Psychological comorbidity in diabetes mellitus—need for early recognition and treatment

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Both diabetes and psychiatric disorders are common, and it is also known that each condition may worsen the other. Since they also frequently coexist, it is important to recognize the adverse impacts that each has on the other in order that both these conditions can be managed effectively and successfully. It is important to understand this two-way link between stress and psychological comorbidity on the one hand and diabetes on the other. Management of diabetes will always be incomplete and difficult without addressing the associated anxiety, depression, and diabetic distress.

The prevalence of depression and anxiety in diabetes is much higher than in normal population [1] and has been reported to be in the range of 12 and 28% in some studies. Prevalence of anxiety and depression among patients with type 2 diabetes was found to be 58 and 45% respectively from Pakistan. Another study reported major depression in 11% [2] and clinically important depressive symptoms in 31% of people with diabetes. Depression symptoms mimic diabetes symptoms and may sometimes make diagnosis difficult [3].

The risk factors for depression among diabetic patients include female sex, long duration of diabetes, presence of complications, poor glycemic control, family history of depression, and lower education levels. Depression may also be related to the complexities in management of diabetes particularly type 1 diabetes or may be secondary to diabetes-related distress. It is important that depression and its causative factors are identified early and eliminated in people with diabetes as those can lead to a far more effective control of their glycemia.

While the association of depression and diabetes is well recognized and deservedly so, the study from Pakistan and a

recent study from India [4] highlight the fact that anxiety disorders may be more common in diabetic patients. The prevalence rate of generalized anxiety disorder (GAD) is three times higher than that reported in the general population. Anxiety was reported in 58% of diabetic patients from Pakistan, while the study from New Delhi reported that among diabetic women from India, anxiety (23–40%) appears more prevalent than depression (18%) [4], especially during the first 2 years after diagnosis. Anxiety disorders and hypoglycemic episodes share clinical features such as sweating, anxiety, tremor, tachycardia, and confusion, and they can sometimes cause difficulties in diagnosis [3]. It can also lead to a failure on the part of the patient to perceive the initial warning signs of hypoglycemia or to confuse these with anxiety. Anxiety disorders should receive more attention as a potential source of comorbidity with diabetes, and screening for anxiety among people with diabetes should be carried out regularly.

The current issue includes four studies which have reported on the association of various psychosocial factors including anxiety disorders and depression and their determinants in patients with diabetes. The study by Nawaz et al. [5] from Pakistan found a high percentage of type 2 diabetic patients with associated anxiety. While 66.5% of these patients were diagnosed with mild anxiety, about 21.1% were reported suffering from moderate to severe anxiety based on the Hamilton Anxiety Rating Scale. Poor glycemic control, female gender especially if they were housewives, lower education levels, higher levels of physical activity, and presence of a diabetic patient in the family were associated with anxiety among type 2 diabetic subjects. In another study being published in this issue, Atif et al. [6] from Pakistan also report high levels of depression and mild cognitive impairment among elderly diabetic subjects. Depression is reported as the most important predictor of mild cognitive impairment in these patients, reinforcing the view that it is important to recognize and treat depression in diabetic patients. Emre et al. [7] also report a high prevalence of anxiety and depression in diabetic patients who also had hypertension in their primary care settings which

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adversely impacted both blood pressure and blood sugar control. The impact of psychosocial factors on glycemic control was assessed by Aghili et al. [8] who report higher rates of distress, depression, and anxiety in insulin-experienced diabetic patients compared to those who were insulin-naïve. These patients also had higher HbA1C levels suggesting poorer control of glycaemia. All these studies appearing in this issue highlight the need for early identification of psychological comorbidity in patients with diabetes particularly if they are elderly, have coexistent hypertension, and are taking insulin.

Both depression and anxiety have been found to be associated with a negative impact on diabetes. The psychosocial impact of diabetes has been recognized as a stronger predictor of mortality in diabetic patients than many clinical and physiological variables [9]. The prognosis of both diabetes and depression (in terms of complications, treatment resistance, and mortality) is worse when the two diseases occur in the same patient. Also, higher complication rates particularly coronary heart disease have been reported among diabetic subjects with coexistent depression [10]. Similarly, children with diabetes have a higher risk of retinopathy if there is associated depression [11] and depression has been more commonly reported in diabetes patients with erectile dysfunction and diabetic foot disease [12].

Self-management is an essential component of diabetes care. The presence of comorbid psychiatric illness can make self-management difficult to implement. Depression can affect compliance with insulin and oral medications, as well as with diet and exercise and monitoring of blood glucose [1]. Specific psychological approaches to improve the therapeutic adherence may be required.

Diabetes distress is very common among patients and is distinct from other psychological disorders. It is defined as significant negative psychological reactions related to emotional burdens and worries specific to an individual's experience in having to manage a severe, complicated, and demanding chronic disease such as diabetes. It is recommended that people with diabetes should be routinely monitored for diabetes distress, particularly when treatment targets are not met and/or at the onset of diabetes complications [13].

In a recent study, it was reported that despite living with poorly controlled diabetes, Indian women maintain participation in culturally valued roles involving the care of others. Significant biosocial stress was reported among them that could compromise diabetes self-care [14]. It is important to develop culturally sensitive diabetes management strategies that allow women to successfully manage their diabetes while being able to perform their social and family roles.

It has also been reported that depressed individuals have a 60% increased risk of developing diabetes [15]. This could be partly due to the associated reduced physical activity which increases the risk for obesity and type 2 diabetes [1] but also due to altered neuro endocrine responses.

Chronic Stress is a significant risk factor for the development of type 2 diabetes. Two cross-sectional studies [16, 17] have demonstrated the association of chronic stress at work with metabolic syndrome and diabetes while one prospective cohort study [18] has confirmed the same. It has also been shown that chronic stress and stress response markers are associated with risk of diabetes [19] and that chronic activation of HPA axis is an important link between stress and development of diabetes mellitus [19, 20]. Thus, diabetes, stress, and depression are closely linked to each other and each of these increases the risk for the other.

The close association of psychiatric disorders and diabetes throws up important management issues among diabetic patients that have an important bearing on long-term prognosis. It is therefore recommended by the American Diabetes Association that psychosocial care should be provided to all people with diabetes, with the goals of optimizing health outcomes and QOL [14]. It has also been recommended that assessment for symptoms of diabetes distress, depression, anxiety, and other psychiatric disorders should be done at the initial visit and at periodic intervals for better diabetes care.

References

1. Cathy E. Lloyd, Norbert Hermanns, Arie Nouwen, Frans Pouwer, Leigh Underwood, Kirsty Winkley. The epidemiology of depression and diabetes. 2010. <https://doi.org/10.1002/9780470667309>.
2. de Groot M, Anderson R, Freedland KE, Clouse RE, Lustman PJ. Association of depression and diabetes complications: a meta-analysis. *Psychosom Med*. 2001 Jul-Aug;63(4):619–30.
3. Hellman R, Ciechanowski P. Diabetes and depression: management in ordinary clinical conditions. 2010. <https://doi.org/10.1002/9780470667309>.
4. Weaver LJ, Madhu SV. Type 2 Diabetes and Anxiety Symptoms among women in New Delhi, India. *Am J Public Health*. 2015 Nov;105(11):2335–40. <https://doi.org/10.2105/AJPH.2015.302830>.
5. Nawaz MS, Shah KU, Rashid HU, Mahmood S, Bukhsh A, Rehman IU et al. Factors associated with anxiety in type 2 diabetes mellitus patients in Pakistan. *Int J of Diabetes in Dev Ctries*. 2017. <https://doi.org/10.1007/s13410-017-0591-0>.
6. Atif M, Saleem Q, Scahill S. Depression and mild cognitive impairment (MCI) among elderly patients with type 2 diabetes mellitus in Pakistan: possible determinants. *Int J of Diabetes in Dev Ctries*. 2017. <https://doi.org/10.1007/s13410-017-0600-3>.
7. Emre N, Topal K, Edime T, Gereklioglu C. Factors affecting risk of anxiety and depression among diabetic and hypertensive patients who refer to family health centers. *Int J of Diabetes in Dev Ctries*. 2017. <https://doi.org/10.1007/s13410-017-0592-z>.
8. Aghili R, Ridderstråle M, Farshchi A, Valojerdi AE, Banazadeh Z, Malek M et al. Psychosocial factors and glycemic control in insulin-naïve and insulin-experienced people with type 2 diabetes: a path analysis model. *Int J of Diabetes in Dev Ctries*. 2017. <https://doi.org/10.1007/s13410-017-0581-2>.
9. Davis WK, Hess GE, Hiss RG. Psychosocial correlates of survival in diabetes. *Diabetes Care*. 1988;11(7):538–45.

10. Lloyd CE, Zgibor J, Wilson RR, Barnett AH, Dyer PH, Orchard TJ. Cross-cultural comparisons of anxiety and depression in adults with type 1 diabetes. *Diabetes Metab Res Rev*. 2003;19(5):401–7.
11. Kovacs M, Mukerji P, Drash A, Iyengar S. Biomedical and psychiatric risk factors for retinopathy among children with IDDM. *Diabetes Care*. 1995;18(12):1592–9.
12. Thomas AJ, Kalaria RN, O'Brien JT. Depression and vascular disease: what is the relationship? *J Affect Disord*. 2004;79(1–3):81–95. **Review**
13. Lifestyle Management. Standards of Medical Care in Diabetes—2018. American Diabetes Association. *Diabetes Care*. 2018;41(Supplement 1):S38–50. <https://doi.org/10.2337/dc18-S004>.
14. Weaver LJ, Worthman CM, DeCaro JA, Madhu SV. The signs of stress: embodiments of biosocial stress among type 2 diabetic women in New Delhi, India. *Soc Sci Med*. 2015;131:122–30. <https://doi.org/10.1016/j.socscimed.2015.03.002>.
15. Campayo A, de Jonge P, Roy JF, Saz P, de la Cámara C, Quintanilla MA, et al. Depressive disorder and incident diabetes mellitus: the effect of characteristics of depression. *Am J Psychiatry*. 2010 May;167(5):580–8. <https://doi.org/10.1176/appi.ajp.2009.09010038>.
16. Chandola T, Brunner E, Marmot M. Chronic stress at work and the metabolic syndrome: prospective study. *BMJ*. 2006;332(7540):521–5.
17. Heraclides A, Chandola T, Witte DR, Brunner EJ. Psychosocial stress at work doubles the risk of type 2 diabetes in middle-aged women: evidence from the Whitehall II study. *Diabetes Care*. 2009;32(12):2230–5. <https://doi.org/10.2337/dc09-0132>.
18. Work stress, obesity and the risk of type 2 diabetes: gender-specific bidirectional effect in the Whitehall II study. *Obesity (Silver Spring)*. 2012;20(2):428–33. <https://doi.org/10.1038/oby.2011.95>.
19. Siddiqui A, Madhu SV, Sharma SB, Desai NG. Endocrine stress responses and risk of type 2 diabetes mellitus. *Stress*. 2015;18(5):498–506. <https://doi.org/10.3109/10253890.2015.1067677>.
20. Rosmond R, Björntorp P. The interactions between hypothalamic-pituitary-adrenal axis activity, testosterone, insulin-like growth factor I and abdominal obesity with metabolism and blood pressure in men. *Int J Obes Relat Metab Disord*. 1998;22(12):1184–96.