An Overview of Treatments for Obesity in a Population With Mental Illness

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Obesity is associated with early mortality and has overtaken smoking as the health problem with the greatest impact on quality of life, mortality, and morbidity. Despite public health initiatives and numerous commercial enterprises focusing on weight loss, obesity rates continue to rise. In part, this is because obesity is a multifaceted, complex illness, impacted by numerous social, psychological, and behavioural factors that are unrecognized in most current initiatives. One significant factor associated with obesity is mental illness. While having a psychiatric illness does not make weight gain inevitable, it does often require that additional tools be added to lifestyle recommendations around diet and exercise. The following article reviews the common approaches to obesity management and addresses how these strategies can be implemented in psychiatric care. It is important that health professionals involved in the care of people with a mental illness become familiar with the interventions available to control and treat the obesity epidemic, as this will improve treatment compliance and ultimately lead to improved physical and psychological outcomes.

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Highlights

• Numerous different psychotherapy techniques are now applied, with varying degrees of success, to obesity treatment. Different modalities, such as cognitive-behavioural therapy, mindfulness therapy, interpersonal therapy, and motivational interviewing, all have potential to help combat weight gain.

• Pharmacological treatment of weight gain is very limited, but options exist that can be used in clients with weight problems and mental illness. This review looks at some of these options and explores current directions this field is taking.

• Bariatric surgery is an effective long-term treatment for obesity that is used more often in the clinical setting. This review examines both the impact of psychiatric illness on obesity management and the impact of obesity management on psychiatric illness.

Key Words: obesity, cognitive-behavioural therapy, bariatric surgery

Both primary and secondary prevention of obesity is challenging. As a consequence, 1 in 4 Canadian adults and 1 in 10 Canadian children are now clinically obese.¹ The World Health Organization, which refers to the escalating global epidemic of obesity as globesity, estimates that there are more than 1 billion overweight adults globally, of whom at least 300 million are obese (BMI > 30).² If obesity is termed an epidemic in the general population, then the current trends for weight in patients with a psychiatric illness defy description. This increased vulnerability to obesity is due to numerous factors. From a behavioural perspective, mental illness is often characterized by a symptom profile that impacts energy, appetite, and motivation, and is more likely to be associated with unhealthy lifestyle factors, such as smoking, alcohol, and drug use. This makes exercise and healthy nutritional choices more difficult to implement. Access to adequate primary and secondary prevention is also challenging for this patient population,³ making treatment in the early stages of illness unlikely. This behavioural vulnerability is further augmented by biological changes, such as inflammation, hypothalamic–pituitary–adrenal axis dysregulation, and abnormal levels of circulating signalling proteins involved in weight regulation, making weight gain more likely.⁴ The iatrogenic
impact of medication also drives this association, as many of the medications needed to control psychiatric illness have weight gain as a side effect. Combined, these factors make managing obesity in people with a mental illness a difficult endeavour. Given that obesity-related medical comorbidity contributes to a significant increase in premature mortality, and is a significant factor in medication nonadherence in patients with mental illness, this is a problem that needs to be addressed. The following article reviews various approaches to weight management and addresses how these strategies can be implemented in psychiatric care.

**Psychological Counselling for Weight Management**

**Cognitive-Behavioural Therapy**

CBT is a well researched and empirically supported form of psychotherapy that has been successfully applied to various psychiatric disorders. This treatment has traditionally been aimed at the dysfunctional, negativistic thinking characteristic of depressive disorders, with the fundamental goal of CBT being to challenge and restructure maladaptive cognitions to change patient perspectives and, as a consequence, associated behaviours. Within the general adult population seeking treatment for depression, several common cognitive distortions have been identified, and although research on this type of thinking pattern in the adult obese population is limited, multiple studies have demonstrated a positive relation between depressive symptoms and severity of obesity. Therefore, we can reasonably assert that negativistic thinking emerging from low mood associated with depressive symptoms and (or) perceived failure with weight management can lead to weight-related cognitive distortions as well (Table 1).

Based on the assumption that maladaptive cognitions can be changed via CBT, an increasing body of research has examined the role of CBT as an intervention for obesity-related depressogenic thinking. However, results of this work have been variable, and while the short-term combination of CBT and nutritional intervention has consistently been found to produce greater weight loss outcomes than is seen with dietary treatment alone, studies of long-term treatment effects are inconsistent. Werrij et al found that adding CBT to dietary treatment for obesity produced long-term effects, both in weight management and in the prevention of weight gain, suggesting that CBT has a prophylactic effect on weight, but other studies have not supported this assertion and suggest that most obese patients regain weight within 3 years, regardless of CBT intervention. These latter results are similar to those comparing CBT to behavioural therapy or guided self-help; while CBT was associated with greater initial weight loss, after 3 years, all groups had regained weight and looked similar. Inconsistency in CBT-based obesity research may be related to patient selection and study design, highlighting the complex myriad of factors that ultimately cause and perpetuate weight gain.

CBT is well documented as an effective intervention for BED, a disorder characterized by recurrent episodes of binge eating associated with feelings of loss of control and impulsivity that are often associated unhealthy weight and body shape concerns and low self-esteem. Between 30% and 50% of people with BED are also obese and obesity research has demonstrated that when CBT is compared to behavioural weight loss interventions (calorie restriction and exercise) for BED, CBT results in greater treatment effects than other interventions after both short- and long-term follow-up.

Patient selection and the way in which CBT is provided may play a role in terms of treatment efficacy for both BED and non-BED obese populations. There appears to be some consensus among obesity researchers on the key elements of CBT that have an effect on weight loss, and it has been suggested that components of successful CBT for obesity treatment include identifying readiness for change and goodness of fit between patient and treatment; self-monitoring by tracking weight and food behaviours; cognitive restructuring via challenging maladaptive cognitions; and, problem solving by developing a system of alternate food behaviours.

**Psychotherapies for Managing Obesity**

**Mindfulness Therapy**

Other forms of talk therapy have not been as well studied for their effectiveness in obesity, but literature does exist examining different psychotherapeutic techniques in this population. One such technique is Mindfulness-Based Stress Reduction, a well-established, systematic, patient-centred educational approach that uses training in mindfulness meditation to increase awareness and the ability to respond skilfully to experiences that contribute to emotional distress and maladaptive behaviour. Preliminary evidence suggests that modified mindfulness-based interventions can reduce binge-type eating in obese people without resulting in weight loss while a recent study of non-BED participants showed that mindfulness can result in significant changes.
in weight, eating behaviour, and psychological distress in obese people.

**Dialectical Behavioural Therapy**

DBT, which was originally developed for treating borderline personality disorder, focuses on introducing affect recognition and regulation skills to people with BED. DBT does not focus directly on binge episodes or on reducing binging, but rather on the dysregulated affect that can trigger binge eating. Significant positive outcomes for DBT-based treatment of people with BED have been documented, and a post-DBT binge abstinence rate of up to 89% has been recorded; unfortunately, about 28% of those have been shown to relapse.

**Interpersonal Psychotherapy**

IPT has also been examined as an alternative treatment to target BED by directly addressing the social and interpersonal deficits observed among these people and it has shown success rates similar to those found for CBT, demonstrating that treatment does not have to be focused on eating habits or attitudes about shape or weight for change to occur. IPT assumes that mastery of current social roles and adaptation to interpersonal situations are sufficient for treatment effectiveness because of the interrelation among negative mood, low self-esteem, interpersonal functioning, and eating behaviour and may perhaps be preferred in patients with low self-esteem and high eating disorder psychopathology.

Psychoeducational treatment may also play a role in obesity treatment, with psychoeducation for BED focusing on normalizing eating patterns and reducing weight and shape concerns. This type of therapy, like IPT, has been found to reduce binge frequency but has not been evaluated in a non-BED obese population.

### Motivational Interviewing

MI, a patient-centred counselling approach focused on exploring and resolving ambivalence, was initially developed for application within the substance abuse field and its effectiveness in this setting has been demonstrated in several systematic reviews and meta-analyses. MI is a strategy designed to enhance patients’ motivation for change and adherence to treatment and is fundamentally different from educational approaches in that motivation for change is elicited from people, rather than imparted by a health care provider, and, given the adherence problems that impact other weight loss interventions, this type of approach may be particularly well suited to weight loss, as it is designed in a way that allows patients to drive change when they are ready. In weight management, in contrast to substance abuse, the behaviour change process involves modification or addition, rather than elimination, of a behaviour (reshaping, rather than abstaining) and, as such, traditional MI approaches the need to be modified, but, despite this, a meta-analysis of 11 randomized controlled trials showed that MI resulted in a significant reduction in body weight. The effectiveness of MI, long term, still needs to be evaluated, but it does show promise as an effective psychotherapeutic option.

### Pharmacology for Obesity Management

The area of anti-obesity pharmacotherapy is fraught with controversy. There is currently only one medication approved for obesity treatment in Canada, orlistat, a lipase inhibitor that works via binding fat in the intestine and preventing absorption. Three different publications have explored the use of this medication in patients taking psychiatric medications, and although results have been positive, with up to a 6% loss of excess body weight reported, frequent adverse effects, such as oily spotting, flatulence, fecal urgency, increased defecation, and fecal incontinence, have limited its use. A strength of this drug is that its lack of central action makes it a safe option for the

<table>
<thead>
<tr>
<th>Cognitive distortion</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dichotomous thinking</strong> (all-or-nothing thinking)</td>
<td>Obese people are often at extreme ends of the food behaviour continuum, caught in either food restriction or overindulgence.</td>
<td>“I ate outside of my diet plan, so I’ve blown the entire diet.”</td>
</tr>
<tr>
<td><strong>Overgeneralizing</strong></td>
<td>Applying rules or facts from one situation to all other situations</td>
<td>“I’m failing with weight management, so I’m a failure as a person [or parent, etcetera].”</td>
</tr>
<tr>
<td><strong>Selective abstraction</strong></td>
<td>Focusing only on failures and disregarding or even disqualifying successes</td>
<td>Focusing on a small, recent weight gain and not acknowledging an overall loss.</td>
</tr>
<tr>
<td><strong>Self-references</strong></td>
<td>A person thinks they are the centre of others’ attention (similar to false audience)</td>
<td>“Everyone is looking at me and thinks I shouldn’t be eating this.”</td>
</tr>
</tbody>
</table>

Table 1: Cognitive distortions associated with obesity.
psychiatric population, as there is a very low potential for drug–drug interactions.

The only other medication that had been approved for obesity treatment in Canada was Sibutramine, a 5-HT and norepinephrine reuptake inhibitor that worked to suppress appetite and that initially began development as a potential AD. Although effective for weight loss, this medication was recently discontinued related to concerns it was associated with increased risk of cardiovascular events, such as heart attack and stroke. Work on the use of this medication in treating weight gain in patients with psychiatric illness has shown effectiveness for some, but not all patient populations, indicating that weight loss medication can play a role in combating weight gain in patients with mental illness.

While currently there are few options available in terms of anti-obesity pharmacotherapy, the field is constantly evolving. Most proposed weight loss agents act directly on the central nervous system, and a review of the 3 most recent unsuccessful candidates further illustrates the overlap between mental health and appetite control. The first medication to be turned down was lorcaserin, a selective 5-HT2C receptor agonist acting on the same serotonergic system that impacts mood; it was turned down by the United States Food and Drug Administration advisory board owing to concerns over potential risks of neoplasms, valvular heart disease, a higher incidence of depression, and cognitive adverse events, such as forgetfulness. It was followed first by Qnexa, a drug composed of a combination of topiramate, an anticonvulsant drug used off label in the treatment of BD, and the stimulant phentermine, which was rejected after tests showed that it was associated with numerous dangerous side effects, including suicidal thoughts, heart palpitations, memory lapses, and birth defects, and then by Contrave, a drug comprised of bupropion, an AD, and naltrexone, a medication used to treat opioid addiction. It was rejected because of cardiovascular concerns.

The brain areas regulating affect and those involved in appetitive control are closely linked from a neuroanatomical perspective, an association that may explain why, even before the use of psychiatric pharmacotherapy, patients with mental illness have higher rates of weight problems than the general population. This association also explains why it is important to monitor mood when using anti-obesity pharmacology. In 2009, an endocannabinoid partial agonist approved for weight management in 56 countries was recalled, worldwide, accompanied by a warning that “Depressive reactions may occur in patients who have no obvious risk factors, apart from obesity itself” in patients taking the medication. It was later reported that use of this medication was associated with psychiatric side effects, including anxiety, depression, and suicidal ideation. This highlights the need to be vigilant when using weight loss pharmacotherapy in patients with a mental illness. Medications such as topiramate, fluoxetine, fluvoxamine, reboxetine, phenylpropanolamine, amantadine, and metformin, and histamine receptor antagonists such as ranitidine have all been used off label for weight loss in patients with psychiatric illness, and while all options were shown to be safe, tolerability and efficacy were quite variable.

Even when completely efficacious, it is important to understand that anti-obesity medications promise, on average, only between 6% and 8% weight loss. While this number is clinically significant in terms of impacting health, it is often not reflective of patient goals and, as a result, may lead to frustration and treatment discontinuation. It is also essential to explore the use of over-the-counter medications in patients, as the lack of prescription options, coupled with increasing rates of obesity, result in an increased reliance on products that may contain stimulants or other psychoactive compounds that could potentially interact with psychiatric medications and alter illness control.

### Bariatric Surgery

The acceptance and availability of bariatric surgery as a tool for weight management has dramatically increased during the last decade. The number of bariatric surgeries performed in Canada increased from 78 per year in 2000–2001 to over 1100 in 2002–2003, and it is projected that by 2012, 2000 procedures will be done in Ontario alone. In part, the appeal of bariatric surgery is related to the significant impact this procedure, which is in essence a type of forced behavioural modification, can have on weight loss and weight maintenance. While short-term studies of reduced calorie diets often show an initial weight loss of 5%
to 10% of total body weight, long-term studies have shown that 29% to 64% of dieters regain more weight than what was initially lost.64 Even gold-standard, best-case scenario pharmacologic treatments for obesity promise, on average, weight loss of only 4% to 6% in excess of that achieved through dietary or lifestyle interventions,65 leaving surgery, which results in an average loss of 20% to 30% of initial weight as the most efficacious option for many people with significant weight problems.

According both to 2009 guidelines from The Obesity Society and American Society for Metabolic & Bariatric Surgery66 and to more recent recommendations using the Canadian Edmonton Obesity Staging System,67 most morbidly obese people with a controlled mental illness are candidates for bariatric surgery (Table 2)66 and, in fact, people with mental illness are overrepresented in the population seeking this procedure. The prevalence of Axis I disorders among weight loss surgery candidates ranges from 20% to 60%, with mood and anxiety disorders being most common,68,69 while Axis II disorders are seen in about 25% of surgical candidates.70 The literature regarding the impact of a pre-existing psychiatric diagnosis on surgical outcomes is mixed, and while several studies have shown preoperative depression has been associated with less-than-expected weight loss, others have found greater weight loss in those with higher preoperative depressive symptomatology.71 Surgical candidates with chronic illnesses such as BD have also been found to have outcomes similar to those found in a population without psychiatric illness,72 while illnesses such as BED appear successfully controlled by some types of surgery.73

While there is no accepted consensus as to appropriate mental health screening that should be used before bariatric surgery, an increasing number of weight loss surgery programs now require some type of mental health evaluation74 before surgery. This is because psychological variables, such as coping skills, psychosocial stability and support, degree of self-efficacy, and an understanding of surgical procedures, and the types of behavioural changes that postsurgical life requires, have been shown to be related to satisfaction and success postoperatively.75 Concern has also been raised regarding higher rates of suicide found in the postbariatric population.76,77 This association has been poorly studied and may be related to poor preoperative patient selection and inadequate follow-up; however, a signal exists linking suicide to bariatric surgery illustrates the need to further investigate this association. In terms of prevalence, the surgical procedure with perhaps the highest number of postoperative suicide attempts is cosmetic breast augmentation,78 and it may be that a shared psychological risk factor, that of unrealistic expectations, postoperatively, accounts for an increase in self-harm behaviours in both populations.79

Bariatric surgery is not a treatment for depression and is not a panacea to improve dysfunctional interpersonal relationships or psychosocial stress. It is important that patients clearly understand what can be altered with this procedure and what requires different types of treatment, preferably before engaging in a life-changing surgical procedure.

Altered drug absorption is also a potential issue, postoperatively, and requires attention after a person has surgery. A meta-analysis of bariatric surgery outcomes revealed the mean percentage of excess weight loss was 61%, and, even though not all patients achieve the World Health Organization definition of a healthy BMI (that is, 18.5 to 24.99), 2 substantial improvements or resolution of obesity-related diseases can still be achieved. In an analysis of 22 000 patients who received bariatric surgery, diabetes resolved in 76% of patients, hypertension resolved in 61% of patients, and obstructive sleep apnea resolved in 85% of patients,80 resulting in a significant reduction in the need for pharmacotherapy. This behaviour, while seemingly positive, does need to be monitored, however, as a reduced need for medication may inappropriately be extended to noncompliance with psychiatric medication use, as some patients incorrectly assume that surgery has reduced their need for any type of pharmacotherapy.81 Interesting, for some patients the exact opposite is seen, and postoperative psychiatric management requires an increase in medication dosing. Both types of surgery commonly performed in Canada, the Roux-en Y gastric bypass and laparoscopic adjustable gastric banding,82 result in decreased gut transit time, altered gut pH, and a decrease in gut surface area, all of which are variables that impact medication pharmacokinetics, and, as a consequence, drug absorption and efficacy. This may be particularly true for controlled release or long-acting preparations,83 which, because of a favourable weight side effect profile, are commonly used in a bariatric population. However, alterations in drug absorption are highly variable and have a clinical impact in only a minimum of patients.83 However, a change in symptom control in the immediate postoperative period may be a marker that pharmacotherapy needs to be addressed and often necessitates an increase in dose or a medication switch.

A primary objective of mental health screening is to identify and exclude patients with a significant, poorly controlled psychiatric illness or active substance dependence. Mental health evaluation may also identify addressable barriers to weight management.

Contraindications to bariatric surgery include current drug or alcohol abuse, severe uncontrolled psychiatric illness, and lack of comprehension of risks, benefits, expected outcomes, and alternative and lifestyle changes required with bariatric surgery.66 However, identifying candidates who, from a psychological perspective, are not yet ready for surgery is difficult, and, along with a screening interview, often includes use of screening instruments for disordered eating and mood disorders, such as the Beck Depression Inventory-II and the Eating Disorders Questionnaire.84 However, caution should be used in interpreting results of
rating scales alone, as surgically focused candidates may minimize symptoms in hopes of presenting as appropriate for surgery.88 Obesity-related somatic symptoms may also falsely elevate depression scores on rating scales.86

**Conclusion**

Obesity is associated with early mortality and has overtaken smoking as the health problem with the biggest impact on quality of life, mortality, and morbidity.37 The Canadian Medical Association responded to the rise in obesity rates by publishing practice guidelines for the prevention and treatment of obesity for children and adults,1 and, since the publication of these guidelines, there have been numerous population-based, public health interventions that attempted to reduce the risk of developing obesity across the lifespan. Despite all these efforts, however, obesity rates continue to rise. In part, this is because obesity is a multifaceted, complex illness, impacted by numerous social, psychological, and behavioural factors that are unrecognized in most current initiatives. Perhaps the biggest of these factors is that of mental illness.88 Having a psychiatric illness does not make weight gain inevitable, but it does often require that additional tools be added to lifestyle recommendations around diet and exercise. We also need to be aware of the role of weight basis [Dr Taylor: Do you mean bias or biases?], as this population is often subject to prejudice and discrimination, and treatment of any type may need to incorporate tools to alleviate feelings of rejection and guilt. This discrimination can range from environmental barriers (for example, chairs too small and not being able to find medical equipment in an appropriate size) to interpersonal attacks.89 Weight-based stigmatization is a common experience among obese people seeking treatment, and these experiences are associated with deleterious consequences. It is important as practitioners involved in the care of people with a mental illness that we become familiar with the interventions available to control and treat obesity, as well as the underlying complex factors that having this illness, as this will improve treatment compliance and ultimately lead to improved physical and psychological outcomes.

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