

# Emotional and Mental Health Impacts of Diabetes: An overview

Muhammad Adnan Haider<sup>1</sup>, Sidra Anwar<sup>2</sup>, Zainab Shabbir<sup>3</sup>, Nizwa Ishtiaq<sup>4</sup>, Samra Bashir<sup>5</sup> and Saleha Tahir<sup>5\*</sup>

1. Institute of Zoology, Punjab University, Lahore, Pakistan
2. Department of Biochemistry, The University of Faisalabad, Pakistan
3. Institute of Microbiology, Government College University Faisalabad, Pakistan
4. Department of Biochemistry, University of Agriculture Faisalabad, Pakistan
5. Institute of Microbiology, University of Agriculture Faisalabad, Pakistan

\*Corresponding Author: [salehatahir999@gmail.com](mailto:salehatahir999@gmail.com)

## ABSTRACT

Diabetes is a long-term metabolic disease that impacts an individual's intellectual, emotional, social, and physical well-being. Additionally, neglected mental health issues, which are particularly common in patients with diabetes, can have serious negative effects on the patient's social life and general well-being. The effects of psychological responses and uncontrolled mental distresses on general health are less well understood than the extensive studies on psychological treatments and diabetic management. Therefore, the recent study emphasizes the need for professional psychologists in addressing the mental and emotional requirements of patients with diabetes, diabetologists, and other mental health professionals play in helping these patients deal with their issues. By concentrating on current programs and activities, health care systems should be reinforced to enhance the provision of mental health treatment.

**Keywords:** Mental health, Diabetes, Management

**To cite this article:** Haider MA, S Anwar, Z Shabbir, N Istiaq, S Bashir & S Tahir. Emotional and Mental Health Impacts of Diabetes: An overview. *Biological Times*. 2024 November 3(11): 35-36.

### Introduction

It's common to draw a clear line between the mind and body, but when it comes to mental and physical health, they shouldn't be seen as distinct from one another. A person's physical health can have a direct impact on their mental health, which can raise their risk of mental health issues, and vice versa (1). The relationship between mental and physical health is frequently very complex, reciprocal, and reciprocal. Mental health problems can affect a person's wellness, sometimes because of neglecting their physical health, and physical health and disability difficulties can influence a person's mental health, frequently leading to stress, sadness, and even suicidal thoughts. Diabetes has a substantial impact on quality of life, emotional stability, and psychological resilience in addition to physical health issues. A persistently high blood glucose level brought on by a complete or partial lack of insulin is the hallmark of diabetes, a metabolic disease. Diabetes is a chronic condition that is significantly impacted by daily changes in nutrition, physical activity, infections, and stress. There are two primary forms of diabetes (2). Type 1 diabetes is characterized by a complete lack of insulin and is mostly caused by the autoimmune destruction of pancreatic  $\beta$ -cells. Insulin is necessary for people with type 1 diabetes to control blood sugar levels and avoid ketoacidosis. Insulin resistance, a condition in which the body reacts improperly to insulin produced by the pancreas, or a lack of insulin are the two main causes of type 2 diabetes (3). Obesity and sedentary lifestyles are significantly linked to almost 90% of cases of type 2 diabetes. Diabetes is known to put patients at high risk for psychological problems, which are already present in roughly half of cases when the patient is diagnosed. This is because, from the moment of diagnosis, there was a lot of stress in adjusting to the altered routine of life (including relationships, work-related, and financial concerns). Worldwide, diabetes impacts a vast number of individuals from many ethnic backgrounds, across all socioeconomic strata. A diabetes epidemic appears to be already underway, according to the existing data, which are predicated on the age-specific prevalence of diabetes being assumed to be constant (4). Diabetes control is difficult for many people, frequently due to psychological and social issues or associated mental illnesses. Unfortunately, inadequate management of diabetes has serious repercussions for the individual and, if left untreated, can lead to problems such as blindness, kidney failure, and even amputations. Diabetes management requires daily attention to these aspects, and the patient is the one best suited to handle the problem. Therefore, a comprehensive understanding of the illness, how it affects regular bodily processes, and the acute and long-term consequences are required (5). The diabetic patient can better care for themselves thanks to it. It has been demonstrated that improving health care and raising awareness of diabetes and its complications can improve the disease's long-term prognosis. Understanding diet and nutrition, as well as the scientific underpinnings of

biochemistry, physiology, and pathophysiology, is crucial to managing diabetes because the two conditions are closely related (6).

### The impact of diabetes on psychological well-being and quality of life

For patients, medical professionals, and health care systems in America and around the world, type 2 diabetes mellitus is a major concern. More often than those without diabetes, patients with type 2 diabetes mellitus display clinical and subclinical signs of anxiety and distress.

- **Diabetes distress**

The phrase "diabetes distress" was first used in noble studied in 1995 by a team of psychiatrists and psychologists at the Joslin Diabetes Centre (7). A notion that captured the psychological adaptations issues challenged by individuals with diabetes was identified as diabetes suffering. A bad emotional or affective experience brought on by the difficulty of managing the demands of diabetes, regardless of the type of diabetes, is specifically referred to as diabetes distress. Diabetic care has various facets, making diabetic distress a complex concept (2).

- **Anxiety**

A higher risk of psychological and physical problems, which both affect mortality, is linked to diabetes. In diabetes, anxiety is a crucial co-morbidity to look at. Higher anxiety symptoms and co-occurring anxiety disorders have been linked to higher diabetes symptom burden, higher diabetes complications, higher pain, worsened blood glucose, lower quality of life, higher depression, and greater disability in individuals with diabetes (8).

- **Quality of life issues in diabetes**

People with diabetes frequently feel overwhelmed by the demands of managing their condition daily. These expectations are also high. Every day, patients must manage their diabetes, making several choices in an often fruitless attempt to resemble a metabolic state free of diabetes (8). Insulin and other diabetes treatments can significantly impact quality of life in two ways: either favorably, by lowering symptoms of high blood sugar, for example, or negatively, by escalating symptoms of low blood sugar. Having diabetes can have a significant psychological impact, which can then have an impact on self-care practices, long-term glycemic control, the likelihood of long-term problems, and quality of life (9).

### Mechanisms of linking diabetes and mental health

Diabetic life can be complicated and frustrating. Regular medicine intake, rigorous dietary regimens, frequent blood glucose checks, and physical activity are all possible components of the daily routine.

- **Biological pathway**

A meta-analysis conducted in 2020 revealed that depression patients had higher levels of inflammatory markers than healthy controls, which supports a causal pathway (10). Higher levels of inflammatory cytokine treatment raised recurrent depressive symptoms, and inflammatory indicators predicted subsequent signs of depression. Type 2 diabetes is a severe metabolic disease that is common among older individuals.

Individuals with type 2 diabetes do, in fact, exhibit dysregulated interleukin (IL)-6 reactivity and elevated inflammatory levels following laboratory stress in comparison to those without the disease (10).

• **Social and Environmental Factors**

Observance to therapy for type 1 and type 2 diabetes mellitus involves daily insulin injections, complicated nutritional limitations, regular eye exams, daily exercise regimens, self-monitoring of blood sugar levels (regular or many times throughout the day), and medication use. Furthermore, since diabetes handle more than 90 percent of their routine care, patients' capacity to self-manage their health behavior is essential to diabetes management (11). Several experimental studies have revealed different consequences, indicating that patients' ability to control themselves might be seriously hampered by peer pressure. Research indicates that support from friends and family encourages adherence by promoting optimism and self-esteem, which can buffer the stress of being ill and reduce patient depression (11).

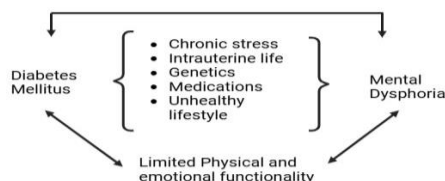


Fig. 1: Mechanism of linking diabetes and mental health

**Diabetes Management**

Although it is widely recognized that managing the emotional aspects of diabetes is crucial, there aren't many interventions that are explicitly developed to lessen diabetic misery. In order to reduce the risk of long-term consequences and to allow the diabetic to live a normal, well-adjusted life, the goal of diabetes management is to attain optimal blood glucose control (12).

• **Psychosocial interventions**

Speaking one-on-one with a diabetic caregiver is the first step in resolving diabetes stress. Decreased diabetes misery, better results, increased wellness, and greater confidence in adhering to advice are all linked to individual assessments of efficient interaction and pleasant interactions with physicians. Experiments conducted worldwide show that increased use of cooperative and supportive conversational features is a sign of efficient interaction. According to patients, collaborating treatment entails listening to one another, exchanging ideas, deciding on quantifiable objectives, and helping one another reach those objectives (13).

• **Pharmacological agents**

Metformin and insulin were the only medicines authorized by the European Medicines Agency (EMA) and the US Food and Drug Administration (FDA) for the treatment of diabetes in children and young people for a number of years (14). The biguanide Metformin decreases hepatic glucose synthesis and increases insulin mediated glucose absorption in peripheral tissues, which lowers blood sugar levels. Additionally, it has been shown to help with mild weight loss, albeit only temporarily. Conversely, individuals with T2DM who exhibit significant hyperglycemia along with ketosis or ketoacidosis, or who exhibit a combination of T1DM and T2DM symptoms, are initially treated with insulin treatment (14).

• **Antidepressant medications**

Currently, Canada offers well over 20 different antidepressants. Anxiety disorders, obsessive-compulsive and related disorders, trauma and stressor-related disorders, and feeding and eating disorders are among the many Health Canada-approved indications for these adaptable drugs, which primarily affect monoamine transmission (serotonin, norepinephrine, or dopamine) (15).

• **Guidance on Self-Care**

The ability to manage the clinical and psychological effects of having diabetes is what self-care means. As a result, self-care education should focus on improving understanding of the mental and physical consequences

of diabetes as well as developing the abilities and drive required for the best possible glucose control and emotional regulation (12). The burden of diabetes can be lessened, and psychological distress can be decreased by self-efficacy in blood glucose monitoring, eating a good diet, staying active, taking medication as prescribed, and abstaining from bad habits. To do this, highly qualified medical personnel must give each patient personalized guidance that will make them self-assured and competent to handle both psychological and physical difficulties (12).

**Conclusion**

Diabetes-specific emotional disturbances and mental health problems are among the psychological conditions that patients with type 1 and type 2 diabetes are susceptible to due to their demanding biological and psychosocial obstacles. Emotional distress and mental health conditions are linked to a higher risk of glucose dysregulation and poor outcomes from diabetes. The consequences for therapeutic practice are profound. Diabetes management professionals should have the necessary skills to effectively recognize and address the relationship between diabetes and mental health in the current holistic care setting. Many of the conventional care approaches must be improved for this reason, which calls for creative clinical approaches. Diabetes patients are being treated with much more than just appropriate anti-hyperglycemic medication and lifestyle instruction. Patients should be given strategies to manage the psychological effects of diabetes as part of their treatment programs.

**References**

- [1] Greenberg, N. (2020). Mental health of health-care workers in the COVID-19 era. *Nature Reviews Nephrology*, 16(8), 425–426. <https://doi.org/10.1038/s41581-020-0314-5>
- [2] Mangoulia, P., Milionis, C., Vlachou, E., & Ilias, I. (2024). The Interrelationship between Diabetes Mellitus and Emotional Well-Being: Current Concepts and Future Prospects. *Healthcare (Switzerland)*, 12(14). <https://doi.org/10.3390/healthcare12141457>
- [3] Rosengren, A., & Dikaoui, P. (2023). Cardiovascular outcomes in type 1 and type 2 diabetes. *Diabetologia*, 66(3), 425–437. <https://doi.org/10.1007/s00125-022-05857-5>
- [4] Russo, M. P., Grande-Ratti, M. F., Burgos, M. A., Molaro, A. A., & Bonella, M. B. (2023). Prevalence of diabetes, epidemiological characteristics and vascular complications. *Archivos de Cardiología de Mexico*, 93(1), 30–36. <https://doi.org/10.24875/ACM.21000410>
- [5] Velázquez López, L., Muñoz Torres, A. V., Medina Bravo, P. G., & Escobedo de la Peña, J. (2023). Inadequate diabetes knowledge is associated with poor glycemia control in patients with type 2 diabetes. *Atencion Primaria*, 55(5). <https://doi.org/10.1016/j.aprim.2023.102604>
- [6] Villacéja, J., Luque, B., Castillo-Mayén, R., Farhane-Medina, N. Z., & Taberner, C. (2023). Influence of Family Social Support and Diabetes Self-Efficacy on the Emotional Wellbeing of Children and Adolescents with Type 1 Diabetes: A Longitudinal Study. *Children*, 10(7), 1–12. <https://doi.org/10.3390/children10071196>
- [7] Nhlabatsi, M. L., Van Teijlingen, E. R., & Hundley, V. A. (2024). Clinicians' Barriers to Screening and Diagnosing Diabetes Distress in Patients with Type 1 and 2 Diabetes Mellitus: A systematic review. *African Journal of Health Sciences*, 36(5), 493–504. <https://doi.org/10.4314/ajhs.v36i5.2>
- [8] Dzięwa, M., Bańka, B., Herbet, M., & Piątkowska-Chmiel, I. (2023). Eating Disorders and Diabetes: Facing the Dual Challenge. *Nutrients*, 15(18). <https://doi.org/10.3390/nu15183955>
- [9] Abbas, Q., Latif, S., Ayaz Habib, H., Shahzad, S., Sarwar, U., Shahzadi, M., Ramzan, Z., & Washdev, W. (2023). Cognitive behavior therapy for diabetes distress, depression, health anxiety, quality of life and treatment adherence among patients with type-II diabetes mellitus: a randomized control trial. *BMC Psychiatry*, 23(1), 1–13. <https://doi.org/10.1186/s12888-023-04546-w>
- [10] Neupane, S. P., Daray, F. M., Ballard, E. D., Galfalvy, H., Itzhaky, L., Segev, A., Shelef, A., Tene, O., Rizk, M. M., Mann, J. J., & Zalsman, G. (2023). Immune-related biomarkers and suicidal behaviors: A meta-analysis. *European Neuropsychopharmacology*, 75, 15–30. <https://doi.org/10.1016/j.euroneuro.2023.05.009>
- [11] Amirudin, N., Panting, A. J., Kassim, R., Mohamed Aiman, S. N., & Ithnain, N. (2023). Identifying Information, Motivation & Behavioral Factors and Its' Relation to Diabetes Self-Care: A Qualitative Study among People with T2DM. *International Journal of Nursing and Health Services (IJNHS)*, 6(4), 280–291. <https://doi.org/10.35654/ijnhs.v6i4.745>
- [12] Yedjou, C. G., Grigsby, J., Mbemi, A., Nelson, D., Mildort, B., Latinwo, L., & Tchounwou, P. B. (2023). The Management of Diabetes Mellitus Using Medicinal Plants and Vitamins. *International Journal of Molecular Sciences*, 24(10). <https://doi.org/10.3390/ijms24109085>
- [13] Harry, A. J., Roberts, A. G., Crosby, N. E., Shoneye, C., & Bebbington, K. (2023). Experiences and Attitudes of Parents Reducing Carbohydrate Intake in the Management of Their Child's Type 1 Diabetes: A Qualitative Study. *Nutrients*, 15(7), 1–11. <https://doi.org/10.3390/nu15071666>
- [14] Tamborlane, W., & Shehadeh, N. (2023). Unmet Needs in the Treatment of Childhood Type 2 Diabetes: A Narrative Review. *Advances in Therapy*, 40(11), 4711–4720. <https://doi.org/10.1007/s12325-023-02642-7>
- [15] Ghanbarian, S., Wong, G. W. K., Bunka, M., Edwards, L., Cressman, S., Conte, T., Price, M., Schuetz, C., Riches, L., Landry, G., Erickson, D., McGrail, K., Peterson, S., Vijh, R., Hoens, A. M., Austin, J., & Bryan, S. (2023). Cost-effectiveness of pharmacogenomic-guided treatment for major depression. *CMAJ. Canadian Medical Association Journal*, 195(44), E1499–E1508. <https://doi.org/10.1503/cmaj.221785>