Indian Diabetes

Issue No. 57, December 2019

Celebrating 4 years

EDUCATOR JOURNAL

AN EFFORT TO MAKE India A DIABETES CARE CAPITAL OF THE WORLD

Highlights of the month:

- Psychosocial Care for Positive Mental Health in Diabetes Patients
- Managing Diabetes Through Psychosocial Care
- Bidirectional Links Between Diabetes and Distress
- Think Before You Drink

Diabetes Self-Management Education/Support (DSME/S) is an Integral part of Diabetes Management

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Indian Diabetes EDUCATOR JOURNAL

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Indian Diabetes Educator Journal (IDEJ), first of its kind in India has successfully completed 4 years and continues its endeavor of spreading awareness, knowledge and enabling health care teams in managing diabetes patients and empowering their patients for self-care. We continue to keep the members of diabetes care abreast with concepts of Diabetes Self-Management Education/Support (DSME/S). IDEJ has set a new benchmark in educating the diabetes educator about evolving the concept of DSME/S, reaching to more than 25,000 doctors and diabetes educators digitally.

Complex factors comprising of environmental, social, behavioral and emotional factors, known as psychosocial factors influence the quality of life of people living with diabetes. Psychosocial factors also have a negative impact in achieving good medical outcomes and psychological well-being. Hence, individuals with diabetes and their families are challenged with complex, multifaceted issues when integrating diabetes care into daily life. This issue of IDEJ focuses on integrating psychosocial care in diabetes management. Our cover story talks about helping diabetes patients with anxiety, while rest of the sections cover various mental health problems experienced in patients with diabetes with special emphasis on elderly and young adults. In the lifestyle section, we also talk about how restricting what you drink can restrict the calorie intake.

We sincerely thank our contributors for making this issue delightful reading for our readers. We dedicate this journal to all the health care professionals who are working relentlessly towards making "India a Diabetes Care Capital of the World."

Sincere Regards,

Glycomet®-GP

You can contribute your articles, opinion, cases, recipes, experiences or write to us to if you want to subscribe to soft copy of IDEJ every month by sending an e-mail to:

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*DSME: Diabetes Self-Management Education, DSMS: Diabetes Self-Management Support

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Indian Diabetes
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COVER STORY:

A Little Care can Tackle Anxiety in Diabetes

Expert Opinion

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Introduction

Type 2 diabetes is linked to an increased occurrence of mental health problems, anxiety and depression being the most common of these. A diabetes patient with mental health problems is more susceptible to hyperglycemia, diabetes-related complications, coronary heart disease, poor quality of life and increased cost of health care.

IDENTIFYING ANXIETY IN TYPE 2 DIABETES PATIENT

Feeling of worry, nervousness or unease about an impending circumstance or event with uncertain outcomes.

Avoidance of certain people, places or events.

Physical sensations like rapid heartbeat, dizziness and sweating; and somatic complaints like headaches and gastrointestinal distress.

The link between diabetes and anxiety

According to researchers, there are two hypotheses linking type 2 diabetes with anxiety. The first one suggests that chronic clinical and subclinical anxiety may lead to type 2 diabetes mellitus or aggravate existing type 2 diabetes mellitus. This takes place through activation of the hypothalamic-pituitary-adrenal (HPA) axis, which releases counter-regulatory hormones like glucagon, epinephrine, norepinephrine, cortisol and growth hormone. These hormones increase blood glucose levels. In case of chronically elevated anxiety, insulin sensitivity may result due to the release of counter-regulatory hormones. Cortisol also plays a significant role by stimulating the sympathetic nervous system, which can elicit or aggravate the anxiety levels.

Another set of researchers hypothesize that diabetes leads to anxiety via two pathways. First, evidence suggests that people diagnosed with diabetes experience symptoms of anxiety as the diagnosis of diabetes is perceived to be synonymous with undesirable lifestyle changes, lose control over self-health and occurrence of diabetes-related complications such as retinopathy, neuropathy, sexual dysfunction and macrovascular complications. Another route cause of anxiety is the daily management of diabetes. Diabetes self-care is an integral part of treatment regime and may include dietary modifications, complicated medication regimens, exercise routines, smoking cessation and blood glucose monitoring. Patients are anxious about managing their type 2 diabetes mellitus and this distress is frequently linked with lower levels of adherence to diabetes care regimens, increased incidence of uncontrolled blood glucose and increased frequency of diabetes complications.

How to help diabetes patients experiencing anxiety?

Often wholesome diabetes care is fragmented in nature, where diabetes is managed by one doctor while the mental health issues are tackled by another mental health professional or behavioral health provider. This disconnect severely affects the diabetes care in a patient experiencing mental health complications such as anxiety. In view of this, a collaborative care model is the best approach to manage a diabetes patient.

Collaborative care provides interventions for physical and behavioral health needs in the primary care itself, and the mental health providers are embedded within the system itself. In this care, the patient is routinely given help in terms of facilitating self-management goal related to diabetes management as well as provided with individual psychotherapy to identify and treat mental health diagnoses.

Treatment considerations

Pharmacological treatments of anxiety in diabetes patients include selective serotonin reuptake inhibitors, serotonin and norepinephrine reuptake inhibitors, other antidepressants, benzodiazepines, atypical antipsychotics, β-blockers, gamma-aminobutyric acid (GABA)-analogs and anticholinergic medications. Although, there are concerns about weight gain being a potential side effect of antidepressants, which could also worsen metabolic status. However, research has shown that antidepressants have a favorable effect on glycemic control.

Psychological treatments include different forms of psychotherapy, with cognitive-behavioral therapy considered to be the first-line option. A meta-analysis of 12 randomized controlled trials has showed that cognitive-behavioral therapy improved anxiety and depression symptoms in diabetes, improved short- and medium-term glycemic control and may also offer benefits for diabetes-related distress and quality of life.

Lifestyle modifications can be beneficial in the management of diabetes and anxiety simultaneously. For instance, Mediterranean diet and exercise has been shown to be effective for the treatment of anxiety and offers remarkable health benefits to patients with diabetes.

A diabetes diagnosis and the lifestyle changes imposed by this new condition often cause worry and anxiety. In some patients, anxiety becomes significant and overwhelming. Anxiety has been seen to be more prevalent in people with diabetes than in the general population.

If anxiety can be identified at an early stage through a proper screening process at the time of routine diabetes check-up, it can be treated.

The role of a diabetes educator

- Screening assessment for anxiety in a diabetes patient with HbA1c levels >6.5, when they come for routine check-up.
- Brief health coaching session including diabetes education and self-monitoring of blood glucose.
- Educate the patient on relaxation techniques such as deep breathing exercise or relaxing breathing exercise (for improved blood glucose and hypertension in type 2 diabetes patients).

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ADA Recommendations About Psychosocial Care for People with Diabetes

Expert Opinion

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Introduction

Diabetes patients and their caregivers live in a complex environment owing to multifaceted aspect of diabetes management and care on a day-to-day basis. American Diabetes Association (ADA) has focused on the most common psychological factors affecting patients with diabetes. It also includes the needs of special populations and the contextual care associated with their needs.

GENERAL CONSIDERATIONS IN PSYCHOSOCIAL CARE

Psychosocial care should be integrated with collaborative, patient-centered medical care and provided to all people with diabetes.

Providers should consider an assessment of symptoms of diabetes distress, depression, anxiety and disordered eating and of cognitive capacities using patient-appropriate standardized/validated tools at the initial visit, at periodic intervals, and when there is a change in disease, treatment or life condition.

Monitoring patient performance of self-management behaviors and psychosocial factors, which may affect the self-management goals of the patient.

Consider assessment of life circumstances that can affect physical and psychological health outcomes and their incorporation into intervention strategies.

Address psychosocial probelms when identified. If an intervention cannot be initiated during the visit when the problem is identified, a follow-up visit or referral to a qualified behavioral health care provider may be scheduled during that visit.

RECOMMENDATIONS ON PSYCHSOCIAL ISSUES IMPACTING DIABETES SELF-MANAGEMENT

People with diabetes should be evaluated and receive training until they attain competence in diabetes self-care skills and the use of technologies at the time of diagnosis, annually, if/when complications arise and if/when transitions in care occur.

The diabetes care team is encouraged to directly and regularly assess these self-management behaviors.

Providers should consider the burden of treatment and patient level of confidence/self-efficacy for management behaviors as well as level of social and family support when making treatment recommendations.

RECOMMENDATIONS		
Diabetes distress	**Depression**	**Anxiety disorders**
Routinely monitor people with diabetes for diabetes distress particularly when treatment targets are not met and/or at the onset of diabetes complications.	Providers should consider annually screening all patients with diabetes. Beginning at diagnosis of complications or when there are significant changes in medical status, consider assessment for depression. Referrals for treatment of depression should be made to mental health providers with experience using cognitive-behavioral therapy, interpersonal therapy or other evidence-based treatment approaches in conjunction with collaborative care with the patient's diabetes treatment team.	Consider screening for anxiety in people exhibiting anxiety or worries regarding diabetes complications, insulin injections or infusion, taking medications and/or hypoglycemia that interfere with self-management behaviors and in those who express fear, dread or irrational thoughts and/or show anxiety symptoms such as avoidance behaviors, excessive repetitive behaviors or social withdrawal. Refer for treatment if anxiety is present. People with hypoglycemia unawareness, which can co-occur with fear of hypoglycemia, should be treated using Blood Glucose Awareness Training (or other evidence-based similar intervention) to help re-establish awareness of hypoglycemia and reduce fear of hypoglycemia.

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Managing Diabetes Through Psychosocial Care

Expert Opinion

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Introduction

While most of the diabetes care lays stress on the clinical aspects of management, psychological needs of the patients are left behind unattended. Several studies such as The Diabetes Attitudes, Wishes and Needs study have emphasized that the psychological support needed by this group of patients is undermined, under resourced and even insufficient. This results in poor quality of life and reduced overall health.

At least **3 in 5** people with diabetes have been found to experience emotional or psychological problems.

There is consistent evidence of elevated rates of depression and anxiety disorders at higher level in diabetes patients.

A survey of more than 9,000 diabetes patients in UK found that **64%** of the patients "sometimes or often" feel let down because of their disease.

The psychosocial challenges faced by the diabetes patients later leads them to depressive or other psychological problems linked with poor self-care behavior, poor metabolic outcomes, increased mortality, functional limitations, increased health care cost, loss of productivity and reduced quality of life. The emotional and psychological needs of the patients are compromised as a result of:

- A failure to meet the diabetes treatment management goals
- Diabetes associated complications affecting physical and psychological health.

Diabetes, complications and psychological impact

Diabetes and associated complications have a strong link to psychological and psychiatric problems of the patient. The psychological problems may be multifaceted starting from depression, fear of hypoglycemia and even poor-eating habits. Studies have revealed that diabetes patients are at 2 times higher risk of depression as compared to their healthy counterparts. This has a huge impact on their quality of life and general well-being.

Stress is another major challenging factor affecting the lives of diabetes patients. Diabetes patients suffer from high levels of diabetes-specific emotional stress which is linked with functional impairment, poor adherence to exercise, diet and medications and inadequate glycemic control.

Several studies have investigated psychosocial consequences of being stigmatized. The results reported that patients with diabetes experience feelings of fear, embarrassment, blame, guilt, anxiety and low self-esteem. Frequently people with diabetes are afraid of hypoglycemia, use of needles to monitor blood glucose, and concern over the chances of diabetes complications; which creates another level of stress in them. The burden of living with diabetes often plagues their thoughts constantly, which can be overwhelming and exhausting.

A helping hand

It is important to identify and help patients with psychosocial problems early in the disease spectrum. This will help them in adjusting to living with the disease and take self-responsibility for the management of diabetes. It is a well proven fact that if the patient's psychological needs are addressed adequately, there is an improvement in diabetes outcomes in terms of glucose control and comorbid conditions like depressed mood or other psychological problems.

Self-management

Effective self-management of diabetes is a crucial step towards achieving healthy and satisfying life. For this, the patient needs to be highly motivated and change his lifestyle and behavior adopting a healthy and positive approach.

A broad range of psychosocial factors such as memory, self-efficacy, diabetes-specific distress, depression and anxiety, family and friend involvement, the patient-provider relationship and broader social influences such as gender, age, culture and socioeconomic status has a strong impact on the adherence to prescribed diabetes regimen. Non-adherence to diabetes regimen can lead to serious complications including multiple systems of the body such as cardiovascular disease.

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Psychological Comorbidities Associated with Diabetes

Expert Opinion

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Introduction

Individuals with type 1 or type 2 diabetes are at an increased risk for depression, anxiety and eating disorders. The psychological comorbidities in diabetes affect the disease management in various ways. These are adherence to treatment, increased risk for serious sort- and long-term complications, which may lead to blindness, amputations, stroke, cognitive decline, reduced quality of life and premature death.

The challenge with these comorbidities is that when mental health comorbidities of diabetes are not diagnosed and treated, the financial implications for the society and health care systems are significant. In addition to the cost, psychological comorbidities also have a negative impact on the morbidity and health consequence for the patients.

Depression

Rates of depression among individuals with type 1 or type 2 diabetes across the life span are 2 times greater than in the general population.

Rates of depression higher in youth.

Young adults with type 1 diabetes are especially at risk for poor physical and mental health outcomes.

A two way relationship is observed where type 2 diabetes increases the risk for onset of major depression, similarly a major depressive disorder signals increased risk for onset of type 2 diabetes.

Diabetes distress is an exclusive phenomenon which occurs because almost all of diabetes care involves self-management behavior. This needs a balance of complex set of behavioral tasks by the person and family, 24 hours a day, without any 'off' days.

The good news is that depression can be successfully treated in persons with diabetes. Collaborative care has shown to achieve significant improvements in depression and glucose control as compared with psychotherapy and antidepressant medications, which can only control depression.

Anxiety disorders

Anxiety disorders can also occur in individuals with diabetes but without comorbid depression. Increased anxiety in type 1 or 2 diabetes patients may be seen at the first diagnosis of diabetes and when diabetes complications first occur.

Anxiety disorders have a multifaceted effects including an overlap with the symptoms of hypoglycemia, pre-existing anxiety about injections or blood draw may lead to severe anxiety or panic attacks when the person gets diagnosed with diabetes and fear of hypoglycemia, which can lead some patients to maintain blood glucose levels at above target levels.

Eating disorders

Women with type 1 diabetes are at a twofold risk for developing an eating disorder and in males with diabetes, a 1.9 times increased risk for developing eating disorders. Abnormal eating behavior in women with type 1 diabetes includes binge eating and caloric purging through insulin restriction.

Disordered eating behaviors persist and worsen over time. Women with diabetes and eating disorders have poor glycemic control, with higher rates of hospitalizations and retinopathy, neuropathy and premature death compared with those without eating disorders.

Impact of psychological disorders

The psychological disorders are associated with increases in repeat hospitalizations for diabetes among adolescents. The nonadherence to management protocols is a major cause for psychological comorbidities and diabetes. It not only has adverse effects on the diabetes outcomes, but is also marked with an increase in health care expenditures.

American Diabetes Association (ADA) recommends that "*People with diabetes should receive medical care from a team that may include physicians, nurse practitioners, physician's assistants, nurses, dietitians, pharmacists and mental health professionals with expertise in diabetes.*"

Identification and treating the mental health comorbidities among diabetes patients should be a health priority from economic, public health and humanitarian perspectives. This becomes much more important, when we know that young adults with diabetes are especially vulnerable to mental health comorbidities as they experience multiple transitions.

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Eating Disorder in a Diabetes Patient

Expert Opinion

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Introduction

Diagnosed eating disorders and subclinical disordered eating behavior have been linked to poor health outcomes in people with type 1 diabetes. Cross-sectional studies have showed a positive association between elevated A1c and diagnosed eating disorders, subclinical disordered eating behavior and intentional insulin omission. Diagnosable eating disorders and behaviors are also observed to be associated with diabetes complications like retinopathy, neuropathy, transient lipid abnormalities, hospitalizations for diabetic ketoacidosis and poor short-term metabolic control.

Eating disorders are probably more common among women with diabetes.

Among women with type 2 diabetes, binge eating is more common.

Bulimia is the most common eating disorders in women with type 1 diabetes.

Insulin and weight gain

Successful treatment with insulin improves glycemic control and with it comes the side effect in the form of weight gain. Increasing weight may lead to an increased need for insulin which is reflected in increased insulin dosage or secretagogues treatment. The increased insulin dose leads to increased hunger, hypoglycemia and dietary intake. Studies have reported that females with diabetes were significantly higher with elevated rates of disordered eating behavior.

Dysregulation of satiety

Beta-cell destruction seen in diabetes patients is the reason for body's inability to secrete both insulin and amylin. This contributes to dysregulation of appetite and satiety. Amylin plays a role in gastric emptying, glucagon secretion, lateral hypothalamic activity and weight regulation. All these are affected as acute anorectic effects of amylin. Amylin and insulin along with leptin, glucagon synergistically act with cholecystokinin to reduce appetite.

The effect of disordered eating behavior

The triggers for disordered eating behavior are dietary restraint, food preoccupation (carbohydrate monitoring and restriction, portion control and control of blood sugars through selective food intake) and programmed exercise. All these are integral components of diabetes treatment regimen. These factors are also used in weight loss programs. Dysfunctionality in eating behavior arises when these factors are used inappropriately for achieving a rapid weight loss, or used in extreme measures to interfere in the day-to-day activities.

Difficulty in managing diabetes through self-care may seem to be disordered eating behavior. Ongoing diabetes treatment exposes patients to situations and emotions, which are considered to be associated with the development of disordered eating behavior. Feelings of loss of autonomy or self-control are also linked to disordered eating behaviors in diabetes patients trying to lose weight.

TYPES OF EATING DISORDERS

Anorexia

- Centered around an obsessive fear of weight gain.
- Involves self-starvation and excessive weight loss.
- Physical consequences are serious and sometimes life-threatening.

Bulimia (Bulimia nervosa)

- Recurrent binge eating.
- Purging may occur with self-induced vomiting, laxatives, diuretics, insulin omission or reduction, fasting, severe diets or vigorous exercise.

Binge eating disorder (Compulsive overeating)

- Characterized by uncontrolled, impulsive or continuous eating beyond the point of feeling comfortably full.
- There may be sporadic fasts or repetitive diets and often feelings of shame of self-hatred after a binge.

Eating Disorders Not Otherwise Specified (EDNOS)

- Serious condition, intervention and attention are necessary.
- Eating problems with some, but not all, of the characteristics of an eating disorder.
- Chewing food and spitting it out (without swallowing).
- Bingeing and purging irregularly, such as at times of increased stress.

Disordered eating behavior in youth

Studies have suggested that disordered eating behaviors are prevalent among youth and young adults with type 1 and 2 diabetes, who are receiving insulin therapy. Disordered eating behavior is linked to poor clinical outcomes and psychosocial well-being in youngsters with diabetes. In fact, insulin omission or dose reduction is considered an easy method for weight management by adolescent and young adult females.

A team-based approach for the management of eating disorders in diabetes patients is the gold standard. Mental health professional along with other health care team members constitute part of diabetes management team. In some severe cases, hospitalization may be needed. Ongoing therapy at least once in a month or more frequently (if needed) may also be considered and given to the patient.

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Psychosocial Care of Adolescents and Young Adults with Diabetes

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Introduction

Diabetes in childhood has a permeating effect on the overall health of the child and involves the entire family, schools and society as a whole. Diabetes in infants, toddlers, older children and adolescents poses serious physical, mental and emotional challenges.

It is of utmost importance to strike a balance between hypoglycemia/hyperglycemia, growth/development and other life factors and this is not an easy task for the family, health care providers or patients. It is crucial that at the time of initial diagnosis, developmental, behavioral and psychosocial history of children and families is assessed.

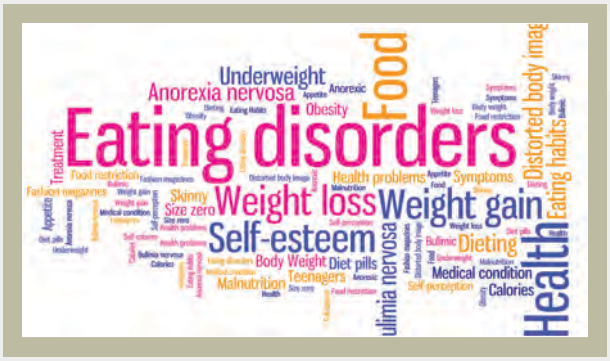
The families of the patients are burdened with high financial cost, misunderstandings, external and peer influences and the need to manage the diabetes.

Depression

Depression in adolescents with diabetes is laced with important psychosocial and physiological consequences. Depressive symptoms are accompanied with higher levels of suicidal thoughts. Depressive symptoms are also consider to be risk predictors for retinopathy and increased risk for hospitalization. Some studies have reported that depressive symptoms predicted later problems with metabolic control while others have suggested that every unit rise in glycosylated hemoglobin (HbA1c) increases the probability of depression by almost 27%.

Eating disorders and disordered eating behaviors

Eating disorders and disordered eating behaviors are also a cause of concern in adolescents with diabetes. Rates of eating disorders in adolescents with diabetes are almost twice as high as those without diabetes. Adolescent girls with diabetes are more likely to have eating disordered behavior including dieting for weight control, binge eating and purging, exercising to lose weight and/or unrealistic beliefs about size and weights.



Fear of hypoglycemia

Maintaining metabolic control as close to normal as possible increases the risk of hypoglycemia and this is an important reason for fear of hypoglycemia affecting diabetes management. Being the most common adverse effect of diabetes management, fear of hypoglycemia is likely to result from the fear of physical consequences such as loss of consciousness, nausea. Fear of social embarrassment related to the behavioral, motor and emotional changes is also linked with the fear of hypoglycemia. Adolescents who have fear of hypoglycemia may indulge in behaviors, which may avoid hypoglycemia such as taking lesser than prescribed or avoiding insulin and overeating. This makes it difficult for them to differentiate between symptoms due to anxiety or hypoglycemia such as sweating, shaking and nausea.

Psychosocial issues

Complex environmental, social, behavioral and emotional factors influence children living with diabetes. As per research, adolescents with type 2 diabetes report poorer quality of life as compared with the adolescents with type 1 diabetes. Depression in these youth may affect their ability to engage in healthy lifestyle behaviors, such as physical activity and healthy diet. Adolescents may be influenced by positive or negative behaviors in managing diabetes depending on the family type and functioning. Youth with diabetes also face parent distress, depressive symptoms and peer victimization.

Impact on families

The diagnosis of diabetes in the child is a cause of grief for the family members. Sometimes, this unresolved grief leads to families becoming dysfunctional if they were not already so. This chronic sorrow becomes a probable cause for psychosocial disorders in the child as well as the caregivers.

In addition, stressors such as divorce, family arguments, violence or abuse can further aggravate the blood glucose levels and increase the need for intervention from a supportive health care team.

Families play a crucial role in helping the children in adjusting to diabetes, the changed lifestyle and specific management care regimens. Diabetes impacts families' perception and knowledge about self-care and self-management. Diabetes in children even impacts the structure and functioning of the family as a whole.

A history of diabetes complications in relatives with diabetes also becomes a cause of concern for parents, affecting their optimistic or pessimistic approach in tackling diabetes.

Managing diabetes is the youth's responsibility

As a self-management disease, diabetes requires youth to adjust their insulin regimens based on blood glucose patterns they have identified. This needs to be linked to exercise, illness, types of foods eaten, etc. Awareness and education about diabetes management is also important for their proper cognitive function and management of glycemic control. However, this is a mammoth task because even with the most advanced technology such as insulin pumps, continuous glucose monitors and hybrid closed loop systems and can create neurodevelopmental and behavioral issues that can interfere with a child's ability to master diabetes self-management skills.

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People with Diabetes and Functional Limitations

Expert Opinion

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Introduction

In view of the global diabetes epidemic, it is crucial to look at functional disability as an important measure of health. In a well-functioning older population, diabetes is linked with early indicators of functional decline, even accounting for body composition and diabetes-related comorbidities. An important contributor is poor glycemic control. Diseases and impairments, including coronary heart disease, hypertension, peripheral arterial disease, stroke, peripheral neuropathy and visual and cognitive impairment are more common in diabetes patients. This excess morbidity could be an important causative factor for physical disability.

Physical disability and diabetes

Disability can be defined as including difficulties with activities of daily living, difficulties with instrumental activities of daily living and mobility limitations. The risk of disability associated with diabetes has been suggested to range from no association to a doubling of risk. Measures of activity of daily living include bathing, dressing, eating, walking across a room, transferring from a bed or chair and using the toilet. Measures of instrumental activities of daily living include using the phone, shopping and using transport.

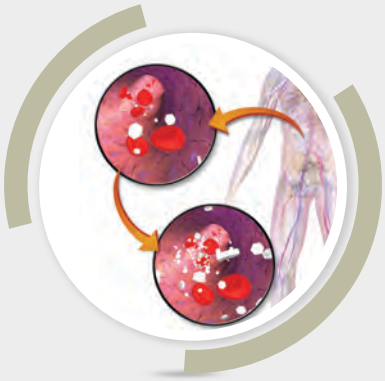
Self-reported function in activities of daily living and instrumental activities of daily living and/or by objective physical performance gives a measure of physical disability and dependency in older adults. Preclinical decline in function can often be recognized by self-report and performance measures and both are predictors of incident disability. Interventions to prevent or delay onset and progression to severe limitation or disability are guided by a diagnosis and understanding of the mechanisms of the relationship between subclinical function limitation and diabetes in well-functioning elderly.

Subclinical functional limitation in diabetes patients is also secondary to comorbid health conditions and diabetes complications such as osteoarthritis, depression, physical activity, smoking, etc.

Diabetes complications and diabetes

Diabetes increases the risk of disabling disorders including cardiovascular disease, retinopathy, renal failure and peripheral vascular disease. Physical disability is a useful measure of the overall effect of diabetes on health.

Hyperglycemia and physical disability



Even though the exact mechanism by which hyperglycemia leads to disability remain ambiguous, it is a well-established fact that high concentrations of glucose might lead to systemic, chronic inflammation, which is a part of multifactorial process eventually causes disability. Some studies have suggested that prolonged or chronic diabetes and poor glycemic control is an important factor for rapid loss and worsening of skeletal muscle strength and quality. The increased risk of disability from diabetes may be moderated by duration of diabetes and glycemic control, measured by HbA1c. Poor glycemic control and long duration of diabetes can lead to complications such as cardiovascular disease, stroke, peripheral vascular disease, renal disease, peripheral neuropathy and retinopathy all of which may result in disability.

Patients with impaired glucose tolerance are also at an increased risk of disability, even before the diabetes progression has ensued.

Fat and functional disability

There is a definitive association between body composition and subclinical function in diabetes patients. Higher body mass Index (BMI) and higher body fat is also responsible for disability in diabetes patients.

Conclusion

Diabetes is associated with a strong increase in the risk or physical disability. Efforts to promote healthy aging should account for this risk through prevention and management of diabetes.

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Psychosocial Care and Issues in Elderly

Expert Opinion

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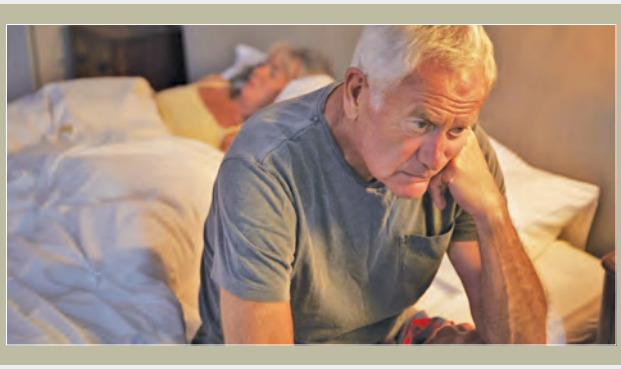
Introduction

The chance of getting diabetes increases as age increases. It is estimated that by 2035, the number of older adults with diabetes is projected to reach 253 million. Elderly suffering with diabetes have a higher rate of diabetes-related complications and are more likely to present with comorbid



conditions, such as cognitive dysfunction, falls and fractures, visual problems, chronic pain and psychosocial challenges such as depression, diabetes distress and anxiety, social isolation and comorbidity. All these are linked to worsening of blood glucose control and interference with self-care behaviors. In addition to all this, the direct and indirect costs of diabetes and its psychosocial challenges are also high.

Psychosocial challenges in the elderly

Depression

Elderly with diabetes are prone to facing exceedingly high rates of depression and depressive symptoms. Depression has a negative impact on adherence to self-care behavior and leads to worsening of blood glucose control. Depression is also linked with serious complications such as retinopathy, neuropathy, nephropathy, macrovascular complications of cardiovascular disease, hypertension, and sexual dysfunction, poor physical functioning, increased hospitalization and mortality. The challenge is that diagnosis and treatment of depression in older adults with diabetes is many a time underrecognized and undertreated.

Diabetes distress

Elderly with diabetes also experience diabetes distress which can be distinguished from depression as distress develops from living with diabetes. It includes frustration with self-care, concerns about diabetes complications and the future, worries about the quality of medical care and the cost of that care, and perceived lack of support from family members and/or friends. Diabetes distress is also associated with worsening glycemic control, reduced self-care and increased morbidity.

Anxiety

Many older adults with diabetes and depression also have comorbid anxiety disorders, such as generalized anxiety disorder or panic disorder. Comorbid anxiety disorders and elevated anxiety symptoms are associated with increased diabetes complications, worsened blood glucose levels, reduced quality of life, increased depression, increased body mass index (BMI) and greater disability. Anxiety may have a negative effect on the patient by increasing patient's difficulty in distinguishing between feelings of anxiety and symptoms of hypoglycemia, fear of taking insulin injections or possible needle phobia and managing blood glucose levels because of fear of hypoglycemia. This can also lead some patients to maintain blood glucose levels above target level.

Psychosocial care

It is important for health care practitioners to work along with or refer their patients to behavioral/mental health providers to offer psychosocial care of patients with diabetes. Care models should be so designed as to consider cultural influences, as well as personal, family and community resources, and custom-made care to the core values and lifestyle of the individual. The psychosocial factors which affect the self-care, an integral part of diabetes care regimen are diabetes distress, lack of social and economic resources and other psychosocial states including depression, anxiety, eating disorders, cognitive impairment, as well as health literacy and numeracy. The patient with diabetes should be evaluated at the initial visit and on follow-up visits even if there is no early patient specific indication.

Care providers should implement interventions to address the day-to-day problems of living with diabetes, especially diabetes-related distress related to self-management behaviors, as well as diabetes-related family conflict. In case of persistent problems, support from a behavioral health counselor becomes imminent.

Other factors to be considered for ongoing assessment and treatment planning should be patient perceptions about their own ability, or self-efficacy, to self-manage diabetes. Sub-optimal self-management may also be due to functional limitations (e.g., blindness, problems with dexterity, low health literacy and numeracy), lack of appropriate diabetes education, forgetting and disruption in routines, or psychosocial barriers, such as inadequate family and/or social support, misinformation or inaccurate beliefs about illness and treatment, emotional distress/depressive symptoms or deficits in problem solving or coping skills. Hence, it is important to assess individual needs before providing adequate psychosocial care for elderly diabetes patients.

Keeping the family/caregivers informed

Health care providers should communicate with patients/families should raise awareness that several factors impact glycemic control and emphasize the importance of following treatment regimens and recommended lifestyle changes to bring about a significant improvement in disease outcomes and well-being.

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The Bidirectional Link Between Depression and Diabetes

Expert Opinion

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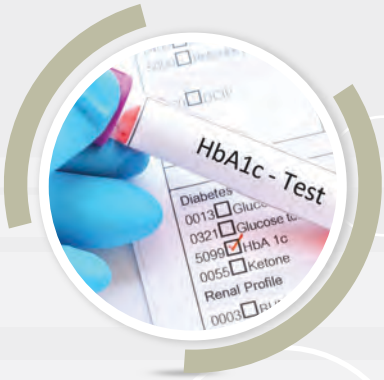
Prevalence of major depression in patients with diabetes mellitus is 12%.

15 to 35% diabetes patients have milder or elevated depressive symptoms.

Depresive symptoms are more common in patients with type 2 diabetes mellitus.

Clinical progression of depression in diabetes patients

Depression in diabetes is persistent and/or recurrent. Depressive symptoms are more prevalent in type 2 diabetes patients as compared with type 1 diabetes patients. Even after successful treatment of depression, recurrence is common in diabetes patients within the first year itself. The factors that are independently associated with persistence of major depression over time are younger age and higher comorbidity while younger age, female gender, lower education, higher comorbidity and higher HbA1c values were independently associated with persistence of elevated depressive symptoms.



Risk factors associated with depression in diabetes patients

The risk factors associated with the presence of depression in patients with diabetes include female sex, younger age, not having a spouse, poor social support, lower education, low socioeconomic status, poor glycemic control, presence of medical comorbidity and previous history of depression. A study showed that the presence of a history of depression is a significant factor that should be considered when risk factors are evaluated in association with the development of diabetes mellitus.

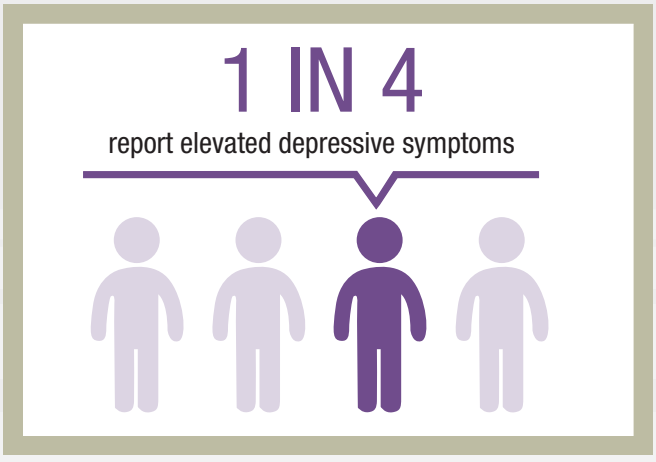
Another factor which has not been considered is the use of medication with a potential depressogenic effect, e.g., some antihypertensive agents commonly prescribed with diabetes mellitus and comorbid hypertension.

Bidirectional link between depression and diabetes

Research has suggested that there is a bidirectional relationship between depression and diabetes where the incidence of depression is increased in patients with diabetes and the incidence of diabetes, especially type 2 diabetes, is increased in patients with depression.

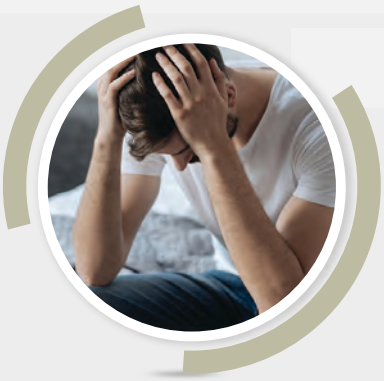
Several hypothesis have been put forward regarding the comorbidity of depression and diabetes; most of them focusing on the physiological burden of diabetes and on behavioral and biological factors. Some other factors which have been involved in causing depression are environmental factors such as childhood adversity, socioeconomic status; intrauterine environment like low birth weight, fetal undernutrition or pharmacologic treatment such as antidiabetic and antidepressant agents in incident diabetes and depression.

A diagnosis of diabetes may require significant lifestyle changes to optimize glucose and prevent diabetes associated complications. This may lead patients to exhibit depressive symptoms arising from their perception of how diabetes may adversely affect their life. A meta-analysis also recorded an increased risk of depression in patients who were diagnosed with diabetes compared with patients who had diabetes but were unaware of their diagnosis.



Lifestyle factors play an essential role in the etiology of both depression and type 2 diabetes mellitus. Patients with depressive symptoms such as reduced interest and pleasure in activities, fatigue and sleep and appetite abnormalities may be less likely to exercise and eat properly, which may lead to obesity. Obesity is prevalent in patients with depression and is a risk factor for metabolic syndrome, which may lead to type 2 diabetes mellitus.

The implication of comorbid depression in diabetes



Depression in diabetes patients is associated with poor self-care in terms of diabetes treatment (nonadherence), poor glycemic control, more long-term complications, decreased quality of life and increased unemployment and work disability.

However, depression can be successfully treated in diabetes patients. Several effectiveness trials have shown that diabetes and comorbid depression in primary care, have demonstrated significant improvements in depression and glucose control as well as medical cost savings.

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The Hidden Struggle of a Diabetes Patient: Diabetes Distress

Expert Opinion

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Introduction

Diabetes distress is a rational emotional response to a life-changing disease. It is distinctly different from depression, as it emerges from the demands of diabetes and emotional adjustment needed to tackle this demand.

Diabetes distress is prominently linked with HbA1c levels and with the chances of a diabetes patient adopting self-care behavior. The most significant factors contributing to diabetes distress are the lack of perceived support from family, friends and health care professionals.

High levels of diabetes distress are common and persistent over time.

High levels of diabetes distress have been significantly associated with poor glycemic control, poor self-care, low diabetes self-efficacy and poor quality of life.

It is distinct from clinical depression in their linkages with glycemic control and disease management.

Is it clinically relevant?

Diabetes distress is a unique situation where the hidden emotional burdens and worries become part of the spectrum of patient experience when managing severe demanding chronic disease like diabetes.

High levels of diabetes distress have been significantly associated with poor glycemic control, poor self-care, low diabetes self-efficacy and poor quality-of-life, even after controlling for clinical depression.

When to target diabetes distress?

Diabetes distress is a contributing factor to both depression and distress in the majority of adults with the disease. Traditional therapies include medication and psychotherapy. However, medications should be selected on the basis of side effect profiles, patient preferences and individual response to treatment.

Cognitive-behavioral therapy is a widely researched and validated type of psychotherapy. Some studies have suggested that it can improve medication adherence, depressive symptoms and glycemic control in patients with type 2 diabetes mellitus. Other approaches include interpersonal therapy, motivational interviewing, psychodynamic therapy and Web-based therapeutic approaches. Diabetes self-management education (DSME) is also an effective treatment for diabetes distress.

A “watchful-waiting” approach to treat mild depressive symptoms may also be used since almost 40% of patients will improve without any intervention. This includes observing the patient for 8-12 weeks for symptom changes while encouraging healthy lifestyle approaches to managing symptoms of major depressive disorder. Patients who have diabetes distress are unlikely to benefit from pharmacotherapy.

A referral to a mental health care provider may deem necessary in some cases. These include suspicion of a serious mental illness, ongoing self-care impairment after individualized patient education, ongoing disordered eating behavior or repeated hospitalizations for diabetic ketoacidosis.

Diabetes distress is commonly associated with diabetes and can significantly affect health outcomes. Clinicians should be aware of the common existence of major depressive disorder and diabetes distress in people with diabetes and be prepared to diagnose and manage these conditions as part of routine diabetes management using a multidisciplinary team based approach.

The role of a diabetes educator

- The health care professionals should demonstrate an understanding of diabetes distress.
- He/She should engage in active discussion with individuals struggling to cope with diabetes.
- DSME is an effective treatment for diabetes distress.

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Reversal of Diabetes: Myth or Reality

Expert Opinion

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Introduction

Conventionally diabetes is considered a lifelong association with drugs, diagnostics and devices. Further, the danger of complications looms at the horizon. The reversal of diabetes is what every diabetes patient aspires. Some recent studies have shown that this elusive dream can very well turn into reality.

What is the relationship between obesity and diabetes?

Obesity is the key risk factor for diabetes. Diets high in calories, particularly in refined carbohydrates, make insulin levels in the bloodstream to rise. Weight gain around the belly, so called central obesity and consistently high insulin levels, lead to the body's cell becoming resistant to insulin. Insulin resistance leads to an increase in blood sugar levels, particularly after meals. The pancreas produces more insulin to cope with rising blood sugar levels. Consistently high demand on the pancreas to produce extra insulin leads to the damage of insulin producing β-cells of the pancreas.

Best tool to avoid the progression from IGT to type 2 diabetes mellitus – Multimodal intervention:

- Weight reduction of >5%
- Fat intake <30% of energy intake
- Saturated fat <10% of energy intake
- Fiber intake - 1000 kcal or >15 g
- Physical activity of >30 minutes.

Is reversal of diabetes possible?

The evidence came from a path breaking DIRECT trial, which was carried out in primary care setting in United Kingdom. The result of this study revealed that type 2 diabetes patients who achieved rapid weight loss with a calorie restricted liquid diet, followed by gradual food re-introduction on a weight loss maintenance program, reached and remained in remission at 2 years.

The 2-year data also showed that the degree of weight loss was important with 64% of patients who lost at least 10 kg over the study period, were in remission at the end of follow-up. In addition, 70% of those who were in remission at 1 year remained so by 2 years.

The results finally pulled down the curtain on the era of the thought that type 2 diabetes is an inevitably irreversible disease. At 24 months, 36% of patients in the intervention group had achieved type 2 diabetes remission versus just 3% of those in the control arm ($p < 0.0001$).

Crucially, the data demonstrated that the percentage of patients taking diabetes medications decreased markedly in the intervention group, from 75% at baseline to 40% at 24 months. In contrast, the proportion of patients in the control group taking diabetes medications increased during the study period from 77% at baseline to 84% at 24 months. Achieving remission was tied to several factors, most notably weight loss. Of those participants, who lost >10 kg (about 22 pounds), 64% achieved remission at 2 years.

The destruction insulin producing β-cells is a hall mark of progressive type 2 diabetes. The researchers hypothesized that responders had some β-cells that were dormant. The weight loss and associated reduction in metabolic stress enabled insulin production to "restart". By taking the stress away (of toxic food), the specialist function of β-cells came back.

Despite losing weight, all patients did not achieve remission, as the duration of diabetes was important. The responders were diagnosed on an average 2.7 years before the study, whereas nonresponders were diagnosed on an average 3.8 years prior.

Low-carbohydrate Mediterranean diet

A study published in 2014 by the Second University of Naples showed that a low-carbohydrate Mediterranean diet was able to achieve significant rates of remission in people with type 2 diabetes after 1 year of following the diet, 15% of participants achieved remission on the diet which is a stunning achievement by comparison, low-fat diets were not as effective in the study. After 1 year, 4% of participants on a low-fat diet had achieved remission and after 6 years, 0% of participants had achieved remission.

Mediterranean diet consists of moderate amount of fat, mostly monounsaturated fats found in olive oil and polyunsaturated fats found in fish, canola oil, walnuts and other food. A carbohydrate comes from unrefined fiber-rich sources like whole wheat and beans. These diets are also rich in fruits and vegetables, nuts seeds and sea fish, with only modest amount of cheese and meat.

Intermittent fasting – an interesting case reported in *The Lancet* revealed that 3 patients who undertook intermittent fasting were able to withdraw their insulin. The minimum number of days to discontinuation of insulin was 5 days and the maximum was 18 days. Intermittent fasting as a modality of treatment and potential reversal of diabetes, holds great promise for us as fasting with low calories intake is imbued in our socio-religious milieu.

Psychosocial Care in Diabetes Management

Expert Opinion

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The biopsychosocial model of illness takes into account the psychological (thoughts, behavior, emotions) as well as social (socioeconomic status, culture, religion, poverty) factors that could have an impact on the course of chronic diseases. For instance, self-efficacy and adherence to regimen is critical for optimal medical outcomes as far as diabetes is concerned. According to World Health Organization (WHO), the nonadherence rates for chronic illness regimens and for lifestyle changes is close to 50%.[1]

Compliance with diabetes regimen includes four factors, viz. healthy diet, regular exercise, medication and blood glucose monitoring. Noncompliance with the diabetes regimen could lead to exacerbation of symptoms, disability, complications and even mortality. The psychological needs of individuals with diabetes are complex due to interaction of social, behavioral, environmental and emotional factors.[2] The psychological responses such as denial, anger and depression commence with the onset of diabetes, and adaptive coping strategies continue throughout the course of the illness.[3]

Although diabetes is a metabolic disorder, recurrent hypoglycemia or hyperglycemia as well as frequent episodes of diabetes ketoacidosis, could be due to psychosocial factors such as fasting, feasting, alcohol, erratic self-care and stress. Stress and non-compliance are the two main culprits that act as barriers to effective treatment of diabetes. Rigidity of habits and unhealthy lifestyle can be a huge deterrent, too. Sometimes, patients are unwilling to change, say, their diet pattern, timing or lifestyle, simply because they do not want to let go, or for some reason, feel they are being disloyal to their ingrained values, customs and traditions, e.g., fasting.

Many psychosocial factors such as lack of awareness, negative attitudes and health beliefs, low dietary adherence and barriers to compliance have been cited as reasons for suboptimal glycemic control.[4] Nonadherence not only leads to mortality and morbidity in the long run, but also increase in hospitalization, low quality of life and financial burden, intermittently.[5]

Despite wide spread awareness and education regarding diabetes, noncompliance continues to be a matter of concern due to several reasons:

1. **Social factors:** Social support plays an important role in diabetes management. Family members could be more understanding and less critical when the patient is noncompliant to find out the root cause.[1] Authoritarianism makes the patient more resistant and defiant, and eventually lead to social isolation.

2. **Cultural and religious factors:** Attitudes and health beliefs are often influenced by culture and religion. People have faith in indigenous medicine due to its therapeutic value.[6-8]

3. **Psychological factors:** Psychological problems such as depression, personality disorders, anxiety, maladaptive coping strategies and eating disorders lead to deviant behavior and aggravate metabolic control. Hence, identification of the above-mentioned problems, addressing the issues, as well as stress management techniques, could lead to efficacy in treatment also.[7]

4. **Personal factors:** Personal qualities of patients such as forgetfulness (to take the medication), lack of will power and discipline, and low motivation levels works in an adverse way. Occasionally, patients adopt a passive, defeatist role as they do not perceive any obvious benefits in complying with the regimen.

5. **Socioeconomic status:** Low socioeconomic status, financial constraints and low education level leads to poor adherence.[8]

6. **Misconceptions:** There is a general misconception regarding the chronicity of diabetes, as it is mainly asymptomatic. Deterioration in health and external symptoms is seen as a separate issue unrelated to diabetes. Therefore, mere alleviation of symptoms becomes the need of the hour. Traditional medicines are preferred due to so-called minimal side effects.[8]

Hence, a holistic approach rather than solely a pharmacological one would be more beneficial for diabetes management. Ideally, treatment should encompass a person-centred approach by identifying problems, psychosocial screening and diagnostic evaluation, for a better quality of life and psychological well-being.[2] Other factors that could affect medical outcomes include diabetes distress, psychological comorbidities, lifestyle and self-management.[9]

The Diabetes Attitudes Wishes Needs study which was a cross-sectional survey across 13 countries found that 41% of the diabetes population had psychological problems, whereas only 10% received appropriate treatment.[10] Indians with diabetes scored low on psychological well-being on the WHO-5 well-being index, as well as reported higher burden of social and personal distress due to diabetes.[10] Poor psychological well-being could impact glycemic control and eventually lead to complications. A study conducted in 2013 has shown that glycemic control in India among patients with type 2 diabetes is poor and prevalence of complications is high.[11] Hence, appropriate interventions to reduce diabetes-related distress, complications and depressive symptoms could lead to better quality of life. Individuals who get appropriate interventions for stress and mood disorders are more productive and healthier.[12]

In conclusion, psychosocial issues should be taken into consideration, as they may act as barriers to effective metabolic control and quality of life. From an individual point of view, the patient could benefit from four factors, viz. readiness to change, self-motivation, a sense of personal choice and internal locus of control, for better management of diabetes and positive health outcomes.

Points to remember

- The three most common psychological problems in diabetes are stress, anxiety and depression.
- There are many validated tools such as Patient Health Questionnaire-9 (PHQ-9), Hospital Anxiety and Depression Scale (HADS), Problem Areas In Diabetes (PAID) scale and Diabetes-related Distress Scale-17 items (DDS-17), to assess the aforementioned factors, in a clinical setting.
- If psychosocial issues are not addressed, could lead to poor glycemic control, complications and poor quality of life.
- Psychological, social and cultural factors influence health belief and attitudes.
- Hence, collaborative care with social workers, counselors, psychiatrists and diabetes educators could lead to better glycemic control.

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Lifestyle Modifications: Exercise

WARMING UP FOR WINTER EXERCISE

If you are starting a new exercise regime, don't overdo it. Slowly build the amount of exercise you do.

If you can't manage 30 minutes in one go, break it up into 10-minute chunks.

Always warm-up for up to 10 minutes before you start. Walk at a brisk pace, or jog to warm your muscles.

Make sure you are warm if you are going outside. Wear several layers to keep the heat in. A lot of heat escapes through your head, so consider wearing a hat as well.

Source: Exercising in winter. NHS. Available at: https://www.nhs.uk/live-well/exercise/safe-winter-exercise/

Lifestyle Modifications: Diet

Diabetic super fruit: Peach

Prunus persica, peaches are a stone fruit similar to cherries, plums, mangoes and lychees.

Peaches are not considered a 'nutrient-dense' fruit.

Peaches are low in sugar and a solid source of vitamins A, B and C.

The juicy flesh of peaches can be extremely refreshing and hydrating.

Peaches are associated with having a lower weight, lower BMI, prevent risk factors causing obesity-related metabolic disorders.

NUTRITIONAL VALUE OF PEACH FRUIT

51 calories, 12 g of total carbohydrates	Vitamins A, B and C	Good source of fiber	Vitamins E and K, iron, calcium, potassium, magnesium, manganese, phosphorus and zinc

Peaches have bioactive compounds that may help in preventing obesity, cardiovascular diseases and diabetes.

Phenolic compounds present in peach fruits have anti-obesity, anti-inflammatory and antidiabetic properties.

Peach may also reduce the oxidation of bad cholesterol low-density lipids, which is associated with cardiovascular disease.

Ellagic acid, a polyphenol-contained in peaches also exerts antidiabetic action on the β-cells of the pancreas.

The presence of ellagic acid in peach stimulates insulin secretion and decreases glucose intolerance.

Peaches have low glycemic index (Glycemic index of peach: 42).

Recipe of the month: Peach-Pineapple Crumblers

Peach-Pineapple crumbler is a great "portion control" dessert that will help you indulge without the guilt.

Filling

- Nonstick cooking spray
- Unsweetened frozen peach slices 2 cups
- Pineapple tidbits, packed in own juice, drained 1 (8-ounce)
- Fat-free sour cream ¼ cup
- Egg substitute ¼ cup
- Lemon juice 1½ teaspoon
- Vanilla, butter and nut flavoring or vanilla extract ½ teaspoon
- Brown sugar substitute blend, 1½ teaspoon
- White whole-wheat flour ½ cup

Topping

- Sugar 2 tablespoons
- Packed brown sugar substitute blend, 2 tablespoons
- White whole-wheat flour ¼ cup
- Ground cinnamon ¼ teaspoon
- Salt ⅛ teaspoon
- Canola oil 2 tablespoons

Methods

Step 1: Coat four 6-ounce ovenproof ramekins with cooking spray.

Step 2: In a medium bowl, combine all the filling ingredients, except the flour. Toss gently until well-blended. Add the flour and stir. Spoon equal amounts into each ramekin and set aside.

Step 3: In the same medium bowl, using a fork, stir together the topping ingredients, except the oil. Drizzle the oil evenly over all and toss gently until crumb texture is reached. Spoon equal amounts over each ramekin.

Step 4: Place the ramekins in a 6-quart slow cooker. Cover and cook on high only for 2½ hours. Remove cover and continue to cook 30 minutes or until top is set.

Step 5: Serve warm or room temperature.

NUTRITION VALUE PER SERVING

Energy: 300 cal

Protein: 6.0 g

Carbohydrates: 43 g

Sugar: 22 g

Fiber: 5 g

Fat: 8 g
Saturated fat: 0.5 g

Cholesterol: 0 mg

Sodium: 115 mg

Potassium: 230 mg

Source: The diabetes fast-fix slow-cooker cookbook. Available at: https://www.everydaydiabeticrecipes.com/Misc-Desserts/Individual-Peach-Pineapple-Crumblers-ADA

Diabetes Technology Update

Hypoglycemia alarms

A new research has developed a hypoglycemia alarm device with an automated electroencephalogram (EEG) algorithm predicting hypoglycemia in patients with type 1 diabetes and hypoglycemia unawareness.

The alarm device, currently under clinical trials, can be developed with a general algorithm for detection of hypoglycemia, based on EEG recordings and real-time processing.

The study with the alarm was conducted on patients with type 1 diabetes who were exposed to insulin-induced hypoglycemia terminated at nadir due to significant hypoglycemic symptoms or at blood glucose levels below 1.8 mmol/L for adults or 2.2 mmol/L for children. Additionally, the alarm device was tested during daily activity in adults with type 1 diabetes, allowing the detection of spontaneous hypoglycemic events.

The results of the study showed that for adults, the hypoglycemia-associated EEG changes were stable across age groups, duration of diabetes, sleep stage and hypoglycemia awareness status. Also, the hypoglycemia-induced EEG changes were not affected by recent antecedent hypoglycemia. The alarm successfully recorded spontaneous events of hypoglycemia during everyday activities in time for the patient to take appropriate action, avoiding progression to severe events. It was also able to detect hypoglycemia prior to blood glucose nadir in awake state during daytime in children. However, this device was not able to distinguish hypoglycemia from deep sleep patterns during sleep.

Source: 2015 Diabetes Technology Meeting Abstracts. Blaabjerg L, Remvig LS, Elsborg R, et al. Development of a hypoglycemia alarm based on electroencephalography. J Diabetes Sci Technol. 2016;10(2):476-611.

Conference Highlights

7TH ANNUAL CONFERENCE OF THE ASSOCIATION OF DIABETES EDUCATORS

The 7th Annual Conference of the Association of Diabetes Educators was held in Delhi on 16th and 17h November, 2019. The event organized by Association of Diabetes Educators India in collaboration Indian Dietetic Association, Delhi Chapter was based on the theme, "ART and Science of Diabetes."

The conference boasted of internationally acclaimed speakers such as Dr Hemraj Chandalia, Dr Ambrish Mithal, Dr Anoop Mishra, Dr Jasjeet Singh Wasir, Dr M Shafi Kuchay, Ms Niti Desai, Ms Charu Dua, Ms Meenakshi Bajaj and many more.

Along with scientific sessions, the conference also hosted an open house on the topic Diabetes LIVE by IDA and 6 hand-on-training technology workshops.

The conference has been of immense value for diabetes educators, nutritionists, physiotherapists, nurses, medical doctors working in the field of diabetes, diabetes researchers, NCD program managers, psychologists and pharmacists working in diabetes sector.

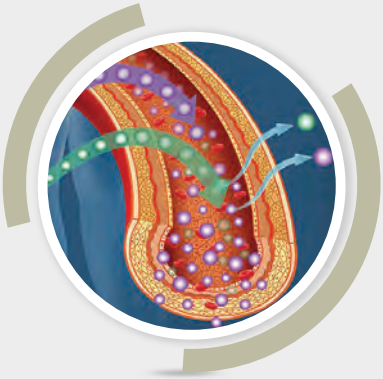
Diabetes Quiz

ANSWERS EVERY PATIENT OR CAREGIVER SHOULD KNOW!

Q-1

Psychosocial care should be integrated with medical care to optimize health outcomes and improve quality of life in people with diabetes.

- True
- False



Q-2

Screening for disordered or disrupted eating when hyperglycemia and weight loss are unexplained by self-reported behaviors is not necessary.

- True
- False

Q-3

Older adults with diabetes are at an increased risk of all types of dementia.

- True
- False

Answers

1 True

2 False

3 True

Educator Alert

Think before you drink

For everyone aspiring to lose weight, it is important to take in fewer calories than your body uses. Keeping a tablet on what you drink is a good way to reduce calorie intake.

What you drink makes a huge impact. There are a lot of options for reducing the number of calories in what you drink. The table below gives you an example of how you can reduce your calorie intake.

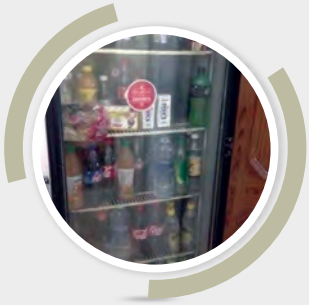
Occasion	Instead of...	Calories	Try…	Calories
Morning coffee shop run	Medium café latte (16 ounces) made with whole milk	265	Small café latter (12 ounces) made with fat-free milk	125
Lunchtime combo meal	20-oz. bottle of non-diet cola with your lunch	227	Bottle of water or diet soda	0
Afternoon break	Sweetened lemon iced tea from the vending machine (16 ounces)	180	Sparkling water with natural lemon flavor (not sweetened)	0
Dinnertime	A glass of non-diet ginger ale with your meal (12 ounces)	124	Water with a slice of lemon or lime, or seltzer water with a splash of 100% fruit juice	0 calories for the water with fruit slice or about 30 calories for seltzer water with 2 ounces of 100% orange juice
Total beverage calories		**796**		**125-155**

Source: USDA National Nutrient Database for Standard Reference

SOME TIPS FOR A BETTER BEVERAGE CHOICE

Choose water, diet or low-calorie beverages instead of sugar-sweetened beverages.

For a quick, easy and inexpensive thirst-quencher, carry a water bottle and refill it throughout the day.



Don't stock the fridge with sugar-sweetened beverages.

Serve water with meals. Make water more exciting by adding slices of lemon, lime, cucumber or watermelon or drink sparkling water.

Source: Rethink your drink. Centers for Disease Control and Prevention. CDC.

NOTES

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