



Background

The Alberta Health Services (AHS) Provincial Psychology Professional Practice Council (PPPPC) identified an opportunity to support local efforts to advance clarity of the psychologists' role and evidence based practice in health care. Each of these resources is developed independently by AHS psychologists, and reviewed by the AHS PPPPC. We are pleased to share this information to support both psychologists' practice and leaders' awareness of the quality and cost-effective impacts psychologists can bring to programs, to further quality, patient and family centred care.

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The Role of Psychologists on Bariatric Health Care Teams

Psychologists provide:

- Pre-bariatric surgery psychological assessments
- Screening assessment for behavioural weight management interventions
- Lifestyle modification
- Cognitive Behavioural therapy (CBT) for obesity
- Mindfulness-based therapies as adjunct to CBT
- Psychotherapy to treat comorbidities such as depression, binge eating disorder, anxiety and ADHD

Obesity: Definitions, Prevalence, Trends

- Health Canada¹ defines obesity as a body mass index (BMI, i.e., weight in kilograms/height in meters²) > 30. Obesity is further classified according to health risk: Class I BMI=30-34.9 kg/m²; Class II BMI = 35-39.9 kg/m²; Class III BMI ≥ 40 kg/m².¹
- Obesity is considered a disease state when the accumulation of excess adipose tissue impairs health.^{2,3} Obesity is associated with numerous

medical and psychological comorbidities, including type II diabetes (T2D), hypertension, dyslipidemia, coronary artery disease, depression, and eating disorders.^{2,4}

- Globally, 5% of children and 12% of adults are obese.⁵ In 2012, 3 in 10 Albertans were obese.⁶ In 2014, 28.1% of Canadian adults were living with obesity.⁷ Obesity-associated costs were estimated at 7.1 billion CAD in 2008⁸ and will reach 8.8 billion by 2021.⁹
- Although obesity is a global pandemic affecting all demographics⁵, ethnic minorities and individuals of lower socioeconomic status (SES) may be disproportionately affected.¹⁰ In Alberta, obesity is most prevalent among low-income adults (35%), and the least educated (i.e., less than high-school, 35%).⁶ In contrast to global and national trends, Caucasian Albertans are more likely to be obese (29%) than ethnic minorities (23%).¹¹

Typical Psychosocial Issues among Patients with Obesity

Psychological Distress

- Obesity is associated with a 25% increased risk of mood and anxiety disorders.¹² The prevalence of mood and anxiety disorders may be even higher among patients with obesity seeking bariatric surgery.¹³⁻¹⁵
 - *Depression.* The association between obesity and depression appears to be reciprocal (i.e., having one condition increases risk for developing the other).¹⁶ A recent meta-analysis reported that up to 19% of bariatric-surgery candidates had depression.¹⁵
 - *Anxiety.* Patients with obesity are up to 40% more likely to have an anxiety disorder than healthy-weight individuals.¹⁷ A recent meta-analysis reported that 12% of patients seeking bariatric surgery had an anxiety disorder.^{15,17}
 - *Stress.* Psychological stress associated with obesity has negative health implications and may exacerbate or lead to the development of psychiatric disorders.¹⁸ In particular, the stress associated with experiencing weight-bias and discrimination is thought to exacerbate obesity and impact patients' health and wellbeing.¹⁸⁻²⁰

Eating Disorders

- Binge eating disorder (BED) is more prevalent among adults with obesity (i.e., 10-15% with mild obesity, up to 40% with severe obesity) than expected (2%) and occurs more frequently in women.³ 17-30% of patients seeking bariatric surgery have BED^{14,15} and up to 50% may engage in binge eating to some degree.¹⁴ Other maladaptive eating behaviours common among patients with obesity include: Night Eating Syndrome, grazing, compensatory behaviours (e.g., induced vomiting), weight cycling, and emotional eating.^{3,14}

Sleep Disorders

- Short sleep duration (i.e., < 6 hrs/night) increases risk for all-cause mortality and is associated with a myriad of medical conditions, including obesity and related comorbidities.²¹ A large meta-analysis found that short sleep elevates the risk for obesity by 38%.²¹ In addition to short sleep duration, obstructive sleep apnea (OSA) is common among patients with obesity.^{3,22,23} Specifically, a 10% increase in body weight corresponds to a six-fold increase in risk for developing OSA.³

Attention Deficit-Hyperactivity Disorder (ADHD)

- A recent meta-analysis reported a clear association between ADHD and obesity. Specifically, the pooled prevalence of obesity is 70% higher among adults with ADHD relative to adults who do not have ADHD.²⁴ Up to 40% of patients with Class III obesity may have comorbid ADHD.³

Addiction/Substance Use Disorder

- Although not currently recognized as a DSM-5 clinical disorder, a growing literature suggests that food addiction is prevalent among individuals with obesity.^{25,26} Food addiction is characterized by common symptoms of substance dependence including tolerance, withdrawal, regularly consuming more food than intended, and an inability to control eating.²⁵ One meta-analysis reported that up to 25% of individuals with overweight or obesity may also be addicted to food.²⁶ It is still not clear

whether patients with obesity are at an increased risk for developing other substance use disorders.^{12,27}

Trauma and Abuse

- Many patients with obesity report a history of childhood maltreatment, abuse or neglect.³ Trauma history appears particularly prevalent among those with BED.²⁷ Obesity is also common among individuals with Post Traumatic Stress Disorder (PTSD).³ Meta-analyses have found that experiencing maltreatment (i.e., physical, sexual, and/or emotional abuse and/or neglect) during childhood was associated with approximately 35% increased odds of obesity in adulthood.^{28,29} This relationship is subject to dose-response effects (i.e., as severity of childhood abuse increased, so too did the odds of having obesity).²⁹

Chronic Pain

- There are well-documented associations between obesity and chronic pain conditions, including musculoskeletal pain, osteoarthritis (particularly of the knee), neuropathic pain, and fibromyalgia.^{3,30} The prevalence of chronic pain among adults with obesity may be as high as 40%, and reported pain tends to increase with BMI.^{30,31} One large survey study ($n = 1,062,271$) found that adults with Class I, II, and III obesity experienced 68%, 136%, and 254% more pain than normal-weight individuals, respectively.³¹

The Role of Psychological Factors in the Onset/Maintenance of Obesity

Mood Disorders and Depression

- Depression can impact patients' motivation, concentration, planning, organization and decision-making.³ These symptoms in turn negatively impact ability to implement and adhere to either surgical or lifestyle interventions aimed at weight-loss.^{3,14}

Anxiety

- A number of factors associated with obesity may contribute to the development of an anxiety disorder. For example, the experience of weight-stigma and discrimination as well as negative health consequences of obesity (e.g.,

T2D, hypertension) may be extremely distressing.^{17,32,33}

- Anxiety may exacerbate obesity by encouraging maladaptive regulatory strategies such as emotional overeating and sedentary behavior.^{3,34}
- Avoidance behaviours characteristic of some anxiety disorders that (e.g., agoraphobia, panic disorder, social phobia) may impact patient adherence to treatment plans (e.g., attendance at follow-up appointments post-bariatric surgery).¹⁴

Stress

- Stress may promote and maintain obesity through psychological and physiological mechanisms.
- The experience of stress may reduce concentration and interfere with patients' efforts to implement healthy lifestyle changes.³
- Chronic stress leads to Hypothalamus-Pituitary Axis (HPA) dysregulation and increased serum cortisol.^{3,35} These metabolic changes promote appetite and cravings for high-calorie foods.^{3,17} Elevated glucocorticoids "increase the salience of pleasurable or compulsive activities" and increase abdominal fat deposits.³⁵

Eating Disorders (ED)

- BED is the most common ED among patients with obesity.³ BED interferes with weight loss through excessive calorie consumption in the absence of compensatory behaviours.²⁷
- BED makes adherence to lifestyle changes (e.g., observing a daily calorie limit) difficult, and patients with BED are prone to weight recidivism.³ Currently, research on whether BED prior to bariatric surgery contradicts post-surgery weight loss are inconclusive.^{14,15}
- Loss of Control eating, a central diagnostic feature of BED, is the ED symptom most-related to severity of impairment, presence of psychopathology, post-surgery eating pathology, depression and low quality of life in patients seeking bariatric surgery.¹⁴

Sleep Disorders

- Short sleep or low sleep quality may promote obesity by disrupting the neuroendocrine system. Sleep deprivation increases serum cortisol and decreases serum leptin, both of which

stimulate appetite and promote weight gain.^{3,23}

- Additionally, spending more time awake may provide more opportunity for eating, and daytime fatigue and low mood discourage physical activity and decrease motivation to engage in healthy behaviours (e.g., cooking meals).³
- OSA is one common source of sleep deprivation among individuals with obesity.³ OSA usually improves or resolves with weight loss.³⁶ However, treating OSA with CPAP therapy is important to facilitating weight-loss and improving the metabolic abnormalities associated with OSA and obesity.³⁷

ADHD

- Deficits in executive function characteristic of adult ADHD (e.g., planning, organization, memory) may promote weight gain and interfere with weight loss.^{3,14,24,38} Specifically, it has been suggested that inattention and impulsivity problems common to ADHD make healthy lifestyle changes (e.g., attending medical appointments, monitoring food intake, and noticing hunger/satiety cues) challenging.^{3,38}
- Deficient emotional self-regulation (DESR) is also observed in a substantial majority (i.e., 60-80%) of adults with ADHD.³⁹⁻⁴² It has been suggested that some individuals with DESR may turn to food in an attempt to regulate or avoid negative emotions.^{14,43}
- There is growing evidence that pharmacologic ADHD treatment improves impulsivity and inattention, and promotes weight-loss in patients with ADHD and obesity.^{3,44,45}

Addiction

- The addictive properties of food appear to align with neural mechanisms involved in other drugs of abuse. Specifically, eating triggers the opiate and dopamine neural pathways and may result in food addiction. Dopamine is released when a desirable food is eaten; this effect may intensify over time, especially if the food is perceived as rewarding.²⁵ Similarly, eating can trigger the release of endogenous opioids, producing a mild analgesia.²⁵ This analgesic effect may prove particularly addictive to patients with obesity and chronic pain.³⁰

Trauma and Abuse

- Mechanisms by which abuse and trauma promote obesity include: maladaptive coping strategies (e.g., emotional eating), low self-esteem, food insecurity, disturbances in sleeping and eating patterns (due to poverty, for example), unhealthy lifestyle habits, physical/psychological stress, increased inflammatory response, metabolic disturbances.^{3,28,29}

Chronic Pain Disorders

- A number of plausible mechanisms may explain the association between pain and obesity, including: metabolic mechanisms (i.e., obesity leads to inflammation), biomechanical/structural mechanisms (excess weight impacts body mechanics, including gait, posture, abdominal and extensor muscles, reduced spinal disc height), and behavioural mechanisms (i.e. eating induces a mild analgesia via neural reward pathways and endogenous opioid system)³⁰
- Experiencing chronic pain increases psychological and physiological stress and leads to reduced physical activity and even immobility.³ Resultant decreases in lean muscle mass and cardiopulmonary fitness may promote weight gain.³
- Weight-reduction alleviates pain and improves quality of life in many patients with obesity and chronic pain.³⁰

Psychological Assessment Services in Bariatric Populations

- Generally, a more extensive psychosocial assessment is recommended for patients seeking bariatric surgery^{2,14} vs. assessment prior to commencing a behavioural weight management plan.^{3,4}
- A combination of self-report questionnaires, structured/semi-structured interviews and other screening instruments may be used in assessment. Some common instruments used in practice include: PHQ9 (Depression), GAD-7 (Anxiety), ASRSv.1 (ADHD), STOP-Bang (Sleep Apnea), clinical interview for assessing history of trauma, chronic pain, etc.

Assessment in General Practice

- In addition to medical assessment, current Canadian guidelines recommend psychosocial

assessment that includes screening for depression, eating, and mood disorders as well as patient readiness to change and barriers to weight loss.⁴ Assessment should be completed by a Clinical Psychologist or Psychiatrist.⁴

- A thorough lifestyle assessment is also critical to ascertain: detailed eating patterns (i.e., sub-clinical symptoms of disordered eating such as meal-skipping, eating in response to stress, emotions, or boredom, mindless eating, night eating, grazing, restriction/yo-yo dieting, shame/guilt around eating, etc.), and current exercise/physical activity.³

Assessment in Bariatric Surgery-Seeking Patients

- Recent recommendations for the pre-surgical psychosocial evaluation of patients seeking bariatric surgery state that: “psychosocial factors have significant potential to affect long-term outcomes of bariatric surgery, including emotional adjustment, adherence to the recommended postoperative lifestyle regimen, weight loss outcomes, and co-morbidity improvement and or resolution.”¹⁴
- In addition to assessing for depression, eating disorders, and mood disorders, guidelines for pre-surgical assessment include: loss-of-control eating, compensatory behaviours, suicidality, anxiety, developmental & family history, history of hospitalization and/or treatment for mental disorders, current quality of life, probability of adherence to post-surgery lifestyle modification, motivation to receive surgery, etc.^{2,14}

Psychological Interventions in Obesity

- Lifestyle modification is recommended as the gold standard treatment for obesity.^{3,4} Pharmacotherapy is sometimes used as an adjunct to behavior therapy,^{3,46} and anti-obesity medications (e.g., Orlistat, Liraglutide) are associated with at least 5% body weight loss.⁴⁶ However, these medications have numerous side effects, and weight is almost always regained upon discontinuation.³ Bariatric surgery may be recommended in cases of severe, chronic, and treatment-resistant obesity.^{3,4,47}

- Behaviour therapy reliably produces weight loss of 5-10% which translates to clinically significant health benefits (e.g., improvements in T2D, dyslipidemia, etc.).⁴⁸ However, recently the long-term effectiveness of behavioural therapy for obesity has been questioned in light of findings that most weight is regained by 3 years post-treatment.^{49,50}
- In addition to psychological interventions designed to treat obesity, it may be appropriate to provide psychotherapy to treat comorbidities such as depression, BED, anxiety, and ADHD to optimize weight-loss outcomes. For certain comorbid conditions (e.g., depression, ADHD, OSA) there is evidence that comorbidity treatment improves weight-loss outcomes.^{3,4,37,44,45}

Cognitive and Behavioural Therapies (CBT)

- Broadly defined, the cognitive-behavioural approach to treating obesity considers excess body weight the consequence of cognitive and behavioural processes that maintain weight problems. CBT aims to help patients identify and modify these maintaining mechanisms, in order to promote lasting change.⁴⁸
- Typical areas to address in therapy include: negative body image, unrealistic expectations (e.g., the extent of weight/shape change attainable through diet and exercise), low self-esteem, body shape avoidance (i.e., avoiding trying on clothes); body checking (e.g., preoccupation with disliked body areas).⁴⁸
- Typical therapeutic strategies in behaviour therapy for obesity include: Self-reinforcement, hunger prevention, feedback (i.e., from a counselor or mobile/web-based app), goal-setting, nutrition education, stimulus control, problem solving training, social assertiveness training, self-evaluation, and self-monitoring.^{3,47,48}
 - **Self-Monitoring** refers to patient monitoring and regulation of food intake and physical activity, and is considered a central component of any weight-loss intervention.^{47,51} Patients can use either a paper journal or an electronic device (e.g., cellular phone app) to record daily food intake and exercise.⁴⁷ A recent meta-analysis reported a positive association between self-monitoring and weight-loss in behavioural weight

loss programs.⁵¹ Post-operative self-monitoring has also been found to prevent weight recidivism after bariatric surgery.⁵²

- **Motivational interviewing (MI)** refers to “a directive, client-centered counseling style for eliciting behaviour change by helping clients to explore and resolve ambivalence.”⁵³ Meta-analyses have reported that using MI as an adjunct to behavior therapy enhances weight loss.^{47,54}

Mindfulness-Based Therapies

- Mindfulness (i.e., paying attention using moment-to-moment nonjudgmental awareness)⁵⁵ is incorporated into many therapies to address disordered eating and facilitate weight-loss. Mindfulness-Based (MB) programs currently used in obesity treatment include: MB Eating Awareness Training (MB-EAT), MB Cognitive Therapy (MBCT), MB Stress Reduction (MBSR), Acceptance and Commitment Therapy (ACT), and Dialectical Behaviour Therapy (DBT).^{56,57}

- Results from meta-analyses suggest that MB psychological therapies produce improvements in binge eating and emotional eating, but may not lead to greater weight loss.^{56,57}

Bariatric Surgery

- Bariatric Surgery is currently the most effective and enduring treatment for obesity, with 50% excess weight loss maintained for up to 10 years.^{58,59}
- Although many of the psychological interventions discussed above are relevant to the peri-operative care of bariatric surgery patients, this population may experience unique psychosocial challenges. For example, the presence of *excess skin* may be especially distressing to patients, many of whom desire plastic surgery.⁶⁰ Psychological intervention (e.g., cognitive therapy) may be necessary to help patients adjust their weight-loss and shape expectations and improve body image.⁶¹

Resources & Guidelines

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