THE INTERPLAY BETWEEN DIABETES COMPENSATION STATUS AND MENTAL HEALTH IN DISPLACED UKRAINIANS WITH TYPE 2 DIABETES DURING THE ONGOING RUSSIAN-UKRAINIAN WAR

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ABSTRACT

Background. Diabetes cases in Ukraine rose from 490 000 in 2022 to 731 000 in 2025, with high rates of anxiety (40%) and depression (35%) among patients, worsening prognosis and quality of life.

Aim. To investigate the levels of anxiety and depressive disorders in displaced Ukrainians with Type 2 Diabetes Mellitus (T2DM), comparing the differences between compensated and subcompensated patients.

Materials and Methods. Sixty-four displaced Ukrainians with T2DM were examined. Group 1 consisted of 54 patients with T2DM of moderate severity and subcompensation stage with neurological symptoms. The average HbA1c was [7.3±2.1] %, and the duration of T2DM was [9.89±0.56] years. The control group included 10 patients with T2DM of mild severity in the compensation stage, without neurological complaints. The average HbA1c was [6.5±2.1] %, and the duration of the disease was [7.89±0.26] years. Anxiety and depression levels were assessed using the Hospital Anxiety and Depression Scale (HADS), Beck Depression Inventory (BDI), and State-Trait Anxiety Inventory (STAI). Statistical processing of the data was carried out using the statistical software package SPSS 10.0 (IBM, USA). Comparison of variables was performed using nonparametric statistical methods: the Mann-Whitney U-test for two independent samples and the Pearson $\chi 2$ criterion for dependent samples. The results were considered reliable at $p<0.05$. The research was conducted as a private initiative of the authors, did not receive funding from grant programs, and the research topic was not officially registered in the state register of research topics.

Research Ethics. This study was conducted in accordance with the fundamental bioethical principles outlined in the Helsinki Declaration of the World Medical Association Declaration of Helsinki (1964–2024), as well as subsequent updates and additions, including the General Declaration on Bioethics and Human Rights (2005) and the Council of Europe Convention on Human Rights and Biomedicine (1997).

Results. In group 1, the level of anxiety was 2.8 times higher than in the control group (13.0 [7.0; 17.0] vs. 4.5 [4.0; 6.0], $p<0.001$); the level of depression was 4 times higher than in the control group (12.0 [5.0; 16.0] vs. 3.0 [2.0; 4.0], $p<0.001$). According to both scales (HADS, BDI), patients in the control group did not have a depressive state, while in patients in group 1, mild (subclinical) depression was detected in 24.1%, moderate depression in 33.3%, and very severe depression in 1 patient.

Conclusions. The absence of subclinical/clinical depression in patients in the control group may indicate that anxiety disorders precede the development of depression and require timely correction by clinicians to prevent their further transformation into depression.

Keywords: *therapy, diabetes mellitus, depression, anxiety disorders, phobic disorders.*

Abbreviations

ADs – Affective Disorders.
AH – Arterial Hypertension.
AR – Affective Reactions.
BDI – Beck Depression Inventory.
HADS – Hospital Anxiety and Depression Scale.
HbA1c – Glycated hemoglobin.
MHPSS – Mental Health and Psychosocial Support.
PPG – Postprandial glucose.
STAI – State-Trait Anxiety Inventory.

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T2DM – Type 2 Diabetes Mellitus.
T-Anxiety – Trait Anxiety.
WHO – World Health Organization.

Introduction

Since February 2022, Ukraine has been engulfed by a devastating war that has cast a long shadow over its vast landscape, imposing profound psychological burdens on its resilient populace. The echoes of unplanned migrations resonate within the hearts of those who have lost their homes, livelihoods, and, most tragically, their loved ones. For two years, this all-encompassing russian-Ukrainian conflict has touched every Ukrainian, leaving no soul untouched [1]. The incessant anxiety of air raids and the consequent erosion of control over one's own life breeds an atmosphere heavy with stress and uncertainty. While many have acclimated to the harrowing new normal, the lingering effects on their psyche remain, insidious yet palpable. The WHO reports that a staggering quarter of Ukrainians now find themselves at risk of mental health disorders [2]. Data from the Ministry of Health of Ukraine reveals the sobering toll: from February 24, 2022, to December 2022, 8 million fled abroad, 5.3 million became internally displaced, and the horrors extend to thousands fallen, missing, or forcibly deported. In this tragic chapter, over 18,000 high-rise buildings, 135,000 private homes, and thousands of schools and hospitals have been devastated, leaving a landscape marked by loss and lingering despair [2].

The war has had a profound impact on various aspects of life, including health. According to the Ministry of Health, 2023 saw a significant increase in diabetes cases and related complications [4]. Data from the Ministry of Health reveals that diagnosed diabetes cases in Ukraine rose from approximately 490,000 in 2022 to over 731,000 in 2023 [5]. Meanwhile, nearly 71% of citizens reported experiencing stress or severe anxiety, citing factors such as stress, trauma to children, disruptions to daily routines and sleep patterns, limited access to medication and self-monitoring, and territorial restrictions [6].

Alongside the rise in type 2 diabetes cases, Ukraine has seen a significant increase in neuropsychological disorders. As of November 2023, approximately 650,000 Ukrainians had sought professional help from psychologists and psychiatrists, more than double the number from two years prior (302,000) [7]. However, access to MHPSS remains severely limited, with an estimated 10 million people seeking support in the first year of the full-scale war and this number continuing to grow. Notably, 52.7% of those requiring psychological assistance exhibit signs of emotional distress, including anxiety (54.1%), depression (46.8%), and insomnia (12.1%) [8].

Understanding the common underlying factors of diabetes and ADs is crucial. Research suggests that individuals with type 1 diabetes are three times more likely to experience depression, while those with type 2 diabetes are twice as likely, compared to the general population [9]. Anxiety affects approximately 40% of patients with diabetes [10]. The co-occurrence of depression and anxiety in diabetes patients can worsen prognosis, reduce quality of life, and increase mortality. Furthermore, depression can increase the risk of developing diabetes by 60% [11]

The presence of anxiety-depressive disorders in patients with T2DM increases the risk of developing diabetes-related complications, such as arterial hypertension, coronary heart disease, and stroke, which are the leading causes of mortality in these patients. Additionally, anxiety-depressive disorders can reduce treatment adherence and compliance. Given the significant medical and social implications, high epidemiological prevalence of non-psychotic disorders among diabetes patients, and the limited number of studies on this topic, this research is highly relevant.

The **aim** of the study was to investigate the levels of anxiety and depressive disorders in displaced Ukrainians with type 2 diabetes during russia-Ukrainian war, comparing the differences between compensated and subcompensated patients.

Materials and Methods

A comprehensive study was conducted on 64 displaced individuals with type 2 diabetes mellitus from temporarily occupied regions of Ukraine (Donetsk, Luhansk, and Kharkiv regions) who received treatment at the University Polyclinic of Petro Mohyla Black Sea University between March 2024 and April 2024. The patient demographics revealed a predominance of females, accounting for 55 (85.9%), while males comprised 9 (14.1%).

To ensure representativeness, a stratified sampling method was employed, where the patient population was divided into distinct groups (strata) based on disease severity. A random sample was then selected from each stratum, enabling the assessment of anxiety and depressive disorders both overall and within each group.

The inclusion criteria for this study were: patients with type 2 diabetes with compensated or

subcompensated disease, aged [18–65] years, and a disease duration of at least 6 months. The sample excluded individuals with the following conditions: other categories of carbohydrate metabolism disorders (type 1 diabetes, genetic defects, pancreatic diseases, endocrine diseases, gestational diabetes); type 2 diabetes duration less than 6 months; history of stroke or myocardial infarction; severe concomitant somatic pathology; severe mental health conditions (endogenous psychoses, personality disorders, substance-induced mental and behavioral disorders, intellectual disability); pregnancy or breastfeeding; decompensated cardiovascular disease; recent surgery or trauma (less than 6 months); and oncological diseases.

The patients were divided into two groups based on the severity and compensation status of their diabetes. Group 1 consisted of 54 patients with subcompensated diabetes and neurological symptoms, with a mean age of [58.8±0.85] years. The disease duration in this group ranged from 2 to 11 years. The control group comprised 10 patients with mild, compensated diabetes without neurological complaints, with a mean age of [51.8±1.28] years. The disease duration in this group ranged from 3 to 10 years (*Table 1*).

Chronic somatic disorders were present in 33 (53.8%) of patients, with the most common being coronary artery disease 14 (22.5%), neuropathy 9 (14.8%), and retinopathy 8 (13.0%). Only one patient had a disability group 1 classification. Notably, 44 (80.3%) of patients in groups 1 and 2 (15.3%) of patients in the control group were taking oral hypoglycemic medications

The patients underwent a comprehensive clinical and neurological examination, as well as psychological testing using standardized tools, including:

1) State-Trait Anxiety Inventory (STAI);

2) Beck Depression Inventory (BDI) questionnaire;

3) Hospital Anxiety and Depression Scale (HADS).

These assessments aimed to identify anxiety-depressive disorders. Additionally, laboratory research was conducted to gather further data.

STAI was utilized to identify individuals with high anxiety levels and provide targeted support. The STAI is a self-report questionnaire that assesses two types of anxiety:

1) State Anxiety (S-Anxiety): measures temporary, situation-specific anxiety;

2) Trait Anxiety (T-Anxiety): measures stable, personality-based anxiety [12].

Administration and Scoring: before completing the questionnaire, participants were informed about the purpose of the assessment and ensured they understood the instructions. The participants completed the questionnaire independently, without assistance.

The questionnaire consisted of 40 statements: 20 assessing anxiety as a mental reaction and 20 assessing anxiety as a personality trait. Scoring: low anxiety: <30 points; moderate anxiety: [31–45] point; high anxiety: ≥46 points.

The BDI was used to determinate depressive symptoms [13]. The BDI is a 21-item questionnaire that assesses various complaints and symptoms of depression, with each item consisting of 4-5 statements that correspond to different manifestations of depression. Each statement is assigned a value from 0 to 3, depending on the severity of the symptom. The total score is calculated after completing the questionnaire. The scores were categorized into cognitive-affective manifestations [1–13] points and somatic manifestations [14–21] points. Interpretation of the results was based on the total score: [0–9] points: no depression; [10–15] points: mild depression; [16–19] points: moderate depression; [20–29] points: severe depression; [30–63] points: very severe depression.

The HADS was used to assess the frequency of anxiety and depression in patients with diabetes mellitus, considering the commonality of symptoms between the two conditions [14]. The HADS

Table 1. Clinical and laboratory characteristics in different groups

Indicators	Group 1, n=54 (M±m)	Control group, n=10 (M±m)
HbA1c (%)	7.3±2.1	6.5±2.1
Fasting glucose (mmol/l)	7.0±0.56	5.5±0.87
Postprandial glucose (mmol/l)	9.0±0.66	8.0±1.1
Glucose in urine (mmol/l)	0.12±0.74	0.02±0.04
Cholesterol (mmol/l)	7.2±1.1	5.2±1.1
Blood pressure (mmHg)	145/94±10/5	135/86±10/6
Average duration of diabetes mellitus (years)	9.89±0.56	7.89±0.26

is a 14-item self-administered instrument, comprising two subscales:

1) Anxiety subscale (7 items);

2) Depression subscale (7 items).

Each item is evaluated on a 4-point Likert scale, and scores are added up. The interpretation of scores is as follows: no anxiety/depression: [0–7] points; moderate anxiety/depression: [8–10] points; severe anxiety/depression: [11–21] points.

Statistical processing of the data results was carried out using the statistical software package SPSS 10.0 (IBM, USA). Comparison of variables was performed using nonparametric statistical methods: the Mann-Whitney U-test for two independent samples and the Pearson χ^2 criterion for dependent samples. The Mann-Whitney U-test criterion allows us to identify differences in the value of the parameters between small samples. In the conjugate tables of the study, the Pearson χ^2 criterion was used to study the relationship between two categorical variables. The results were considered reliable at $p<0.05$.

Research Ethics

This study was conducted in accordance with the fundamental bioethical principles outlined in the World Medical Association Declaration of Helsinki (1964–2024), as well as subsequent updates and additions, including the General Declaration on Bioethics and Human Rights (2005) and the Council of Europe Convention on Human Rights and Biomedicine (1997). All participants provided informed consent after being fully informed about the study's goals, organization, and methods. Measures were taken to ensure patient anonymity. The study received approval from the Ethics Committee of Petro Mohyla Black Sea National University (Protocol No.9 of January 28, 2024).

Results

The anxiety assessment (Table 2) revealed that most patients (92.2%) had low levels of personal anxiety (<30 points), with a median score of 19.5 [16.0; 23.0] points. Reactive anxiety levels were predominantly low (37.5%) or moderate (31.3%), with a median score of 37.5 [27.0; 51.0] points. Notably, situational anxiety levels exceeded personal anxiety levels in both the study groups and the overall population ($p<0.01$).

According to the results of the HADS and the BDI scales, patients in the control group did not exhibit a depressive state. In contrast, among patients in the group 1, the BDI scale revealed mild (subclinical) depression in 24.1% of patients, moderate depression in 33.3% of patients, and very severe depression in one patient. Notably, only 31.5% of patients in the main group (approximately one-third) had no depressive symptoms (*Table 3*).

The median anxiety level according to the HADS scale in all patients was 12.0 (6.0; 16.0) (*Table 4*). Notably, patients in the group 1 had a significantly higher anxiety level, 2.8 times higher than the control group (13.0 [7.0; 17.0] vs. 4.5 [4.0; 6.0], $p<0.001$). Similarly, the depression level in

Table 2. Assessment of the level of reactive (situational) and personal anxiety in patients with type 2 diabetes mellitus using State-Trait Anxiety Inventory

STAI	All examined, n=64	Group 1, n=54	Control group, n=10	p
Reactive anxiety, Me (25%; 75%)	37.5 (27.0; 51.0)	39.0 (28.0; 52.0)	25.0 (14.0; 29.0)	<0.001
Distribution by severity of reactive anxiety, n (%)				
Low (<30 points)	24 (37.5)	15 (27.8)	9 (90,0)	0.001*
Moderate (31–44 points)	20 (31.3)	19 (35.2)	1 (10.0)	
High (≥45 points)	20 (31.3)	20 (37.0)	0 (0.0)	
Personal anxiety, Me (25%; 75%)	19.5 (16.0; 23.0)	20.0 (17.0; 24.0)	15.5 (14.0; 18.0)	0.003
Distribution by severity of personal anxiety, n (%)				
Low (<30 points)	59 (92.2)	49 (90.7)	10 (100.0)	0.605*
Moderate (31–44 points)	2 (3.1)	2 (3.7)	0 (0.0)	
High (≥45 points)	3 (4.7)	3 (5.6)	0 (0.0)	

Notes: $p<0.05$ – presence of statistical differences between groups according to the Mann-Whitney (U) test;
* – differences between distributions according to the Pearson χ^2 test.

Table 3. Assessment of the level of depression in the examined patients with type 2 diabetes mellitus using Beck Depression Inventory (BDI)

BDI	All examined, n=64	Group 1, n=54	Control group, n=10	p
Depression level according to BDI Me (25 %; 75 %)	15.5 (8.0; 21.0)	17.0 (9.0; 21.0)	7.0 (4.0; 8.0)	<0.001
Distribution by level of depression according to BDI, n (%)				
No depression (0–9 points)	27 (42.2)	17 (31.5)	10 (100.0)	0.003*
Mild ("subclinical") depression ([10–15] points)	5 (7.8)	5 (9.3)	0 (0.0)	
Moderate depression ([16–19] points)	13 (20.3)	13 (24.1)	0 (0.0)	
Severe depression ([20–29] points)	18 (28.1)	18 (33.3)	0 (0.0)	
Very severe depression (≥30 points)	1 (1.6)	1 (1.9)	0 (0.0)	

Notes: p<0.05 – presence of statistical differences between groups according to the Mann-Whitney (U) test; * – differences between distributions according to the Pearson χ^2 test.

Table 4. Assessment of the level of anxiety and depression in the examined patients with type 2 diabetes mellitus using Hospital Anxiety and Depression Scale

HADS	All examined, n=64	Group 1, n=54	Control group, n=10	p
Anxiety level according to HADS, Me (25%; 75%)	12.0 (6.0; 16.0)	13.0 (7.0; 17.0)	4.5 (4.0; 6.0)	<0.001
Distribution by HADS anxiety level, n (%)				
Norm ([0–7] points)	27 (42.2)	17 (31.5)	10 (100.0)	0.001*
Subclinical anxiety ([8–10] points)	3 (4.7)	3 (5.6)	0 (0.0)	
Clinical anxiety (>11 points)	34 (53.1)	34 (63.0)	0 (0.0)	
Depression level according to HADS, Me (25%; 75%)	10.0 (4.0; 15.0)	12.0 (5.0; 16.0)	3.0 (2.0; 4.0)	<0.001
Distribution by level of depression according to HADS, n (%)				
Norm ([0–7] points)	28 (43.8)	18 (33.3)	10 (100.0)	0.005*
Subclinical depression ([8–10] points)	5 (7.8)	5 (9.3)	0 (0.0)	
Clinical depression (>11 points)	31 (48.4)	31 (57.4)	0 (0.0)	
Depression level according to BDI, Me (25%; 75%)	15.5 (8.0; 21.0)	17.0 (9.0; 21.0)	7.0 (4.0; 8.0)	<0.001

Notes: p<0.05 – presence of statistical differences between groups according to the Mann-Whitney (U) test; * – differences between distributions according to the Pearson χ^2 test.

the group 1 was 4 times higher than the control group (12.0 [5.0; 16.0] vs. 3.0 [2.0; 4.0], p<0.001).

The HADS scale revealed that subclinical and clinical anxiety/depression were exclusively present in patients with moderate severity and subcompensation duration of T2DM in group 1. The ratio of clinical anxiety to clinical depression in the group 1 was 34 (63.0%) vs. 3 (5.6%), and the ratio of subclinical anxiety to subclinical depression was 31 (57.4%) vs. 3 (5.6%), p=0.001.

The clinical picture of anxiety-depressive disorders in patients of both clinical groups was determined by psychopathological symptoms that combined mental and somatovegetative components. In the structure of the mental component, the symptoms of anxiety dominated among all respondents (21 (38.4%) in group 1 and 3 (27.7%) in the control group). Other common symptoms included: irritability – in 17 (31.6%) persons from group 1 and 2 (22.9%) from the control group,

panic attacks – in 15 (28.7%) and 2 (15.1%) respectively, causeless fears – in 9 (16.4%) and 1 (7.7%), increased irritability – in 9 (17.2%) and 2 (16.9%), constant feeling of sadness – in 17 (32.1%) and 1 (14.4%), loss of interest and pleasure from the environment – in 4 (8.6%) and 1 (4.6%), decreased self-esteem and confidence – in 11 (20.3%) and 1 (11.1%), decreased concentration of attention and memory – in 18 (30.4%) and 8 (10.7%), dysthymia – in 42 (17.8%) and 21 (12.1%) (*Fig.*).

Various somatovegetatives, such as headaches, occurred in 11 (19.9%) patients of group 1 and 1 (7.9%) of the control group. The patients described headache as a pulsating, absent or pressing nature, of varying intensity and localization, which is associated with psychoemotional stress and did not cause the use of painkillers. Four (6.8%) individuals of group 1 and 1 (7.3%) of control groups in their complaints indicated respiratory function disorders in the form of a feeling of lack of air, a feeling of stuffy breathing. Complaints of gastrointestinal disorders were observed in 14 (26.5%) individuals of group 1 and 2 (8.3%) control groups. The main symptom was intestinal dysfunction in the form of constipation. Chronic diarrhea syndrome was revealed in 50 (9.6%) individuals of the group 1 and 1 (3.1%) of the control group. Vegetative disorders, such as, muscle tension and stiffness in different parts of the body – 2 (4.6%) in group 1 and 2 (3.8%) – in the control group. In 40 (10.3%) individuals of the group 1 and 2 (9.8%) controls, sweating was noted.

Discussion

Analysis of STAI data showed generally low levels of personal anxiety and high levels of situational anxiety in both clinical groups, with a statistically significant predominance of indicators in group 1 ($p<0.05$). Although anxiety as a response to stress is a normal adaptive mechanism, when anxiety becomes pathological and interferes with the harmonious functioning of a person, it requires treatment [15]. Anxiety disorders have many risk factors, such as female gender, heredity, low socioeconomic status, excessively strict upbringing or excessive care, and other socially important factors. In addition, study in Poland, showed that stressful life events can negatively affect the severity of anxiety symptoms [16]. One of the reasons for this trend, according to the author's opinion, is the military events during the russian-Ukrainian conflict, which led to the emergence of chronic stress in Ukrainians. Chronic stress promotes the activation of the hypothalamic-pituitary-adrenal system and the sympathetic nervous system. Norepinephrine and cortisol activate anxiety, causing depression. Chronic stress also causes immune dysfunction and increases the production of inflammatory cytokines. High levels of inflammatory cytokines affect pancreatic β-cells, inducing insulin resistance. Inflammatory reactions are also involved in the pathophysiology of affective reactions, affecting the metabolism of neurotransmitters.

The data obtained during the psychological examination using HADS and BDI showed a high prevalence of clinically pronounced anxiety and depression among patients of the group 1 who were in the subcompensation stage, while these manifestations were not observed among patients

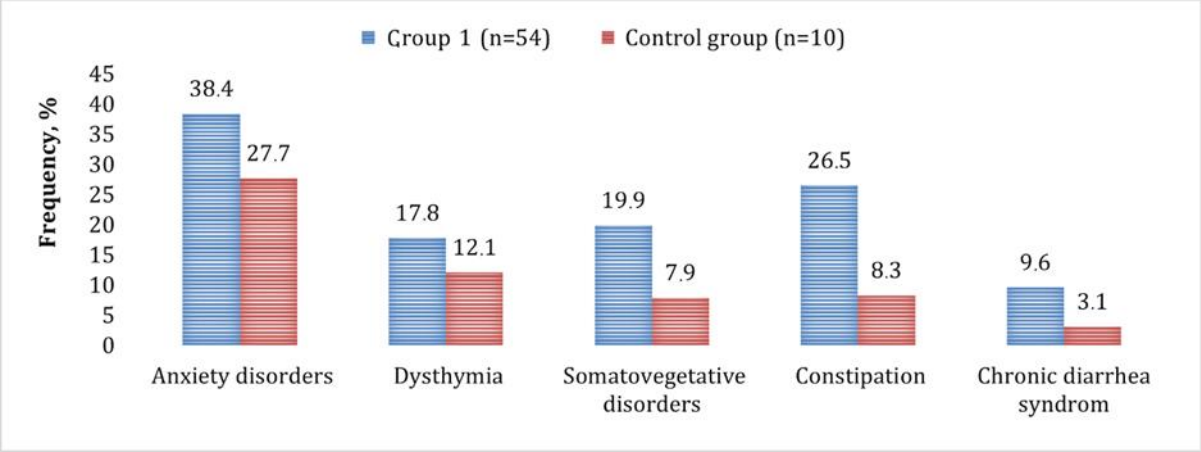

Fig. Frequency of occurrence neuropsychological and somatovegetative symptoms (%). in group 1 and control group.

of the control group with compensated T2DM ($p<0.05$). These results correlate with the data of other studies. In a study conducted in Tunisia (2019) [17], anxiety-depressive disorders were also recorded in 40% of patients with moderate type 2 diabetes, that was 2.5 times more often than in patients with compensated T2DM ($p<0.05$). This phenomenon, according to the authors, can be as a result, to more significant organic brain lesions, namely hippocampal atrophy, against the background of persistent hyperglycemia, which may cause a more severe level of anxiety-depressive disorders and therefore may require a longer period of treatment and additional prescription of psychosedative drugs to this category of patients. The presence of subclinical/clinical anxiety and the absence of subclinical/clinical depression in patients in the control group may also indicate that anxiety disorders precede the development of depression and require clinicians to promptly correct them to prevent their further transformation into depression.

In the clinical picture of patients with diabetes mellitus, both mental and somatovegetative manifestations of anxiety and depression were recorded, with a pronounced predominance of depressive disorders in group 1 ($p<0.05$). In the structure of the mental component in patients with subcompensated diabetes mellitus type 2, the most frequent priorities were: irritability ($p=0.001$), anxious thoughts ($p<0.05$), internal stress and increased tension ($p<0.01$); in the structure of the somatovegetative component – a feeling of heaviness in the head, muscle tension, vegetative-vascular paroxysms ($p<0.05$), body pain ($p<0.01$). The study confirms that diabetes mellitus causes changes in both the peripheral visceral nerves and the central nervous system. Similar results were obtained in a large British cohort investigation [18] of somatovegetative disorders in patients with type 2 diabetes mellitus, during which a link was also recorded between the increase in vegetative disorders and indicators of diabetes compensation. As diabetes progresses, specific anxious experiences or reactions to obvious stimuli in the anxious variant subsequently transform into generalized ("floating") anxiety, where its objects are more or less random and multiple. In the absence of timely and adequate therapeutic measures, anxiety disorders tend to transform into depressive states in the anxious-melancholic variant, which is manifested by an increase in the severity of the level of depression. The indicated dynamic features of anxiety and its transformation into depressive states are consistent with the theory of the "general factor of distress" underlying these two affective phenomena.

Early detection of anxiety-depressive disorders allows identifying the groups of patients who are most in need of consultative psychological and psychiatric care, which will allow differentiation between the approach to psychopharmacological and psychotherapeutic care in the early stages of diabetes.

Limitations

The limitations of this study are the small size of the control group (n=10), the imbalance between the sizes of the studied samples, as well as the gender bias with a predominance of women 55 (85.9%) over men 9 (14.5%).

Conclusions

During the russian-Ukrainian war, studying the level of anxiety-depressive disorders in patients with chronic somatic diseases played an important role. The results of study suggest that the course and severity of T2DM increase the level of anxiety and depression disorders. In patients with T2DM in the subcompensation stage and moderate severity, the level of anxiety was 2.8 times higher than in the control group (13.0 [7.0; 17.0] vs. 4.5 [4.0; 6.0], $p<0.001$); the level of depression was 4 times higher than in the control group (12.0 [5.0; 16.0] vs. 3.0 [2.0; 4.0], $p<0.001$). The presence of subclinical/clinical anxiety and the absence of subclinical/clinical depression in patients in the control group may indicate that anxiety disorders precede the development of depression and require timely correction by clinicians to prevent their further transformation into depression. The research emphasizes the importance of early screening of patients with T2DM for anxiety-depressive disorders, which is necessary to identify the risk group among patients who most need consultative psychological and psychiatric care, which in the future will allow a differentiated approach to individual psychopharmacological and psychotherapeutic care, reduce the risk of complications and improve the quality of life of this category of patients.

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Authors' Contributions

Contribution / Authors	A	B	C	D	E	F
Kiro L.S.	+	+		+	+	+
Zak M.Y.	+	+	+		+	+
Maksymenko O.M.	+					+
Zhukova I.B.		+			+	+
Ovechko A.I.			+			+

Notes: A – concept; B – design; C – data collection;
D – statistical processing and interpretation of data; E – writing or critical editing of the article;
F – approval of the final version for publication and agreement to be responsible for all aspects of the work.

Declarations

Conflict of interest is absent.

The authors of the manuscript state that in the process of conducting research, preparing, and editing this manuscript, they did not use any generative AI tools or services to perform any of the tasks listed in the Generative AI Delegation Taxonomy (GAIDeT, 2025). All stages of work (from the development of the research concept to the final editing) were carried out without the involvement of generative artificial intelligence, exclusively by the authors.

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