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Diabetes Mellitus Overview, Definition, Causes, Statistics in 2025 and 2026: A Review

Noor Riyadh Ibrahim[1], Farah Najim Al-Deen Al-Nasrawi[2], Yusur Falah Faraj[2]

[1]Department of Microbiology, College of Science, Al-Karkh University of Science, Baghdad, 10011, Iraq.

[2]National Center of Hematology, Mustansiriyah University, Baghdad, Iraq.

Corresponding author: Dr. Noor Riyadh Ibrahim

Department of Microbiology, College of Science, Al-Karkh University of Science, Baghdad, 10011, Iraq. Email: noor.r.ibrahim@kus.edu.iq

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Abstract

Diabetes is a group of chronic illnesses that affect how the body uses glucose, or blood sugar, as its primary energy source. The disease is caused by either inadequate insulin synthesis or ineffective insulin use. The hormone insulin, which is secreted by the pancreas, helps cells absorb glucose. Although the causes vary depending on the type, the basic idea of diabetes is a problem with the body's synthesis or use of insulin. Damage is often associated with persistently elevated blood sugar and its impact on blood vessels and neurons. Extremely high blood sugar and the short-term effects of diabetes. The most recent global statistics for 2025 and 2026 show that diabetes is still one of the chronic illnesses with the fastest rate of rise worldwide. Global figures for 2025 are provided by the Diabetes Atlas 2025 edition and the International Diabetes Federation (IDF). Diabetes affects 589 million people worldwide who are between the ages of 20 and 79. This is equivalent to one in nine people on the planet. There are about 252 million people with diabetes who have not been diagnosed. Nearly 3.4 million deaths in 2024 were attributed to diabetes, according to the most recent data published in 2025.

Keywords: Diabetes Mellitus; Define; Causes of diabetes; Statistics.

Introduction:

Diabetes is a collection of long-term conditions that impact the body's utilization of glucose, or blood sugar, as its main energy source (1). The illness is brought on by insufficient insulin production or inefficient insulin utilization. The pancreas secretes the hormone insulin, which facilitates the uptake of glucose by cells (2).

The primary forms of diabetes are: Type 1 diabetes is an autoimmune condition where the immune system targets the pancreatic cells that produce insulin (3). Although it can happen at any age, it usually manifests in children or young adults. Daily insulin shots are necessary for people with type 1 diabetes (4).

The most prevalent kind, type 2 diabetes, is brought on by either insufficient insulin production or cell resistance to the hormone (5).

It is frequently linked to genetics, being overweight, and not exercising. It can be controlled with medication, exercise, diet, and occasionally insulin (6).

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Some pregnant women acquire gestational diabetes. It usually goes away after giving birth, but it raises the chance of type 2 diabetes in the future (7,8).

A family history of the illness, obesity or being overweight, inactivity, high blood pressure or cholesterol, aging, and smoking are risk factors. Among the possible issues are cardiovascular disease, nerve damage, kidney illness, eye difficulties and vision loss, foot ulcers, and circulation issues, which can all result from uncontrolled diabetes. Tests for glucose tolerance, glycated hemoglobin (HbA1c), and fasting blood glucose are typically used to make the diagnosis (9).

Depending on the type of diabetes, treatment and management may involve dietary changes, regular exercise, blood sugar monitoring, insulin injections, blood sugar-lowering drugs, and prevention. Maintaining a healthy weight, eating a balanced diet, exercising frequently, abstaining from smoking, and getting regular checkups can all help lower the risk of type 2 diabetes (10).

Causes of diabetes

The fundamental premise of diabetes is an issue with the body's production or utilization of insulin, though the causes differ depending on the kind (11). Causes of Type 1 Diabetes: The immune system targets the pancreatic cells that produce insulin (12).

Among the potential causes are inherited and genetic factors, Autoimmune diseases, certain viral infections that can activate the immune system, and unclear environmental factors (13). Type 2 diabetes is the most prevalent kind and is typically caused by insulin resistance and a slight decrease in insulin production. It is not typically directly linked to lifestyle choices or sugar consumption (14).

Overweight and obesity, particularly belly fat, inactivity, poor diet, a family history of diabetes, advanced age, high blood pressure, or lipid problems are important causes and risk factors. Chronic stress, sleep deprivation, and smoking are occasionally contributory causes (15).

The pancreas may still create insulin in this form, but the cells might not react to it well. Causes of Gestational Diabetes: Hormonal changes that impact insulin function cause it to happen during pregnancy (16).

The chance of getting it rises with being overweight prior to becoming pregnant, diabetes running in the family, Pregnancy at a relatively advanced age, and a prior history of gestational diabetes (17).

What damage does diabetes cause?

If blood sugar levels are not managed for a long time, diabetes can impact the majority of the body's organs (18). Chronically high blood sugar and its effects on blood vessels and neurons are frequently linked to damage (19). Diabetes's Short-Term Effects and Extremely High Blood Sugar (20).

Cause: Prolonged thirst, frequent urination, weariness and exhaustion, vision blurriness, Dehydrated (21).

In extreme circumstances, it may result in low blood sugar, hyperglycemic coma, and diabetic ketoacidosis, particularly in type 1 (22).

Sweating, tremors, dizziness, extreme hunger, loss of consciousness in difficult situations, and chronic damage from diabetes are some of the symptoms that can be brought on by insulin or specific drugs (23).

Heart attacks, strokes, high blood pressure, and atherosclerosis are all made more likely by cardiovascular disease and diabetes. One of the organs most impacted by diabetic problems is the heart (24).

Nerve damage, often known as diabetic neuropathy, can result in weakness or loss of feeling, burning or numbness in the hands and feet, Digestive issues, nerve discomfort, or even erectile dysfunction (25).

issues with the eyes, Diabetic retinopathy, blurred vision, cataracts, or glaucoma may result from this. loss of vision if treatment is not received.

Chronically elevated blood sugar especially affects the retina (26).

Foot Issues: Poor circulation and nerve injury can lead to the following: foot wounds, persistent infections, and delayed healing of wounds. In extreme circumstances, amputation can be required (27).

Increased Risk of Infection: Patients with diabetes are more likely to get gum disease, skin infections, urinary tract infections, fungal infections, and psychological effects. Diabetes can lead to stress, anxiety, and occasionally depression. Mental tiredness from the disease's everyday management (28).

Statistics on people with diabetes in 2025

According to the most recent global figures for 2025 and 2026, diabetes continues to be one of the chronic diseases with the fastest global growth. The International Diabetes Federation (IDF) and the 2025 edition of the Diabetes Atlas provide global statistics for 2025 (29).

Globally, 589 million persons between the ages of 20 and 79 have diabetes. This represents about 1 in 9 persons worldwide. Approximately 252 million people have diabetes but have not received a diagnosis. According to the most recent data released in 2025, diabetes was responsible for almost 3.4 million fatalities in 2024 (30).

Diabetes-related health costs have surpassed $1 trillion worldwide. If present trends continue, the number of individuals with diabetes is expected to increase to 853 million by 2050 (31).

2026 Statistics and Recent Developments: The World Health Organization (WHO) affirmed in 2026 studies and publications that diabetes rates are still rising worldwide, especially in the Middle East, Africa, and Southeast Asia (32).

There are about 85 million diabetics in the Middle East and North Africa, with a prevalence rate of almost 12.2% (33).

In the area, 44% of people with diabetes do not have a formal diagnosis. Approximately 9.5 million people worldwide are estimated to have type 1 diabetes in 2025–2026 (34).

According to media reports based on statistics from the International Diabetes Federation, negotiations started in 2026 about the official recognition of what is being named "Type 5 Diabetes," which is connected to chronic malnutrition and may impact some 25 million people globally (35).

The Arab World and the Middle East: The Middle East is one of the regions most plagued by diabetes, and several Gulf nations have some of the highest incidence rates worldwide (36).

Among the main causes of the increase in instances are modern eating habits, increased obesity, and a lack of physical activity (37).

Conclusions

One of the most common chronic illnesses in the world, diabetes is no longer only a personal health issue but also a global health and economic challenge. Statistics for 2025 and 2026 show that the number of people with diabetes is continuing to rise significantly, reaching over 589 million adults worldwide, and projections show that this number will rise even further in the ensuing decades.

The most common type of diabetes is type 2, which is strongly associated with contemporary lifestyle choices like obesity, physical inactivity, and poor eating habits. Many people with diabetes go undiagnosed; estimates place the number at over 250 million, raising the risk of major complications.

Diabetes is largely influenced by genetics, but there are other environmental, behavioral, and physical factors that can play a part. Diabetes complications can affect vital organs like the heart, kidneys, eyes, and nerves; therefore, early detection and blood sugar control are essential to minimize damage. The high rates of diabetes in the Middle East and North

Africa highlight the urgent need to promote health awareness and early prevention.

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Reference

1. Hamblin, P. S., Russell, A. W., Talic, S., & Zoungas, S. (2025). The growing range of complications of diabetes mellitus. Trends in Endocrinology & Metabolism, 36(10), 943-954.
2. Szablewski, L. (2025). Associations between diabetes mellitus and neurodegenerative diseases. International journal of molecular sciences, 26(2), 542.
3. Chen, X., Xie, N., Feng, L., Huang, Y., Wu, Y., Zhu, H., ... & Zhang, Y. (2025). Oxidative stress in diabetes mellitus and its complications: From pathophysiology to therapeutic strategies. Chinese Medical Journal, 138(1), 15-27.
4. Chen, S., Cao, Z., Chen, W., Zhao, J., Jiao, L., Prettner, K., ... & Bloom, D. E. (2026). The global macroeconomic burden of diabetes mellitus. Nature Medicine, 32(1), 126-138.
5. Zhuang, M., Wang, B., Shi, Y., & Zhou, Z. (2025). Multiorgan Regulation Mechanisms and Nutritional Intervention Strategies in Gestational Diabetes Mellitus. The Journal of Nutrition, 155(6), 1614-1626.
6. Aghaei, M., Bahreiny, S. S., Zayeri, Z. D., Davari, N., Abolhasani, M. M., & Saki, N. (2025). Evaluation of complete blood count parameters in patients with diabetes mellitus: a systematic review. Health Science Reports, 8(2), e70488.
7. Lee, J., Lee, N. K., & Moon, J. H. (2025). Gestational diabetes mellitus: mechanisms underlying maternal and fetal complications. Endocrinology and Metabolism, 40(1), 10-25.
8. Młynarska, E., Czarnik, W., Dzieża, N., Jędraszak, W., Majchrowicz, G., Prusinowski, F., ... & Franczyk, B. (2025). Type 2 diabetes mellitus: new pathogenetic mechanisms, treatment and the most important complications. International journal of molecular sciences, 26(3), 1094.
9. Yameny, A. A. (2025). Diabetes mellitus: a comprehensive review of types, pathophysiology, complications, and standards of care in diabetes 2025. Journal of Medical and Life Science, 7(1), 134-141.
10. Milan, K. L., Megha, B., & Ramkumar, K. M. (2025). Role of inflammasomes in diabetes mellitus: mechanisms, complications, and therapeutic potential. Molecular Biology Reports, 52(1), 621.
11. Wadivkar, P., Thomas, N., Jebasingh, F., Bacot-Davis, V. R., Maini, R., & Hawkins, M. (2025). Undernutrition-associated diabetes mellitus: pathophysiology of a global problem. Physiology, 40(5), 441-453.
12. Accili, D., Deng, Z., & Liu, Q. (2025). Insulin resistance in type 2 diabetes mellitus. Nature Reviews Endocrinology, 21(7), 413-426.
13. Kim, T., & Choi, S. H. (2025). Diabetes mellitus and infectious diseases: current evidence and clinical implications. Diabetes & metabolism journal, 49(5), 915-933.
14. Sattaru, K., Madhu, M. T., Singh, J. K., Kandi, V., Gupta, A., Ca, J., ... & SINGH, J. K. (2025). A comprehensive review of the effects of diabetes mellitus on the gastrointestinal system. Cureus, 17(1).
15. Almalki, W. H., & Khan, M. S. (2025). Burden of diabetes mellitus on health and economy of the Arab world: current situation and perspectives. Journal of Public Health, 1-20.
16. Olorunfemi, B. O., Ogunde, A. O., Almogren, A., Adeniyi, A. E., Ajagbe, S. A., Bharany, S., ... & Hamam, H. (2025). Efficient diagnosis of diabetes mellitus using an improved ensemble method. Scientific Reports, 15(1), 3235.
17. Ma, X., Liu, R., Xi, X., Zhuo, H., & Gu, Y. (2025). Global burden of chronic kidney

disease due to diabetes mellitus, 1990-2021, and projections to 2050. Frontiers in Endocrinology, 16, 1513008.

18. Pradhan, D., Sahu, P. K., Purohit, S., Ranajit, S. K., Acharya, B., Sangam, S., & Shrivastava, A. K. (2025). Therapeutic interventions for diabetes mellitus-associated complications. Current Diabetes Reviews, 21(8), e030524229631.
19. Ortega, H. I., Udler, M. S., Gloyn, A. L., & Sharp, S. A. (2025). Diabetes mellitus polygenic risk scores: heterogeneity and clinical translation. Nature Reviews Endocrinology, 21(9), 530-545.
20. Chen, Y., Liu, X., Liu, Y., Li, Y., Li, D., Mei, Z., & Deng, Y. (2025). Mitochondrial quality control in diabetes mellitus and complications: molecular mechanisms and therapeutic strategies. Cell Death & Disease, 16(1), 652.
21. Tomic, D., Harding, J. L., Jenkins, A. J., Shaw, J. E., & Magliano, D. J. (2025). The epidemiology of type 1 diabetes mellitus in older adults. Nature Reviews Endocrinology, 21(2), 92-104.
22. Tomic, D., Harding, J. L., Jenkins, A. J., Shaw, J. E., & Magliano, D. J. (2025). The epidemiology of type 1 diabetes mellitus in older adults. Nature Reviews Endocrinology, 21(2), 92-104.
23. Yuldasheva, K., Umurkulov, M., Xamraqulov, M., Karimjonov, F., & Mominjonova, L. (2026). Current Advances in Endocrinology, Diabetes Mellitus, Preventive Medicine, and Complications. International Journal of Clinical & Translational Medicine, 1(4), 17-24.
24. Ismail, L., & Materwala, H. (2025). IDMPF: intelligent diabetes mellitus prediction framework using machine learning. Applied Computing and Informatics, 21(1-2), 78-89.
25. Waqas, S. A., Aamir, J., Dani, S. S., Abramov, D., Virani, S. S., & Minhas, A. M. K. (2025). CDC WONDER: trends in diabetes mellitus mortality in the United States from 1968 to 2021. Diabetes Research and Clinical Practice, 221, 112012.
26. Yameny, A. Diabetes Mellitus Overview 2024. *Journal of Bioscience and Applied Research*, 2024; 10(3): 641-645. doi: 10.21608/jbaar.2024.382794
27. Sobhi, N., Sadeghi-Bazargani, Y., Mirzaei, M., Abdollahi, M., Jafarizadeh, A., Pedrammehr, S., ... & Acharya, U. R. (2025). Artificial intelligence for early detection of diabetes mellitus complications via retinal imaging. Journal of Diabetes & Metabolic Disorders, 24(1), 104.
28. Iheagwam, F. N., & Iheagwam, O. T. (2025). Diabetes mellitus: The pathophysiology as a canvas for management elucidation and strategies. Medicine in Novel Technology and Devices, 25, 100351.
29. Park, I. R., Chung, Y. G., & Won, K. C. (2025). Overcoming β-cell dysfunction in type 2 diabetes mellitus: CD36 inhibition and antioxidant system. Diabetes & Metabolism Journal, 49(1), 1-12.
30. Samiul, M., Mohi, M. K., Akter, F., Sohel, M., & Shankar, S. (2025). Association between hepatocellular carcinoma and diabetes mellitus. Journal of Primeasia, 6(1), 1-7.
31. Li, M., Ding, L., Cao, L., Zhang, Z., Li, X., Li, Z., ... & Wang, Z. (2025). Natural products targeting AMPK signaling pathway therapy, diabetes mellitus and its complications. Frontiers in Pharmacology, 16, 1534634.
32. Han, G., Hu, K., Luo, T., Wang, W., Zhang, D., Ouyang, L., ... & Yu, P. (2025). Research progress of non-coding RNA regulating the role of PANoptosis in diabetes mellitus and its complications. Apoptosis, 30(3), 516-536.
33. Hassan, A., Ahmad, S. G., Iqbal, T., Munir, E. U., Ayyub, K., & Ramzan, N. (2025). Enhanced model for gestational diabetes mellitus prediction using a fusion technique of multiple algorithms with explainability.

International Journal of Computational Intelligence Systems, 18(1), 47.

34. Nandiraju, S. K. K., Chundru, S. K., Vangala, S. R., Polam, R. M., Kamarthapu, B., & Kakani, A. B. (2025). Towards Early Forecast of Diabetes Mellitus via Machine Learning Systems in Healthcare. European Journal of Technology, 9(1), 35-50.
35. Zaky, H., Fthenou, E., Srour, L., Farrell, T., Bashir, M., El Hajj, N., & Alam, T. (2025). Machine learning based model for the early detection of Gestational Diabetes Mellitus. BMC Medical Informatics and Decision Making, 25(1), 130.
36. Li, H., Chen, C., Wang, Y., Yi, W., Guo, P., Yao, C., ... & Kang, S. (2025). A meta-analysis on application and prospect of cell therapy in the treatment of diabetes mellitus. Stem cell research & therapy, 16(1), 249.
37. Grattoni, A., Korbutt, G., Tomei, A. A., García, A. J., Pepper, A. R., Stabler, C., ... & de Vos, P. (2025). Harnessing cellular therapeutics for type 1 diabetes mellitus: progress, challenges, and the road ahead. Nature Reviews Endocrinology, 21(1), 14-30.