

Responding
to challenges



FIGHTING DIABETES
PRESERVING A LEGACY

Mental Health & Diabetes in Youth

This Tutorial is based on the SFBLF e-Learning Course,
Mental Health & Diabetes in Youth

You can access this course via the SFBLF website www.bantinglegacy.ca/e-Learning

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The mission of SFBLF is to Fight Diabetes and Preserve a Legacy

Our focus is on disease prevention and disease self-management through education, clinical innovation and sustained support with an emphasis on youth.

Minimizing the transition challenges faced by youth living with diabetes as they navigate from the paediatric to the adult healthcare system is a key priority.

The SFBLF Diabetes Management and Education Centre (DMEC) is located in Alliston, Ontario, Canada at the Banting Homestead Heritage Park, birthplace of Sir Frederick Banting, co-discoverer of insulin and Canada's first Nobel Laureate.

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Mental Health & Diabetes in Youth

Learning Objectives

This tutorial provides an overview of the interactions and relationships between diabetes and mental health issues in youth

The content should not be used as medical advice. It is essential that you consult with qualified healthcare professionals to identify and assess the needs appropriate for your family.

On completion of this tutorial, you should understand:

1. How mental illness can be a risk factor for development of type 2 diabetes in youth. and how diabetes can be a risk factor for mental illness in youth.
2. The common mental health comorbidities for youth living with diabetes
3. Diabetes Stress/'Burnout' and the relationship to clinical depression
4. Barriers to care for treatments of diabetes, mental illness and comorbidities.

You will also find the following information:

Resources for further study

References cited in this Tutorial

[Note: As organizations update their websites, 'links' may change. If you encounter difficulties with any of the links included on the reference list, please advise us at info@bantinglegacy.ca.
Thank You]

This Tutorial uses information from many sources including excerpts from the SFBLF e-Learning course,
Mental Health & Diabetes in Youth

Bi-directional relationships

Obesity is a common factor that can lead to Type 2 diabetes and/or trigger mental disorders related to body image for example. It can also increase the risks of complications arising in both Type 1 and Type 2 diabetes [1] [15] [16]

Living with either type of diabetes can lead to mental disorders. [13]

The existence of mental disorders can increase the risk of developing Type 2 diabetes.

The rise of Type 2 in children and youth is a relatively recent phenomenon. Much more research is required but there is sufficient evidence to support added risk for the development of Type 2 because of an existing mental disorder. [8]

Most of the research and clinical evidence available regarding comorbidities relates to Type 1.

Childhood and adolescence are periods of major physiological and psychological changes for all. The brain is evolving well into the 20s. This early period of life brings added complexity for accepting and adjusting to a diagnosis of any chronic medical condition.

How mental disorders increase the risk of Type 2 diabetes

Factors present as a result of mental disorders can increase the risk of developing Type 2 diabetes [1] [8]. For example:

Life style factors

Poor self care, high smoking rates, other substance abuse, inactivity and poor dietary habits can arise as a result of a mental disorder.

System factors

Children and youth with mental disorders may be faced with reduced access to care or be unable to find their way into the system. Poor coordination and a ‘silo’ working reality can lead to key symptoms and/or essential actions being over-looked. In many contexts, there is ambiguity in both policy and practice regarding who is in charge.

Illness biology factors

In some cases, there may be a genetic link between serious mental disorders and Type 2 diabetes.

Treatment factors

Some medications such as antipsychotics, some mood stabilizers and antidepressants used to treat mental illness can also lead to relatively rapid weight gain, cause changes in glucose and lipid metabolism and thereby, increase risks for developing Type 2 diabetes. In patients with an established diagnosis of diabetes, introduction of certain psychiatric medications can worsen glycemic control.

Some providers may be reluctant to take on more difficult patients, may face time constraints caused by competing medical conditions and may have concerns about medication safety.

How diabetes increases the risk of mental disorders

Neurocognition and Brain Development

Children and youth are undergoing changes in neurocognition and are potentially susceptible to adjustment disorders, anxiety disorders, eating disorders and depression, even without the presence of a serious chronic illness. The presence of diabetes increases the risk of such mental disorders occurring. [6] [7] [14] [17]

Glucose is fuel for the brain. Nerve cells in the brain (neurons) cannot store excess glucose and require a constant supply.

Hyper/hypoglycemia can contribute to decreased neuronal survival which in turn, can lead to acute/chronic implications for the developing child or adolescent brain.

Acute hypoglycemia can lead to problems with selective attention, confusion, and negatively impact the neuronal integrity of the brain.

Hyperglycemia can lead to immediate externalizing behaviours such as agitation and aggression and brain chemistry changes in the frontal regions.

Repeated hyperglycemic events can lead, in the long-term, to decreased verbal intelligence and varying changes in grey matter volume in different brain regions.

Fear of hypo/hyperglycemia occurring can arise in both the youth and family members. That fear is amplified if either condition has been experienced.

Common Diabetes and Mental Disorder Comorbidities in Youth

There is more evidence-based research available regarding mental disorder comorbidities in youth living with Type 1 than with Type 2 diabetes. Much more investigation is required for both types especially with respect to validated treatment approaches. [5] [6] [14]

The more common forms of comorbid mental disorders can occur for all youth living with diabetes but it is likely that the prevalence and perhaps, intensity of some disorders will be greater for those with Type 1 due, in part, to the unrelenting and very rigorous demands for management of the disease. [5] [8]

Adjustment, anxiety and various eating disorders are common. Depression is noted by some to be the most common mental disorder occurring in youth living with diabetes. Closely associated with depression is the phenomenon of Diabetes Stress or 'Burnout'. Diabetes stress and depression, however, are not the same thing. [6] [14] [10]

Diabetes and Adjustment disorders

Initial adjustment to diabetes is characterized by sadness, anxiety, withdrawal, and dependency. Approximately 30% of children develop a clinical adjustment disorder in the 3 months after diagnosis but such difficulties often resolve themselves within the first year. Poor adaptation, however, in this initial phase places children at risk for later psychological difficulties. [20]

Diabetes and Anxiety Disorders

Anxiety disorders frequently occur among youth living with diabetes and can be difficult to diagnose. The symptoms overlap with those resulting from low blood glucose levels, e.g., feeling faint, manifesting a sense of dread, shakiness. [1] [5]

A pre-existing fear about injections or blood draws can lead to severe anxiety disorders when a child or youth is diagnosed with diabetes.

Anxiety in a youth living with diabetes can increase health risk through misuse of insulin or medications, substance use, eating disorders, avoidance behaviour and decreased interactions with and disclosures to health professionals.

Diabetes and Eating Disorders

Risk Factors [7]

Several studies have identified the potential risk factors for the development of disordered eating attitudes and behaviours in adolescents living with diabetes, including:

- * females appear to be at higher risk but research results are inconsistent;
- * age 13 – 14 years for girls and above 16 years for boys, when adolescents struggle to adapt to the hormonal and psychoemotional changes associated with puberty;
- * increased body weight (partially attributed to insulin therapy), leading to denial and rejection of body image;
- * constant food preoccupation because of diabetes;
- * presence of eating disorders in parents especially the mother;
- * presence of other psychiatric disorders such as depression, anxiety or substance abuse;
- * Problems with family relationships, for example, lack of trust from the parents regarding diabetes control, or parental conflicts.

Research indicates that males and females present with eating disorders in different ways. Males may present at younger ages than females but females may also present with higher rates of mood disorders [19]

Interactions

Research to support the prevalence of eating disorders arising in Type 2 cases is very sparse and more evidence as to causes, effects and treatment is required.

Before Type 1 diabetes is diagnosed, there can be a weight loss. Insulin treatment can lead to rapid weight gain since insulin prompts the body to use blood glucose. One route to that end is fat deposition. [17]

For Type 1 cases, evidence indicates that both pre-adolescent and adolescent girls with Type 1 have a higher prevalence of eating disorders than boys, approx. 38% vs 15.9% respectively. Also, eating disorders are almost twice as common in adolescent females with Type 1 diabetes than in their non-diabetic peers. [18]

For both Type 1 and Type 2, the dietary restrictions can result in food being seen as the ‘enemy’ and the way in which a youth and family handle this may lead to eating disorders.

Eating disorders in youth living with diabetes can present differently than in non-diabetic youth. For example, Anorexia Nervosa accompanied by omission of insulin rather than self-starvation; Bulimia Nervosa accompanied by restricting insulin after a binge rather than purging.

Diabetes and Depression

A major depressive episode is characterized by a depressed mood or irritability lasting 2 weeks or more. Such episodes in youth, triggered by difficulties in coping with diabetes, can lead to weight and appetite changes, psychomotor changes, changes in sleep, a sense of worthlessness and guilt, poor concentration and suicidal ideation. [1]

Rates of depression among persons with Type 1 or Type 2 diabetes across the lifespan are two times higher than the general population. The outcomes of both diabetes and depression are worsened by presence of the other. [14]

There are few studies of the prevalence of depressive disorders in the pediatric population but those that exist suggest the rates of depression, anxiety and distress are also elevated in children and young adults with Type 1 diabetes .. with prevalence rates ranging from 10 – 26%. Similar rates of depression are also seen in adolescents with Type 2 diabetes or in populations with both Type 1 and Type 2 (8.6 – 14.8%) [14]

In general, the co-existence of diabetes and depression lowers the quality of life, leads to poor diabetes management, increased rates of complications, reduced life expectancy and increased burden on health care systems and related costs. [6]

Diabetes Stress or ‘Burnout’

Recent research has indicated the importance of distinguishing between depression and diabetes stress. This insight has practical implications for both diagnosis and treatment.

Diabetes stress or burnout is the term given to the state of disillusion, frustration and submission to the condition of diabetes. Put simply, it is the feeling of being unable to cope with diabetes. [18] [19] That outcome can apply to both the youth living with diabetes and their family.

The diabetes distress scale includes 4 components [6] [10]:

- * emotional burden (akin to depression)
- * regimen distress
- * physician related distress
- * interpersonal or relationships distress.

There is an overlap between depression and diabetes stress. Clinical diagnosis of depression does not necessarily mean the presence of diabetes stress. The presence of diabetes stress is more likely to be accompanied by depression.

Diabetes stress may arise in a relatively mild form in the first year or so after diagnosis but retreat as all involved adjust to the new reality. The potential for diabetes stress increases over time depending on the severity of the diabetes management demands.

Diabetes can be overwhelming, at times complex, requires constant attention, can be unforgiving and is plagued with uncertainty. [10]

To illustrate:

- * The initial learning curve is very steep and includes the need for attention to a wide range of new planning, measurement, evaluation and recording tasks (overwhelming, complex)
- * Risk of complications can never be eliminated (constant, unforgiving)
- * Symptoms such as dizziness might be ‘normal’ but could mean a low blood glucose level; agitation could be based on a routine cause but might mean high blood glucose (uncertain)
- * Parents of young children and adolescents may face an initial period of persistent sleep interruption arising from fears the youth may develop hypoglycemia while sleeping. Having to wake at intervals to check glucose levels can be a very wearing experience with all of the obvious impacts on daily productivity and motivation.
- * The youth may begin to feel like a burden on the family, siblings may get jealous about the extra attention being received from parents. Along with all the usual developmental issues that arise with adolescents seeking to define themselves and have more independence, the constant parental concerns about how they are managing and feeling can amplify feelings of resentment or cause undue stress.
- * Outside of the home and family, youth face the stress of wondering what and how to tell their friends, teachers and maybe the coaches of sports teams or leaders of other extracurricular involvements about their new condition.
- * Stress from new financial demands and the logistics of scheduling and keeping medical appointments can add to the collective burden.

In the general case, diabetes stress or burnout can be accompanied by a growing disregard for management of blood glucose levels. Parental oversight can minimize the potential for such behaviour in youth but there remain many opportunities for youth to stray from their essential protocols. Peer pressure and the desire to avoid being seen as ‘different’ can be contributors.

Youth may try to forget or avoid taking insulin injections or other required medication. They may try to revert to inappropriate eating habits and in the worst-case scenario, may undertake self-destructive behaviour.

Diabetes stress is an incubator and an amplifier for a wide range of emotional reactions. Anxiety, irritability, sadness, depression, anger, resentment, shame, guilt and a sense of helplessness are all potential outcomes for the youth or the family or both [9]

A basis for hope lies in the fact that many children and youth with diabetes are resilient.

Positive actions that are known to be helpful include increasing communication in the family and the presence of strong social support.

Increased family communication can provide greater emotional support and reflect caring and empathy from parents. When friends, teachers and extended family understand and support diabetes management, this can create a more comfortable reality for such tasks as checking glucose levels and administering insulin. Health care providers need to encourage and nurture such conditions.

Providing the youth with information about appropriate role models of successful young adults living with diabetes can be inspirational and a source of hope. Helping the youth to connect with peer groups of others living with diabetes can have positive impact.

The importance of listening cannot be overstated. *“Listening to families and validating and addressing their concerns will always remain the first step in helping families achieve a balance with diabetes and thriving.”* [11]

Gaps in Care

While welcome new initiatives emerge and existing programs expand in search of improvement, there remain major gaps in care for those living with mental illness.

According to the World Health Organization, *health systems have not yet adequately responded to the burden of mental disorders; as a consequence, the gap between the need for treatment and its provision is large all over the world. Between 76% and 85% of people with severe mental disorders receive no treatment for their disorder in low-income and middle-income countries; the corresponding range for high-income countries is also high: between 35% and 50%. A further compounding problem is the poor quality of care for those receiving treatment.* [29]

In very broad terms, health care systems are under-resourced in terms of support for youth living with mental illness. Either they are not able to keep up with rising demand or the services available are not located where and/or available when they are needed.

Two common issues for young people and their families seeking help are how to find their way into the system, and how long they have to wait for comprehensive care once they get there.

The Canadian Institute for Health Information (CIHI) has identified four gaps in the Canadian mental health care delivery system: services availability, services integration, timely access, and transition between child/youth and adult services. [25]

In Canada, only one in three people who experience a mental health problem or illness – and as few as one in four children or youth – report they have sought and received services and treatment. Some place the latter number at one in five. [27] [28]

Australia reports that even among young people with the most severe mental health problems, only 50% receive professional help. [26]

These gaps in care apply also to the comorbid conditions.

The lack of evidence based research amplifies the problem as does the requirement for effective transition from the pediatric to adult health care system. [24]

A recent US study reported various perspectives of adult endocrinologists and included the following

“Our findings support the high importance of enhanced information transfer and direct communication between pediatric and adult diabetes [care] providers, along with efforts to increase mental-health provider training and access and to implement educational opportunities for adult endocrinologists on behavioral health topics specific to young adults with type 1 diabetes,”

The report of the Mental Health Issues of Diabetes Conference (2015) contains similar observations:

- * *“There is a significant lack of mental health professionals who are knowledgeable about the mental health issues of people with diabetes, both in medical centres and in the community.*
- * *... initiatives are needed to correct the serious shortage of psychologists, psychiatrists, and social workers who are needed for integrated models of care,” [6]*

These observations reinforce previous statements that the ‘gaps’ exist not only within the pediatric care system for treatment of the comorbid conditions but also between the pediatric and adult health care systems.

There are no ‘quick fixes’ and much remains to be done.

Resources for further study

A comparative analysis of the similarities, and differences for selected factors common to obesity, diabetes and mental disorders including associated gaps in care and the current knowledge base [can be downloaded here](#).

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