on the BMI (kg/m²) of the patients

Types of depressive disorders	Group				The difference between the 1 st and 2 nd groups	
	1 st		2 nd		χ^2	p
	n	%	n	%		
<i>Depressive episode</i>						
mild	24	34.3	6	8.6	5.87	0.02
moderate	26	37.1	8	11.4	1.09	0.01
major, without psychotic symptoms	5	7.1	4	5.7	34.1	0.91
major, with psychotic symptoms	4	5.7	2	2.7	6.87	0.03
<i>Recurrent depressive disorder</i>						
with a mild course	1	1.5	3	4.3	8.90	0.04
with a moderate course	5	7.1	20	28.7	6.66	0.03
with a severe course without psychotic symptoms	4	5.7	25	35.8	2.89	0.001
with psychotic symptoms	1	1.5	2	2.8	8.32	0.04

Note: * – the difference is considered reliable when $p < 0.05$.

Table 2. Main symptoms of depression in patients of different clinical groups

Main symptoms	Clinical groups		Intergroup difference in symptoms	
	1 st	2 nd	χ^2	p
	n	n		
Loss of interest and pleasure in previous occupations	8	1	5.82	0.02
Increased aggressiveness and malice	6	15	4.54	0.03
Increased nervousness	4	1	1.87	0,18
Changes in appetite and sleep	4	1	1.87	0,18
Feeling of uselessness and low self-esteem	4	10	2.86	0,09
Suicidal thoughts and behaviour	2	1	0.34	0.56
Constant fatigue and weakness	4	1	1.87	0,18
Weight gain	9	2	4.83	0.03
Constant mood of sadness and depression	4	1	1.87	0,18
Psychoactive substance abuse	13	20	1.94	0,16
A constant feeling of anxiety	4	2	0.70	0.40
A constant feeling of longing	8	15	2.55	0.11

Note: * – the difference is considered reliable when $p < 0.05$.

Table 3. The frequency of occurrence of depression depends on age

Age of patients, years	Clinical groups of patients			
	1 st	2 nd	Intergroup differences	
	n (%)	n (%)	χ^2	p
18–24	6 (8.6)	4 (5.6)	0.43	0.51
25–44	38 (54.3)	10 (14.3)	24,86	0.00001
45–59	19 (27.1)	46 (65.7)	20,94	0.00001
60–74	4 (5.7)	5 (7.1)	0,12	0.73
>75	3 (4.3)	5 (7.1)	0.53	0.47

Note: * – the difference is significant at $p < 0.05$.

xxiety and depression; men, on the other hand, reported a greater number of episodes accompanied by the use of alcohol and psychoactive substances. A more frequent affect in the structure of depression in women is anxiety, while in men longing prevails. For women, daily mood swings and suicidal thoughts are more characteristic. Motor retardation and decreased motivation are significantly more common in men. In comparison with men, the onset of depression at a younger age and longer depressive episodes were also found in women. It is important to note that gender-age

differences in the manifestation of depression are due to the peculiarities of the hormonal background, different brain activity, and social and cultural factors. Therefore, the treatment of depression in men and women may require different approaches and methods.

Conclusions

Gender and age characteristics of patients with abdominal obesity affect the structure and course of depression. Peculiarities of female depressions: the prevalence of the disease at a young age, the episodic course, the prevalence of the emo-

tional variant of depression. In young women (25–44 years old), depression was recorded 3.80 times ($\chi^2=24.86$, $p=0.00001$) more often than in men. While the number of depressive disorders at the age of 45–59 among men was recorded 2.42 times ($\chi^2=20.94$, $p=0.00001$) more often than

among women. In the women's clinic, emotional depression prevails. The main clinical manifestations of depression in men were aggressiveness, which was recorded 2.50 times ($\chi^2=4.54$, $p=0.03$) more often than in women.

Conflict of interest is absent.

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ГЕНДЕРНО-ВІКОВІ ТА КЛІНІКО-ДИНАМІЧНІ АСПЕКТИ ПЕРЕБІГУ ДЕПРЕСИВНИХ РОЗЛАДІВ У ПАЦІЄНТІВ З ОЖИРІННЯМ

Ожиріння та депресія належать до глобальних проблем охорони здоров'я. Згідно з оцінками ВООЗ, на депресію хворіє 3,8 % населення, у тому числі 5,0 % дорослих людей віком до 50 років (4,0 % чоловіків і 6,0 % жінок) та 5,7 % людей старше 60 років; близько 60,0 % населення економічно розвинених країн має надлишкову вагу, 25,0–30,0 % – ожиріння. Враховуючи велике медико-соціальне значення, недостатнє вивчення особливостей структури, клінічного перебігу та менеджмент депресії у пацієнтів з абдомінальним ожирінням, метою дослідження було проаналізувати та порівняти структуру, гендерно-вікові та клініко-динамічні особливості перебігу депресивних розладів у пацієнтів з ожирінням. Було обстежено 140 осіб. Пацієнти були розподілені на дві клінічні групи. До 1-ї групи увійшли 70 жінок із абдомінальним ожирінням та індексом маси тіла (ІМТ_{ср.}) (33,88±1,10) кг/м², до 2-ї групи – 70 чоловіків з абдомінальним ожирінням та ІМТ_{ср.} (34,6±1,42) кг/м². Обстеження пацієнтів включало: детальний збір скарг та анамнезу; анкетування на виявлення депресивних розладів за шкалою Бека, клініко-об'єктивного обстеження, вимірювання антропометричних та фізіологічних показників, лабораторне та статистичне дослідження. За результатами дослідження, в осіб молодого віку (25–44 роки) депресія була зафіксована у 3,8 рази ($\chi^2=0,205$; $p=0,049$) частіше у жінок, ніж у чоловіків; в той час як кількість депресивних розладів у віці 45–59 років серед чоловіків була в 2,42 рази ($\chi^2=0,218$; $p=0,003$) більшою, ніж у жінок. Емоціогенний тип з епізодичним та більш тяжким перебігом депресії переважав у жінок, а для чоловіків характерним були фізичні прояви депресії (агресивність була зафіксована у 2,0 рази ($\chi^2=0,221$; $p=0,004$) частіше, ніж у жінок, та у 1,5 рази ($\chi^2=2,082$; $p=0,01$) більша схильність до зловживання психоактивних речовин на фоні депресивних розладів). Чоловіча депресія перебігала за рекурентним варіантом.

Ключові слова: ожиріння, депресія, гендерно-вікові особливості, індекс маси тіла.

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