In Brief

Patients with type 1 or type 2 diabetes are two times more likely to experience depression than their peers without diabetes. Comorbid depression results in deleterious effects on glycemic control, worsened diabetes complications, functional disability, and premature mortality. Once identified, depression can be effectively treated with antidepressant medications, psychotherapy, or a combination of both. Patients and providers should monitor depressive symptoms to identify their recurrence and work collaboratively to address barriers to care that exist in both urban and rural areas.

Depression Among Adults With Diabetes: Prevalence, Impact, and Treatment Options

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During the past 30 years, a mounting body of evidence has demonstrated that depression is a significant comorbid condition for patients with type 1 or type 2 diabetes. Patients with diabetes have been found to be two times more likely to experience depressive symptoms than their peers without diabetes.[1] Rates of elevated depressive symptoms have been found to range from 21 to 27% in type 1 diabetes and type 2 diabetes, respectively, with lower rates (11.4%) observed in studies using psychiatric interviews in which symptoms attributable to other causes can be evaluated.[1] In addition to higher depression rates among those already diagnosed with diabetes, multiple prospective studies have documented that a lifetime history of depression increases the risk of developing type 2 diabetes later in the life cycle.[2–5]

Impact of Depression and Diabetes

Depressive symptoms have been shown to be associated with worsened blood glucose levels[6] and diabetes complications[7] such as coronary heart disease.[8] There is increasing evidence that significant additional functional, fiscal, and psychological costs are associated with depression in patients with diabetes.[9–12] Several studies have documented decreased adherence to diet, exercise, and medication regimens associated with depression among adults with diabetes.[9–11] Medical costs associated with moderate to severe levels of depression have also been found to be 51–86% higher than among patients reporting low levels of depression.[11] Patients with diabetes and depression have been found to have 4.5 times higher medical expenditures than patients with diabetes alone. Patients with comorbid depression also have higher ambulatory care use and fill more prescriptions.[12]

Comorbid depression has also been shown to have a significant impact on functional disability. Data from the National Health Interview Study have shown that individuals with diabetes and comorbid depression are 7.15 times more likely to experience functional disability (i.e., impairment in work or social activities) compared to peers with either condition alone.[13] Simon et al.[14] found that > 50% of patients diagnosed with both conditions in a health maintenance organization population reported unemployment.

Finally, comorbid depression and diabetes have been found to increase the risk of early mortality 2.3 times compared to nondepressed patients with diabetes.[15] Zhang et al.[16] reported a 54% increased risk of early mortality among patients reporting elevated depression scores. As Lin et al.[17] have recently documented, causes of mortality in this vulnerable population extend beyond cardiovascular disease to the full range of diseases and disorders.

Depression Treatment for People With Diabetes

Despite the significant costs of comorbid depression and diabetes, traditional treatment approaches such as psychotherapy and antidepressant medications have been found to be efficacious in treating depression in the short term. Lustman et al.[18] conducted the benchmark randomized, controlled trial for cognitive behavioral therapy (CBT) in patients with comorbid depression and diabetes. In this study, 70.8% of patients randomized to the CBT treatment compared to 22.2% of patients in the control group were in depression remission at post-treatment assessment. At 6-month follow-up assessments, depression remission was evident in 66.6% of patients in the CBT group compared to 29.6% in the control group. Treatment responsiveness appeared to be associated with severity of depression and A1C at baseline.[18,19] Improvements in glycemic control were observed among patients receiving CBT 6 months after completion of treatment.

Problem-solving therapy as an integrated treatment within the primary care setting has also been shown to be efficacious.[20] Participants in the Pathways study who were randomized to a stepped-care problem-solving therapy intervention reported higher levels of treatment exposure and satisfaction with care and improved depression outcomes compared to patients in the usual-care group. In this study, improvements in glycemic control were not observed immediately after care or at 6- or 12-month follow-up assessments.[20]

Randomized, controlled trials have demonstrated the efficacy of antidepressant medications on depression outcomes in type 1 and type 2 diabetic patients. In a randomized trial, nortryptiline was found to improve depression compared to placebo with hyperglycemic effects observed at post-treatment.[21] A variety of studies have examined the efficacy of selective serotonin reuptake inhibitor medications, including fluoxetine, sertraline, paroxetine, and buproprion.[22–26] All have been shown to be effective in reducing depressive symptoms with either hypoglycemic (e.g., fluoxetine, buproprion) or euglycemic (paroxetine) effects.

Challenges to Treatment Outcomes: Access to Care and Depression Relapse

Although treatment has been shown to be efficacious, challenges remain that contribute to health outcomes for patients with diabetes and depression. One challenge is access to mental health treatment, which includes significant delays in reaching administrative staff to discuss and schedule appointments in urban areas[27] and limited numbers of providers in rural areas.[28] Even when traditional treatment options are implemented that make use of the primary care medical system in underserved rural areas, barriers to adoption and implementation, including patient refusal of treatment, limited provider engagement, and difficulty training staff, pose threats to building treatment capacity in rural areas.[29] Among ethnic and racial groups, disparities in access and unique cultural barriers to quality care, including language translation, cultural understanding on the part of providers, and availability of a limited number of providers, pose even greater challenges to seeking and obtaining adequate mental health treatment.[30]

Relapse of depressive symptoms also remains a challenge for patients and providers. In a longitudinal cohort of men and women with type 1 or type 2 diabetes, Lustman et al.[31] found that 92% of individuals who had been successfully treated for major depression experienced a relapse of one or more episodes during a 5-year follow-up period. Depressive symptoms also appear to be persistent over time. Studies of type 2 diabetic patients have shown that between 70 and 77% of individuals reporting elevated depressive symptoms at a baseline survey continued to report depressive symptoms up to 18 months later.[32,33] In contrast, epidemiological data of episode duration of major depressive disorder in the general population has noted an average duration of 8–12 weeks.[34] Additional data are needed to further characterize the long-term pattern of depression for people with diabetes.

Addressing the Challenges: Screening and Supporting Treatment

Taken together, these challenges highlight the need to work effectively and creatively within current health care settings to identify depression and support its treatment. The existence of significant discrepancies between observed rates of clinically significant depressive symptoms and diagnosis among primary care providers[35] points to the need for thoughtful and efficient screening of patients so that a dialogue about treatment may begin. In addition, studies documenting high rates of depression relapse suggest the need for routine monitoring and management of symptoms beyond depression treatment to effectively treat recurrent depression symptoms.

A variety of tools are available to screen patients for the presence and severity of depression, including self-report questionnaires and brief clinical interview questions. Tools such as the Patient Health Questionnaire–9[36] and the Beck Depression Inventory[37] may be incorporated into the beginning of a clinic visit or used interactively with a health care provider or staff member. Brief interpersonal questions such as those found on the two-item version of the Patient Health Questionnaire[38] can be used by providers to query patients about changes in mood during the past 2 weeks or since the last visit.

Such screening should be conducted in conjunction with staff-assisted diagnosis, treatment, and follow-up care as recommended by the U.S. Preventive Services Task Force.[39] For example, patient questionnaires should be reviewed before completion of the patient visit so that responses indicating severe levels of depressive symptoms or indications of suicidal intent or plan can be further assessed and addressed promptly and directly with the patient. Provider practices that engage in screening should train staff in notification and referral protocols so that patients' needs for immediate care can be met.

Once screening has taken place, providers have an opportunity to discuss with their patients the relationship between diabetes and depression and to review treatment options. This dialogue, however brief, serves multiple

purposes: to validate the importance of presenting mood symptoms to the medical encounter, educate patients about the impact of depression on diabetes self-management and outcomes, provide an opportunity for patients to express concerns about depression treatment and feelings of stigma, and empower patients to report changes in mood symptoms during future visits to facilitate follow-up assessment and treatment.

Finally, barriers to depression treatment can be addressed, in part, through integrated approaches to diabetes health care. The Pathways study[20] has provided one model for integrated care in which trained nursing staff provided problem-solving therapy to depressed patients within a primary care setting. Primary care psychology has emerged as a subfield that provides a variety of models of coordinated patient care for mental health and medical issues. Models range from curbside consultation to fully integrated care in which psychologists work side by side with medical providers to provide consultations and treatment on a part- or full-time basis.[40] Providers and health care systems can work creatively to lower barriers to care within the organizational, historical, and functional context of their practices.

Summary

During the past 30 years, findings from studies of the prevalence and impact of depression in people with diabetes have documented significant adverse effects of depression on morbidity and mortality when both conditions are present. Fortunately, conventional treatments for depression such as antidepressant medications and cognitive behavioral therapy have been shown to be effective in treating depression in people with diabetes. Challenges remain for providers and patients to be more aware of depressive symptoms. The inclusion of established depression screening protocols in diabetes clinical management pathways would increase provider awareness, screening, and psychological referral. These steps could result in earlier detection and initiation of depression treatment. These steps can also facilitate open dialogue between patients and their providers to overcome the attitudinal and logistical barriers to depression treatment and encourage careful monitoring of patients beyond treatment to reduce the potential impact of depression relapse. Further research is needed to continue to develop effective and accessible treatment options for patients to manage persistent mood symptoms.

Acknowledgment

Funding for this article was provided by the National Institutes of Health R34DK7154.

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