

## Overview of Depression severity in Type 2 Diabetes Mellitus Patients at Sorong General Hospital, Southwest Papua

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### ARTICLE INFO

### ABSTRACT/ ABSTRAK

#### Article history

Received: 30 May 2025

Revised: 18 June 2025

Accepted: 30 June 2025

#### Keywords:

Depression severity, Type 2 Diabetes Mellitus, PHQ-9, Psychological Burden, Integrated Care

#### Kata kunci:

Tingkat keparahan depresi, Diabetes Mellitus Tipe 2, PHQ-9, Beban Psikologis, Perawatan Terintegrasi

**ABSTRACT.** Indonesia ranks fifth globally in the number of diabetes mellitus (DM) cases, with type 2 diabetes mellitus (T2DM) accounting for over 90%. In addition to its physical complications, T2DM is closely associated with psychological disorders, particularly depression, which often goes undetected despite its negative impact on disease management and its well-established bidirectional relationship. This study aims to describe the severity of depression among T2DM patients at Sorong General Hospital, Southwest Papua. A descriptive observational design with a cross-sectional approach was employed, involving 270 T2DM patients selected through purposive sampling based on specific inclusion and exclusion criteria. Depression severity was assessed using the Patient Health Questionnaire-9 (PHQ-9), a validated instrument for evaluating depressive symptoms. The results showed that 136 respondents (50.37%) did not experience depression, while 134 respondents (49.63%) exhibited varying degrees of depression. Among them, 102 respondents (37.78%) experienced mild depression, 30 (11.11%) had moderate depression, and 2 (0.74%) had severe depression. These findings indicate that nearly half of the respondents experienced depressive symptoms, with mild depression being the most prevalent category. The study underscores the importance of incorporating mental health assessments, such as routine depression screening, into diabetes care protocols. An integrated approach is essential to support improved clinical outcomes and enhance the overall well-being of T2DM patients.

**ABSTRAK.** Indonesia menempati peringkat kelima secara global dalam jumlah kasus diabetes melitus (DM), dengan diabetes melitus tipe 2 (DMT2) mencakup lebih dari 90%. Selain komplikasi fisiknya, DMT2 juga berkaitan erat dengan gangguan psikologis, terutama depresi, yang sering tidak terdeteksi meskipun berdampak negatif terhadap pengelolaan penyakit dan memiliki hubungan timbal balik yang kuat. Penelitian ini bertujuan untuk mendeskripsikan tingkat keparahan depresi pada pasien DMT2 di Rumah Sakit Umum Daerah Sorong, Papua Barat Daya. Penelitian ini menggunakan desain observasional deskriptif dengan pendekatan potong lintang, melibatkan 270 pasien DMT2 yang dipilih melalui teknik purposive sampling berdasarkan kriteria inklusi dan eksklusi tertentu. Tingkat keparahan depresi diukur menggunakan Patient Health Questionnaire-9 (PHQ-9), sebuah instrumen yang telah tervalidasi untuk menilai gejala depresi. Hasil menunjukkan bahwa 136 responden (50,37%) tidak mengalami depresi, sementara 134 responden (49,63%) mengalami berbagai tingkat depresi. Di antara mereka, 102 responden (37,78%) mengalami depresi ringan, 30 orang (11,11%) depresi sedang, dan 2 orang (0,74%) depresi berat. Temuan ini menunjukkan bahwa hampir setengah dari responden mengalami gejala depresi, dengan kategori depresi ringan sebagai yang paling dominan. Studi ini menekankan pentingnya memasukkan asesmen kesehatan mental, seperti skrining depresi secara rutin, ke dalam protokol perawatan diabetes. Pendekatan yang terintegrasi sangat penting untuk mendukung hasil klinis yang lebih baik dan meningkatkan kesejahteraan pasien DMT2 secara menyeluruh.

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## INTRODUCTION

Diabetes mellitus is a chronic metabolic disorder characterized by elevated blood glucose levels due to impaired insulin secretion, insulin action, or both (American Diabetes Association, 2009). In 2021, Indonesia ranked fifth among countries with the highest number of diabetes patients, totaling 19.5 million, and this figure is projected to rise to 28.6 million by 2045 (Santyarini & Fajri, 2024). Based on its etiology, diabetes mellitus is classified into type 1 diabetes mellitus (T1DM), type 2 diabetes mellitus (T2DM), gestational diabetes mellitus, and other specific types. Of these, T2DM accounts for more than 90% of global cases (Sapra & Bhandari, 2023). In West Papua Province, diabetes mellitus remains a priority in non-communicable disease control, comprising the largest proportion at 40.26% of all reported non-communicable diseases in 2019 (West Papua Provincial Health Office, 2019).

The impact of diabetes mellitus extends beyond physiological aspects and significantly affects patients' psychological well-being, particularly through depression (Busili et al., 2024). Depression is a common mental disorder among individuals with diabetes mellitus, with a two- to three-fold increased risk compared to the general population (Bădescu et al., 2016). A meta-analysis revealed that depression occurs more frequently in individuals with diabetes than in those without (Li et al., 2020). Several studies also highlight a bidirectional relationship between depression and diabetes (Chaymaa Alami Hassani et al., 2023; Claro et al., 2022). Globally, over 280 million people suffer from depression, making it the leading cause of disability and a major contributor to the global burden of disease (World Health Organization, 2023). In Indonesia, the prevalence of depression reaches 1.4% of the total population, yet only a small proportion receives appropriate treatment (Indonesian Ministry of Health, 2023).

Depression is marked by mood disturbances, low self-esteem, and prolonged emotional distress that can impair cognitive function. One of its primary triggers is unresolved stress (Kupferberg & Hasler, 2023). According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), depression severity is categorized as mild, moderate, or severe (Zimmerman et al., 2018). Depression adversely affects adherence to treatment regimens and healthy lifestyle practices, thereby increasing mortality rates, hospitalizations, and the risk of complications among T2DM patients with depression compared to those without depression (Khubchandani et al., 2023).

Although the prevalence of depression among diabetes patients has been widely reported, most studies have been conducted in urban areas or tertiary healthcare centers. Limited research has specifically examined depression severity among T2DM patients in eastern Indonesia, particularly in Southwest Papua, a region characterized by distinct geographical, demographic, and healthcare access challenges. This condition creates a data and information gap that hampers comprehensive care efforts for T2DM patients in the region.

In light of this, the present study aims to describe the severity of depression among patients with type 2 diabetes mellitus undergoing treatment at Sorong General Hospital, Southwest Papua. The findings are expected to serve as a foundation for developing more holistic T2DM management strategies, with psychological aspects considered an integral component of patient care.

## RESEARCH METHOD

This research employed an observational design with a cross-sectional approach. The study was conducted at Sorong City General Hospital, Southwest Papua, from May to June 2025. Based on the population size of patients with type 2 diabetes mellitus (T2DM), a total of 270 respondents were selected using the Slovin formula and purposive sampling technique, with the following inclusion criteria: patients diagnosed with T2DM by medical personnel, able to communicate effectively both verbally and in writing, and willing to participate by signing an informed consent form. Exclusion criteria included patients with chronic illnesses (e.g., cancer, lupus) and those with a history of mental health disorders or who had been using antidepressant medications in the past three months. The severity of depression among respondents was assessed using the Patient Health Questionnaire-9 (PHQ-9), a validated multipurpose tool for screening, diagnosing, monitoring, and measuring depression severity. PHQ-9 scores range from 0 to 27, with higher scores indicating more severe depressive symptoms. A score of 0–4 indicates minimal or no depression, 5–9 mild depression, 10–14 moderate depression, 15–19 moderately severe depression, and 20–27 severe depression (Sun et al., 2020). This study was conducted after obtaining ethical approval registered under number DP.04.03/F/LIII.13a./133/2025 from the Ministry of Health Polytechnic, Sorong.

## RESULTS

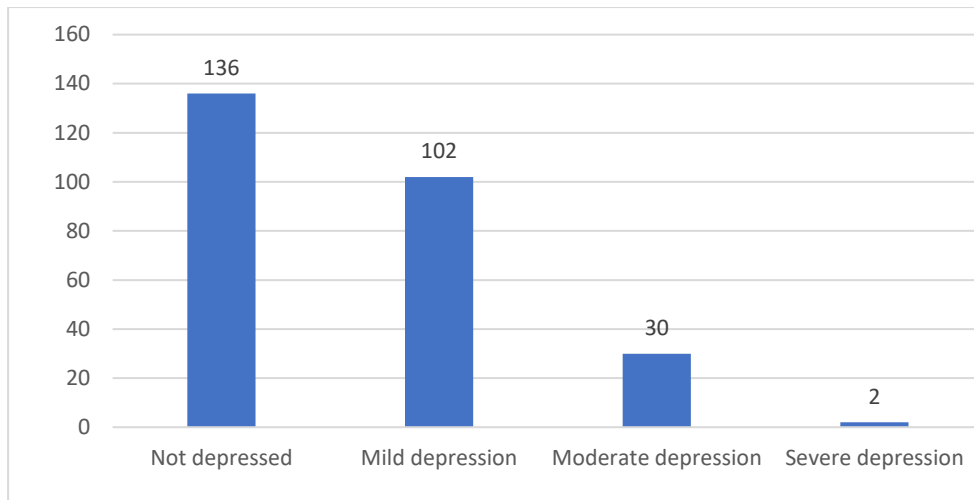
**Table 1. Depression severity among T2DM patients based on PHQ-9**

Depression Category	Frequency	Percentage (%)
Not depressed	136	50.37
Mild	102	37.78
Moderate	30	11.11
Severe	2	0.74
Total	270	100

An analysis of the 270 respondents revealed notable variations in depression severity levels. The largest proportion of participants fell into the category of not experiencing depression, comprising 136 individuals (50.37%). The remainder were classified into various levels of depression severity: 102 respondents (37.78%) had mild depression, 30 (11.11%) experienced moderate depression, and 2 (0.74%) were identified as having severe depression, as presented in Table 1.

These findings suggest that approximately half of T2DM patients experience psychological stress that may negatively impact their quality of life and the management of their chronic condition.

Figure 1 below presents a visual representation of the distribution across all depression severity categories to enhance understanding and facilitate comparison between groups.



**Figure 1.** Frequency distribution of depression severity among T2DM patients

## DISCUSSION

Based on the findings of this study, 49.63% of patients with type 2 diabetes mellitus (T2DM) at Sorong General Hospital exhibited depressive symptoms, with the majority classified as having mild depression (37.78%), followed by moderate (11.11%), and severe (0.74%) levels. These results indicate that nearly half of the patients experience a psychological burden that may impair their ability to manage chronic illness effectively.

This percentage aligns with various previous studies reporting a wide range of depression prevalence among diabetes patients, ranging from 23.2% to 83.8%, with mild to moderate severity being the most dominant (Jenarut et al., 2024). Such variations are thought to be influenced by numerous factors, including age, gender, socioeconomic status, social support, and access to healthcare services. A study by Fazal et al. (2025) revealed that approximately 31.3% of T2DM patients experienced moderate depression, which was correlated with factors such as older age, marital status, family history, body mass index, elevated fasting blood glucose levels, and duration of diabetes. These findings highlight the significant role of both clinical and social factors in the development of depressive symptoms.

Similar results were reported by Khиро et al. (2024), who found a depression prevalence of 48.2%, with most cases classified as mild (31.4%) and moderate (12.7%). In their study, psychological disturbances were also influenced by diabetes-related complications such as nephropathy and neuropathy, in addition to patients' social and demographic characteristics. Meanwhile, a study by Gupta and Adhikari (2024) reported a higher prevalence of 56.9%, with mild depression being the most prevalent. Factors such as marital status, lack of family support, and poor glycemic control were identified as primary contributors. Selvaraj et al. (2022) supported these findings by reporting a 30.8% prevalence of depression among T2DM patients, with most cases being mild and closely associated with female gender, educational level, and substance use.

Compared to these studies, the results of the present study fall within a reasonable range and reinforce the notion that depression is a common comorbidity among T2DM patients. The predominance of mild cases presents a significant opportunity for early intervention to prevent progression to more severe levels. Furthermore, depression is not merely an isolated psychological issue but also has a negative impact on blood glucose

control and clinical prognosis. As reported by Al-Ozairi et al. (2023), diabetes patients with depressive symptoms tend to have higher HbA1c levels due to decreased motivation, low adherence to treatment, and poor self-management capacity. This condition also increases the risk of chronic complications, such as kidney, eye, and heart disorders, ultimately deteriorating patients' quality of life (Ascher-Svanum et al., 2015; Holt, 2025). Therefore, a diabetes management approach that focuses solely on metabolic aspects is no longer sufficient. The American Diabetes Association (ADA) in 2023 recommended the integration of mental health services into diabetes care systems, including routine depression screening, psychosocial therapy, and cognitive-behavioral approaches as part of an integrated management strategy (ElSayed et al., 2023).

Moreover, the application of psychosocial assessments in primary care has proven effective in reducing complications, accelerating glycemic control, and lowering hospitalization rates (Owens-Gary et al., 2019). Accordingly, the findings of this study emphasize the urgency of adopting a holistic approach to T2DM care, which not only prioritizes glycemic control but also incorporates psychological well-being to achieve better clinical outcomes and quality of life.

## CONCLUSION

This study demonstrates that nearly half of patients with type 2 diabetes mellitus (T2DM) at Sorong General Hospital, Southwest Papua, exhibited depressive symptoms, with the highest severity observed in the mild category (37.78%), followed by moderate (11.11%) and severe (0.74%). These findings confirm that depression is a relatively common psychological issue among T2DM patients and can adversely affect disease management and overall quality of life. Therefore, early identification and intervention of depression are essential components of chronic disease management strategies such as those for diabetes.

Further research is recommended to explore the association between depression and other clinical and sociodemographic factors in greater depth, as well as to evaluate the effectiveness of integrated psychosocial interventions in diabetes care.

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