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## Comorbidity of Depression and Diabetes: In a Nutshell

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### ABSTRACT

Depression and diabetes mellitus (DM) have existed since ages. Yet, the etiologies of both diseases are unclear till date. However, the effects resulting from these diseases are well documented. Comorbidity of both disorders leads to increase disability and mortality rates. Besides presenting the epidemiological status of depression in DM, this review aims to highlight the different hypotheses governing the association of depression in DM and summarize the current trend in detection and management of depression. A high index of suspicion is required to detect depression in diabetic patients. There seems to be higher prevalence of depression in type 2 diabetes than in type 1 diabetes. Treatment should be tailored as per the individual needs and presence of comorbidity. Though there is no gold standard treatment for depressive diabetics, combinations of both pharmacological and non-pharmacological interventions are likely to improve outcomes. Selective serotonin reuptake inhibitors (SSRIs) and selective norepinephrine reuptake inhibitors (SNRIs) are preferred to conventional antidepressants. Collaborative care, psychoeducation and behavioral interventions are helpful in motivating patients to maintain treatment and improve psychological well-being and quality of life. Untreated depression in diabetics is costly to the health care and economic system as there is an increase in functional impairment and mortality rate. More efforts need to be made to effectively screen, diagnose and treat patients with comorbidity of diabetes and depression.

### KEYWORDS

Diabetes Mellitus; Depression; Management; Epidemiology

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### References

- [1] Ali, S., Stone, M. A., Peters, J. L., Davies, M. J., & Khunti, K. (2006). The prevalence of comorbid depression in adults with Type 2 diabetes: A systematic review and meta-analysis. *Diabetic Medicine*, 23, 1165-1173. doi:10.1111/j.1464-5491.2012.03721.x
- [2] Alonso, J. et al. (ESEMeD/MHEDEA 2000 Investigators) (2004). Project prevalence of mental disorders in Europe: Results from the European Study of the Epidemiology of Mental Disorders (ESEMeD) project. *Acta Psychiatrica Scandinavica Suppletum*, 420, 21-27.
- [3] Anderson, R. J., Freedland, K. E., Clouse, R. E., & Lustman, P. J. (2001). The prevalence of comorbid depression in adults with diabetes: A meta-analysis. *Diabetes Care*, 24, 1069-1078. doi:10.2337/diacare.24.6.1069
- [4] Anderson, R. J., Gott, B. M., Sayuk, G. S., Freedland, K. E., & Lustman, P. J. (2010). Antidepressant pharmacotherapy in adults with type 2 diabetes. *Diabetes Care*, 33, 485-489. doi:10.2337/dc09-1466
- [5] Champaneri, S., Wand, G. S., Malhotra, S. S., Casagrande, S. S., & Golden, S. H. (2010). Biological basis of depression in adults with diabetes. *Current Diabetes Reports*, 10, 396-405.
- [6] Chiu, C. J., Wray, L. A., Beverly, E. A., & Dominic, O. G. (2010). The role of health behaviors in mediating the relationship between depressive symptoms and glycemic control in type 2 diabetes: A

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- [7] Chou, K. L., Chi, I. (2005) Prevalence of depression among elderly Chinese with diabetes. *International Journal of Geriatric Psychiatry*, 20, 570-575. doi: 10.1002/gps.1328
- [8] Chui, E. (2004). Epidemiology of depression in the Asia Pacific region. *Australasian Psychiatry*, 12, S4-S10.
- [9] de Jonge, P., Roy, J. F., Saz, P., Marcos, G., Lobo, A. (ZARADEMP Investigators) (2006). Prevalent and incident depression in community-dwelling elderly persons with diabetes mellitus: Results from the ZARADEMP project. *Diabetologia*, 49, 2627-2633. doi: 10.1007/s00125-006-0442-x
- [10] Echeverry, D., Duran, P., Bonds, C., Lee, M., & Davidson, M. B. (2009). Effect of pharmacological treatment of depression on A1C and quality of life in low-income Hispanics and African Americans with diabetes: A randomized, double-blind, placebo-controlled trial. *Diabetes Care*, 32, 2156-2160. doi: 10.2337/dc09-0785
- [11] Egede, L. E., & Ellis, C. (2010). Diabetes and depression: Global perspectives. *Diabetes Research and Clinical Practice*, 87, 302-312. doi: 10.1016/j.diabres.2010.01.024
- [12] Engum, A., Mykletun, A., Midthjell, K., Holen, A., & Dahl, A. (2005). Depression and diabetes: A large population-based study of socio-demographic, lifestyle, and clinical factors associated with depression in type 1 and type 2 diabetes. *Diabetes Care*, 28, 1904-1909. doi: 10.2337/diacare.28.8.1904
- [13] Gill, J. M., Klinkman, M. S., & Chen, Y. X. (2010). Antidepressant medication use for primary care patients with and without medical comorbidities: A national Electronic Health Record (EHR) network study. *Journal of the American Board of Family Medicine*, 23, 499-508. doi: 10.3122/jabfm.2010.04.090299
- [14] Goodnick, P. J. (2001). Use of antidepressants in treatment of comorbid diabetes mellitus and depression as well as in diabetic neuropathy. *Annals of Clinical Psychiatry*, 13, 31-41. doi: 10.3109/10401230109147127
- [15] Greden, J. F. (2003). Physical symptoms of depression: Unmet needs. *Journal of Clinical Psychiatry*, 64, 5-11.
- [16] Groot, M. D., Anderson, R., Freedland, K. E., Clouse, R. E., & Lustman, P. J. (2001). Association of depression and diabetes complications: A meta-analysis. *Psychosomatic Medicine*, 63, 619-630.
- [17] Hoffman, P. (2010). Treatment of patients with comorbid depression and diabetes with metformin and milnacipran. *Neuropsychiatric Disease and Treatment*, 6, 9-15.
- [18] International Diabetes Federation (2009). *Diabetes Atlas (4th ed.)*. Brussels: International Diabetes Federation.
- [19] Johnson, B., Eiser C., Young, V., Brierley, S., & Heller, S. (2012). Prevalence of depression among young people with Type 1 diabetes: A systematic review. *Diabetic Medicine*, Epub ahead of print. doi: 10.1111/j.1464-5491.2012.03721.x
- [20] Katon, W. J. (2003). Clinical and health services relationships between major depression, depressive symptoms, and general medical illness. *Biological Psychiatry*, 54, 216-226. doi: 10.1016/S0006-3223(03)00273-7
- [21] Katon, W., Von Kroff, M., Ciechanowski, P., Russo, J., Lin, E., Simon, G., Ludman, E., Walker, E., Bush, T., & Young, B. (2004). Behavioral and clinical factors associated with depression among individuals with diabetes. *Diabetes Care*, 27, 914-920. doi: 10.2337/diacare.27.4.914
- [22] Katon, W. J., Von Kroff, M., Lin, E. H. B., Simon, G., Ludman, E., Russo, J., Ciechanowski, P., Walker, E., & Bush, T. (2004). The pathways study. A randomized trial of collaborative care in Patients with diabetes and depression. *Archives of General Psychiatry*, 61, 1042-1049. doi: 10.1001/archpsyc.61.10.1042
- [23] Katon, J. G., Russo, J., Gavin, A. R., Melville, J. L., & Katon, W. J. (2011). Diabetes and depression in pregnancy: Is there an association? *Journal of Women's Health*, 20, 983-989. doi: 10.1089/jwh.2010.2662
- [24] Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005) Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the national comorbidity survey

- [25] Kivimäki, M., Batty, G. D., Jokela, M., Ebmeier, K. P., Vahtera, J., Virtanen, M., Brunner, E. J., Tabak, A. G., Witte, D. R., Kumari, M., Singh-Manoux, A., & Hamer, M. (2011). Antidepressant medication use and risk of hyperglycemia and diabetes mellitus—A noncausal association? *Biological Psychiatry*, 70, 978-984.
- [26] Knol, M. J., Twisk, J. W., Beekman, A. T., Heine, R. J., Snoek, F. J., & Pouwer, F. (2006). Depression as a risk factor for the onset of type 2 diabetes mellitus. A meta-analysis. *Diabetologia*, 49, 837-845. doi:10.1007/s00125-006-0159-x
- [27] Kogan, S. M., Brody, G. H., Crawley, C., Logan, P., & Murry, V. M. (2007). Correlates of elevated depressive symptoms among rural African American adults with type 2 diabetes. *Ethnicity & Disease*, 17, 106-112.
- [28] Korczak, D. J., Pereira, S., Koulajian, K., Matejcek, A., & Giacca, A. (2011). Type 1 diabetes mellitus and major depressive disorder: evidence for a biological link. *Diabetologia*, 54, 2483-2493.
- [29] Kozhimannil, K. B., Pereira, M. A., & Harlow, B. L. (2009). Association between diabetes and perinatal depression among low-income mothers. *Journal of the American Medical Association*, 301, 842-847. doi:10.1001/jama.2009.201
- [30] Levenson, J. L. (2001). *Textbook of psychosomatic medicine*. Arlington, VA: American Psychiatric Publishing, 193.
- [31] Li, C., Ford, E. S., Strine, T. W., & Mokdad, A. H. (2008). Prevalence of depression among US adults with diabetes: findings from the 2006 behavioral risk factor surveillance system. *Diabetes Care*, 31, 105-107. doi:10.2337/dc07-1154
- [32] Li, C., Ford, E. S., Zhao, G., Ahluwalia, I. B., Pearson, W. S., & Mokdad, A. H. (2009). Prevalence and correlates of undiagnosed depression among US adults with diabetes: The Behavioral Risk Factor Surveillance System. *Diabetes Research and Clinical Practice*, 83, 268-279. doi:10.1016/j.diabres.2008.11.006
- [33] Lustman, P. J., & Clouse, R. E. (1997). Identifying depression in adults with diabetes. *Clinical Diabetes*, 15, 78-81.
- [34] Ludman, E. J., Katon, W., Russo, J., Von Korff, M., Simon, G., Ciechanowski, P., Lin, E., Bush, T., Walker, E., & Young, B. (2004). Depression and diabetes symptom burden. *General Hospital Psychiatry*, 26, 430-436. doi:10.1016/j.genhosppsych.2004.08.010
- [35] Lustman, P. J., & Clouse, R. E. (2004). Section III: Practical Considerations in the management of depression in diabetes. *Diabetes Spectrum*, 17, 160-166. doi:10.2337/diaspect.17.3.160
- [36] Lustman, P. J., Clouse, R. E., Ciechanowski, P. S., Hirsch, I. B., & Freedland, K. E. (2005). Depression-related hyperglycemia in type 1 diabetes: A mediational approach. *Psychosomatic Medicine*, 67, 195-199. doi:10.1097/01.psy.0000155670.88919.ad
- [37] Ma, Y., Balasubramanian, R., Pagoto, S. L., Schneider, K. L., Culver, A. L., Olendzki, B., Tinker, L., Liu, S., Safford, M., Sepavich, D. M., Rosal, M.C., Ockene, J. K., Carnethon, M., Zorn, M., & Hébert, J. R. (2011). Elevated depressive symptoms, antidepressant use, and diabetes in a large multiethnic national sample of postmenopausal women. *Diabetes Care*, 34, 2390-2392. doi:10.2337/dc11-1223
- [38] McHale, M., Hendrikz, J., Dann, F., & Kenardy, J. (2008). Screening for depression in patients with diabetes mellitus. *Psychosomatic Medicine*, 70, 869-874.
- [39] McIntyre, R. S., Park, K. Y., Law, C. W. Y., Sultan, P., Adams, A., Lourenco, M. T., Lo, A. K. S., Soczynska, J. K., Woldeyohannes, H., Alsuwaidan, M., Yoor, J., & Kennedy, S. H. (2010). The association between conventional antidepressants and the metabolic syndrome. A Review of the evidence and clinical implications. *CNS Drugs*, 24, 741-763. doi:10.2165/11533280-000000000-00000
- [40] Mezuk, B., Eaton, W. W., Albrecht, S., & Golden, S. H. (2008). Depression and type 2 diabetes over the lifespan: A meta-analysis. *Diabetes Care*, 31, 2383-2390. doi:10.2337/dc08-0985
- [41] Moussavi, S., Chatterji, S., Verdes, E., Tandon, A., Patel, V., & Ustun, B. (2007). Depression, chronic diseases, and decrements in health: Results from the World Health Surveys. *Lancet*, 370, 851-858. doi:10.1016/S0140-6736(07)61415-9
- [42] Murphy, S. L., Xu, J., & Kochanek, K. D. (2012). Deaths preliminary data for 2010. *National Vital*

- [43] Musselman, D. L., Betan, E., Larsen, H., Phillips, L. S. (2003). Relationship of depression to diabetes types 1 and 2: Epidemiology, biology, and treatment. *Biological Psychiatry*, 54, 317-329. doi:10.1016/S0006-3223(03)00569-9
- [44] Pan, A., Lucas, M., Sun, Q., van Dam, R. M., Franco, O. H., Willett, W. C., Manson, J. E., Rexrode, K. M., Ascherio, A., & Hu, F. B. (2011). Increased mortality risk in women with depression and diabetes mellitus. *Archives of General Psychiatry*, 68, 42-50. doi:10.1001/archgenpsychiatry.2010.176
- [45] Peveler, R., Carson, A., & Rodin, G. (2002). ABC of psychological medicine: Depression in medical patients. *British Medical Journal*, 325, 149-152. doi:10.1136/bmj.325.7356.149
- [46] Qaseem, A., Vijan, S., Snow, V., Cross, J. T., Weiss, K. B., & Owens, D. K. (Clinical Efficacy Assessment Subcommittee of the American College of Physicians) (2007). Glycemic control and type 2 diabetes mellitus: the optimal hemoglobin A1C targets. A guidance statement from the American College of Physicians. *Annals of Internal Medicine*, 147, 417-422.
- [47] Rush, W. A., Whitebird, R. R., Rush, M. R., Solberg, L. I., & O' Conner, P. J. (2008). Depression in patients with diabetes: Does it impact clinical goals? *Journal of the American Board Family Medicine*, 21, 392-397. doi:10.3122/jabfm.2008.05.070101
- [48] Sayuk, G. S., Gott, B. M., Nix, B. D., & Lustman, P. J. (2011). Improvement in sexual functioning in patients with type 2 diabetes and depression treated with bupropion. *Diabetes Care*, 34, 332-334. doi:10.2337/dc10-1714
- [49] The Diabetes Prevention Program Research Group (2004). Achieving weight and activity goals among Diabetes Prevention Program Life-style participants. *Obesity Research*, 12, 1426-1434. doi:10.1038/oby.2004.179
- [50] Tomlinson, M., Grimsrud, A. T., Stein, D. J., Williams, D. R., & Myer, L. (2009). The epidemiology of major depression in South Africa: Results from the South African stress and health study. *South African Medical Journal*, 99, 367-373.
- [51] Ustun, T. B., Ayuso-Mateos, J. L., Chatterji, S., Mathers, C., & Murray, C. J. (2004). Global burden of depressive disorders in the year 2000. *British Journal of Psychiatry*, 184, 386-392. doi:10.1192/bjp.184.5.386
- [52] van der Feltz-Cornelis, C. M., Nuyen, J., Stoop, C., Chan, J., Jacobson, A. M., Katon, W., Snoek, F., & Sartorius, N. (2010). Effect of interventions for major depressive disorder and significant depressive symptoms in patients with diabetes mellitus: A systematic review and meta-analysis. *General Hospital Psychiatry*, 32, 380-395. doi:10.1016/j.genhosppsy.2010.03.011
- [53] van der Feltz-Cornelis, C. M. (2011). Depression in diabetes mellitus: To screen or not to screen? A patient-centred approach. *British Journal of Diabetes & Vascular Disease*, 11, 276-281.
- [54] van Reedt Dortland, A. K. B., Giltay, E. J., van Veen, T., Zitman, F. G., & Penninx, B. W. J. H. (2010). Metabolic syndrome abnormalities are associated with severity of anxiety and depression and with tricyclic antidepressant use. *Acta Psychiatrica Scandinavica*, 122, 30-39. doi:10.1111/j.1600-0447.2010.01565.x
- [55] Van Steenberg-Weijnenburg, K. M., de Vroeghe, L., Ploeger, R. R., Brals, J. W., Vloedveld, M. G., Veneman, T. F., Hakkaart-van Roijen, L., Rutten, F. F., Beekman, A. T., & van der Feltz-Cornelis, C. M. (2010). Validation of the PHQ-9 as a screening instrument for depression in diabetes patients in specialized outpatient clinics. *BMC Health Services Research*, 12, 235. doi:10.1186/1472-6963-10-235
- [56] Wang, M. Y., Tsai, P. S., Chou, K. R., & Chen, C. M. (2008). A systematic review of the efficacy of non-pharmacological treatments for depression on glycaemic control in type 2 diabetics. *Journal of Clinical Nursing*, 17, 2524-2530. doi:10.1111/j.1365-2702.2008.02301.x
- [57] Wilkins T. L., & Sambamoorthi, U. (2011). Antidepressant use, depression, lifestyle factors and new-onset diabetes. *International Clinical Psychopharmacology*, 26, 159-168. doi:10.1097/YIC.0b013e328342ce31
- [58] Williams, M. M., Clouse, R. E., & Lustman, P. J. (2006). Treating depression to prevent diabetes: Understanding depression as a medical complication. *Clinical Diabetes*, 24, 79-86. doi:10.2337/diaclin.24.2.79
- [59] Willis, T. (1675). *Pharmaceutice rationalis sive diabtriba demedicamentorum operantionibus in*

humano corpore. Oxford: MDCLXXV.

- [60] World Health Organization (2012). URL (last checked 22 July 2012). [http://www.who.int/mental\\_health/management/depression/definition/en/](http://www.who.int/mental_health/management/depression/definition/en/)
- [61] Zhao, W., Chen, Y., Lin, M., & Sigal, R. J. (2006). Association between diabetes and depression: Sex and age differences. *Public Health*, 120, 696-704. doi:10.1016/j.puhe.2006.04.012