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Association between diabetes and depression: A narrative review

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Abstract

Background: A major global health concern, diabetes mellitus affects 422 million people worldwide, with a higher prevalence in low- and middle-income nations. At almost 74 million diagnosed cases, India comes in second. Incidences as grave as neuropathy and cardiovascular disease are associated with the increasing frequency. Comorbid depression is a serious but largely disregarded problem that affects up to 38% of people in India who have type 2 diabetes and has a substantial negative influence on quality of life. Social and clinical factors such as age, gender, and glycemic control influence the association between diabetes and depression. Inflammatory reactions and lifestyle decisions also play a role in this link. For better health results, this co-occurrence must be addressed. Tailored therapies are needed as the burden of both illnesses increases, especially in developing nations.

Methods: A Comprehensive literature search was conducted, which were sourced google scholar, PubMed, WHO website, international diabetes federation.

Conclusion: Diabetes and depression have a significant and complex relationship that affects millions of people worldwide, but particularly in places like India. Diabetes and depression frequently coexist, and the course of each condition is adversely affected by the other. Since each disorder appears to function in longitudinal research as both a risk factor and a consequence for the other, the direction of causality is unclear. diabetes is becoming a more widespread public health concern, improving the quality of life and general well-being of this group will depend on recognizing and treating the co-occurrence of depression. For data to inform best practices in healthcare delivery, future research should concentrate on creating tailored interventions and comprehending the complex dynamics of this crucial link.

Keywords: Diabetes; Depression; Prevalence; Mental health.

1. Introduction

The International Diabetes Federation states that one of the biggest worldwide health emergencies of the twenty-first century is diabetes. One in eleven persons globally had diabetes in 2015, and one in fifteen adults were projected to have impaired glucose tolerance.(1) India is the nation with the second-highest number of diabetes cases.(2) Diabetes patients are more likely to develop consequences such neuropathy, retinopathy, cardiovascular disease, and diabetic foot disease. Furthermore, psychological issues including sadness and anxiety are frequently experienced and have an adverse effect on daily functioning and psychosocial life, both of which lower quality of life [QoL].(3) Despite estimates from the World Health Organization that 4.5% of Indians suffer from depression, a recent meta-analysis revealed that 38% of patients in India with type 2 diabetes also had depression. In India, more than 74 million persons suffer from diabetes.(4) Previous research revealed that individuals with type 2 diabetes have a high prevalence of depression. Predictors of depression in this community, particularly among Indians, are not well understood, yet. A number of clinical and sociodemographic variables, including age, gender, weight, length of disease, glycemic control, kind of antidiabetic medicine, drug compliance, and many more, are predictive of depressed illness. Diabetic psychosocial

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element has been found to be significantly correlated with the length of diabetes and the complications that accompany it.(5) Depression is a significant mental health issue that is not yet acknowledged as a significant public health concern.(6)

1.1. Prevalence of diabetes

Approximately 422 million individuals globally suffer from diabetes, with the majority residing in low- and middle-income nations. The disease is directly responsible for 1.5 million fatalities annually. Over the past few decades, there has been a steady increase in both the number of cases and the incidence of diabetes(7) According to estimates from 2019, there were 77 million diabetics in India; by 2045, that number is predicted to reach over 134 million. Of these people, over 57% are still undiagnosed. Microvascular and macrovascular complications are two categories of multiorgan complications that can result from type 2 diabetes, which makes up the majority of cases.(8) Tamil Nadu, the adjusted prevalence of diabetes (including newly diagnosed and known cases) was 10.4%.(9) Globally, diabetes is affecting a growing percentage of pregnancies. In 2015, pregnancy-related hyperglycemia affected over 21 million births (16.2%). Mothers with type 1 or type 2 diabetes, either newly diagnosed or pre-existing, accounted for about 10% to 15% of these births; the remaining 85% to 90% of the women had gestational diabetes mellitus (GDM).(10)

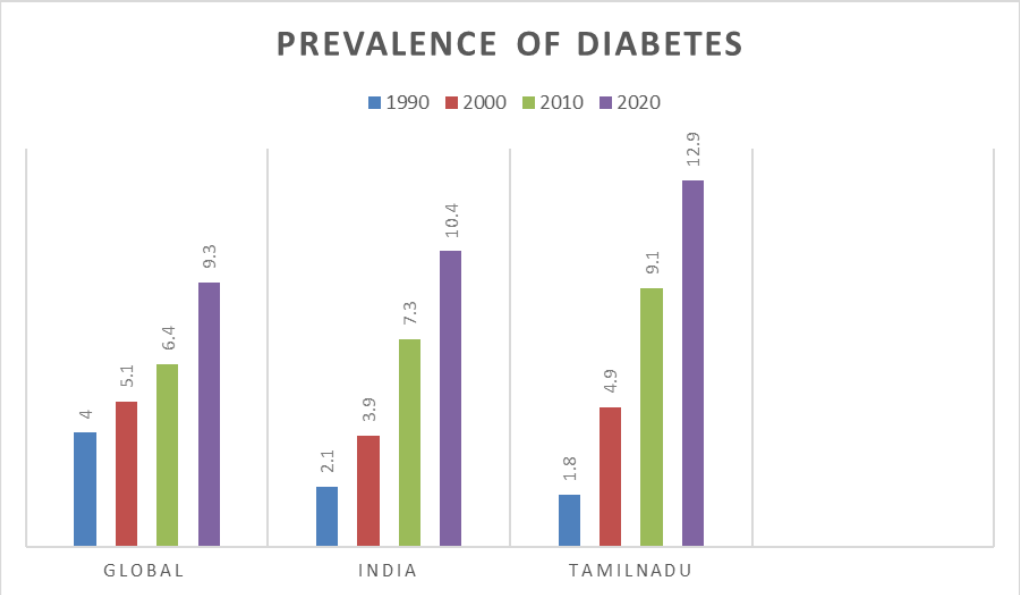

Figure 1 Prevalence of diabetes

1.2. Risk factors of Diabetes

1.Genetic History

2.Life style

3.Diet

4.Stress & sleep

5.Medical condition

6.obesity

1.3. Types of Diabetes

1.Type 1 Diabetes

2.Type 2 Diabetes

3.Gestational Diabetes

4.Monogenic,Pancreatic, Drug Induced Diabetes etc.

1.4. Prevalence of depression

Globally 3.8% of people in the population are thought to suffer from depression; this includes 5.7% of individuals over 60 and 5% of adults (4% of males and 6% of women), depression affects over 280 million individuals. The prevalence of depression is almost 50% higher in women than in males. More than 10% of expectant mothers and recent mothers experience depression globally.(11) According to the National Mental Health Survey conducted in 2015–16, one in every 20 Indian people has depression, and approximately 15% of Indian individuals require active intervention for one or more mental health conditions. Over 258 000 suicides are thought to have occurred in India in 2012, with the 15–49 age group being the most impacted.(12) According to WHO estimates, 7% of older people experience unipolar depression.(13) It is estimated that 15% of women may experience depression at some point in their lives, with pregnancy and the postpartum period being the most common times(14) In a recent research, the World Health Organization stated that 38 million Indians, or 3.5% of the population, suffer from anxiety disorders, while 56 million Indians, or 4.5% of the population, suffer from depression.(15)

1.5. Risk factors of Depression

Individual Risk Factors

1.Family history of depression

2.Traumatic events

3.chronic illness (Diabetes and cancer)

Social and Environmental Risk Factors

1.Social Isolation

2.Chronic stress

3.lack of Social support

4.Significant life challenges

1.6. Correlation between diabetes and depression

Diabetes mellitus (DM) in particular, as well as other chronic medical conditions generally include depression as a co-morbid condition. A complex co-morbid disease resulting from intricate interplay between bio-psycho-social and genetic variables is depression in people with diabetes mellitus.(16) Depression may have a role in raising the death rate from diabetes, as evidenced by its link to poor glycemic control and an increase in diabetic complications.(17) Depression symptoms may be directly caused by proinflammatory cytokines in the brain. Insulin resistance, heart disease, depression, an increased chance of type 2 diabetes, and an increased risk of dying can all result from it.(18) Excessive levels of inflammatory cytokines trigger the development of type 2 diabetes by interacting with pancreatic β-cells and reducing insulin sensitivity. Depression sufferers have worse control over their diabetes because they are more likely than non-depressed people to engage in unhealthy eating behaviors like consuming refined sugar and

saturated fat instead of eating a balanced diet that includes fruits and vegetables.(19) It is unlikely that an elementary stress-disease model can adequately explain the relationship between depression and diabetes complications (including the upsetting experience of managing diabetes). Common risk variables are more likely to function via several biological processes. synthesis of cytokines by cells, which can affect the hypothalamic-pituitary-adrenal (HPA) axis, cause various illnesses, and cause insulin resistance, or type 2 diabetes.(20)Although diabetes itself doesn't directly cause depression, its symptoms may contribute to the development of the condition.(21)

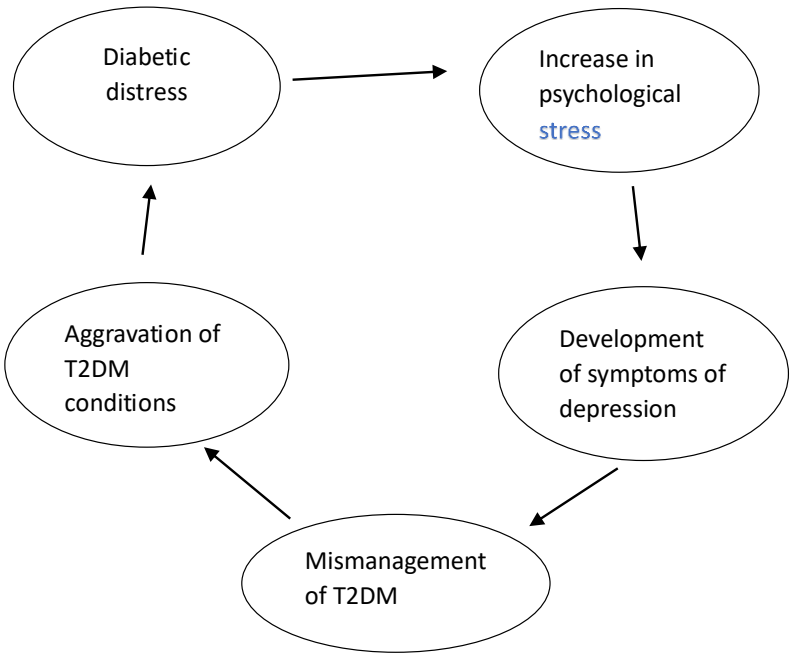

Figure 2 Pathophysiology link between Diabetes and Depression.

1.7. Prevention and control

The most effective strategy to stop type 2 diabetes is to modify one's lifestyle. Achieving and maintaining a healthy body weight is important for preventing type 2 diabetes and its complications. Maintain an active lifestyle by engaging in at least 30 minutes of moderate exercise, eating a nutritious food, abstaining from sweets and saturated fat, and quitting smoking. In order to prevent depression from getting worse, try to continue engaging in the activities you used to enjoy, maintain relationships with friends and family, exercise frequently—even if it's only a quick walk—avoid or minimize alcohol use, and refrain from using illegal drugs. Discuss your feelings with a trusted person and get medical assistance.(22)

2. Conclusion

Diabetes and depression have a significant and complex relationship that affects millions of people worldwide, but particularly in places like India. Diabetes and depression frequently coexist, and the course of each condition is adversely affected by the other. Since each disorder appears to function in longitudinal research as both a risk factor and a consequence for the other, the direction of causality is unclear. diabetes is becoming a more widespread public health concern, improving the quality of life and general well-being of this group will depend on recognizing and treating the co-occurrence of depression. For data to inform best practices in healthcare delivery, future research should concentrate on creating tailored interventions and comprehending the complex dynamics of this crucial link.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest is to be disclosed.

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