A study of depression in patients with type 2 diabetes at the primary health care level in Kyrgyzstan

Policy Brief

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HEALTH POLICY ANALYSIS CENTER

HUG Hôpitaux Universitaires Genève

NCD POLICY LAB

1 | Introduction

Ensuring healthy lives and well-being for all is one of the priority Sustainable Development Goals (SDGs), with a key focus on prevention and control of non-communicable diseases (NCDs), including mental health improvement. Within the SDGs, the target is to reduce premature mortality from NCDs by one third by 2030 through prevention and timely treatment [1].

Type 2 diabetes (T2D) is one of the most significant NCDs, and its prevalence and mortality continue to increase. According to WHO data, diabetes increases the risk of premature mortality by 2–3 times and significantly reduces quality of life. In Kyrgyzstan, 84,020 patients with diabetes were registered in 2023, with an annual increase of 5–7 thousand new cases [2]. Despite the SDG target to reduce mortality to 4.0 per 100,000 population by 2030, the country shows an increase in this indicator — from 6.9 in 2023 to 7.7 in 2024 [2].

One of the urgent problems is combination of T2D and depressive disorders. According to international studies, depression is identified in 30–50% of patients with T2D and is more common among women, elderly people, patients with obesity, diabetes complications, and low social support [4,10–13,15]. Depression negatively affects the course of diabetes, reduces adherence to treatment, worsens glycemic control, and increases the risk of complications.

At the primary health care (PHC) level, general practitioners play a key role in early detection of depression in patients with chronic diseases. However, in Kyrgyzstan, prevalence of depression and its risk factors in patients with T2D are inadequately explored, especially at the PHC level and in rural regions with limited access to health care.

The aim of this study was to assess prevalence of depression and risk factors for its development in patients with type 2 diabetes at the PHC level in urban and rural regions of Kyrgyzstan in order to develop recommendations for early diagnosis and effective management of this group of patients.

Study objectives:

- To assess prevalence of depression among patients with T2D.
- To identify socio-demographic, clinical, and behavioral risk factors of depression.
- To study the relationship between the course of T2D and the level of depression.
- To analyze characteristics of health care provided to patients with combined T2D and depression in the city of Bishkek and Batken region.

2 | Methodology

The study was conducted in two stages: a desk review and a field stage. The desk review included analysis of outpatient medical records of patients diagnosed with type 2 diabetes, analysis of statistical data on prevalence of type 2 diabetes and depression, as well as preparation and development of research tools. A questionnaire and the PHQ-9 depression assessment scale were used as research tools. The PHQ-9 was translated and adapted into Kyrgyz and Russian languages.

The field stage was conducted at PHC organizations in two regions of the Kyrgyz Republic — the city of Bishkek and Batken region. In each region, two Family Medicine Centers (FMC) or General Practice Centers (GPC) were selected, differing in geographic location and socio-economic context. Data collection was carried out from July to September 2025. SPSS version 22 was used for data entry, processing, and primary analysis.

The level of depression was assessed using the PHQ-9 scale in Kyrgyz and Russian in the format of individual interviews conducted by a physician-interviewer.

3 | Study findings

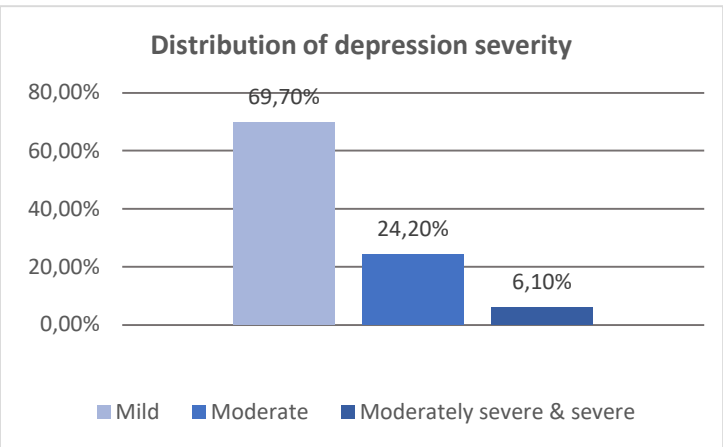
Depression of varying severity was identified in 231 out of 380 patients, which accounted for 60.8% (95% CI: 55.9–65.7%) of the total sample. The threshold for depression was defined as PHQ-9 ≥ 5 points.

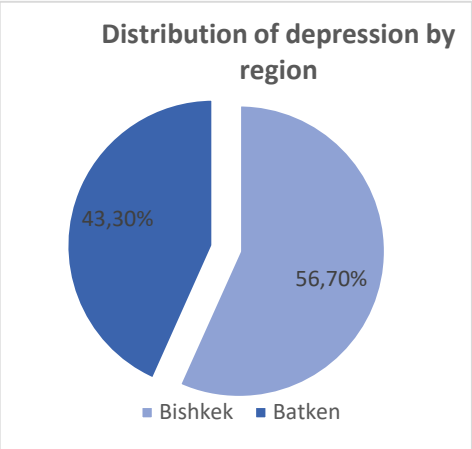
Prevalence by depression severity among patients with identified depression (n=231):

- Mild depression — 161 respondents (69.7%)
- Moderate depression — 56 respondents (24.2%)
- Moderately severe and severe depression — 14 respondents (6.1%)

The analysis also showed significant differences by gender and place of residence. In both regions, women had a significantly higher prevalence of depression than men. Among women, a higher proportion of mild (59.0%), moderate (62.5%), and moderately severe/severe depression (71.4%) was observed as compared to men (mild — 41.0%; moderate — 37.5%; moderately severe/severe — 28.6%). This corresponds with literature data on greater vulnerability of women to anxiety and depressive disorders.

Figure 1. Depression levels by place of residence.



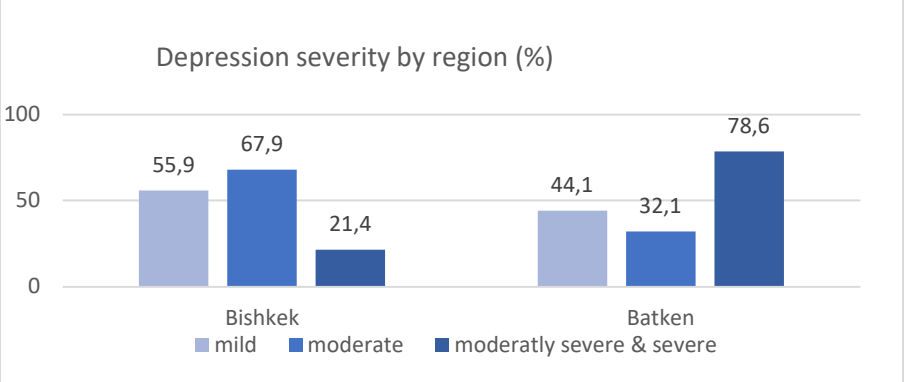


Severity of depression depending on place of residence

Among respondents from Bishkek, individuals with mild (55.9%) and moderate depression predominated. In Batken, the proportion of respondents with mild depression was lower and accounted for 44.1%. At the same time, the proportion of individuals with moderately severe and severe depression in Bishkek was significantly lower (21.4%), while in Batken it reached 78.6%, which is almost twice as high.

The observed differences in Batken region may indicate limited access to psychiatric and psychological services, associated with a shortage of mental health specialists and high workload of primary health care physicians. Socio-economic and contextual factors also play a significant role. Batken region is one of the most geographically remote regions of the country, borders Tajikistan, and is characterized by periodic border conflicts. An additional challenge is economic limitations. For example, under the state guarantee program, patients are provided with subsidized prescriptions for glucose-lowering medications and test strips for blood glucose monitoring; however, glucometers remain unaffordable for some patients, which may negatively affect diabetes control and overall psycho-emotional condition.

Figure 2. Distribution of depression levels by region.

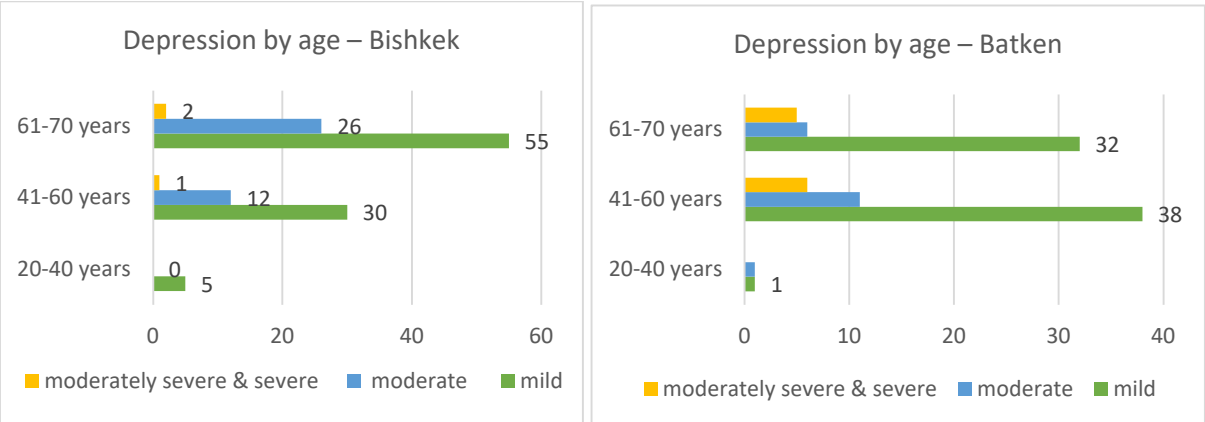


Distribution of depression levels by age groups.

In both regions, there is a tendency for increase in both the total number of respondents with depression and the number of cases of moderate and moderately severe depression with increasing age.

Among 131 respondents from Bishkek with identified depression of varying severity, the largest proportion consisted of individuals aged 61–70 years with mild depression. In Batken region, among 100 respondents, the largest proportion of cases was observed in the age groups of 41–60 and 61–70 years, with predominance of moderate and moderately severe forms of depression. This confirms the importance of depression screening in older age groups.

Figure 3. Distribution of depression levels by age.



Depression levels depending on duration of type 2 diabetes

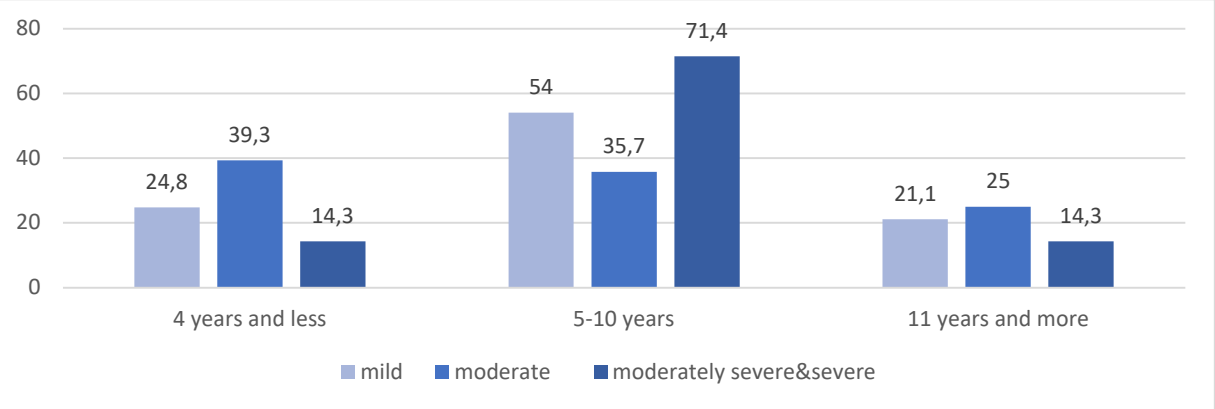
Psycho-emotional condition of patients with chronic diseases is one of the key factors influencing quality of life, adherence to treatment, and risk of disease decompensation.

Analysis of depressive states depending on disease duration has important diagnostic and prognostic value. Disease duration of 5–10 years was the largest group among respondents (50.6%). In this group, mild depression predominated (54%), but the highest proportion of severe depression (71.4%) was also recorded here. This indicates significant psychological burden and risks of worsening depression in patients with a relatively long duration of disease. Overall, one quarter of patients in this category had clinically significant depressive manifestations requiring intervention. This period is characterized by increased risk of emotional and physical exhaustion, possibly associated with progression of diabetes complications, increased self-monitoring burden, reduced motivation for therapy, and chronic stress.

Scientific data confirm that middle period of T2D course is critical in terms of persistent affective disorders [4,12,13,15].

Duration of diabetes itself is not a determining factor of depression. Complications (neuropathy, vision impairment, pain) are decisive, rather than the number of years of disease, which is confirmed by previous studies [4,9,12,13].

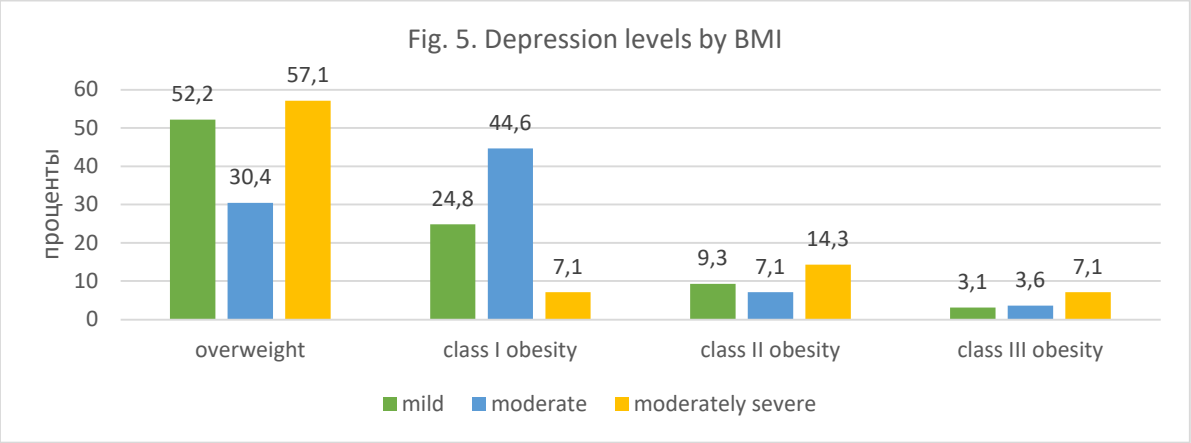
Figure 4. Depression levels by diabetes duration



Relationship between BMI and depression in patients with T2D

An increase in body mass index (BMI) is associated with a higher frequency of depressive conditions. The highest proportion of mild and moderate depression was identified among patients with overweight and class I obesity.

Figure 5. Depression levels by BMI



The largest proportion of patients with mild depression was observed among individuals with overweight (52.2%) and class I obesity (24.8%). In the moderate depression group, patients with class I obesity predominated (44.6%), indicating an increase in depressive manifestations with increasing BMI.

A similar trend was observed in moderately severe depression, where the largest proportion belonged to the overweight group (57.1%). Overall, increasing BMI is associated with higher frequency of moderate and more severe depressive disorders [4,12,13,15].

Class I obesity represents a critical transitional stage, where the maximum increase in moderate depression is observed. This may be related to early development of diabetes complications, decreased physical activity, and worsening psycho-emotional condition.

In class II–III obesity groups, depressive disorders of varying severity, including moderately severe depression, were also identified. Despite the limited sample size, these data are consistent with clinical observations of more pronounced physical limitations, pain syndrome, and anxiety in patients with severe obesity.

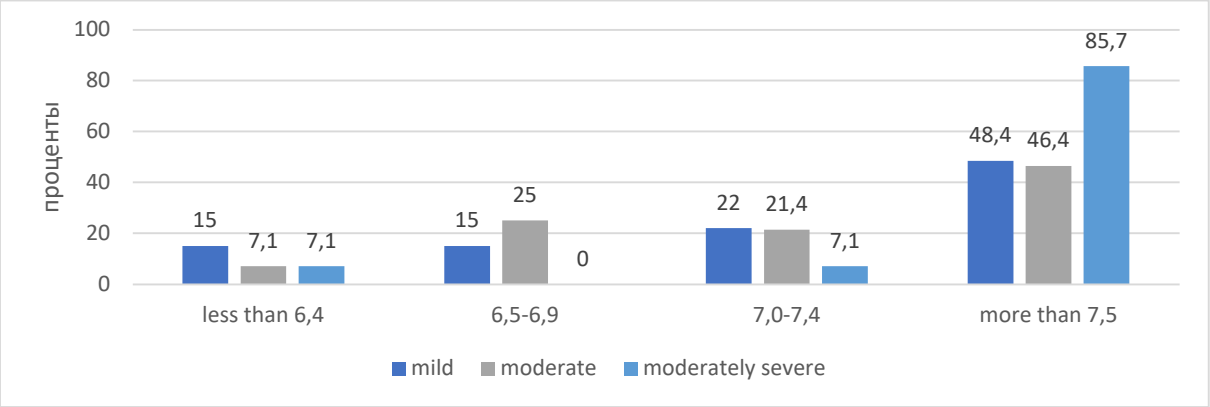
Relationship between depression level and glycated hemoglobin (HbA1c)

HbA1c level is a key indicator of diabetes compensation. The analysis showed a clear relationship between HbA1c level and severity of depressive disorders.

Among patients with good glycemic control (HbA1c < 6.4%), mild depression predominated, which may indicate a positive effect of adequate diabetes compensation on psycho-emotional condition.

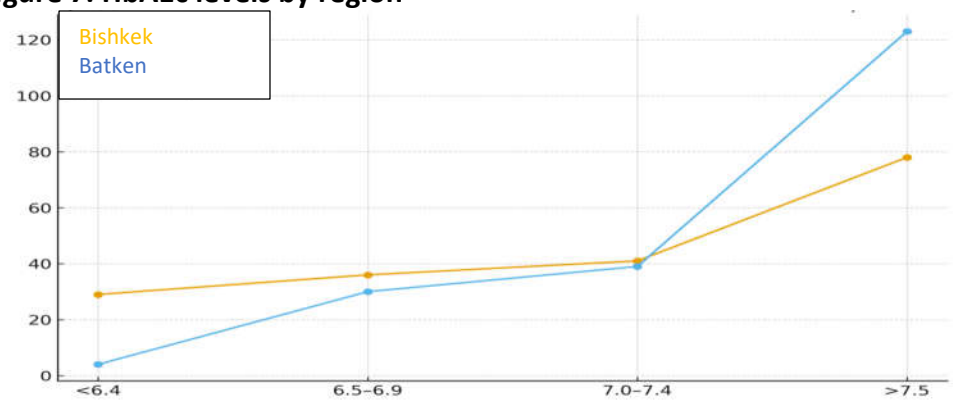
In the group with HbA1c > 7.5% (50% of all respondents with depression), patients without depressive symptoms were not identified: 48.4% had mild depression, while moderate and moderately severe depression were identified in 46.4% and 85.7% of patients, respectively. These data emphasize the need for comprehensive diabetes management with mandatory inclusion of psychological support.

Figure 6. Depression levels by HbA1c



As glycemic control worsens, the severity of depressive disorders increases. Regular monitoring of HbA1c is necessary not only for assessment of metabolic control but also for early detection and prevention of psycho-emotional disorders.

Figure 7. HbA1c levels by region



In Batken region, a higher concentration of patients with elevated HbA1c was observed, increasing the overall risk of depression in the region. The most pronounced changes were observed at HbA1c > 7.5%, where the proportion of moderate and severe depression sharply increased.

HbA1c above 7.5% reflects diabetes decompensation, accompanied by development of complications, poorer quality of life, and increased physical and emotional burden. Therefore, patients with HbA1c > 7.5% represent a key high-risk group for severe psycho-emotional disorders and require priority attention at the PHC level.

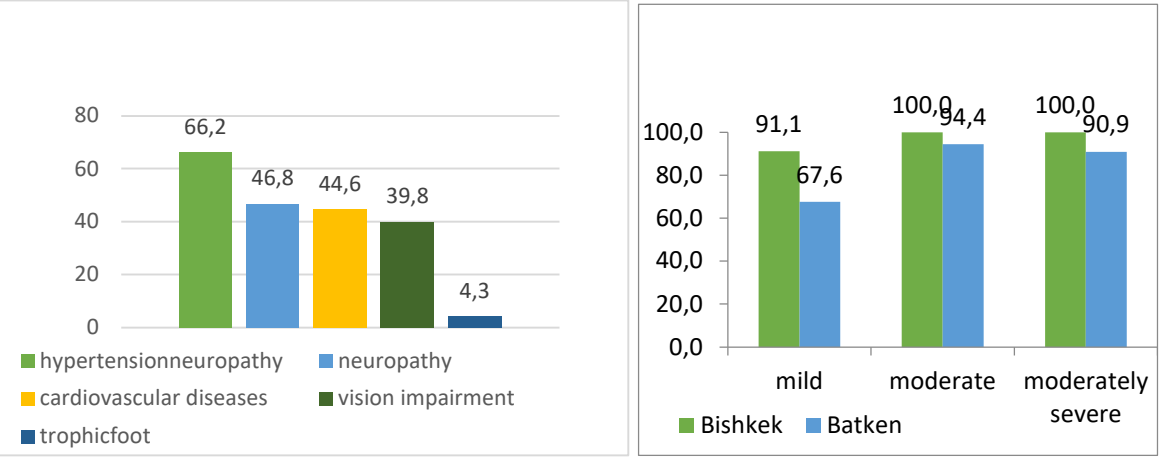
Depression levels depending on presence of type 2 DM complications

Complications of type 2 diabetes were identified in 198 of 231 respondents with depression (85.7%). Significant regional differences were noted: in Bishkek, complications were registered in 93.9% of patients, while in Batken region — in 75.0%.

The highest prevalence of complications was observed among patients with moderate and moderately severe depression. In Bishkek, complications were identified in 100% of patients in these groups, indicating a close relationship between severity of depressive symptoms and complicated course of diabetes.

Cardiovascular and neurosensory disorders predominate in the structure of complications. The most frequently observed were arterial hypertension (66.2%), diabetic neuropathy (46.8%), cardiovascular diseases (44.6%), and vision impairment (39.8%). Trophic foot ulcers were identified in 4.3% of patients, indicating presence of severe and potentially disabling forms of complications in the studied group.

Figure 8. Depression and diabetes complications



Complications of type 2 diabetes are associated with a significantly higher frequency of depressive conditions of all severity levels. These results demonstrate clinical significance of complications as a possible factor increasing the risk of depression in patients with T2D and emphasize the need for the interdisciplinary approach that involves mental health in diabetes management.

4 | Conclusion

The conducted study confirmed that depressive disorders are a widespread and clinically significant problem among patients with type 2 diabetes observed at the primary health care level in Bishkek and Batken region. Signs of depression of varying severity were identified in 60.8% of patients, that exceeds international indicators (30–50%) and is significantly higher than in the general population. Almost one third of patients with depression had moderate and moderately severe forms requiring active medical and psychological intervention.

Women in all age and clinical groups had a higher prevalence of depressive disorders, indicating the need for a gender-sensitive approach in prevention and treatment.

The largest proportion of patients with depression (50.6%) was identified among individuals with diabetes duration of 5–10 years, highlighting the impact of chronic disease course on psycho-emotional condition.

Significant regional differences were observed: in Batken region, moderately severe and severe forms of depression were more frequently identified compared to Bishkek, likely reflecting unequal access to specialized care and influence of socio-economic and geographic factors.

Key risk factors for depression were complicated course of diabetes (arterial hypertension, neuropathy, vision impairment, cardiovascular diseases), overweight and obesity, high HbA1c level, and age over 40 years.

The results indicate the need for systemic changes in organization of care for patients with type 2 diabetes at the PHC level, including implementation of regular depression screening using validated tools (PHQ-9), especially among patients with high HbA1c, complicated disease course, and those living in rural regions.

Thus, integration of mental health components into management programs for patients with type 2 diabetes, development of interdisciplinary cooperation, and strengthening PHC resources in remote regions are key conditions for reducing the burden of depression, improving glycemic control, and achieving SDG targets in the Kyrgyz Republic.

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