Psychological Approaches in the Treatment of Obesity

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Contents

Abstract

There are a wide range of psychological approaches for addressing issues of obesity from population level to individually responsive interventions; this chapter focuses on clinically based interventions. However, regardless of the type of

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intervention, a psychological perspective helps us to acknowledge and address the context in which a person experiences their weight, including bias and stigma which has considerable impact on physical and emotional wellbeing. Difficulties with weight do not occur in isolation but are a result of a complex interaction between physiological, psychological and social factors but too often this is over-simplified and results in a narrow focus on behaviour change. This chapter begins with consideration of the role that weight and food can have for individuals in order to understand why changing eating habits is challenging. It also highlights a range and combination of therapeutic models which have been found to be useful in working with obesity.

Keywords
Obesity · Psychological stress · Cognitive behavioral therapy · Compassion focused therapy · Mindfulness

Trying to find effective solutions for obesity has been the focus of research for decades. Most people who lose weight regain about one third of it within 1 year, typically returning to baseline within 3–5 years (Castelnuovo et al. 2011). Despite the power of bariatric surgery for weight loss, there are people who continue to struggle with and regain their weight, which leads us to ask "what are we missing?" In answering this question, we have to recognize that we are not looking for a one-dimensional intervention; but instead we need to develop a better understanding of obesity as an interaction between physiological, psychological, social, environmental, and political factors. This was recognized in the Foresight report (McPherson et al. 2007). Visually mapping the complexity has been helpful to target the potential for multilevel interventions, but it has also made the treatment of obesity feel overwhelming, and so single-dimension interventions are continuing to be considered.

Outcomes of psychological interventions for obesity will be discussed later in this chapter, but if only weight as an outcome is considered, psychological interventions, on their own, do not yield clinically significant results. In developing psychological interventions, research has focused less on how they can work in combination with other elements (e.g., surgery, dietetics, etc.) for the longer term. Part of the reason for this may also link to the difficulty in researching multicomponent interventions for a population that is significantly more heterogenous than the umbrella term "obesity" leads us to understand.

The most significant contribution psychology therefore has to offer in the treatment of obesity is to increase our understanding of the range of psychosocial factors that contribute to the development and maintenance so that they can be considered within the context of a person's genetics, physiology, environment, and system.

This chapter will present psychosocial themes for obesity to help to understand the range of diverse issues linked to its causes and maintenance. Psychological interventions and their evidence base will then be discussed.

Weight Stigma

Misconceptions about obesity are prevalent throughout all societies where obesity is viewed as negative. Believing that weight is within an individual's control and can be easily modified leads to the assumption that obesity represents character deficits (Akabas et al. 2012) such as greed and laziness. It is these inaccurate beliefs that form the basis of weight stigma and prejudice. People living with obesity are far more likely to experience discrimination linked to their weight than their non-obese peers (Carr and Friedman 2005) with reports of discrimination increasing as BMI increases (Puhl et al. 2008). It is found within the media, employment, healthcare settings, education, and interpersonal relationships (Puhl and Heuer 2009). People living with obesity are held more responsible for their condition than people with eating disorders or depression with a lack of self-discipline being attributed to the development of obesity and binge eating disorder (Daria and Latner 2013). Lacking in perceived social support for those living with obesity can negatively impact on well-being and psychological adjustment as social support is commonly cited as having a protective effect on distress (Cohen et al. 2000).

The messages healthcare professionals convey to their patients about obesity, if experienced as stigmatizing, have the potential to undermine the relationship with the clinician (Malterud and Ulriksen 2011). Among healthcare professionals, addressing weight problems can be oversimplified and seen as a matter of personal effort (Brownell et al. 2005; Puhl and Heuer 2009; Sabin et al. 2012). This lack of understanding about the complexity of obesity can lead healthcare professionals to blame the individual (Kirk et al. 2014), but there are also practical difficulties such as lack of time in consultations, inadequate referral sources, and lack of expertise which can lead healthcare professionals to feel they have let their patients down (Kirk et al. 2014). People living with obesity are left feeling berated and disrespected by their health provider, upset by comments about their weight, and worried that they will not be taken seriously and, consequently, reluctant to address weight concerns (Bertakis and Azari 2005; Brown 2006). This also has the potential to make decision-making for engagement more difficult for a person with obesity (Brown and Thompson 2007).

Limited beliefs in a patient's ability to make lifestyle change and feeling ill-equipped to offer support are reasons cited by healthcare professionals who dislike treating people with obesity (Foster et al. 2003). Not having a range of treatment options to prescribe can also lead clinicians to struggle, prefering another diagnosed condition for which they can more confidently offer treatment (e.g., diabetes, sleep apnea) (Kirk et al. 2014). The level of experience and training does not seem to make a difference with weight discrimination reported from clinicians in training (Swift et al. 2013) through to qualified practitioners (Phelan et al. 2015).

Cyclic obesity and weight-based stigma (COBWEBS) has been described as a stressor and forms a positive feedback loop (Tomiyama 2014). Stigma is a negative emotional experience which prompts biochemical, physiological, cognitive, and behavioral changes which impact on eating behavior leading to further weight gain and increased exposure to weight stigma. This process becomes a vicious cycle.

In 2015 a national survey in Britain of social attitudes toward obesity was conducted (Ormston and Curtice 2015). This sought to explore beliefs that the British population had about the cause, responsibility, and identification of obesity. While it referenced weight stigma, the design of the questionnaire inadvertently reinforced stigmatizing views of obesity by only offering participants options that fit with the "eat less and move more" belief (three options related to food and three options related to exercise). Of 2179 people, 91% indicated that obesity was caused by "fast food," and 82% felt it was due to a sedentary lifestyle. It missed an opportunity to extend ideas that increased weight can have a wider range of causes and that weight stigma can have a significant impact on the emotional and physical well-being of a person living with obesity.

Rather than encouraging weight loss (Ogden and Clementi 2010), weight stigma is associated with a number of negative consequences which significantly impact on the ability to negotiate change, including:

- Increasing the risk of maladaptive eating patterns and eating disorder symptoms (Benas and Gibb 2008)
- Increasing the risk of binge eating (Ashmore et al. 2008)
- Increasing calorie intake while decreasing the perception of control of food (Major et al. 2014)
- Negatively impacting on mood with higher levels of depression reported and lower self-esteem (Gatineaum and Dent 2011)
- Interfering with people's ability to engage in physical activity, with poor body image and anxiety about discrimination compounding exercise avoidance (Gatineaum and Dent 2011)
- Decreasing both physical- and mental health-related quality of life (over and above age, BMI, and medical comorbidity) (Latner et al. 2013)
- Interfering with the relationship between a patient and their healthcare provider (Malterud and Ulriksen 2011)
- Negatively impacting on ambivalence for engaging in treatment of weight issues (Brown and McClimens 2012)
- Negatively impacting on treatment outcomes for obesity (Wott and Carels 2010)

Weight stigma can be directed toward people living with obesity, but it can also be turned inward and directed at the self, leading to the development of internalized weight stigma. This internalization creates negative, self-destructive, and critical thoughts (Almeida et al. 2011).

Motivation

Probably the most talked about aspect for those involved in weight management treatment is motivation: "are 'they' motivated to change?" But this overused question taps into an extremely complex area. There is a suggestion that health professionals simply advising patients to lose weight can increase motivation (Jackson

et al. 2013), but what does that actually mean? Pietrabissa et al. (2012) usefully highlighted that motivation for change is not synonymous with motivation for participating in an intervention, suggesting that there are increased adherence difficulties for people who have been urged by others to engage in an intervention. Self-determination theory (Deci and Ryan 2000) highlights the importance of autonomy; people will differ in their reasons for engaging, as well as the level of autonomy they have within those reasons. So, for example, if a person feels they have autonomous motivation for food choice, they gain satisfaction and pleasure from the behavior; it is congruent with their values and goals related to their self-system (e.g., "It is important that I manage my diabetes and so eating breakfast helps me to regulate my blood sugar"). When a person has more controlling motivation for a behavior, they perform that behavior because of self-imposed pressures such as guilt or anxiety (Ryan and Connell 1989) or they want to achieve a reward or avoid a punishment (e.g., "banning" a takeaway to avoid feeling ashamed for not eating healthily). By focusing on autonomously motivated behaviors either as a result of an intervention or self-directed, greater regulation of eating and weight management has been noted (Pelletier et al. 2004) along with maintenance of these changes over time (Guertin et al. 2015).

Understanding both the motivation to lose weight and ambivalence about whether the suggested changes are possible needs to be balanced with whether the costs outweigh the perceived benefits (McEvoy and Nathan 2007). Exploring self-beliefs and self-efficacy are the central tenets of most psychologically based therapeutic approaches in the treatment of obesity to address motivation and ambivalence.

The Meaning of Food

The meaning of food needs to be considered within a historical context. The influence of significant societal events such as war and subsequent economic hardship leaves a legacy of cultural narrative around the way food is approached. Within the UK there are successive generations who have been influenced by the rationing (directly and indirectly) of food during World War II; clients in therapy talk about their parents and grandparents discouraging food waste. An awareness of famine in the world compounds this message encouraging us to "eat everything on our plate." The focus on finishing food is often cited by people who are struggling to regulate their consumption and who feel disconnected from their cues to satiety. By not being allowed to "leave the table" until food is finished, children are inadvertently taught to disregard their physical signals of satiety which makes following weight management advice, years later, difficult to do.

Parents, peers, and significant others play a fundamental role in our eating habits (Markey 2014) from what we are given to eat to the meaning that food has emotionally. The idea of food only in survival terms ("food as fuel") ignores the many functions and their meanings: food can express love and care, can be used to celebrate family events and to exert power and control, and is a powerful way of satisfying our hedonic needs.

Food as Means of Emotional Coping

The phrase "comfort eating" is very widely used, but unfortunately it has narrowed our understanding of the function and meaning that food has on an emotional level. Food can be associated with comforting or soothing memories (such as a food cooked by an important family member), but when we regularly use food to manage emotion and struggle with our weight, it is rarely experienced as comforting. The term "emotional eating" more helpfully recognizes that our eating can be triggered by a range of emotions and serve many different functions, e.g., to calm, reward, assuage sadness or guilt, or distract from feelings of frustration or isolation (Marks 2015).

When, how, and if we eat can be a powerful way of influencing not only our own emotions but also the emotions of those around us. Our response to food as a baby is one of the first ways we are able to influence others, and it continues to be a means of exerting control throughout our life. We can learn to garner approval or positive affirmation or pacify others by eating the food they provide for us. We can learn to demonstrate our defiance and rebellion by refusing food, and we can learn to eat secretly if we feel unable to openly exert control or influence.

Hemmingson (2014) proposed that socioeconomic disadvantage is fundamentally linked to weight gain through psychological and emotional distress of all within the family. The associated stress can lead to parental frustrations and relationship discord. However, if we expand this model, we can more usefully acknowledge the impact on the development of resilience when a child lacks support, has unacknowledged and/or unmet emotional needs, and a general lack of insecurity, regardless of the family's socioeconomic situation. Childhood emotional abuse predicts emotional eating in adulthood (Moulton et al. 2015). Depression, post-traumatic stress disorder (PTSD) symptoms, negative affect, and emotional dysregulation have been found to be associated with increased emotional eating (Michopoulos et al. 2015). Resilience, which among other definitions can be described as a process to harness resources in order to sustain well-being (Southwick et al. 2014), mitigates against low self-esteem and self-worth, negative self-belief and emotions, powerlessness, depression, anxiety, insecurity, and a heightened sensitivity to stress. Hemmingson (2014) suggests that these inner disturbances eventually cause an emotional overload, triggering a range of weight gain-inducing effects including maladaptive coping strategies (e.g., emotional eating), chronic stress, appetite upregulation, low-grade inflammation, and possibly reduced basal metabolism. The combination of these changes over time cause further weight gain and the development of obesity; therefore tackling the emotional root causes of weight gain could potentially improve both treatment and prevention outcomes.

The development of food as a means of coping can also occur later in life as a result of life changes, for example, having children; the different demands required on a person can lead to the forgetting of self and instead focusing on the care of others. When we fail to acknowledge our own emotional need, we do not have time or we do not feel worthy of the time needed, food can become a powerful way of anaesthetizing emotions consciously or unconsciously and can become

increasingly more powerful with the frequency of use. Women may be more susceptible to emotional disinhibition of eating (LeBlanc et al. 2015).

There is evidence of the physiological impact of the prospect of particular foods on our mood (Tang et al. 2012) and the impact of food on blood glucose and the associated lift in energy and mood (Lustman and Clouse 2005). However, there is perhaps an over-attribution of the effect of particular foods, for example, a belief that chocolate will make a person feel better. Evidence suggests that it is the passage of time, in other words waiting for feelings to pass or circumstances to change, not food consumption, that may be responsible for improvements in mood (Wagner et al. 2014).

The Meaning of Weight

Messages about food and weight are culturally bound and change over time. Perceptions of beauty have moved from increased weight representing fertility, wealth, and social standing to using the term obesity to represent negative health outcomes. A greater understanding about the impact weight has on a variety of health conditions has led to the notion of a "healthy weight" and considerable anxiety about increasing levels of obesity.

A smaller body size is now desirable in western cultures with fashion and media skewing this further from a "healthy weight" into criticisms of the use of underweight imagery and models, along with digital technology creating unrealistic ideals of beauty. The combination of health and media discourses emphasizing the importance of weight, an increased availability of food, and high levels of stress have led to a thriving diet industry and high levels of body dissatisfaction and obesity.

Weight as a Means of Emotional Coping

Our body becomes one of the ways we can relate to the world and to others around us. We can achieve approval or attract interest if we have a culturally desired body shape, but we can also use our body to hide: from others' interest, to avoid demands and to ease pressure from the expectations of others.

The link between weight and trauma is increasingly being recognized as of central importance for people who have long-standing problems with their weight. Experiencing PTSD symptoms is associated with increased risk of becoming overweight or obese, and PTSD symptom onset alters BMI trajectories over time (Kubzansky et al. 2014; Pagoto et al. 2012). PTSD may influence weight gain both through biological and behavioral mechanisms which may operate simultaneously (Kubzabsky et al. 2014). PTSD is associated with physical inactivity (Chwastiak et al. 2011), increased consumption of unhealthy foods and beverages (Hirth et al. 2011), and generally dysregulated food intake related to dependence on activation of the brain reward system (Adam and Epel 2007). In addition, dysregulated neuroendocrine function, including enhanced negative feedback

sensitivity of the glucocorticoid receptors, blunted cortisol levels, and exaggerated catecholamine responses to trauma-related stimuli, has been found in adults diagnosed as having PTSD (Vanitallie 2002). Recent work has suggested that neuropeptide Y is a likely mediator between PTSD and metabolic imbalances owing to high levels of exposure to sympathetic activation (Perkonigg et al. 2009).

The prevalence of childhood sexual abuse has been found to be higher among people who live with obesity (Thomas et al. 2008; Aaron and Hughes 2007) and nearly 22% of people within specialist weight management programs (Gabert et al. 2013). It is important therefore to consider the function that increased body weight can serve. Examples frequently heard in clinic are "if I lose weight I become more visible," or "if I lose weight I may get unwanted attention from others." These are important to explore because they help to understand the sometimes difficult to articulate ambivalence about weight reduction.

The relationship between body dissatisfaction, negative affect, overconsumption, and weight gain has been described by Marks (2015) as the "circle of discontent," suggesting that reciprocal causal relationships exist between negative affect and the consumption of high-density food and drinks. Negative public perceptions of large body size lead to individuals' dissatisfaction with their own body size. The high levels of negative affect associated with body dissatisfaction may be damped by emotional support and exacerbated by inadequate or inappropriate social network involvement (Cohen 2004). Focusing on understanding these relationships are suggested to be important targets for obesity interventions (Markey et al. 2016).

Weight and Emotional Well-Being

Mental Health

There is a complex bidirectional relationship between mental health and obesity. As already described, food can be used as a means of managing affect which, if done consistently over a period of time, will lead to weight gain and potential obesity (Goldschmidt et al. 2014). This is compounded by the impact of some psychiatric medication which increases appetite (Schwartz et al. 2004). Equally, many people who live with obesity and who have experienced the stress of internal or external weight stigma can develop mental health problems (Ratcliffe and Ellison 2015).

The relationship between mental health and obesity varies depending on the subset of population being considered. In a meta review by Magallares and Pais-Ribeiro (2014), it was found that women with obesity report less mental health difficulties than women without obesity but that men with obesity report more mental health problems than men without obesity. Changes in the mental health well-being of people begin to vary when the type of weight loss intervention is considered, with people who are seeking weight loss treatment showing increased rates of depression and bipolar disorders (McElroy et al. 2004). The highest rates of distress and mental health prevalence are found within those who are seeking bariatric surgery: a meta-analysis of studies focusing on pre-bariatric surgery mental

health found that in a population of over 65,000, 95% had depression preoperatively (Dawes et al. 2016).

There are two main mechanisms which explain the relationship between obesity and depression in terms of physical processes:

1. Latrogenic mechanisms, for example, the suppression of satiety, increase of calorie-dense food consumption, and a reduction in physical activity, are noted with some antidepressant, mood stabilizing, and antipsychotic medications (Fava et al. 2000).
2. Metabolic-neurochemical processes in which the release of serotonin, a neurochemical linked to both the control of mood and satiety, is impaired due to insulin resistance (Caballero et al. 1988; Palacios et al. 2017).

Stress

Psychosocial stress including both perceived stress and stressful life events is positively associated with weight gain but not weight loss (Harding et al. 2014). The neurobiology of stress overlaps significantly with that of appetite and energy regulation (Sinha and Jastreboff 2013). Stress induces secretion of glucocorticoids, which increase motivation for food and insulin. This promotes food intake and obesity. Eating pleasurable food then reduces the physiological stress response which reinforces this association (Dallman 2010), and so similarly, stress has a bidirectional relationship with obesity.

The Impact of Disturbed Eating Patterns and Eating Disorders on Obesity

The Experience of Dieting

People living with obesity are likely to have tried to lose weight on multiple occasions, particularly those seeking specialist treatment. For some people being able to lose any weight feels impossible, while for others they will be very successful at weight loss, but maintenance is problematic. While there is an established body of literature that highlights the physiological mechanisms leading to weight gain after a period of dieting (e.g., Sumithran and Proietto 2013), there are also compelling reasons for weight regain from a psychological perspective.

Restraint theory (Herman and Polivy 1975) predicts that extreme cognitive restraint (e.g., setting limits about which foods are allowed or banned and considered good or bad) is likely to make an individual more responsive to external cues such as the smell of food or internal cues such as emotions. If diet rules are rigidly applied, any deviation can feel like a "failure" (Coelho do Vale et al. 2016). Thus eating a "forbidden" hedonic food which is not part of the diet plan can be overemphasized; a lapse can escalate into a collapse followed by an abandonment of the diet.

Frequently people state that they will "get back to it tomorrow" or "start again on Monday" and so lapsing becomes part of the culture of dieting. Goal pursuit theory suggests that in order to successfully achieve a goal, behaviors which are not aligned with it should be avoided (e.g., Achtziger et al. 2008), but in the case of food choice, the process of denial and self-control increases the preoccupation with particular foods (Ogden 2003), frequently lead to "irresistible urges" and cravings that are difficult to restrain (Coelho do Vale et al. 2016).

Repeated experiences of being "on" and "off" a diet will have a negative impact on an individual's self-efficacy while increasing the experience of shame and frustration (Green et al. 2009). Years of dieting and weight cycling will increasingly erode a person's belief that change is possible. This frustration and perceived helplessness in turn increases the use of food to manage these difficult emotions resulting in a dilemma of how to reduce intake in order to lose weight without activating unhelpful psychological responses. It can also lead to a state of vigilance where anxiety and/or monitoring about food choice is never far away (Green et al. 2009) even when not following a diet "I shouldn't really have this but. . .."

Binge Eating

Eating disorders, particularly binge eating disorder, are associated with increased rates of obesity (Hudson et al. 2007), a heightened risk of developing future metabolic problems (Hudson et al. 2010), a high prevalence of comorbid psychiatric disorders, and elevated suicide risk (Welch et al. 2016). Compared to obesity alone, people who live with obesity and binge eating have lower levels of health satisfaction, higher rates of major medical disorders (Bulik et al. 2002), and a more severe psychopathological profile (Fandiño et al. 2010).

Binge eating is defined as the consumption of larger than usual amounts of food within a relatively short period of time. It is characterized by a sense of loss of control over eating without the subsequent purging found with bulimia nervosa, and so of all the eating disorders, it is most frequently associated with obesity. Lifetime prevalence of obesity by eating disorder has been found to be 4.6% for anorexia nervosa, 21.1% for eating disorders not otherwise specified, 33.2% for bulimia nervosa, and 87.8% for binge eating disorder (Villarejo et al. 2012).

There are a number of different psychological theories that attempt to explain the trigger for binge episodes:

- The affect regulation model proposes that an increase in negative emotions triggers binge episodes; binge eating therefore functions to alleviate negative affect by using food to soothe and distract (Hawkins and Clement 1984).
- Escape theory (Heatherton and Baumeister 1991) proposes that when a person feels overwhelmed by higher level, abstract thinking (particularly when thoughts are critical) binge eating helps to escape by narrowing cognitive attention, instead of focusing on the more immediate environment (Baumeister 1990). However, unlike the affect regulation model, the escape theory suggests that emotional

distress increases after the completion of a binge, when self-awareness returns. This is supported by anecdotal clinical experience as the negative emotional and cognitive experiences following a binge frequently increase the risk of future binges.

- Expectancy theory adds that binges are maintained by a person's beliefs about the effects of binge eating (e.g., "it takes my mind off. . .," "it makes me feel better") which develop through learning and repetition (Hohlstein et al. 1998). This is useful to consider because it is the expectations of the consequences of binge eating rather than the actual consequences that will maintain this behavior.

All three theories predict that binge eating is triggered by negative affect but that binge eating does not reduce negative emotions beyond the episode of eating, reinforcing that we overestimate the impact food has on the management of emotion (Wagner et al. 2014).

It is only in the most recent version of the *Diagnostic and Statistical Manual of Mental Disorders* (APA 2013) that binge eating disorder was recognized as an eating disorder in its own right. While it is more widely talked about now, media representation of severe obesity often uses stereotypical images (Gollust et al. 2012) of people binge eating, and so there can be confusion between the two. This can lead to one of the two problematic assumptions: (1) everyone with severe obesity binge eats and/or (2) assessment for binge eating disorder is ignored.

People who binge eat and who live with obesity often miss meals which make managing cravings extremely difficult. Masheb and Grilo (2006) found that more than half of a group of people with obesity and binge eating disorder missed breakfast, but those who did eat regularly weighed less. There is extensive literature around the psychosocial causes and maintenance of binge eating behavior but relatively less which describes the physiological triggers. It is useful therefore to note a review by Mathes et al. (2009) in which animal literature was considered to understand the neurobiological basis of binge eating.

Psychological Interventions

Having described some of the main psychosocial factors influencing the development, maintenance, and experience of living with obesity, a starting point for intervention is to decide on the focus. Psychological interventions, while not yielding the same magnitude of weight reductions that bariatric surgery does, are still of central importance in supporting people who live with obesity. Interventions which are able to address the multiple issues involved with obesity, such as affect management, habit change, ambivalence, stigma, eating disorder, and mental health, can provide the most useful interventions. Obesity treatment should be individually tailored, and realistic goals should be clearly set at the outset (Pietrabissa et al. 2012); these goals may not always be connected to weight loss but instead may, as a precursor, address some of the barriers to change.

Targeting Behaviors

Weight loss is not a behavior. While this is often stated, it is worth repeating because it reminds us to consider the multiple behaviors needed for changes to weight, and it helps us to steer clear of the "eat less, move more" discourse. Most weight management services reinforce and are commissioned on the basis of weight loss as a central outcome. This is also frequently the patient's preoccupation. However, supporting the person to set behavioral goals at the outset helps to more clearly understand which aspects of change are presenting difficulties.

People have the potential to play an active role in the regulation of their eating behaviors, e.g., regular eating, planning daily or weekly meals, and preparing shopping lists (Otis and Pelletier 2008), and so an assessment of the barriers and ambivalence around setting these goals is essential. Being realistic about goals is important: setting goals that are too rigid (e.g., an inflexible eating plan) has the potential to trigger activation of "failure" narratives. Feeling that a person has "failed" with their diet can lead to a reduction in self-efficacy, lower mood, and an increase of stress, shame, and helplessness. These negative experiences are often paradoxically managed by using emotional eating strategies to distract or soothe. Including some a priori "if-then" implementation intentions can therefore help people close the gap between setting goals and actually attaining them (Gollwitzer and Sheeran 2009). If flexibility is built into a long-term plan, people are able to bolster their self-regulatory ability, to maintain or even increase motivation to persist (Coelho do Vale et al. 2016), and to feel less anxious about "suddenly" losing control of their eating. Having a flexible plan is likely to enhance goal-adherence and therefore goal attainment (Coelho do Vale et al. 2016) and is associated with better weight maintenance (Westenhoefer 2001).

More clearly targeted behaviors and associated-self efficacy can improve maintenance of an eating plan. For example, focusing on increasing confidence to manage temptations is more likely to result in weight loss than global self-efficacy and motivation (Armitage et al. 2014).

Behavioral treatments focusing on restrictive eating and weight loss are in general successful in the short-term but are not very effective in maintaining weight loss in the long term. Maintaining cognitive control for prolonged periods is difficult and may be undermined by physiological responses to weight loss (Sumithran and Proietto 2013). Typically, people regain weight within 5 years (Wilson and Brownell 2002). In a thoughtful study by Kirk et al. (2014), people living with obesity spoke of the complexities they experienced when trying to lose weight; when there was no clear reason for their unsuccessful weight loss, they blamed themselves for failing.

Cognitive Behavioral Therapy

Perhaps the most extensively used psychological model, applied to a wide range of physical and mental health conditions, is cognitive behavioral therapy (CBT). It is frequently used in approaches to obesity (Cassin and Atwood 2017). It is an

approach that connects the experience of thoughts, feelings, physical sensations, and behavior into a framework that helps people to cope more effectively (Turnball 1996). Part of the appeal of the model is that it is versatile and can be adapted to different modalities (face-to-face individual and group, telephone, text, computerized, self-help reading material), and a range of health professionals can use elements of the model depending on their level of training.

CBT for weight loss has been found to result in an average weight reduction of 9% over a 3-year period with the majority of people regaining weight (Cooper et al. 2010). However the value of using CBT is greater for reducing attrition from weight loss programs (Tagliabue et al., 2015) and preventing relapse (Werrij et al. 2009) than weight loss alone. CBT has been found to be helpful in reducing episodes of binge eating (Grilo et al. 2011), but in studies with relatively short-term follow-up (e.g., 12 months), no weight loss is evident (Grilo et al. 2011).

The way we think and feel about food choices and weight are profoundly important (Nauta et al. 2000), and so using CBT to explore cognitive distortions and thinking errors can highlight extremely useful issues which may otherwise present as barriers and/or sabotage of change. CBT programs that are not focused on weight loss, discourage becoming overly focused on calorie restriction and aim instead to promote "healthy eating," to improve participants' well-being and to encourage physical activity (Rapoport et al. 2000).

Motivational Interviewing

Motivational interviewing (MI) is another psychological intervention used by many different types of healthcare professionals and for a range of conditions. Originally designed for working with addictions, the transtheoretical model of change (DiClemente and Prochaska 1998) proposed that change is a process rather than a discrete event and that by understanding where in the process of change a person is, tools within the model of MI can help to explore and resolve ambivalence about change, support self-efficacy, and enhance intrinsic motivation. Resolution of ambivalence frees the person to consider alternatives (Miller and Rose 2015).

The effectiveness of MI for weight loss is limited; while having some impact, the degree of weight loss is minimal (Armstrong et al. 2011; Barnes and Ivezaj 2015). It has been found to be a useful adjunct when combined with other interventions for weight management, physical activity, and diet (Tuah et al. 2011). Carels et al. (2007) found adding a component of motivational interviewing for people who were struggling to meet behavioral treatment goals resulted in increased weight loss and greater engagement in exercise than a matched group who did not receive MI.

Dialectical Behavior Therapy

Dialectical behavior therapy (DBT) was originally designed to support people with borderline personality disorder (Linehan 1993) and later was developed to treat

eating disorders (Agras et al. 2000). The DBT model suggests that emotional eating can be viewed as providing temporary relief from negative or overwhelming affect by numbing, soothing, and avoiding (Blocher-McCabe et al. 2004).

Research into the use of DBT has more frequently been focused on eating disorders than weight management. However, it has value in working with people who live with obesity and who frequently use emotional eating as a coping strategy but do not meet the diagnostic criteria for eating disorders (Glisenti and Strodl 2012). Self-regulation skills are emphasized which include an ability to tolerate uncomfortable states (e.g., negative emotions, cravings) and a reduction of pleasure (e.g., choosing to exercise rather than watching TV). There is an established link between emotional regulation and depression on eating behavior (Michopoulous et al. 2015), and so, despite expectations, the passage of time rather than food is more responsible for an improvement in mood (Wagner et al. 2014). DBT strategies which focus on distress tolerance and emotional regulation are therefore important to build in advance of addressing cognitive strategies.

Further research is needed (Glisenti and Strodl 2012), but results from pilot studies suggest that DBT can be delivered effectively in a group format and can support weight stabilization, reduce eating psychopathology, and has low attrition rates (Roosen et al. 2012; Peat et al. 2014; Mushquash and McMahan 2015).

Compassion Focused

Compassion-focused therapy (CFT) considers that if we have high levels of shame and self-criticism it is very difficult to be self-supporting or self-reassuring (Mayhew and Gilbert 2008). Negative judgment and self-criticism are very often observed in people living with obesity, resulting from their experience of weight stigma and also from repeatedly being unable to lose weight or prevent weight regain (Burk-Braxton 1996). Feeling guilty or ashamed about weight can prompt disengaging coping responses, such as avoidance, negative self-talk, crying, and isolating oneself. These responses are likely to prevent active coping styles which may be more helpful for weight loss, such as problem-solving, confronting, and seeking social support (Conradt et al. 2009). Self-compassion, however, allows for an acknowledgment of mistakes and shortcomings, enabling the individual to consider changing unhelpful behaviors and attempt new goals, rather than berating themselves for previous failures (Neff and Vonk 2009). Self-soothing, which is an aspect of compassion-based interventions, enables a less critical attitude toward oneself, distracting away from critical, uncompassionate, and judgmental self-talk which is often associated with dieting (Mantzios and Wilson 2015).

Research into the use of CFT interventions for weight management is in its relative infancy, and so there is limited evidence for its use. It is however beginning to be recognized for its utility in developing strategies to buffer against the negative impact of external and internalized weight stigma (Hilbert et al. 2015). Self-compassion is highlighted as a useful avenue to explore both for obesity and body dissatisfaction (Marks 2015).

Mindfulness

Mindfulness is defined as the ability to attend, in a nonjudgmental way, to one's own physical and mental problems during ordinary, everyday tasks (Epstein 1999). There has been a great deal of interest in the application of mindfulness to eating behavior. Intuitively it has good face validity for its benefit for interrupting automatic and unconscious eating behaviors which can lead to weight increase.

Mindfulness programs have been designed for general well-being, for targeted difficulties, e.g., depression (Gu et al. 2015), or to target specific behaviors. Targeting behaviors is the most interesting area to date for the potential benefits when applied to eating. By learning to pay attention to the present moment rather than being distracted by thoughts concerned with the past or future, there is a greater opportunity to notice physiological responses to hunger and satiety. It is a very useful approach to develop greater self-regulation, noticing cravings without acting on them, therefore enabling weight loss (Mantzios and Wilson 2015a). A reduction in binge eating has also been noted (Godfrey et al. 2015). Specific programs have been designed such as the Mindfulness-Based Eating Awareness Training (MB-EAT, Kristeller and Wolever. 2010). MB-EAT appears to have value as an intervention for binge eating and warrants further investigation as an approach to weight loss.

The Way Forward

Combining psychological theory with knowledge of physiological processes is fundamental to developing a more comprehensive approach to obesity. Central to this is clearly listening to the perspective of people with obesity, respecting their lived experience, and appreciating the relationships between mental health and obesity (Kirk et al. 2014). A collaboration of psychological, physiological, and social understanding has the potential to shift the health discourse about the personal controllability of obesity into a less stigmatizing health culture.

While psychological interventions for complex obesity have a limited effect size for weight loss alone, consideration of psychological factors are of central importance to weight loss maintenance (Pietrabissa et al. 2012) by addressing the way in which food, weight, and emotional well-being interact with our social systems. Food and weight have many meanings and functions for people; therefore increasing our understanding in a compassionate and nonjudgmental way through research and clinical practice will enable the building of alternative strategies to meet the emotional and physical needs instead of the panacea that food has become.

Currently we refer to obesity as if it is one condition which is measured by BMI. This creates the problem of trying to develop interventions for "obesity" because we are assuming heterogeneity. Rarely do we use the term "underweight" as a target for intervention, instead we treat low immune systems or amenorrhea or assess for osteoporosis or anorexia or food avoidance. Yet reducing obesity is the focus of intervention for people with increased weight which is perhaps a reflection of weight stigma within healthcare. Instead, by defining the physical, emotional, and behaviors

problems: diabetes, hypertension, emotional eating, depression, irregular eating, limited protein, etc., we can more clearly consider interventions that would be helpful. This requires a comprehensive and sensitive assessment rather than the assumption that obesity is the problem. The work in developing staging systems for obesity (e.g., Sharma and Kushna 2009) has begun to challenge automatic assumptions between weight and health and more clearly offers areas to target intervention. Noticing the language change from "being obese" to "having obesity or "living with obesity" enables us to recognize obesity as a condition rather than a descriptor of a whole person. It is these fundamental shifts that will begin to change the way we offer support for people who struggle with and live with obesity.

Psychological interventions are most usefully applied when models are combined. Examples of useful elements include:

- Motivational Interviewing to frame and explore ambivalence
- CBT to understand repeated cycles of behavior and to recognize points to apply alternative strategies
- mindfulness to attend in the moment to eating behaviors that have become unconscious and automatic
- DBT to develop greater emotional regulation and distress tolerance.

These interventions need to be held within a compassion-focused framework which acknowledges and addresses the critical judgment, internalized external weight stigma, and supports maintenance of change even if it does not always go according to plan.

Our challenge is how to meaningfully conduct research which not only captures the diversity of obesity but is also able to reflect the complexities of multicomponent interventions.

Key Points

1. Weight stigma is a significant factor which influences the health and well-being of people living with obesity as well as negatively impacting on weight.
2. Weight loss is not a behavior. It is multidimensional which requires and enables multiple targets for intervention.
3. If weight is the only target of an intervention, we miss a wide range of issues that compound the habits associated with eating and weight and that impact on physical and emotional health and well-being.
4. Both weight and food have meaning and function that if explored help us to understand ambivalence.
5. "Emotional eating" is a more appropriate term to describe the way food is used to manage affect rather than "comfort eating."
6. Psychological interventions work best when multiple models are integrated with physiological understanding. Adopting a biopsychosocial approach is essential when working with people who live with obesity.

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