

## **An Evidence-Based Rationale for Adopting Weight-Inclusive Health Policy**

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*Health policies routinely emphasize weight loss as a target for health promotion. These policies rest upon the assumptions: (1) that higher body weight equals poorer health, (2) that long-term weight loss is widely achievable, and (3) that weight loss results in consistent improvements in physical health. Our review of the literature suggests that these three assumptions underlying the current weight-focused approach are not supported empirically. Complicating this further are the misguided assumptions (4) that weight stigma (i.e., pervasive social devaluation and denigration of higher weight individuals) promotes weight loss and (5) recognizing that one is “overweight” is necessary to spur health-promoting behaviors. We highlight throughout how these assumptions have manifested in current policies and offer suggestions for alternative approaches to health promotion. We conclude by advocating for the broad adoption of a weight-inclusive approach to health policy.*

*There is an obesity crisis in this country. Canadians are paying for it with their wallets—and with their lives.*

Obesity in Canada report, Canadian Senate

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The authors have no conflicts of interest to report. The authors have no conflicts of interest to declare.

Weight-focused health promotion policies are prevalent around the globe. The above quote, which opened a 2016 report from Canada's Standing Senate Committee on Social Affairs—highlights the centrality of weight in the Canadian approach to health promotion. Although the report recommends behavioral changes known to improve health independently of weight loss (e.g., improved diet quality, greater physical activity), and it recognizes the critical role that social factors (e.g., socioeconomic status) play in population health, the report nonetheless emphasizes that steps “must be taken to help Canadians achieve and maintain healthy weights” (Canadian Senate, 2016). The Mexican government's 2013 National Strategy for Prevention and Control of Overweight, Obesity, and Diabetes has likewise adopted an approach that emphasizes individual behavioral change (e.g., reduced consumption of sugar-sweetened beverages) as a route to weight reduction and ostensibly improved health.

A similar perspective on weight can be found in the United States. Indeed, Dr. Regina Benjamin opened her Surgeon General's 2010 Vision for a Healthy and Fit Nation by noting that the U.S. “stands at a crossroads. Today's epidemic of overweight and obesity threatens the historic progress we have made in increasing American's quality and years of healthy life.” Weight (loss) and weight surveillance feature prominently in public health campaigns and health-related policies, from the Surgeon General's recommendations (U.S. Department of Health and Human Services, 2010) to the National Institutes of Health's research priorities (Office of Disease Prevention, 2019). Likewise, weight surveillance is particularly common among children and adolescents, with parents in some states even receiving “Report Cards” regarding their children's weight (e.g., Almond, Lee, & Schwartz, 2016). The Equal Employment Opportunity Commission, a government agency designed to *protect* against employment discrimination, even affirmed that employers can offer reduced insurance premiums to their thinner employees (U.S. Equal Employment Opportunity Commission, 2016).

The emphasis on weight (loss) in public health policies and campaigns is not limited to the North American context. In 2018, the Australian Senate launched a Select Committee to investigate its “Obesity Epidemic,” which resulted in 22 recommendations (Australian Senate, 2018). Although these recommendations did acknowledge the importance of “stigma and blame in medical, psychological and public health interventions,” the report nonetheless maintained that the prevalence of heavier individuals was a national crisis that needed to be remedied. The weight-centric model to health promotion is also seen widely across Europe. In the United Kingdom, for example, the National Health Service has dedicated extensive resources to educating health professionals and the public regarding the “risks” of being heavier and strategies for weight reduction and the. Likewise, the European Union has declared that reaching a “healthy” (lower) body weight is necessary to achieving overall health and longevity. More broadly, this position is reflected in the World Health Organization (WHO), whose Director General

**Table 1.** Five Misguided Assumptions and the Main Related Policy Recommendations

(Misguided) Assumption	Main Policy Recommendation
Higher body weight equals poor health Long-term weight loss is widely achievable	Exclude weight from policy goals and language Avoid federal reimbursement for treatments that target weight loss
Weight loss results in consistent improvements in health	Focus on modifiable behaviors rather than weight
Weight stigma will motivate individuals to lose weight	Remove stigmatizing language from policy language and public health campaigns
Accurate perception of weight is needed to promote health	Eliminate BMI report cards and other weight surveillance campaigns

referred to the global rise in weight as a “slow-motion disaster” (Chan, 2016) and whose policies are ultimately rooted in weight reduction.

### Problematic Assumptions of Weight-Related Policies

The weight-related policies described above rest on the assumptions: (1) that higher body weight equals poorer health, (2) that long-term weight loss is widely achievable, and (3) that weight loss results in consistent improvements in physical health. Below, we review the strength of evidence for each of these assumptions. As will be demonstrated, the empirical foundation for these three assumptions is mixed, and we believe does not meet the necessary standard for informing policy. Complicating this further are the misguided assumptions (4) that stigmatizing weight promotes weight loss and (5) recognizing that one is “overweight” is necessary to spur health-promoting behaviors (see Table 1). We briefly review these two literatures as they relate to existing types of weight-related health policy. Given space constraints, these reviews will be nonexhaustive in nature. As such we will prioritize systematic literature reviews and meta-analyses where available. When original studies are described, we will focus our attention on those studies with designs that can offer the most rigorous empirical support for these relationships. We conclude by synthesizing the predominantly medical and epidemiological literature on weight and health with the social science literature on weight stigma and weight perceptions in recommendations adopting weight-inclusive health policy. Our goal in doing so is to highlight the reciprocal nature between policy changes and social issues. That is, implementing the weight-inclusive policies and approaches advocated here will likely have implications for weight stigma and thus population health moving forward.

#### *Assumption 1: Higher Body Weight Equals Poorer Health*

This assumption is largely borne from studies that show that those with elevated body mass index (BMI) are at greater risk for a number of chronic

diseases such as cardiovascular disease, type II diabetes, some cancers, and others (reviewed in Lavie, Milani, & Ventura, 2009). To conclude from this evidence that higher body weight equals poorer health risks falling prey to the “correlation is not causation” fallacy. To ascribe a causal role of body weight in poor health ignores the likely possibility of third variables or reverse causation. At a foundational level, we as psychologists should understand the importance of behavior—an obvious third variable—in poor health. When individuals say higher weight is bad for one’s health, they most likely actually mean that behaviors, not weight *per se*, are bad for health. That is, they are not saying that the sheer size of the body is to blame, but rather poor diet, lack of exercise, and other behavioral factors are the true culprit behind poor health; factors that in some cases also happen to increase body weight (and as described below are impacted by weight stigma).

A remarkable study published in the *New England Journal of Medicine* directly demonstrated that weight (i.e., fat) may not cause poor health outcomes (Klein et al., 2004). In it, higher body weight participants underwent large-volume liposuction, and metabolic dysfunction and other markers of health were measured preoperation and 10–12 weeks postoperation. Despite losing 28–44% of their fat tissue, there were no improvements in any of the outcome variables examined, comprising insulin resistance in the muscle, liver, or adipose tissue; inflammatory markers of C-reactive protein, interleukin-6, tumor necrosis factor- $\alpha$ ; or coronary heart disease risk factors of adiponectin, blood pressure, glucose, insulin, or lipid concentrations. It is still possible that health improvements may have emerged later in time, or that liposuction removed subcutaneous fat instead of the more toxic visceral fat, which accumulates around organs (Hamdy, Porramatikul, & Al-Ozairi, 2006). Visceral fat is measured using abdominal CT or MRI scans, but can be indexed using surrogate markers such as waist circumference (Hamdy et al., 2006). While waist circumference evinces stronger correlations with health outcomes than BMI (e.g., Wang, Rimm, Stampfer, Willet, & Hu, 2005), swapping policy focus from BMI to waist circumference still runs the risk of exposing the population to weight stigma and its health consequences, discussed below.

There are several likely third variables that may be confounding the relationship between weight and poor health. For example, metabolic dysfunction such as insulin resistance may be the true driver of poor health, with higher body weight merely a side effect that gets the blame (Erion & Corkey, 2017; Pennings, Jaber, & Ahiawodzi, 2018). Similarly, sedentary behavior (a behavior distinct from physical activity; Ekelund et al., 2016) could be driving both poor health and higher weight. Indeed, at all levels of BMI, sedentary behavior is linked prospectively with mortality. Including sedentariness in the model erases the effect of BMI on mortality (Lee, Blair, & Jackson, 1999; Ortega et al., 2012). Reverse causation is also possible, wherein poor health begets higher body weight due to disability, financial strain (Adler et al., 2009), stress (Tomiyaama, 2019), or a whole host of other mechanisms. Thus, to build policy based on something that we cannot

definitively say is a primary causal factor seems both ineffective and scientifically unsound.

Moreover, there is evidence that higher body weight may in fact be a *protective* factor, further suggesting that building policy around higher body weight may not be advisable. A meta-analysis of 2.88 million participants from North and South America, Europe, Asia, the Middle East, and Australia conducted by analysts at the U.S. Centers for Disease Control (CDC) found that the hazard ratios for all-cause mortality were in fact lowest in individuals BMIs categorized as “overweight” (i.e.,  $25 \leq 30$ ), even controlling for potential confounds such as smoking (Flegal, Kit, Orpana, & Graubard, 2013). The highest hazard ratio was actually in those with underweight BMIs (below 18.5), and individuals with BMIs categorized as “grade I obesity” (i.e.,  $30 \leq 35$ ) actually had equivalent risk as individuals with a supposed “normal weight” BMI ( $18.5 \leq 25$ ). Policies that unduly focus on the supposed risks of being heavier may inadvertently overlook the health needs of this segment of the population.

Given the strength of this meta-analytic evidence, why does the “obesity is bad” idea still dominate? The response to this paper, and specifically the personal and sometimes vitriolic attacks by prominent scientists against its lead author, Katherine Flegal, has itself been the focus of analysis, including one published in *Nature News* (Hughes, 2013). The idea that obesity *per se* is not a predictor of health went against decades of medical dogma, and thus despite mounting, high-quality evidence like this, scientists pushed back. For example, Walter Willet, Chair of Nutrition at Harvard University, stated on U.S.’s National Public Radio, “This study is really a pile of rubbish, and no one should waste their time reading it” (Aubrey, 2013). This pushback was compounded by the mass media, whose coverage historically has overwhelmingly framed obesity as a public health crisis (Campos, Saguy, Ernsberger, Oliver, & Gaesser, 2005). The result is a public that staunchly believes that obesity is a serious health risk.

Admittedly, some behavioral mechanisms may underlie the findings wherein evidence suggests that higher weight individuals receive earlier screening and more thorough medical care (Chang, Asch, & Werner, 2010; Schenkeveld et al., 2012; Steinberg et al., 2007). Such behavioral mechanisms might lead one to argue for weight-based policy, as it is precisely their higher weight that nets higher weight individuals this medical attention. However, a more wide-reaching inference from these findings is that earlier and better care is beneficial for all individuals, and thus policy efforts should be inclusive, not exclusive, and aim to provide quality across the weight spectrum. Moreover, there is contradictory evidence that suggests heavier patients are actually less likely to get certain types of preventative health screenings (Adams, Smith, Wilbur, & Grady, 1993; Ferrante, Ohman-Strickland, Hudson, Hahn, Scott, & Crabtree, 2006; Wee, McCarthy, Davis, & Phillips, 2000) and receive shorter visits with healthcare providers (Phelan et al., 2015), which further complicates this potential explanation. Physiological mechanisms may also

explain the finding that individuals with a BMI in the “overweight” and “obesity” class I range appear to have the lowest all-cause mortality rates. Research documenting the so-called obesity “paradox” (Lavie et al., 2009; Oreopoulos et al., 2008) demonstrate that once diseases are diagnosed, medical outcomes are better in those with obesity, even in studies where the medical procedure is identical (i.e., addressing the confound of better care in those with obesity; Hastie et al., 2009) and controlling for periprocedural risk (i.e., addressing the confound that those with increased risk are disproportionately represented in the underweight BMI group; Hastie et al., 2009). There are in fact numerous physiological mechanisms that could underlie potential salubrious effects of higher body weight. Just in cardiovascular outcomes alone, over a dozen pathways link obesity and higher body fat to cardioprotective processes (reviewed in Lavie et al., 2009). For example, fat tissue can bind and neutralize harmful proinflammatory cytokines (Mohamed-Ali et al., 1999).

Even if one is skeptical of the findings demonstrating the *protective* nature of higher weight, the fact remains that there is strong evidence that not all heavier individuals experience poor health, and thus policy should not treat all heavier individuals as though they do. Nationally representative data from the U.S. National Health and Nutrition Examination Survey (NHANES) showed that nearly half of individuals with overweight BMI, 29% of individuals with obese BMI, and even 16% of individuals with obesity class II (BMI  $35 \leq 40$ ) and III (BMI  $40+$ ) were cardiometabolically healthy according to a stringent operationalization of cardiometabolic health across multiple physiological systems that included blood pressure, triglycerides, cholesterol, fasting glucose, insulin resistance, and C-reactive protein (Tomiyaama, Hunger, Nguyen-Cuu, & Wells, 2016). All told, relying on BMI to classify individuals as healthy or unhealthy (as public policy based on BMI risks), would misclassify 75 million U.S. adults.

These findings, however, highlight an important caveat to the literature reviewed in this section. The favorable health outcomes associated with overweight and obesity diminish as BMI increases to the categories class II and III obesity. As shown in the paragraph prior, 84% of those in the United States with BMIs categorized as class II and III obesity are cardiometabolically unhealthy (Tomiyaama et al., 2016). Similarly, in the multinational CDC meta-analysis (Flegal et al., 2013) reviewed above, the hazard ratios for all-cause mortality were 1.29 for class II and III obesity (versus 0.94 and 0.95 for overweight and obese class I BMI, respectively). Nonetheless, the population with class II and III obesity is relatively small, at less than 6% in Western countries and less than 5% globally (NCD Risk Factor Collaboration, 2016). Moreover, the size of mortality risk estimates observed in the NCD study are in fact smaller than those attributed to weight stigma in the nationally representative U.S. Health and Retirement Survey (1.48) as well as the Midlife in the United States study (1.46)—both prospective longitudinal studies (Sutin, Stephan, & Terracciano, 2015). We might expect very high BMI to

be associated with mortality to the extent that these individuals face the greatest stigma and discrimination (see weight stigma section below).

Policies can be written that exclude mention of weight, while focusing on, minimally, the above-mentioned behaviors—improved nutrition and appropriate levels of physical activity—and ideally with additional psychosocial factors such as social support, sleep, and stress reduction (Tomiyaama, 2019). This would avoid inducing shame (see the Weight Stigma section) for higher weight people (thereby increasing the likelihood that they will partake in and sustain behaviors to improve health), while at the same time promoting behaviors known to benefit health outcomes in people of all sizes.

Such policies are especially important for interventions targeting marginalized groups. Government-funded “obesity prevention” programs are numerous and increasingly aim to reduce BMI in majority African American, Latinx, and low-income communities. Not surprisingly, low income is the primary cause of food insecurity, and having minority status—especially African American and Hispanic—increases the risk of food insecurity (Wight, Kaushal, Waldfogel, & Garfinkel, 2014). Research indicating a correlation between food insecurity and eating disorders prevalence in youth raises additional concerns with this approach. In a 2017 study, researchers in San Antonio, Texas, found that 17% of the most food insecure children met diagnostic criteria for binge eating disorder (Becker, Middlemass, Taylor, Johnson, & Gomez, 2017)—a threefold increase above general population prevalence. Because weight loss interventions for people with eating disorders are clinically contraindicated (Pershing & Turner, 2018), targeting such interventions at groups with increased risk for disordered eating and eating disorders—and less access to treatment—is inadvisable.

#### *Assumption 2: Long-Term Weight Loss Is Widely Achievable*

As any lay dieter can attest, long-term weight loss is difficult. Reviews of the empirical data on long-term weight loss resulting from low-calorie dieting support this view (Bravata et al., 2003; Mann et al., 2007; Tomiyama, Ahlstrom, & Mann, 2013). Those randomly assigned to diet do not lose significantly more weight in the long term (here operationalized as at minimum 2 years later) than those randomly assigned to control groups (Mann et al., 2007; Tomiyama et al., 2013). Prospective diet studies with no control group fare even worse—one third to two thirds of dieters in those studies gain back *more* weight than they lose initially on the diet (Mann et al., 2007). Exercise, similarly, does not seem to reliably result in appreciable weight loss. A meta-analysis of exercise trials indicated that even for the longest interventions—12 months—the average weight loss was 1.7 kilograms or 3.75 pounds (Thorogood et al., 2011). Indeed, a 9-year analysis of electronic medical records of 176,495 individuals with obesity from the UK showed the

annual probability of attaining “normal” BMI was 1 in 210 for men and 1 in 124 for women (Fildes et al., 2015).

Furthermore, weight loss attempts do not fail simply because people are lazy. Myriad psychological and physiological mechanisms conspire to make weight loss difficult (MacLean, Bergouignan, Cornier, & Jackman, 2011). At a basic level, genetics account for a large percent of variance in weight (Farooqi & O’Rahilly, 2006)—close to that of height. Weight loss slows metabolism, making further weight loss difficult and weight gain easy (Leibel, Rosenbaum, & Hirsch, 1995; MacLean, Higgins, Giles, Sherk, & Jackman, 2015). Changes in hormones and brain processing make high calorie, sweet and fatty food increasingly rewarding (Adam & Epel, 2007; MacLean et al., 2011; Stice, Burger, & Yokum, 2013). Dieting has been shown to impair cognitive function, especially executive function, which is the very thing needed to control behaviors (Green & Rogers, 1995; Kemps, Tiggemann, & Marshall, 2005).

There is one intervention that shows dramatic weight loss, even over the long term, and that intervention is bariatric surgery. (Notably, the Fildes et al., 2015, analysis excluded those who received bariatric surgery.) One systematic review of 2-year postoperation outcomes found 50% loss of excess weight on average in all included studies (Puzziferri et al., 2014). These findings were echoed in a joint report from the National Institute of Diabetes and Digestive and Kidney Diseases and the National Heart, Lung, and Blood Institute (Courcoulas et al., 2014). However, the NIH report concluded that policy action surrounding bariatric surgery was premature given several unknowns regarding long-term complications, mental health outcomes, and costs, among others (Courcoulas et al., 2014).

Because of the lack of evidence that long-term weight losses are achievable, Mann et al. (2007) recommended that the U.S. Center for Medicare and Medicaid not add weight-loss diets to their list of reimbursable treatments for obesity. With the American Medical Association voting to classify obesity as a disease (against the advice of their own scientific panel), reimbursement policy is one major arena in which weight-centric versus weight-inclusive policy could have significant repercussions.

### *Assumption 3: Weight Loss Results in Consistent Improvements in Physical Health*

Even acknowledging the difficulty of long-term weight loss, if whatever small amount of weight loss possibly corresponds to large gains in health then weight loss efforts may be worthwhile to pursue. Reviews of short-term (~1 year) health consequences of weight loss do show salubrious outcomes such as a relationship between kilograms of weight lost and blood pressure decreases (Neter, Stam, Kok, Grobbee, & Geleijnse, 2003). However, the size of the effect was small (1 kg or 2.2 lb weight loss per just 1 point decrease in blood pressure), and it is unclear from

this study whether or not improvements in blood pressure are a result of weight loss *per se* or improved health behaviors (e.g., increased physical activity). Moreover, such gains are not observed when examining long-term outcomes of weight loss. For example, a systematic review of studies that had at least 2 year follow-up periods did not observe such a relationship, noting that a 10-kg weight loss (22.05 pounds) would be needed to observe a 4.6 mmHG drop in diastolic blood pressure (Aucott et al., 2005). This led the authors to conclude “Extrapolation of short-term blood pressure changes with weight loss to the longer term is potentially misleading” (p. 1035). A meta-analysis of long-term outcomes of weight loss diets with at least 2 years follow-up duration found that the correlation between weight loss and systolic blood pressure was  $-.08$ , diastolic blood pressure  $-.07$ , blood glucose  $-.14$ , cholesterol  $.15$ , and triglycerides  $.04$ , none of which were significant correlations (Tomiyama et al., 2013). Likewise, a meta-analysis of exercise intervention studies for adults at risk for hypertension found that the amount of weight lost during the intervention was not reliably associated with improvements in blood pressure (Williamson et al., 2016). In sum, the evidence that weight loss results in appreciable long-term improvements in health is weak.

Perhaps the most rigorous demonstration of this is an exercise study by Caudwell, Hopkins, King, in which participants expended 500 kilocalories five times per week for 12 weeks (Caudwell, Hopkins, King, Stubbs, & Blundell, 2009). What is notable about this study is that they did so under supervision in the lab, removing concerns about adherence, and the calorie expenditure was calibrated to each participant’s own fitness level. Noting wide variability in weight loss outcomes, the authors divided their sample into “responders” (those that lost the expected amount of weight given their calorie expenditure) and “nonresponders” (those that did not). They found that *both* groups decreased in systolic and diastolic blood pressure and resting heart rate. However, this study was titled, “Exercise alone is not enough,” because the weight loss outcomes were modest overall (3.2 kilograms or 7.05 pounds). This title reflects the pervasive focus on weight, here obscuring a finding that is actually quite encouraging: that health can be improved regardless of weight loss, when it is exactly weight loss that is the difficult part as noted in the prior section.

Moreover, there is evidence indicating that weight fluctuation prospectively predicts higher risk of mortality. An analysis of the U.S. nationally representative 20-year NHANES Epidemiologic Follow-Up Study found a 1.83 hazard ratio for all-cause mortality in the weight fluctuation group (defined as  $>5.04$  fluctuation for those with  $<3.0$  unit difference from baseline to final BMI). Of note, the hazard ratio for the weight gain group was not significant at 1.11, and the largest hazard ratio was seen in the weight loss group at 3.36, even after excluding those in poor health at baseline (Diaz, Mainous, & Everett, 2005). Similar findings from a 32-year follow-up study in the Framingham cohort showed that variation in BMI predicted all-cause mortality and coronary heart disease mortality and morbidity

(Lissner et al., 1991). Given that weight loss attempts on average result in weight regain and thus weight fluctuation, the potential negative health consequences of weight loss attempts must be considered when shaping policy.

### *New Targets for Health Promotion*

Focus should be placed on modifiable health behaviors as the primary endpoint in health promotion, and not merely as a means of reducing weight. As noted above, weight loss is challenging for many individuals and, when achieved, is inconsistently associated with improvements in physical health. In contrast, health behaviors—chiefly physical activity, diet, smoking, and alcohol consumption—more consistently predict morbidity and mortality across the weight spectrum. In the National Health and Nutrition Examination Survey, for example, routine physical activity, fruit and vegetable consumption, and abstaining from smoking were all associated with lower risk of all-cause mortality (Matheson, King, & Everett, 2012). Importantly, this survey relies on complex sampling design and a nationally-representative sample that allows for true population estimates of the U.S. population (National Center for Health Statistics, 2010). In a subsequent systematic review and meta-analysis of prospective studies from around the globe, the number of positive health behaviors engaged in was likewise inversely associated with reduced mortality risk (Loef & Walach, 2012). Many of these studies show a robust relationship between health behaviors and morbidity or mortality even when controlling for BMI.

In addition to centering behavioral aspects of long-term health promotion, clinicians need also consider the social and psychological components that may be undermining health. For example, loneliness and social isolation have also emerged as robust predictors of health and longevity. Indeed, in a meta-analysis that examined data from 3,407,134 participants followed for an average of 7 years, loneliness as well as indicators of social isolation (e.g., living alone, lack of social contact) increase mortality risk, even when controlling for a wide range of related health risks such as age, socioeconomic status, and initial health status (Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015; see also Holt-Lunstad, Smith, & Layton, 2010). Consistent with these findings, another meta-analysis found that impaired social relationships were a risk factor for the development of both coronary heart disease and stroke (Valtorta, Kanaan, Gilbody, Ronzi, & Hanratty, 2016). Moreover, elevated levels of perceived stress are associated with incident coronary heart disease (Richardson et al., 2012), and depression is an independent risk factor for a host of cardiovascular diseases (e.g., Dong, Zhang, Tong, & Qin, 2012; Gan et al., 2014), again over and above BMI.

Healthcare professionals have numerous clinical indicators of physical health at their disposal, either from brief physiological measurements (e.g., blood pressure) or comprehensive blood tests (e.g., blood sugar, cholesterol). We argue that

behavioral, social, and psychological indicators of health should also be assessed in the clinical encounter. The blueprint for doing so has already been described by Adler and Stead (2015), who proposed integrating these dimensions into electronic health records (EHRs). These scholars rightly noted one barrier to wider adoption of this approach may be the lack of a standard tool for assessing the types of indicators described here. Based on the work of an Institute of Medicine Committee that brought together scientists, clinicians, and informatics specialists, Adler and Stead (2015) provide brief screening tools for health behaviors as well as social isolation, stress, and depression. Widespread adoption of this type of assessment in EHRs will signal to patients that healthcare providers recognize health is multifaceted and will facilitate appropriate referral (e.g., mental health services) based on patient responses.

Social, psychological, and behavioral information from the EHRs can also positively impact the clinical encounter in part because any conversations about health behaviors will be grounded in assessment as opposed to assumptions regarding the behaviors a person does (or does not) engage in. For higher body weight patients, this may foster greater rapport with their primary care providers, as these individuals routinely encounter weight-related stereotypes in the healthcare setting (e.g., that they are not physically active). For patients that report poorer health behaviors, providers can use this as an opportunity to understand and discuss any barriers the patient may be facing, or prove as an opportunity to discuss the salubrious effects of positive health behaviors. In many cases, these barriers (e.g., elevated stress levels) may be captured on the same EHR assessment and can again facilitate the referral process. This approach can shift the conversation related to health from one that emphasizes personal control to one that understands and appreciates the myriad social determinants of health that exist and often constrain individual behavior (Institute of Medicine, 2012).

In this regard, weight-inclusive approaches to *preventative* health policy must also be prioritized. Agencies such as the CDC in the United States must shift focus from “obesity” prevention to promotion of health enhancing behaviors and systemically addressing social determinants of health, including stigma. The CDC’s Division of Nutrition, Physical Activity, and Obesity purports to “protect the health of Americans at every stage of life by encouraging regular physical activity, good nutrition, and preventing adult and childhood obesity” (<https://www.cdc.gov/nccdphp/dnpao/>). Research put forth herein shows that protecting health is independent of preventing adult and childhood obesity. If health is the intended goal, a reduction in obesity is not the answer, nor is such a reduction sustainable at the individual or population level.

The U.S. Department of Health and Human Services releases its Healthy People report at the beginning of each decade ([www.healthypeople.gov](http://www.healthypeople.gov)). This report identifies science-based, 10-year objectives, developed after a multiyear process by “diverse group of subject matter experts, organizations, and members

of the public” to lay the groundwork for improving the health of Americans over the coming 10 years. The 13 weight status objectives and subobjectives under the “Nutrition and Weight Status” topic in the People 2020 report aim to either decrease weight or BMI, or prevent weight gain, across the lifespan. Were Healthy People to adopt a weight-inclusive health promotion perspective, objectives—and success of meeting those objectives—over the coming decade would sufficiently be addressed through objectives currently found under topics including adolescent health, diabetes, nutrition (removing weight status and corresponding objectives), physical activity, and social determinants of health. Based on data presented here, weight status objectives now included have limited, if any, impact on health, especially over a 10-year period. However, these objectives—and prevention and interventions supported by federal funding to meet those objectives—do increase weight stigma, which as discussed next has implications for health and mental health contrary to stated goal for the Healthy People initiative.

*Assumption 4: Stigmatizing Weight Will Promote Weight Loss and Improved Health*

Current health promotion approaches often rely on weight stigma to carry their antiobesity message. Indeed, stigmatizing public health campaigns have already been rolled out to the public across the world. For example, a 2019 Cancer Research UK media campaign depicted faux cigarette packages with the brand name “Obesity” and warnings such as “like smoking, obesity puts millions of adults at greater risk of cancer.” This campaign was criticized because it portrayed obesity both as a choice (akin to smoking) and as unequivocally deleterious to health. As this example shows, health promotion efforts and policy based on weight (and weight loss) leave higher weight individuals vulnerable to weight stigma—stigma that can backfire and contribute, ironically, to weight gain and poor health outcomes. Likewise, a public health campaign in the United States called Strong4Life similarly drew criticism for its stigmatizing portrayal of higher body weight adolescents (Teegardin, 2012). Even just the language of existing policies is written in such a manner that could be stigmatizing to heavier individuals. Indeed, one need only look at the quotes from the opening of this article or related policies on the “obesity epidemic” around the globe. These descriptions paint being higher weight as a dire threat and a drain on national resources, one that seemingly can be remedied through personal control and individual responsibility. We need to be concerned about weight stigma because evidence now exists that weight stigma promotes poor health (for reviews, see Hunger, Major, Blodorn, & Miller, 2015; Pearl & Puhl, 2018; Puhl & Heuer, 2010; Puhl & Suh, 2015). An analysis of the Health and Retirement Survey—a longitudinal study that is nationally representative of the United States—and the longitudinal Midlife in the United States study showed that those who experienced weight discrimination had

an almost 50% increased likelihood of mortality (Sutin et al., 2015). Important to note is that these findings controlled for objective BMI. Thus, the authors ruled out a plausible alternative explanation that simply being higher BMI begets both discrimination and poor health.

In addition to mortality, weight stigma has been related to other unfavorable health outcomes. Longitudinal evidence shows that weight stigma prospectively predicts, again independent of baseline BMI, systemic inflammation (Sutin, Stephan, Luchetti, & Terracciano, 2014), which is a physiological process that underlies many chronic diseases. Nationally representative data from the United States shows that weight discrimination predicts 2.48 times the risk of having a mood disorder and 2.62 times the risk of having an anxiety disorder (Hatzenbuehler, Keyes, & Hasin, 2009). Weight discrimination also prospectively predicts elevated levels of allostatic load, a marker of cardiometabolic dysregulation (Vadiveloo & Mattei, 2016). High allostatic load is a robust predictor of mortality (Juster, McEwen, & Lupien, 2010) and thus may partially explain the findings from Sutin et al. (2015). Additionally, experiments that manipulate the experience of weight stigma have shown that it causes blood pressure reactivity (Major, Eliezer, & Rieck, 2012) and cortisol secretion (Himmelstein, Incollongo Belsky, & Tomiyama, 2015; Schvey, Puhl, & Brownell, 2014). Cross-sectional studies have linked weight stigma to oxidative stress (a marker of cellular aging; Tomiyama et al., 2014) and poorer quality healthcare (reviewed in Phelan et al., 2015).

When laws are enacted by governments using stigmatizing language, weight bias can become internalized, which refers to individual endorsement of negative stereotypes, beliefs, and feelings about their stigmatized status (Durso & Latner, 2008). A systematic review of 74 studies found links between weight bias internalization and greater depression, anxiety, binge eating, and cardiometabolic risk, and lower health- and mental health-related quality of life among other outcomes (Pearl & Puhl, 2018). Policy that is not weight focused can avoid weight bias internalization, and thus potentially avoid these unfavorable outcomes.

In the United States, the Long-term Investment in Education for Wellness (LIVE Well) Act, first introduced in 2018, takes a first step at introducing policy-makers to weight-inclusive health policy. Specific to eating disorders prevention in public schools and community-based organizations, the LIVE Well Act

demonstrates that weight-inclusive programs that reject an emphasis on weight and weight loss by focusing on health being multifaceted, improve the health of individuals with and without eating disorders. Its approach to well-being emphasizes health for all people across the weight spectrum and prioritizes the elimination of weight stigma. The legislation's focus on long-term health practices includes shifting to an emphasis on overall health and well-being. (Smith, n.d.)

Weight stigma can also limit opportunity. In terms of career opportunities, heavier individuals experience discrimination at all points in the employment

process (hiring, promotion, and firing; e.g., Roehling, Roehling, & Pichler, 2007). Educational opportunities also appear to be limited, although further research is needed to strengthen causal conclusions in this domain. For example, compared to the general U.S. population, individuals at universities have lower BMIs (Incollingo Rodriguez et al., 2018). Moreover, parents are less likely to financially support higher (compared to lower) BMI daughters (Crandall, 1998; Incollingo Rodriguez et al., 2018). Regardless of having similar or even better credentials, heavier individuals are less likely than their thinner peers to receive graduate school admission offers following in-person interviews (Burmeister, Kiefner, Carels, & Musher-Eizenman, 2013). Thus, in addition to risking poorer health directly, stigmatizing policies can also harm the economic and educational mobility of heavier individuals, which itself contributes to poorer health (Adler et al., 2009).

Even for those readers who are thus far skeptical about the perils of a weight-centric approach to policy and wish to target weight, weight stigma is still something that they would agree should be avoided. This is because extant evidence shows that weight stigma is actually predictive of future weight gain. In both the English Longitudinal Study of Ageing (Jackson, Beeken, & Wardle, 2014) and the U.S. Health and Retirement Survey (Sutin & Terracciano, 2013), weight stigma predicted future likelihood of having an “obese” BMI, controlling again for objective baseline BMI. These findings are seen even in the transition from childhood to young adulthood—girls who were called “too fat” by close others at age 10 were 66% more likely to have an “obese” BMI by age 19, controlling for initial BMI (Hunger & Tomiyama, 2014). Moreover, among those in weight loss programs, weight stigma is associated with less weight loss (Wott & Carels, 2010).

Weight stigma also undermines health behaviors (Major, Tomiyama, & Hunger, 2018; Hunger et al., 2015). Experimental studies show that manipulating the experience of weight stigma causes increased eating behavior (Incollingo Rodriguez, Heldreth, & Tomiyama, 2016; Major, Hunger, Bunyan, & Miller, 2014; Schvey et al., 2011). Cross-sectional evidence shows lower motivation to exercise in those who experience more weight stigma (Vartanian & Shaprow, 2008), as well as less actual physical activity (Wott & Carels, 2010). A large cross-sectional literature has linked experienced and internalized weight stigma to disordered eating (for a review, see Vartanian & Porter, 2016). Two studies of adolescents have also shown that experiencing weight-based bullying (Haines, Neumark-Sztainer, Eisenberg, & Hannan, 2006) and being labeled as “too fat” (Hunger & Tomiyama, 2018) longitudinally predict an increase in disordered eating symptoms (e.g., binge eating with loss of control) and unhealthy weight control behaviors (e.g., skipping meals) that contribute to the development of eating disorders. Nationally representative data from the United States shows that weight discrimination predicts 1.46 times the risk of having a substance use disorder (Hatzenbuehler et al., 2009).

## Combating Weight Stigma

### *Embracing a Multilevel Approach*

Weight stigma needs to be eradicated at all levels, whether that is antifat bias that an individual internalizes, stigma that is expressed against others, or institutionalized weight stigma. These levels of analysis are of course intimately intertwined; tackling internalized and interpersonal forms of weight stigma will be met with limited success if efforts are not made to mitigate stigma that manifests at the larger structural level. Indeed, attempts to reduce weight stigma at the interpersonal level may have proven mixed (Lee, Ata, & Brannick, 2014) in part because the broader social hierarchy related to body weight remained intact. Pearl (2018) has described in detail four classes of structural changes that could be enacted in an effort to reduce weight stigma: antidiscrimination legislation, antibully policies, bias reduction training for healthcare providers, and a media pledge to end the use of weight-stigmatizing content in news and public health messaging. Antidiscrimination and antibullying legislation are likely the strongest first step toward reducing structural weight stigma, and as noted by Pearl (2018) these types of policy approaches share widespread public support internationally (Hilbert et al., 2017; Puhl et al., 2015; Puhl, Suh, & Li, 2016). Not only does such legislation offer legal recourse for those facing weight-based discrimination, it also signals normative information that weight bias is unacceptable (Crandall & Eschelman, 2003; Pearl, Puhl, & Dovidio, 2017).

Weight-based bullying among adolescents is widespread (for a review, see Thompson, Hong, Lee, Prys, Morgan, & Udo, 2018). In one U.S. national survey, over a quarter of higher weight middle schoolers and over 60% of higher weight high schoolers reported daily experiences with bullying (Neumark-Sztainer et al., 2002). Similarly high levels of weight-based victimization are seen in Canada, Australia, and Iceland (Puhl et al., 2016). Antibullying policies for children that include weight as a protected characteristic similarly signal that this form of mistreatment is unacceptable and may protect against the consequences of weight-based stigma during a developmental period in which its effects are both widespread and pernicious (for a review, see Puhl & Latner, 2007; see also Puhl et al., 2017; Zuba & Warschburger, 2017).

Where can lawmakers look for guidance on antidiscrimination and antibullying legislation? In the United States, only two states (Michigan and Washington) currently consider higher weight a protected class. These states differ in *how* they arrived at weight as protected class; Michigan via legislation rooted in the broader context of civil rights and Washington via court decision deeming higher weight a “disability” and thus protected under these provisions. Additionally, while the argument can be made that Michigan’s Elliott-Larsen Civil Rights Act and Washington’s *Casey Taylor v. Burlington Northern Santa Fe Railway Holdings*

Supreme Court decision protect against widespread weight discrimination, these protections are specific only to employment discrimination (Taylor v. Burlington Northern 2019). As of this writing, Massachusetts and Florida have introduced legislation making discrimination based on weight illegal with respect to employment, housing, and public accommodations. Efforts are underway to have comparable legislation introduced in additional states and to expand a bill introduced in New York to include protections against weight discrimination beyond employment.

In 2016, the city of Reykjavik in Iceland barred discrimination on the basis of their build or body type. What is particularly striking about this legislation is the language is strongly rooted in social justice language and respect for all bodies, specifying that the city “regards prejudice and discrimination in connection with body build to be a social injustice which should be combated. Teasing, hostility and mobbing in connection with body build among children and youth comprises such injustice and school should take effective action against such.” The policy then proceeds to describe in detail how the city as a public authority, employer, and service provider will protect the rights and freedoms of everyone across the weight spectrum in eight specific ways (<https://reykjavik.is/en/city-of-reykjaviks-human-rights-policy>). Unfortunately no current federal legislation or policy explicitly protects against weight-based discrimination, with one exception. In 2011, France passed legislation banning discrimination on the basis of physical appearance; however, to date no claims of weight discrimination have been successfully litigated under this legislation (Huggins, 2015).

Antibullying efforts must specify weight-based and appearance-based bullying as key targets of bullying prevention. In the 111th congressional session, U.S. Representative Linda Sanchez’s Bullying and Gang Reduction for Improved Education Act, whose purpose was to amend the Safe and Drug-Free Schools and Communities Act to authorize the use of grant funds for gang and bullying prevention, included findings related to weight-based bullying. The findings included an acknowledgment the significance of weight-based bullying in that it is consistently associated with high depressive symptoms, thinking about or attempting suicide, and the development of certain eating disorders. The precedent set by Representative Sanchez must be replicated in antibullying legislation and initiatives going forward. It is unlikely that antibullying campaigns can successfully exist alongside “obesity” prevention programming in schools, because “obesity” prevention programs are inherently stigmatizing to higher weight people. Government-mandated studies and subsequent reports on any correlation such programs have on peer- and adult-led bullying (e.g., weight-related comments by coaches, teachers, school nurses, etc.) in schools would provide important insight into the efficacy of “obesity” prevention programs and the efficiency of providing government funding for such initiatives.

Indeed, if policymakers were to conduct government oversight and analysis for federal- and state-supported programs to promote weight loss—or to prevent weight gain—and the assumed long-term health benefits, results would likely show ineffective and wasteful use of government spending insofar as weight loss is the desired outcome. Whereas, policies that focus on sustainable behaviors and long-term health outcomes (rather than weight loss) would likely be shown to be economically efficient and to improve population health.

Structural changes such as those described above will be paramount to the long-term eradication of weight stigma. However, changes at the structural and institutional levels will take time. In the interim, additional efforts should be taken to also mitigate intrapersonal and interpersonal manifestations of weight stigma. As noted above, these forms of stigma are intimately linked to broader social and structural conditions, so intervention will be challenging and likely require a multifaceted approach and continued intervention. A growing body of literature has shown that acceptance and mindfulness-based approaches may help to reduce internalized weight bias (and its consequences). For example, in two small studies acceptance and commitment therapy (ACT) has been found to reduce internalized stigma and improve the quality of life for higher body weight individuals over time, both when taught as a workshop (Lillis, Hayes, Bunting, & Masuda, 2009) and in a guided self-help format (Levin, Potts, Haeger, & Lillis, 2018). Another small trial blended components of ACT with mindfulness and compassion, comparing its effects over time against treatment as usual. Those receiving the intervention showed a decrease in internalized stigma, as well as improvements in mental health, increased physical activity, and reduced engagement in unhealthy weight control behaviors (Palmeira, Pinto-Gouveia, & Cunha, 2017). Interestingly, the intervention did not change compassion or mindfulness, suggesting that the acceptance component (i.e., understanding what leads to self-stigmatizing thoughts, accepting that these thoughts would likely be experienced occasion, and not viewing these thoughts as factual) was key to its success. Engaging in a body gratitude writing exercise (compared to a control writing task) also seems to be an effective strategy for reducing internalized weight bias, at least acutely (Dunaev, Markey, & Brochu (2018). Taken together, these studies highlight the promise of acceptance and mindfulness-based approaches, but warrant replication with larger randomly controlled trials. Federal funding priorities should reflect the importance of this area of research, as reducing internalized weight bias can improve population-level mental and physical health (Pearl, 2018; Pearl & Puhl, 2018).

As described above, interventions to reduce weight stigma at the interpersonal level may have proven mixed (Lee et al., 2014). Many interventions have adopted a single bias reduction strategy (e.g., invoking empathy). Given the pervasiveness of weight stigma at the social and structural levels, including public health messaging and mass media portrayals, a multipronged approach to individual intervention is warranted. For example, researchers could blend elements of a social consensus

approach, which leverages information regarding social norms related to bias (Puhl et al., 2005), with approaches designed to shift attributions related to the controllability of body weight (e.g., Persky & Eccleston, 2011). Challenges related to bias reduction are not isolated to the weight domain, however. For example, a large-scale effort to reduce implicit racial bias showed that although short-term reduction via a variety of procedures is possible (e.g., exposure to vivid counterstereotypic exemplars, priming multiculturalism), these changes rarely lasted beyond a few hours (Lai et al., 2016). These findings reaffirm the idea that reducing structural forms of weight stigma will be a necessary component to reducing weight stigma at the levels below.

### *Eliminate Weight Stigma in Public Health Campaigns*

Given the harmful nature of weight stigma, public health campaigns should eliminate the use of weight stigma, whether implicitly or explicitly. This is counter in contrast to medical ethicist Daniel Callahan, who argues in favor of using the use of stigma to motivate individuals to lose weight loss—even among children (Callahan, 2013a, 2013b). Indeed, such campaigns have already been implemented. The Strong4Life campaign attempted to harness the concern parents have for their children's health, but did so in a way that many found stigmatizing (Teegardin, 2012). For example, one image of a heavier girl said "It's hard to be a little girl if you're not." In an interview with the U.S.'s National Public Radio, the vice president of the organization running the campaign said, "It has to be harsh. If it's not, nobody's going to listen" (Lohr, 2012). The Cancer Research UK campaign showed cigarette packages with the brand name "Obesity." This campaign was criticized because it portrayed obesity both as a choice (like smoking) and as unequivocally deleterious to health. Moreover, as writer and mental health activist Natasha Devon put it, "Not only does it add more gravitas to a burgeoning multi-billion pound diet industry with a 95 percent failure rate, it fuels eating disorders and encourages the public to consider themselves 'visual doctors', firing casual micro-aggressions in the direction of fat people under the guise of 'concern' for their 'health'" (2019). In addition to actively avoiding weight stigma in public health campaigns, any health promotion campaigns should be developed in collaboration with diverse stakeholders (e.g., social scientists, fat rights advocates, Health at Every Size<sup>®</sup> [HAES] experts) to ensure they are not stigmatizing to higher weight individuals.

Some research exists that can guide future public health campaigns. Frederick and colleagues compared two media frames: one that emphasized the health risk and controllability of higher weight and the acceptability of weight stigma, and another that was a fat-positive frame depicting higher weight as healthy, uncontrollable, and unacceptable to stigmatize. In over 2,000 participants, they observed higher levels in the former group of several indicators of weight stigma, including

willingness to discriminate on the basis of weight (Frederick, Saguy, Sandhu, & Mann, 2016). These findings were later replicated in another 3,000 individuals (Frederick, Tomiyama, Bold, & Saguy, 2019). Moreover, large-scale survey research in the United States has found that health messages emphasizing positive behavior change are rated as more motivating and elicit less negative responses than health messages that incorporate stigmatizing elements (Puhl, Peterson, & Luedicke, 2013), a finding that was replicated experimentally, leading the authors to note that it “challenges the notion that stigmatization is a necessary component of public health messaging about obesity, and suggests that this approach may be less effective than nonstigmatizing messages in efforts to encourage health behaviors” (p. 44). Although promising, these findings warrant further examination in non-U.S. samples. It does suggest, however, that public health campaigns will likely be maximally effective when they do not incorporate stigmatizing elements and focus on modifiable health behaviors rather than weight loss.

Specific policies to reduce weight-stigmatizing messaging in government-related health campaigns do not exist and are difficult to imagine implementing under current weight-centric policy approaches. While not directed at weight stigma, per se, legislation proposed in Massachusetts does attempt to mitigate the thin and appearance ideal so prominent in advertising. The bill identified as An Act Relative to Mental Health Promotion through Realistic Advertising Images aims to reduce manipulated media images by, in part, rewarding companies that do not use digitally altered advertisements through tax incentives and subsidies (Strategic Training Initiative for the Prevention of Eating Disorders, 2019). While this bill is aimed at corporations, it offers insight into why a similar approach to weight stigmatizing media campaigns should be considered. The Massachusetts bill notes, “Digitally altered images of human models set unattainable standards of beauty and damage the well-being of many exposed to them, leading to the development of eating disorders and poor emotional and physical health outcomes.” The data make clear that health promotion campaigns, whether by corporations or government agencies, utilizing weight stigmatizing-language and weight (loss) focused messaging, likely contribute to poor mental and physical health in higher weight people. Policies prohibiting federal- and state-level government-backed programs from engaging in such messaging—and possibly creating initiatives that incentivize companies to eliminate weight-stigmatizing advertisements and campaigns—could serve as an important means by which to improve health by reducing weight stigma.

*Assumption 5: Recognizing That One Is “Overweight” Is Necessary for Health Promotion*

A central notion in many weight-based policies is that recognition of one’s “overweight” status is a necessary first step to behavior change that is ultimately

aimed at weight reduction. This logic underlies the increase in weight-related surveillance and the emergence of so-called “BMI report cards” for children and adolescents (Grossman et al., 2017). This idea also underlies guidelines for healthcare professionals such as those from the U.S. Preventive Services Task Force stating to routinely weigh patients and directly counsel them on weight-loss strategies (e.g., diet change) if their weight is deemed too high (Moyer, 2012). A similar emphasis on surveillance is present in the governmental approaches of countries such as Mexico (National Strategy for Prevention and Control of Overweight, Obesity, and Diabetes, 2014) and the United Kingdom (National Institute for Health and Care Excellence, 2014). However, there is little data to suggest that perceiving oneself as “overweight” will actually lead to weight loss over time. Indeed, Robinson, Hunger, and Daly (2015) leveraged large-scale data from adults in the United States, UK, and Australia to find that higher perceived weight was actually associated with weight gain over time. This pattern replicated in two large-scale datasets from adolescents and young adults in the United States and Australia, and this effect was not moderated by gender. Thus, the very premise that proper weight identification will lead to marked decreases in weight is incorrect.

In 2003, Arkansas became the first state in the United States to require that schools send “BMI report cards” home to students’ parents and guardians, with a number of states following suit. In most cases, schools are required to anonymously surveil students’ BMI data and provide such data for collection purposes to agencies such as the state’s Department of Health. Additionally, most of the states with BMI measuring requirements for students also have a screening mandate whereby schools are required to notify parents and guardians of their child’s weight status based on BMI category (“underweight,” “normal,” “at risk of overweight,” “overweight,” and “obese”). Data showing success of such programs—measured by reductions in BMI—are sparse. With the longest standing mandate, Arkansas’s results are telling. For example, an analysis by Gee (2015) found that BMI screening and reporting to parents and guardians during late adolescence—of students for whom BMI screening and reporting had also been performed in previous years—was not related to improvements in students’ weight status (with improvement meaning lowering BMI), or their nutrition and physical activity behaviors. While not reducing weight, the intervention also did not improve behaviors that *are* associated with health benefits.

Anecdotally, clinicians—especially those specializing in treating eating disorders—have reported such weight surveillance and parental reporting to be associated with increased disordered eating and eating disorders in adolescents and young adults. Federal funding allocated to researching the relationship between “obesity” prevention efforts (e.g., screening and reporting of weight and BMI status) is necessary to gather widespread data on the effects these programs have with respect to weight stigma and poorer mental and physical health, particularly

among youth. If this data are consistent with the findings reviewed here, it would support suspending these types programs and focusing instead on weight-inclusive health promotion efforts in schools, as well as programs to reduce weight stigma and weight-based bullying.

Perceiving oneself as “overweight” not only fails to produce weight reduction, it is also robustly associated with poorer health outcomes. In one nationally representative sample of 21,629 Korean adults, self-perceived obesity was associated with an increased odds of having metabolic syndrome, a condition marked by a cluster of maladaptive cardiometabolic risk factors (e.g., hypertension, elevated blood sugar). Importantly, this association emerged over and above objectively measured BMI and sociodemographic predictors of physical health (Kim, Austin, Subramanian, & Kawachi, 2018). Likewise, Unger et al. (2017) found a similar pattern of results, finding that perceived overweight is associated with increased blood pressure in a U.S. nationally representative sample of 2,463 adolescents. Although these studies were cross-sectional, there is research to suggest that the same relationship also unfolds across time. In a large study of 3,582 U.S. adults, perceiving oneself as overweight was prospectively associated with increased dysregulation across multiple physiological systems (i.e., cardiovascular, inflammatory, and cardiometabolic) 7 years later (Daly, Robinson, & Sutin, 2017). Again these findings were robust to controlling for a variety of potentially confounding variables. Taken together, these studies showcase how perceiving oneself as overweight is actually a risk factor for poorer physical health.

The relationship between perceived weight and physical health may in part be accounted for by maladaptive health behaviors (for a review, see Haynes, Kersbergen, Sutin, Daly, and Robinson, 2018). For example, in the United States, higher perceived weight has been linked to engagement in unhealthy weight control and disordered eating behaviors such as skipping meals or purging in the United States (Hunger & Tomiyama, 2018; Sonnevile, Thurston, Milliren, Gooding, & Richmond, 2016) and Korea (Kim, Cho, Cho, & Lim, 2009; Kim, Kim, Cho, & Cho, 2008). Importantly, emerging evidence suggests that engaging in these types of disordered eating behaviors may be associated with greater cardiometabolic dysfunction over time (Nagata et al., 2018). Overweight perceptions also appear to undermine physical activity. For example, in a study of 19,322 high school students in Canada, overweight perception was associated with less engagement in sport, less vigorous physical activity, and lower odds of meeting recommendations for resistance training (Patte, Laxer, Qian, & Leatherdale, 2016). Likewise, a similar pattern emerges for odds of meeting physical activity requirements in a sample of 4,299 Canadian adolescents (Sampasa-Kanyinga, Hamilton, Willmore, & Chaput, 2017) as well as in a sample of 16,314 Australian adults (Atlantis, Barnes, & Ball, 2008).

A robust literature has also documented the association between perceiving oneself as overweight and poorer mental health outcomes. In the large U.S.

study of 3,582 adults described above, perceiving oneself as overweight was also prospectively associated with increased depressive symptoms and decreased subjective health 7 years later (Daly et al., 2017). Likewise, a longitudinal study from Australia found that perceiving oneself as “overweight” in adolescence is a risk factor for poorer mental health outcomes in young adulthood (Al Mamun et al., 2007). A similar pattern emerged cross-sectionally in a sample of 4,964 African and Caribbean university students (Peltzer & Pengpid, 2017). The most compelling evidence for this relationship comes from a recent meta-analysis by Haynes et al. (2019). Compiling data from over 128,000 participants worldwide, these researchers found that perceived weight reliably and robustly predicted increased depressive symptoms and suicidality, and this was consistent across age groups, genders, and study populations. Interestingly, the meta-analytic relationship between objective weight status and poorer mental health was rendered nonsignificant when controlling for perceived weight, suggesting that this relationship may be largely accounted for by the social and psychological consequences of being higher weight (e.g., weight stigma and concomitant mental health issues).

No doubt some of the relationship between perceived weight and health can be attributed to weight stigma—individuals who perceive themselves as higher weight are susceptible to social identity threat (Blodorn, Major, Hunger, & Miller, 2016; Hunger et al., 2015; Hunger, Blodorn, Miller, & Major, 2018), evince higher weight bias internalization (Lee & Dedrick, 2016), and tend to be higher weight, thus are exposed to greater levels of weight-based discrimination (Hunger & Major, 2015; Puhl, Andreyeva, & Brownell, 2008). However, as detailed above, there are certainly nonstigma related pathways through which higher perceived weight can undermine health (e.g., physiological dysregulation, maladaptive weight control behaviors). Future research is clearly needed to parse out how perceived weight and weight stigma work independently (or synergistically) to undermine mental and physical health. Regardless, research clearly identifies them both as risk factors for poorer health.

### **A Weight-Inclusive Policy Approach**

In this final section, we will argue for a weight-inclusive approach to public health promotion and health policy. Based on the evidence provided above, approaches that focus on weight (loss) and weight surveillance are not only ineffective at improving health but ultimately contribute to weight stigma and worsen mental and physical health. Here we describe alternatives to a weight-centered approach to health, and how these approaches may not only improve health but ultimately reduce weight stigma. A size-inclusive approach should begin with the premise that everyone deserves access to good healthcare and proper health insurance. Such an approach would best be rooted in existing perspectives regarding Health at Every Size (HAES), size diversity, and body respect (Association for

Size Diversity and Health, 2014; Bacon & Aphramor, 2011, 2014; Bombak, 2014; Calogero, Tylka, Mensinger, Meadows, & Daniëlsdóttir, 2019; Tylka et al., 2014), which are designed to promote health in a manner that is equitable across the weight spectrum. The philosophy of these approaches is comprehensively captured by the principles of HAES. (1) Weight inclusivity: *“Accept and respect the inherent diversity of body shapes and sizes and reject the idealizing or pathologizing of specific weights.”* Current policy approaches pathologize overweight and obese BMIs and idealize “normal” BMI. This status quo, in addition to not embracing acceptance or respect of all body sizes (and possibly even increasing weight stigma), additionally does not accurately reflect health risk to begin with. (2) Health enhancement: *“Support health policies that improve and equalize access to information and services, and personal practices that improve human well-being, including attention to individual physical, economic, social, spiritual, emotional, and other needs.”* This acknowledges the holistic definition of health (rather than simply the absence of disease) put forth by the World Health Organization; a definition that was put forth decades ago but is yet elusive in the policy context. (3) Respectful care: *“Acknowledge our biases, and work to end weight discrimination, weight stigma, and weight bias.”* Given a meta-analysis and systematic review respectively showing that weight stigma is particularly difficult to eradicate (Daniëlsdóttir, O’Brien, & Ciao, 2010; Lee et al., 2014), this principle deserves special weight in the policy sphere. (4) Eating for well-being: *“Promote flexible, individualized eating based on hunger, satiety, nutritional needs, and pleasure, rather than any externally regulated eating plan focused on weight control.”* As reviewed above, weight control is highly difficult and the modal response to low-calorie dieting, for example, is weight gain. By shifting the focus away from weight, we accomplish two goals: first, we focus on the actual target that is meaningful for public health (i.e., health rather than weight), and second, we focus on goals that are much more attainable and sustainable. (5) Life-enhancing movement: *“Support physical activities that allow people of all sizes, abilities, and interests to engage in enjoyable movement, to the degree that they choose.”* This principle supports the findings of Hastie et al. (2009) showing that health can be improved by physical activity in the absence of weight loss. This approach explicitly acknowledges that although individuals will differ in the extent to which they choose to engage in physical activity, even very small amounts of exercise can have positive effects on mortality (e.g., Beddhu, Wei, Marcus, Chonchol & Greene, 2015; Hupin et al., 2015; Wen et al., 2011).

Indeed, interventions based on these principles have been demonstrated to be effective: with no weight focus, HAES-type randomized, controlled trials have shown salubrious effects on physical and mental health outcomes such as low-density lipoprotein cholesterol, systolic and diastolic blood pressure, eating disorder symptomatology, and depression and anxiety symptomatology, among others (reviewed in Bacon & Aphramor, 2011). Moreover, the dropout rates in HAES-type

conditions was often much lower than in the various types of control groups (e.g., 14% vs. 23% education control in Ciliska, 1998; 8% vs. 42% diet control in Bacon, Stern, Van Loan, & Keim, 2005; 8% vs. 19% social support control in Provencher et al., 2009) The appeal of such interventions is that they provide a pathway to health that sidesteps the potentially unfavorable “side effects” described in the prior sections. Indeed, none of the trials showed any negative mental or physical health consequences (Bacon & Aphramor, 2011). Thus, weight-inclusive policies are sensitive to the law of unintended consequences that can plague policy.

While the previously mentioned LIVE Well Act aims to emphasize health for all people across the weight spectrum, it would ultimately amend an existing U.S. Department of Agriculture grant program that funds obesity prevention and nutrition education programs. If passed, the legislation would open funding eligibility to eating disorders prevention programs. Current weight-centered health policy upholds what O’Hara and Taylor (2014) have termed an “adipophobic environment”—an environment that creates, perpetuates, and maintains weight stigma, including weight-based bullying, weight discrimination, and contribute to reduced physical, mental, and spiritual health and well-being (O’Hara & Taylor, 2018). Shifting away from such a detrimental environment to one that supports health and quality of life for people across the weight spectrum will require across-the-board federal elimination of programs and funding linked to a goal of intentional weight reduction. Instead, success of health promotion policies would be measured by improvements in meaningful cardiometabolic health markers that data show benefit individuals by enhancing individual health and quality of life.

A size-inclusive policy approach should also avoid the perils of healthism. Healthism, a term first brought to prominence by Crawford (1980), is the viewpoint that health is to be valued above all else, and that the source of health lies within the individual. The key insight provided by the study of healthism is that health is simply a value like other societal constructs such as individualism, wealth, and the like. And like other values, it becomes moralized (Skrabanek, 1994), where those that do not have it or want it are bad, or even unpatriotic. This sentiment was reflected by Tommy Thompson, Secretary of the U.S. Department of Health and Human Services, who said every American should lose 10 pounds as “a patriotic gesture.” Crawford (1980) calls health a “super-value”—a value so dominant and pervasive “that those who fail to seek it become near-pariahs” (p. 379). Indeed, the individual responsibility frame that accompanies healthism creates a situation ripe for stigma (Crandall & Schifffhauer, 1998), which as reviewed above itself has unfavorable health consequences. Healthism opens the door for people to justify their antifat bias by disguising it as concern for others’ health.

Strides should be taken to make sure the healthcare environment is welcoming and comfortable for all individuals. There is evidence of implicit and explicit antifat bias among healthcare providers (Tomiya et al., 2015), and weight stigma predicts less healthcare utilization, poorer outcomes, and healthcare avoidance

(Phelan et al., 2015; Tomiyama et al., 2018). Policy could eventually be wielded to ensure all healthcare workers receive training on weight bias, as has been recently instituted among physical therapy and nursing students at Columbia College of Physicians and Surgeons. However, the literature on the effectiveness of bias reduction interventions among healthcare professionals remains mixed, and many studies in this area of research are plagued by methodological shortcomings (e.g., lack of control groups) or small sample sizes (Alberga et al., 2016). In light of this, future high-quality research is needed to optimize bias reduction strategies before they are considered for broad implementation. It is likely the case that effective bias reduction efforts will take a multipronged approach (e.g., bias education, learning about the tenets of a HAES approach) and will be integrated throughout training and continued career development rather than at a single point in time.

Healthcare providers should also use inclusive weight-related language. Although the Obesity Action Coalition (2019) recommends person-first language, there is considerable heterogeneity among heavier individuals' actual preference for weight-related terminology (Meadows & Danielsdottir, 2016). As such, the best approach is to ask each individual what their preferred terminology is—for some individuals this may be person-first language (e.g., “person with obesity”), for some it may be embracing and reclaiming the term “fat” as a neutral descriptor. The healthcare environment also includes the physical environment, and therefore size-appropriate equipment must be on hand so that there are no disparities in access to appropriate, high-quality healthcare quality. One study in the United States, for example, found that African American and White women with obesity cited medical equipment that was too small as one reason they delayed gynecological cancer screening (Amy, Aalborg, Lyons, & Keranen, 2006). The British Psychological Society report on obesity policy explicitly calls for premises and equipment that minimize stigma (British Psychological Society, 2019). Finally, in countries like the United States where weighing is a routine aspect of the clinical encounter, healthcare providers should make weighing explicitly optional. Doing so supports body autonomy and signals to the patient that weight will not be the lens through which the visit will be viewed. This is important as higher body weight patients encounter considerable stigma from medical providers and cite being weighed (and being told to lose weight) as a reason they delay or avoid healthcare (e.g., Amy et al., 2006; Drury & Louis, 2002; Puhl & Brownell, 2006).

### **Conclusion**

In this article, we have argued for a weight-inclusive approach to health promotion and health policy. We rooted this argument in both the extant medical and epidemiological literature on weight and health and the social science literature on weight stigma, weight perceptions, and health. Governments and public health agencies around the world are putting forth weight-focused policies and

campaigns. We have argued from scientific evidence that policy centered around weight loss falls prey to flawed assumptions: that higher body weight necessarily equals poorer health, that long-term weight loss is achievable, and that weight loss improves physical health. Policies that prioritize weight loss stigmatize those with higher body weight; stigma that itself can drive poor health and, ironically, weight gain. Many weight-based policies begin with the premise that weight reduction will be spurred by the acknowledgment of a person's "overweight" status, as in the case of BMI "report cards" deployed by some schools in the United States. However, the evidence demonstrates that self-perception of being "overweight" actually predicts unfavorable health outcomes. Together, the scientific literature indicates that the weight-centric approach that has predominated policies and campaigns for the past four decades has at best been ineffective in promoting health, and likely has fueled weight stigma and contributed to poor health outcomes. It is clear that adopting a weight-inclusive approach is long overdue.

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