Obesity is a major risk factor for type 2 diabetes, cardiovascular disease, heart disease, some cancers, osteoarthritis, and endocrine disorders (Lavie, McAuley, Church, Milani, & Blair, 2014; Wang, McPherson, Marsh, Gortmaker, & Brown, 2011). Data from the 2015–2016 National Health Interview Survey indicated that 39.8% of US adults are obese, and despite widespread interventions and public health strategies, there was a significant increase in trends over the past decade (Hales, Carroll, Fryar, & Ogden, 2017; Hales, Fryar, Carroll, Freedman, & Ogden, 2018; Ogden, Carroll, Fryar, & Flegal, 2015). Seventeen percent of US youth are classified as obese and an additional 5.8% are classified as extremely obese (Ogden et al., 2015). Moreover, youth obesity is on the rise; obesity among children ages 2–5 increased from 8.4% in 2011–2012 to 13.9% in 2015 (Hales et al., 2017; Ogden et al., 2015). Over 7% of US adults have been diagnosed with diabetes, and 87.5% of those adults are overweight or obese (Centers for Disease Control, 2017). In addition to physical health consequences, obesity is related to depression, anxiety, and stigmatization (Cserjési, Luminet, Poncelet, & Lénard, 2009; Phelan et al., 2015; A. J. Tomiyama, 2014). Obesity also has an economic cost; the amount spent in the United States to treat obesity-related disease and the reduction in economic productivity is estimated to be over $150 billion a year (CDC, 2018). As obesity becomes more prevalent worldwide, research efforts to understand the mechanisms driving this growth have also increased. This growing health crisis has been attributed to a general decrease in physical activity, an increase in sedentary behavior, and the highly effective marketing and increased accessibility of unhealthy food (Gortmaker et al., 2011; Swinburn et al., 2011).

Unlike many health risk behaviors, there is no singular behavior that marks the onset of obesity. Specifically, obesity is the result of a sustained pattern of behaviors including (a) prolonged sedentary lifestyle and (b) over consumption of food (especially nutrient-poor food). These behaviors trigger metabolic processes that, in conjunction with other endocrine-related processes such as cortisol production related to stress-responses, lead to excess weight (Adam & Epel, 2007; A. Tomiyama, Ahlstrom, & Mann, 2013; A. J. Tomiyama et al., 2010). Obesity prevention and treatment programs typically focus on one or more of the following behaviors: increasing physical activity, decreasing sedentary behavior, increasing consumption of “healthy” food, or decreasing consumption of “unhealthy” food (Dietz, 2011; Mann et al., 2007). Weight loss programs are increasing in availability and variety, but success is inconsistent.

Despite the proliferation of weight loss programs and focus on obesity prevention and intervention, the field of weight loss research holds many unanswered questions. What constitutes successful weight loss? Why is it so difficult to lose weight? What are the psychosocial processes related to
weight loss? What are the best practices in weight loss and weight management behaviors? Are there groups that are disproportionately affected by obesity? Many attempts to address these questions have taken place in the medical and public health sectors. However, health psychology, with its emphasis of biopsychosocial processes and focus on intersectionality between the environment and the individual, has contributed significant understanding to obesity issues and weight loss.

In the following sections, we briefly review the existing health psychology literature to address some of these questions. We begin by categorizing goals within the weight loss literature, including research on weight loss versus studies on weight maintenance. We continue by reviewing some of existing debates in weight loss research, such as whether diets should be promoted or if they do more harm than good. We then selectively review several important psychological theories and models that underlie many weight loss approaches and describe interventions and approaches based on these theories. Last, we discuss current issues and future directions for researchers to consider, including obesity and weight loss among youth and disparity groups. The purpose of this chapter is to highlight the contributions of health psychology in understanding obesity and preventing and intervening on health consequences related to obesity.

Weight Loss and Weight Maintenance: Goals Matter

It is important to recognize that research in obesity is not ubiquitously thematic. Some studies focus on losing weight, while others are geared towards maintaining weight loss. Superficially, the difference between the study of initial weight loss and weight maintenance is related to temporal scope: weight loss can be studied in the short-term and maintenance requires longer periods of follow-up. Mechanistically, weight loss and weight maintenance involve different processes and health outcomes. Initial weight loss can be the result of overall body mass reduction. Ideally, this reduction would be through loss of fat, however, initial weight loss is commonly through loss of muscle mass (Stiegler & Cunliffe, 2006; Willis et al., 2012). In contrast, long-term weight loss maintenance requires overcoming metabolic, hormonal, and cognitive adaptations that are striving against weight loss and towards weight gain (Adam & Epel, 2007; Fothergill et al., 2016; A. J. Tomiyama et al., 2010).

Additionally, the implicit goal of weight loss research and interventions is to improve health outcomes. However, this goal tends to be sidelined when much of the emphasis is placed solely on weight loss as the primary objective. As health psychologists, we would be remiss if we did not point out that weight loss, in and of itself, may not be the appropriate ultimate goal of health interventions for several reasons. First, a person could be unhealthy at any weight. For example, even though there is a strong relationship between insulin resistance and BMI, a significant portion of people with insulin resistance are normal weight (McLaughlin, Allison, Abbasi, Lamendola, & Reaven, 2004) and that metabolic syndrome and insulin resistance among normal weight adults is not uncommon (Meigs et al., 2006). Second, there are unhealthy ways to lose weight, including fasting, purging behaviors, and using diet pills (Levy & Heaton, 1993). One study demonstrated that 1 in 7 female college students, including many who were of normal weight, use extreme and unhealthy methods to lose weight (Lowry et al., 2000). Third, a person can carry excess weight but be healthy or have better outcomes than normal weight people. Known as the obesity paradox, there is data suggesting that when confronted with cardiovascular disease, higher BMI is related to better prognosis and survival rates compared to normal BMI individuals (Lavie et al., 2014). In general, the obesity paradox has been limited to the overweight and mildly obese; severe obesity is related to poor cardiovascular prognoses (Lavie et al., 2016; Wang et al., 2015). Last, dieting behaviors geared towards weight loss may improve some health outcomes, but may not produce significant weight loss. One systematic review of the dieting literature found that diets produce short-term effects, but in the long-term, weight regain is more pervasive than weight loss maintenance (Mann et al., 2007). In another review, A. Tomiyama et al. (2013) found that diets might modestly improve cardiovascular health outcomes,
but those improvements were not necessarily related to weight loss. Given these reasons, it is imperative to keep in mind that improved health is the ultimate goal and that the operational definition of success in weight loss is complicated, and sometimes problematic.

This chapter on weight loss will break from tradition by placing a greater emphasis on indicators of health. Admittedly, this chapter relies on weight loss as the primary outcome because most of the literature still uses weight loss as the primary outcome for investigations. However, the future of the field faces a paradigm shift that takes into account the complicated relationship between weight and health by adopting more holistic views of weight-related health outcomes.

**Understanding Obesity, Weight Loss, and Weight Maintenance**

Weight loss, in and of itself, is not a behavior. Instead, it is the outcome of a series of behaviors involving food consumption and energy expenditures that trigger physiological reactions leading to weight maintenance, loss, or gain. One approach to examining weight loss is to apply models of substance addiction to understanding eating behaviors. In many ways, eating behaviors are similar to addictive substance use behaviors, such as alcohol use and smoking (Davis et al., 2011). Food, like alcohol and nicotine, produces chemical changes in the body to sustain physiological need/craving and, in the absence of the substance, produce withdrawal symptoms that reinforce the addiction, and ultimately, the behavior itself (Gearhardt et al., 2011; D. Smith & Robbins, 2013). Indeed, there is evidence that palatable foods are linked to neural reward processes, including opioid and dopamine systems (Gearhardt et al., 2011). As with alcohol and nicotine, food is intricately tied to an industry focused on selling its products and that uses millions of dollars to advertise and promote their products (Stuckler & Nestle, 2012). All three substances play large roles in social interactions for many cultures and across age groups (Counihan & Esterik, 2012; Stevenson, Doherty, Barnett, Muldoon, & Trew, 2007). In this regard, multilevel, biopsychosocial perspectives of addiction are particularly important to understanding addictive behaviors (D. Smith & Robbins, 2013).

However, there are attributes to weight loss that do not align with alcohol and nicotine use models. Generally, the ultimate goal for alcohol and smoking interventions is complete abstinence from those substances. Some programs and perspectives advocate harm-reduction approaches for substance abuse (e.g., moderation drinking, e-cigarette use). However, the human body can ultimately survive without those substances. Weight loss is different because weight loss is the outcome of a series of behaviors (eating and drinking) that are basic necessities to survive (D. Smith & Robbins, 2013). The critical question to understanding weight loss and weight management is this: How do you produce an outcome (weight loss) that is based on behaviors that are absolutely necessary to live? In this regard, unlike substance use where the endgame is abstinence, behavioral change in weight loss programs is to alter the choices of intake and engage in behaviors that are physically taxing, two behaviors that are more complicated than a goal of abstinence. Within this framework, weight loss requires the reduction of eating behaviors that are basic to survival and pleasurable and an increase in physical activities that may initially cause physical discomfort.

**Behavioral Strategies to Lose Weight: Diets and Exercise**

**Dieting to Lose Weight**

Most weight loss interventions emphasize diet reform as the first critical step in weight loss. Compared to exercise-only programs, a study on post-menopausal women found that those women in diet-only interventions lost 8.5% of their body weight, and those in exercise only interventions lost only 2.4% of their body weight over the course of 12 months (Foster-Schubert et al., 2012). Those who only dieted had three times the amount of “success” achieved by the physical activity group.
Diet-only interventions can lead to other improvements beyond weight loss alone. On a basic physical level, diet-only interventions lead to reduced weight circumference and hepatic fat content (usually better indicators of general health than weight alone) (Goodpaster et al., 2010). One meta-analysis found that weight-reducing diets, with or without exercise, led to reduced mortality overall, lower cardiovascular mortality rates, and some evidence that suggested lower cancer mortality (Ma et al., 2017).

All these results may seem like they suggest that dieting alone may lead to successful weight loss. However, much of the studies that focus on dieting are limited to short-term results and can only speak to initial weight-loss outcomes (Mann et al., 2007). Dieting alone has some particularly poor outcomes in terms of body composition and overall long-term health. In this regard, dieting might produce weight loss, but may not lead to long-term weight loss maintenance (Mann et al., 2007).

One meta-analysis of diet based counseling interventions found that participants experienced incremental weight gain each month after the interventions ended (Dansinger, Tatsioni, Wong, Chung, & Balk, 2007). These results are not uncommon, and calorie restricted diets can contribute to both these outcomes by unfortunate changes in body composition.

Despite the lack of data on diet’s effectiveness in maintaining long-term weight loss, for the aspiring dieter, there are a host of diets that utilize different strategies to lose weight. Some of the commonly prescribed diets include low-carbohydrate diets (LCD), low-fat diets (LFD), high-protein diets (HPD) like the Paleolithic diet, and the Mediterranean diet (MD), which prescribes high intake of plant-based foods, moderate alcohol consumption, and low intake of saturated fats and red meats. The goal of most dieters is to lose weight, but health care providers may also prioritize diets that lead to improvements in cardiovascular health or metabolic risk factors, such as smaller waist circumference, increases in “good cholesterol” (HDL), reductions in “bad cholesterol” (LDL), lowered triglyceride levels, and reductions in blood glucose levels (NIH, 2000). However, there is no clear consensus on which diet is the most optimal for weight loss or improvements in general health (Pagoto & Appelhans, 2013).

### Outcomes Associated With Diets

Both LCD and LFD are associated with improvements in waist circumference, blood pressure, insulin and glucose levels (Bazzano et al., 2014; Gardner et al., 2018; Hu et al., 2012). A randomized control trial with 609 participants assigned to either a LCD of LFD found no significant difference in any of these measures (Gardner et al., 2018). Compared to LCD and LFD, the MD showed the best improvements in glucose and insulin, but only among a small subset of diabetics (Shai et al., 2008). However, when compared to the Paleolithic diet (a type of HPD), the MD did not improve HbA1C levels any more than the Paleolithic diet did.

When looking at cholesterol-related outcomes, differences start to emerge. Typically, LCDs outperform LFDs (Bazzano et al., 2014; Gardner et al., 2018; Hu et al., 2012) and even MD (Shai et al., 2008) when it comes to increasing good cholesterol (HDL). LCDs also tend to be better at lowering triglycerides than LFDs (Bazzano et al., 2014; Gardner et al., 2018). On the other hand, there is some evidence that suggests that LCDs may increase bad cholesterol (LDL), which can have serious health consequences. Gardner et al. (2018) did find higher LDL levels in those who were in the LCD condition, and these levels had increased from baseline measures prior to the diet (Gardner et al., 2018).

In terms of metabolic risks factors and actual weight outcomes, all diets seem to be comparable. Weight loss outcomes are effectively the same when comparing LCDs to LFDs (Gardner et al., 2018; Hu et al., 2012) or HPD (Sacks et al., 2009). One study found that the MD and LCD led to more weight loss than the LFD, but the difference between the groups was only between 1.5 and 1.8 kgs (Shai et al., 2008). When comparing a very low-carbohydrate diet (e.g., Atkins) to a typical LCD, LFD, and high carb diet, Atkins resulted in the most weight lost (Gardner et al., 2007). However,
there was no difference in any of the other diet types (Gardner et al., 2018). There has been some hope that information about an individual’s genetic predisposition to metabolize carbohydrates or fats might improve the effectiveness of LCD or LFDs. However, a randomized control trial demonstrated genetic markers did not predict better weight loss outcomes in either diet condition (Gardner et al., 2018), suggesting that gene-based prescriptions for diets are not yet reliable for individual recommendation.

Why Diets Don’t Work: Weight Loss Obstacle

Diet-only programs are successful at promoting short-term weight loss, particularly in the beginning of an intervention, but the biological changes that occur during initial weight loss also promote weight gain in the long-term (Mann et al., 2007; Sumithran, 2011). The challenges in losing weight are significant for most individuals, in part because individuals are fighting against their own biological system to lose weight. The single greatest expense of energy most of us experience through the day is through our resting metabolic rate (RMR). RMR refers the expenditure of energy necessary to maintain basic biological functions at rest, including respiration and circulation. A very large person requires more energy for their body to function, so the body will generally burn more calories during the day (Ravussin, Burnand, Schutz, & Jéquier, 1982). However, dieting causes reductions in body mass, but at the cost of lean body mass (Stiegler & Cunliffe, 2006). Loss of lean body mass significantly decreases RMR, and reductions in RMR are antagonistic to overall weight loss and weight loss maintenance (Stiegler & Cunliffe, 2006). For example, Fothergill and colleagues (2016) followed contestants from the weight loss competition “The Biggest Loser” and found that six years after significant weight loss, almost all of the contestants regained weight. More importantly, the contestants went from a baseline resting metabolic rate of 2,607 +/- 649 kcal/day to 1,903 +/- 466 kcals/day, meaning their bodies adjusted to the reduced calorie intake (restrictive dieting) to need 704 fewer calories per day.

In addition to the metabolic changes in response to calorie restrictions, dieting is also accompanied by hormonal and cognitive changes that result in detrimental cycles that increase the risk of weight gain (Adam & Epel, 2007; Sumithran et al., 2011). Cognitively, dieting to lose weight is negatively related to executive functioning (Kemps, Tiggeman, & Marshall, 2005). Dieters, compared to non-dieters, tend to ruminate about food and their body image, increasing depression and negative affect (Cserjési et al., 2009). Diet-related rumination and negative mood also work to decrease executive functioning (Cserjési et al., 2009). In turn, decreased cognitive functioning and executive control increase the risk of weight gain, creating a perpetuating cycle that poses a significant challenge to weight loss (E. Smith, Hay, Campbell, & Trollor, 2011).

Another detrimental dieting cycle occurs with stress and stress-related cortisol production. Cortisol not only increases appetite, but there is a relationship between cortisol and consumption of food high in sugar (Epel, Lapidus, McEwen, & Brownell, 2001). Severely stressed individuals who demonstrate blunted cortisol responses are also more likely to have higher BMIs and report stress-eating, suggesting that eating is a form of self-medication for stress. However, when people try to lose weight through dieting, the mere acts of dieting and restricting calories are related to elevated levels of cortisol (A. J. Tomiyama et al., 2010). In this regard, cortisol, stress, and weight gain form another perpetuating cycle that serves as a deterrent to weight loss.

As a whole, the literature suggests that dieting for long-term weight loss is not very effective nor, as some researchers point out, productive towards good health. For example, A. Tomiyama et al. (2013) point out that in the case of morbidly obese individuals, the generalized “goal” for successful weight loss would be 5% of the body weight. That result would still put morbidly obese individuals far above what is considered an ideal weight (Mann et al., 2007). Moreover, there may also be many negative effects of (a) repeated dieting and (b) regaining weight, which is markedly common for
every intervention and characterizes most individuals who try to lose weight. One potential solution is a comprehensive approach to being healthy that includes moderated/mindful eating and physical activity. Indeed, as discussed in another chapter in this book, physical activity may be an excellent way to promote general health, but physical activity only interventions tend to lead to less weight loss in general (Foster-Schubert et al., 2012).

Theory-Driven Approaches to Understanding and Promoting Health Weight Behaviors

Due to the onerous nature of weight loss and health promotion, several theories and psychological approaches have been helpful in providing insight on factors that underlie initial weight loss behaviors and continued maintenance in the long-term. These approaches include risk perceptions/risk communications, motivational approaches, and mindfulness approaches.

Risk Perceptions and Weight Loss

Research using risk perceptions about excess weight is based on the Theory of Planned Behavior and the Theory of Triadic Influence (Ajzen, 1991; Flay, Snyder, & Petrakis, 2009), which assume weight loss attempts are volitional and a thought process underlies decisions to lose weight. This perspective emphasizes the strong link between attitudes, perceptions, intentions, and behavior (Chatzisarantis & Hagger, 2007). One of the major areas of research that has come from this theoretical line has been examination of risk perceptions. In this regard, much of the research on risk perception and weight loss fall into two categories: weight loss attempts and weight management behaviors. Although there are various reasons why people attempt to lose weight, including for physical appearance (O’Brien et al., 2007), one of strongest factors is a concern for health risks posed by excess weight (Gregory, Blanck, Gillespie, Maynard, & Serdula, 2008; O’Brien et al., 2007; Wee, Davis, & Phillips, 2005).

Health communication strategies geared towards educating the public on the risks of obesity have been prevalent, but these are also wrought with complications. On the one hand, health communications about health risks are a core strategy for promoting health on a mass scale (Witte & Allen, 2000). Moreover, there is additional literature that demonstrates that positive reinforcement (Borra, Kelly, Shirreffs, Neville, & Geiger, 2003; R. Puhl, Peterson, & Luedicke, 2013) and tailored messages (Kroeze, Werkman, & Brug, 2006) are more effective in increasing intentions, behaviors, and weight loss outcomes.

On the other hand, health communications regarding obesity risk are also prone to increasing stigma and weight biases. There is a proliferation of media messages that depict obesity and excess weight as an issue of personal responsibility and control (Greenberg, Eastin, Hofschire, Lachlan, & Brownell, 2003). In many media depictions, overweight individuals are marginalized or teased, which may be related to youth body dissatisfaction (Eisenberg, Ward, Linde, Gollust, & Neumark-Sztainer, 2017). These messages also reinforce a long-standing misconception and bias that obesity is solely due to an individual’s behavior, discounting the influence of biology and food industry marketing (Puhl & Heuer, 2010). Indeed, weight stigmatization, biases, and discrimination are highly detrimental to general well-being (Lewis et al., 2011) and are antagonistic to weight loss and weight maintenance (Phelan et al., 2015; Puhl & Heuer, 2010), potentially creating a cycle of weight-related stress and consequent weight gain (A. J. Tomiyama, 2014).

Motivational Interventions

Motivational studies on weight loss and maintenance are based on the Self-Determination Theory (SDT). The core focus of SDT is the interplay between extrinsic forces and intrinsic, internal
motivations (Ryan & Deci, 2000). Within this framework, intrinsically motivated people engage in behaviors because they experience inherent satisfaction from behavior, including joy, personal satisfaction, feelings of accomplishment, and mastery of a skill. Extrinsic motives are reasons based in obtaining some reward beyond the activity itself or avoiding negative consequences. Intrinsic motivations are strongly linked to sustained engagement in behavior and are related adherence to weight loss behaviors like physical activity and exercise, while extrinsic motives are loosely tied with short-term engagement with behaviors (Teixeira, Carraça, Markland, Silva, & Ryan, 2012).

The central role of intrinsic motivation in sustained health-promoting behaviors has led to a host of successful interventions, including Motivational Interviewing (Martins & McNeil, 2009). Unlike some other counseling treatments, Motivational Interviewing (MI) has no specific standard of administration (Miller & Rollnick, 2009). Instead, it focuses on ensuring client-centered treatment where clinicians first focus on increasing intrinsic motivation for a behavior change, and then focus on strengthening commitment to that change (Martins & McNeil, 2009). Increasing commitment to change is beneficial to weight loss interventions, particularly in the face of such low adherence rates in many studies.

Compared to control conditions, interventions that include MI lead to greater weight loss (Armstrong et al., 2011). In a meta-analysis of 12 studies, participants who were randomly assigned to interventions with MI lost more weight than those in control treatments (Armstrong et al., 2011). Only two out of the 12 studies did not find greater weight lost in the MI treatment conditions. The meta-analysis identified the greatest success in studies that paired MI with group-based behavioral weight loss programs, optimizing the benefits of social-based programs with the intrinsic motivation promoting aspects of MI.

In terms of total weight lost, MI interventions result in roughly 1.47 kg greater weight loss (Armstrong et al., 2011). While this may not seem like much on its own, it is important to remember that MI has been found in some cases to increase health behaviors after only a few sessions (Martins & McNeil, 2009). Adding MI to typical treatment could increase treatment success with very little extra time invested. Beyond weight loss, there are other health benefits associated with MI, including an increase in self-efficacy, which is essential in the treatment of eating disorders like binge eating disorder (Mirkarimi, Kabir, Honarvar, Ozouni-Davaji, & Eri, 2017). Moreover, there is ample evidence to suggest that MI leads to greater adherence in programs (D. E. Smith, Heckemeyer, Kratt, & Mason, 1997). In one study, greater adherence within MI programs was shown to increase total weight lost up to 51% (Ford, Haskins, & Nahar, 2017).

**Mindfulness Interventions**

Mindfulness training is becoming increasingly prevalent in the treatment of obesity and eating disorders (Carrière, Khoury, Günak, & Knäuper, 2018). Mindfulness interventions use a variety of techniques, including meditative practices, to increase a person’s awareness of their present state (Baer, 2003). In the context of obesity interventions, the hope is that mindfulness practices can increase a person’s non-judgmental awareness of their body’s hunger cues and feelings of satiety (Arch et al., 2016; Carrière et al., 2018; Mason et al., 2016), emotional states that could trigger over eating (Carrière et al., 2018), and general self-regulatory control (Mason et al., 2016). Whereas lifestyle interventions focusing on diet and exercise tend to focus on weight loss as a primary goal, mindfulness interventions often target disordered eating beliefs and behaviors with weight loss outcomes of secondary importance.

While mindfulness training has been associated with some weight improvements (Caldwell, Baime, & Wolever, 2012; Lillis, Hayes, Bunting, & Masuda, 2009; Mason et al., 2016), these improvements are often small and the effect sizes inconsistent (O’Reilly, Cook, Spruit-Metz, & Black, 2014; Rogers, Ferrari, Mosely, Lang, & Brennan, 2017). In one meta-analysis, Rogers et al. (2017)
concluded that there was not enough current evidence to suggest mindfulness had any meaningful impact on BMI reduction. In a separate meta-analysis, O’Reilly et al. (2014) argues that although mindful interventions only result in small amounts of weight lost, nine of the 10 studies found that mindfulness interventions resulted in weight loss or, at the very least, weight maintenance. While the initial weight loss outcomes are not quite so impressive, the physical benefits of mindfulness become more apparent over time. For example, one meta-analysis found that mindfulness interventions resulted in less weight loss than more traditional lifestyle interventions immediately after the intervention ends. Yet three months post-intervention, those who had been in mindfulness interventions continued to lose weight, while those who had been in the more traditional interventions regained some weight (Carrière et al., 2018). Indeed, there is additional support that mindfulness may have lasting influence long after the intervention itself (Lillis et al., 2009).

Mindfulness interventions have shown great promise in attenuating psychological and behavioral risk factors involved in weight gain and eating disorders. Interventions that include mindfulness components have been used to reduce stress eating (Mason et al., 2016), incidents of binge eating (O’Reilly et al., 2014; Pinto-Gouveia et al., 2017), and reward-driven eating (Mason et al., 2016). Of a set of 12 studies where binge eating was targeted through mindfulness, 11 of the studies found reductions in the behavior and those reductions were typically very large (O’Reilly et al., 2014). The BEfree program also targeted binge eating through psycho-education, mindfulness, and self-compassion (Pinto-Gouveia et al., 2017). The researchers found that the participants showed significant improvements in the reduction of binge eating, eating psychopathology, and generally improved their quality of life.

The psychological benefits of mindfulness training include moderate improvements in depression and anxiety (Carrière et al., 2018; Rogers et al., 2017), reduction of shame (Pinto-Gouveia et al., 2017), and improvements in psychological distress and perception of stigma (Lillis et al., 2009). These psychological states may trigger emotional eating and impair someone’s ability to make healthy choices. Therefore, mindfulness interventions might help break the dangerous cycle between emotions, regulation, and weight issues. Moreover, there is a body of work linking mindfulness with increased physical activity (Caldwell et al., 2012) and improved eating behaviors (Caldwell et al., 2012; Carrière et al., 2018; Rogers et al., 2017). Together, the literature suggests that mindfulness techniques improve health more holistically than weight loss alone.

**Special Area of Focus: Youth and Racial/Ethnic Disparities**

In considering the vast literature on obesity, one particular area stands out as a case that exemplifies the integration of psychological concepts and health outcomes on a mass scale: obesity in youth and racial/ethnic minorities. Youth are a group for concern for several reasons. First, youth obesity is a significant risk factor for obesity in adulthood. Specifically, BMI increases after the age of 6 is particularly detrimental to obesity in adulthood (Buscot et al., 2018). Second, youth are particularly vulnerable to stigmatization of being overweight or obese, and perceptions of weight stigma are strongly linked to negative psychosocial outcomes including increased depression and suicidal ideation and decreased school performance and quality of life (Latzer & Stein, 2013; Wällander et al., 2009). Despite the fact that approximately 23% of youth are overweight or obese (Hales et al., 2017; Ogden et al., 2015), 45.6% of high school students reported trying to lose weight and that overall attempts to lose weight have increased over the last few decades (Kann et al., 2016). As with adults, attempts to lose weight may be influenced by concerns about the appearance of one’s body size independent of their actual size (Calzo et al., 2012).

A systematic review of the literature on adolescent weight loss interventions indicates that like adults, a combination of diet, physical activity and behavioral interventions may be effective for youth who are overweight or obese, although effectiveness varied widely between studies.
(Al-Khudairy et al., 2017). One area of concern for youth are the unhealthy practices, including but not limited to meal skipping, use of laxatives, diet suppressants, self-induced vomiting, and excessive exercising (Demissie, Lowry, Eaton, & Nihiser, 2015). These unhealthy weight loss behaviors may be initiated without a physical health reason and are linked to eating disorders such as anorexia and bulimia.

Negative body perceptions may be initiated very early, even as young as 6 years of age, and these perceptions are associated with poorer overall health, emotional distress, and increased dieting among adolescent, regardless of body weight (Bucchianeri et al., 2016). In addition, negative body perceptions are associated with increased tobacco and substance use. Research has shown that negative body perceptions and/or increased dissatisfaction with one’s image appear to increase over time from childhood to adolescence, even among those of healthy weights though youth with higher weights do report significantly more negative body perceptions (Calzo et al., 2012).

Significant differences in weight (or body size), body image/perception and weight loss related behaviors exist among youth by race/ethnicity (Mikolajczyk, Iannotti, Farhat, & Thomas, 2012). Rates of overweight/obesity appear to be higher among African American/Black and Hispanic/Latino youth compared to White youth, especially among females (Hales et al., 2017). However, for Asian youth, the reverse is true, with Asian males more likely to be overweight compared to Asian females (Hales et al., 2017). Findings about whether differences exist for perceptions about one’s body and/or image across those of varying race/ethnicity are less conclusive (Bucchianeri et al., 2016; Mikolajczyk et al., 2012). Some studies report that body satisfaction is higher among African American/Black youth (both males and females) and lowest among Asian and Hispanic/Latina females. In large longitudinal national urban sample, Epperson et al. (2014) found that Hispanic/Latino youth were significantly more likely to be overweight or obese, have negative perceptions about their body, and report more attempts to lose weight compared to African American/Black youth who in turn had higher rates of all three compared to White youth. Negative body perception was linked to increased attempts to lose weight only among Hispanic/Latino and White, but not among African American/Black youth. However, these racial/ethnic differences contradict previous findings that suggest African American/Black rather than White youth have the most positive body perception (Mikolajczyk et al., 2012).

With less research overall on the relationship between body size/weight, body perceptions/image, and weight loss behavior and higher prevalence of obesity/overweight among youth in general, and African American/Black and Hispanic/Latino youth specifically, there is a critical need to further examine how these behaviors and perceptions are linked. Given conflicting previous findings for these vulnerable populations (e.g. youth and racial/ethnic minorities) more large scale longer term longitudinal studies on youth with a focus on body size/weight and weight management will need to be conducted.

**Obesity Research in Health Psychology: Where Do We Go From Here?**

As demonstrated in this chapter, obesity is challenge to understand and treat. Some of the strongest contributions to understanding the effects of obesity and interventions to improve health outcomes for overweight and obesity individuals come from health psychology. However, moving forward, it is clear that health psychology can do more for the science of weight maintenance and weight-related well-being. Specifically, much of the psychological work in obesity has been focused on individuals. Indeed, there is still much to be done at the individual level and health psychologists will assuredly continue to contribute by elucidating internal processes that (a) serve as risk factors for obesity (e.g., Stice, Presnell, Shaw, & Rohde, 2005) and (b) contribute to neuroendocrine cycles that prevent weight loss (e.g., A. J. Tomiyama, 2014). However, health psychologists might look towards branching out and focusing on the intersection between the individual and macro-level factors, such as the
community and society as a whole. For example, there is a growing literature on community-level factors like outdoor food advertising that influence obesity, weight loss, and weight maintenance. Much of this work has been limited to correlations between neighborhood environments and rates of obesity. However, health psychologist might join in the fray by examining more complex models of how community-level factors are processed by the individual, which in turn influence weight status of individuals. Moreover, health psychologists have much to contribute to the discussion on obesity-related health policy. Indeed, some colleagues have waded into the public health forum by addressing Medicare policy and its criteria for program effectiveness (Mann et al., 2007). Health psychologists, with their insight on health communication, decision-making, and self-regulation processes, also can shed light on how policies, such as mandatory nutrition labeling or advertising bans, might impact population health.

Conclusion

In the aptly titled opinion piece A Call for the End of the Diet Debates, the authors emphasize that researchers’ time is better spent focusing on the behavioral, biological, and environmental factors that influence weight loss instead of again engaging in diet debates that seem to have no true victor (Pagoto & Appelhans, 2013). While initially unsatisfying, there may be certain freedom in abandoning the search for the perfect diet. The “best” may be the one that can be adhered to, allowing for diet adaption to lifestyle demands, personal preferences, and even cultural differences (Sacks et al., 2009). As the medical and health field increasingly move towards a precision-medicine model to prevent and treat disease and illness, health psychologists will use their expertise and understandings of health behavior to play a vital role in the development of targeted and more individualized treatments for obesity, as well as impact on health policy and population health.

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Weight Loss, Obesity, and Health


