Shared Care in Diabetes and Mental Health: Why we Need to Talk About it?

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– NO DISCLOSURE FOR TODAY’S PRESENTATION
LEARNING OBJECTIVES

• Are there patients who are currently under treatment for diabetes and suffer from depression that is neither recognized nor treated?

• Are serious complications of diabetes in persons who suffer from diabetes and a comorbid depression more frequent than in persons who do not have depression?

• Does adequate treatment of comorbid depression diminish the frequency and severity of complications of diabetes?
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In 1985, an estimated 30 million people around the world were diagnosed with diabetes.

In 2000, that figure rose to over 150 million; and,

In 2012, the International Diabetes Federation (IDF) estimated that 371 million people had diabetes.

That number is projected to rise to 552 million (or 1 in 10 adults) by 2030, which equates to 3 new cases per second.

Psychiatric disorders, particularly depression, anxiety and eating disorders, are prevalent in diabetes.
Diabetes and depression: Global perspectives
Diabetes Research and Clinical Practice.
Fig. 2 Effect of depression on all-cause mortality in patients with diabetes
Comparison of main features and assessment methods: diabetes distress vs. depression

<table>
<thead>
<tr>
<th>Assessment Instrument</th>
<th>Diabetes distress</th>
<th>Major depressive disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Format</td>
<td>Diabetes Distress Scale (17 items)</td>
<td>Patient Health Questionnaire for Depression: PHQ-9 (9 items)</td>
</tr>
<tr>
<td>Features</td>
<td>Self-report using ratings from 1–6 based on feelings and experiences over the past week</td>
<td>Self-report using ratings from 0–3 based on feelings and experiences over the past 2 weeks</td>
</tr>
<tr>
<td>Features</td>
<td>Emotional Burden Subscale (5 items)</td>
<td>Vegetative symptoms, such as sleep, appetite and energy level changes</td>
</tr>
<tr>
<td></td>
<td>Physician-Related Distress Subscale (4 items)</td>
<td>Emotional symptoms, such as low mood and reduced enjoyment of usual activities</td>
</tr>
<tr>
<td></td>
<td>Regimen-Related Distress Subscale (5 items)</td>
<td>Behavioural symptoms, such as agitation or slowing of movements</td>
</tr>
<tr>
<td></td>
<td>Diabetes-Related Interpersonal Distress Subscale (3 items)</td>
<td>Cognitive symptoms, such as poor memory or reduced concentration or feelings of guilt; thoughts of self-harm</td>
</tr>
</tbody>
</table>
Diabetes distress

**Diabetes Distress Scale (17 items)**
Self-report using ratings from 1–6 based on feelings and experiences over the past week
- Emotional Burden Subscale (5 items)
- Physician-Related Distress Subscale (4 items)
- Regimen-Related Distress Subscale (5 items)
- Diabetes-Related Interpersonal Distress Subscale (3 items)
Patient Health Questionnaire for Depression: PHQ-9 (9 items)

Self-report using ratings from 0–3 based on feelings and experiences over the past 2 weeks
Vegetative symptoms, such as sleep, appetite and energy level changes
Emotional symptoms, such as low mood and reduced enjoyment of usual activities
Behavioural symptoms, such as agitation or slowing of movements
Cognitive symptoms, such as poor memory or reduced concentration or feelings of guilt; thoughts of self-harm
Up to **80% of patients** with diabetes and depression will experience a relapse of depressive symptoms over a **5-year period** (Lustman et al 1997)

Depression remains unrecognized and untreated in approximately **two thirds of patients** with diabetes despite the important clinical implications associated with the comorbidly occurring conditions (Lustman et al 1987)
A meta-analysis that included 39 studies demonstrated that 11% of patients with diabetes met the criteria for comorbid major depressive disorder (MDD) and 31% experienced significant depressive symptoms.

The prevalence of depression in patients with diabetes was significantly higher in women than men (28% and 18%, respectively; P = 0.0001).

In the controlled studies, the odds of having depression were twice as great in patients with diabetes as in their nondiabetic counterparts (odds ratio [OR], 2.0; 95% confidence interval [CI], 1.8 to 2.2). (Anderson et al 2001)
A population-based epidemiologic study conducted to determine the behavioural and clinical characteristics of diabetes associated with depression found that 501 of 4,193 study participants (12%) met DSM-IV, criteria for MDD and 357 participants (8.5%) met criteria for minor depression.

(Katon et al 2004)
Important sociodemographic risk factors that were associated with depression in patients with diabetes including

- Younger age
- Low socioeconomic status
- Less education
- Being unmarried
- Poor social support
- Female sex
- Longer duration of diabetes
- Presence of long-term complications

In addition, several studies have found that some racial and ethnic minorities, including African Americans, Hispanic Americans, Asian/Pacific Islander Americans, and Native Americans, experienced higher rates of both diabetes and associated depression, and that when these conditions were comorbid, they were predictive of suboptimal outcomes in these patient population.
The combination of diabetes and depression was also the most disabling of the comorbidities surveyed in a worldwide survey which evaluated the effect of depression alone or comorbid with other chronic conditions (i.e., diabetes, asthma, arthritis, and angina) on overall health status among respondents aged 18 years from 60 countries.

(Moussavi et al 2007)
Depression is an independent risk factor for the onset of type 2 diabetes (Williams et al 2006)

Depression is a predictive factor for the number and severity of diabetic complications (Harris et al 2003)
The risk of developing type 2 diabetes was 37% greater in depressed adults than in adults who do not have depression (Knol et al 2006)

Depression early in life may lead to increased risk for type 2 diabetes due to the increased likelihood that patients with depression participate in unhealthy behaviours such as sedentary lifestyle, obesity, and smoking (Katon et al 2004)

Individuals with depression have an approximately 60% increased risk of developing type 2 diabetes (Mezuk et al 2008)
The risk for developing MDD increases from 2.8% for people without existing medical conditions to 4.0% in patients with less than 1 long-term medical condition (Katon et al 2003)

Conversely, depressed adults have a 37% increased risk of developing type 2 diabetes (Knol et al 2006)
The negative impact of depression upon patients with diabetes.

- Worsening glycemic control (Lustman et al., 2000a)
- Increase in severity or number of diabetic complications such as retinopathy, sexual dysfunction, and nephropathy (deGroot et al., 2001)
- Increased likelihood of cardiovascular risk factors (Katon et al., 2004a; Rubin et al., 2010)
- Higher rates of functional disability (Egede, 2004)
- Higher all-cause mortality (Egede et al., 2005)
Pathophysiology mechanism

The direct negative physiologic effects of depression on glucose metabolism (e.g., increased counter regulatory hormone release and action, changes in glucose transport function, and increased immunoinflammatory activation) may also increase insulin resistance and reduce glucose uptake, increasing the risk for developing type 2 diabetes.

(Musselman et al 2003)
Depressive symptoms are associated with decreased glycaemic control and increased diabetic complications.

Poor metabolic control and functional impairment due to increasing complications may cause or worsen depression and lessen response to antidepressant treatment.

(Lustman 2005)
Risk factors (with possible mechanisms) for developing diabetes in patients with depression are

• Physical inactivity and obesity, which leads to insulin resistance
• Psychological stress, leading to chronic hypothalamic-pituitary-adrenal activation with cortisol release

• Patients with depression and a medical comorbidity are 3 times as likely as nondepressed medically ill patients to be nonadherent to treatment recommendations (DiMatteo et al 2000)

• The correlation between depression and poor diabetic self-care is consistent across diverse socioeconomic and cultural groups (Lerman et al 2004, Park et al 2004)

• Most patients with comorbid diabetes and depression are treated in a primary care setting. (Katon et al 2004)
Possible pathophysiological pathways linking depression and diabetes

Depression in type 2 diabetes mellitus—A brief review Samreen Siddiqui 2013
P. Singh et al 2015. Diabetes to cardiovascular disease: Is depression the potential missing link?
Interactions between diabetes and anxiety and depression, Bystritsky et al 2014
ARE YOU DEPRESSED BECAUSE YOU HAVE DIABETES OR IS DIABETES CAUSING YOUR DEPRESSION?

YES!
Patients with diabetes in primary care are more likely to have type 2 diabetes, less likely to be treated with insulin, and likely to have fewer diabetic complications and comorbidities than those treated by endocrinologists

Studies have confirmed that patients with both diabetes and depression have worse adherence to multiple components of self-care regimens.

(de Groot et al 2001)

Even low levels of depressive symptoms have been associated with diabetes self-care nonadherence, suggesting that treating depression across the spectrum of severity may result in better self-care outcomes.

(Gonzalez et al 2007)
Accordingly, behaviours that reflect poor self-care are subsequently related to worse diabetes management.

Of note, lack of adherence to oral hypoglycaemic medication regimens, as demonstrated by percentage of interrupted therapy days, was significantly associated with depressive symptom severity. (Ciechanowski et al 2000 and 2003)
Poor adherence to antihypertensive and lipid-lowering medication regimens has also been associated with depression in patients with diabetes.

(Lin et al 2004)

Higher body mass index (BMI) and tobacco use among patients with major and minor depression and diabetes are particularly disconcerting aspects of poor self-care, because obesity and smoking are associated with increased insulin resistance and increased morbidity in patients with diabetes.

Comorbid depression in patients with diabetes is also associated with increased numbers and severity of diabetic symptoms and complications.

(Black et al 2003, Kinder et al 2002)

A meta-analysis demonstrated a clinically significant relation between depression and several diabetic complications: retinopathy, nephropathy, neuropathy, sexual dysfunction, and macrovascular complications.
In addition, depression was consistently related to increased severity of diabetic complications, with a similar effect shown for both type 1 and type 2 diabetes.

Because type 1 and type 2 diabetes have dissimilar etiologies and disease courses, the consistent effect of depression on diabetic symptoms and complications suggests that common pathways may be responsible for the association between depression and diabetes severity.

(de Groot et al 2001)
Psychological response to diabetic complications may result in prolonged or recurrent episodes of depression.

(Kinder et al. 2006)

Presence of depression in patients with chronic illness causes nonspecific amplification of physical symptoms associated with the medical condition.

(Katon 1998)
In a large population-based study of patients with diabetes, the overall number of diabetes symptoms was linearly related to the number of major depression symptoms after controlling for objective measures of diabetes severity (i.e., glycosylated hemoglobin [HbA1c] and number of diabetes complications).

Compared with nondepressed patients, patients with MDD were 2 to 5 times more likely to report the presence of 10 diabetic symptoms after controlling for the number of diabetes complications

(Talbot et al 2000)
Patients with comorbid depression were significantly more likely to report common diabetes symptoms, such as thirst, polyuria, and blurred vision, even after controlling for diabetes severity.

(Ciechanowski et al 2003)
Screening for Depression in Diabetes

Screening instruments fall into three categories:

1. Diabetes-specific measures, such as the Problem Areas in Diabetes (PAID) Scale or the Diabetes Distress Scale (DDS)

2. Quality of life measures, such as the WHO-5 screening instrument

3. Depressive/anxiety symptoms, such as the Hospital Anxiety and Depression Scale (HADS), the Patient Health Questionnaire (PHQ-9), the Centre for Epidemiological Studies–Depression Scale (CES-D) or the Beck Depression Inventory (BDI)
Screening Tools

In screening for MDD, the sensitivity and specificity of the BDI has been confirmed by receiver-operating characteristics analysis for both type 1 and type 2 diabetes.

In a primary care setting, the BDI, a brief, self-report measure, and DSM-IV criteria are useful and effective screening tools that accurately identify patients in need of attention and treatment for depression in addition to diabetes care.

(Musselman et al 2003)
The depression module of the PHQ-9 demonstrates high validity correlation with structured psychiatric interviews and may also be a valuable instrument in busy primary care settings (Kroenke et al. 2001).

No data presently demonstrate the superiority of one particular depression screening tool over another. Currently available screening instruments have a sensitivity of between 80% and 90% and a specificity of 70% to 85% (Pignone et al. 2002).
What are we doing about this?

- We opened the first Physician Led Diabetes Mental Health Clinic in this area, possibly the first in Canada

- For 2015 = 39 patients seen at the DEC
- For 2016 = 74 patients seen at the DEC
- For 2017 = 11 patients seen at the DEC till February 2017
- Total = 124 patients
Future plans and goals

- Self-help guided CBT Manual
- Group Mindfulness based CBT
- OTN based assessments
- Liaise with Diabetes Canada (Previously called CDA)
- Regional centre
Psychiatric disorders, particularly major depressive disorder (MDD), generalized anxiety disorder and eating disorders, are more prevalent in people with diabetes compared to the general population.

People diagnosed with serious mental illnesses, such as MDD, bipolar disorder and schizophrenia, have a higher risk of developing diabetes than the general population.

All individuals with diabetes should be regularly screened for the presence of depressive and anxious symptoms.

Canadian Diabetes Association Guidelines 2013 recommendations
Any questions?
Thanks Folks!

Job done!
References

- The Blame Game. How to go head-to-head with diabetes stigma--and come out a winner, Wahowiak L, Diabetes Forecast - September 1, 2015; 68 (5); 28, 30-1
- Mental Health: Keeping Your Emotional Health 2013 by the American Academy of Family Physicians.
- Social stigma in diabetes: a framework to understand a growing problem for an increasing epidemic, Schabert J, Browne JL, Mosely K, Speight J - Patient - January 1, 2013; 6 (1); 1-10