

# Is It Time to Say Goodbye to BMI?

## A Commentary

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The linkage between weight and health is complicated and our current body of evidence is inconsistent. We cannot have a discussion about weight without understanding the larger context of our antifat society and the influence of the diet industrial complex. Weight bias and a focus on weight in health care produce known harms. Additionally, clinicians often recommend losing weight without a nuanced discussion of the evidence showing that most people are unlikely to be successful with sustained weight loss. In this piece, I argue that using our precious time with patients and health care dollars to focus on health behaviors with indisputable evidence such as increasing physical activity and promoting smoking cessation is a more effective use of resources and more closely aligns with our ethical obligation to “do no harm.”

**Key words:** health equity, obesity, public health, weight bias

FOR A LARGE part of human history, extra weight was considered to be an indication of good health, wealth, and prosperity. Hippocrates is credited as being the first to describe a connection between larger bodies and health concerns. In the modern era, body mass index (BMI) is routinely used as if it is a precise diagnostic tool and the relationship between higher weight and worsening health is considered gospel. However, the connection between weight and health is complicated and cannot be separated from the societal context of weight bias, systemic racism, and sexism. Experiencing weight bias in health care may be more detrimental to an individual’s health than a BMI in the “overweight” category.<sup>1</sup> As health professionals, we must take the time to understand how much of our approach to prevention and patient care is based on bias rather than science.

The BMI formula was invented in the early 19th Century by a Belgian mathematician and astronomer named Lambert Adolphe Jacques Quetelet. He was involved in a population census of the Netherlands and believed that a sample from a representative group could approximate the total population. Quetelet created the formula using data from a high-income, mostly white sample to estimate the prevalence of obesity in the general

population.<sup>2</sup> The goal was to use the formula and resulting categories to assist with distribution of resources; it was never intended to be a measure of individual health.<sup>3</sup>

### HOW DID WE GET FROM THE 19TH TO THE 21ST CENTURY?

The invention of the penny scale in the late 1800s allowed measurements of body weight to become more precise. This change ushered in a new era of weight assessments and the search for the “ideal body weight.” In 1910, Ancel Keys conducted a study on 7500 men to find the most effective and efficient measurement of body fat. He recruited primarily white subjects from the United States, Finland, Italy, Japan, and South Africa. The study specifically notes that findings in South Africa “could not be suggested to be a representative sample of Bantu men in Cape Providence let alone Bantu men in general.” Keys determined that BMI was the “best,” as compared with water displacement and skin calipers, accurately diagnosing percent body fat about 50% of the time.<sup>4</sup> He renamed Quetelet’s formula the BMI and, with a success rate close to a flip of the coin, this historical tool became the standard.

More recent evidence linking weight and BMI with health has been inconsistent. In a 2013 meta-analysis of 97 studies including more than 2.88 million individuals, “overweight” (BMI of 25 to <30) was associated with significantly lower mortality relative to the normal weight category, with an overall summary hazard ratio (HR) of 0.94. “Obesity” (BMI > 30) was associated with significantly higher all-cause mortality relative to the “normal” BMI category, with an overall summary HR of 1.18.<sup>5</sup>

A more nuanced understanding of the relationship between weight and health outcomes does not support a fixed belief that higher weight always equals worsening health. The reality is that there is

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not a precise, linear association between the 2 variables and cardiometabolic health is influenced by a complex mix of health behaviors, genetic factors, lean mass, fitness, and environmental risks. Studies have shown that BMI misclassifies metabolic health when compared with objective measures like fasting glucose and lipids and that people with cardiovascular disease who are in the overweight category have a lower risk of death from cardiovascular causes than those with “normal” BMIs.<sup>3</sup>

### **CAN YOU USE BMI ACCURATELY IN POPULATIONS THAT ARE NOT WHITE MEN?**

Further complicating the confident routine use of BMI is research that indicates the BMI cutoffs should be adjusted by race/ethnicity and gender. BMI criteria have already been adjusted for Asian Americans due to evidence showing that they have a higher risk of metabolic disease at lower BMI values. A recent study argues that the BMI shift for Black women should be to higher cutoffs, while it would generally be to lower values for Latinx and white women.<sup>6</sup>

### **PERHAPS THE BMI IS NOT A PERFECT TOOL, BUT DOES ITS USE RESULT IN HARM?**

Weight-focused care is dangerous for patients. Many clinicians *explicitly* endorse feeling less respect for patients with obesity and engage in less health education with higher BMI patients.<sup>7</sup> Higher BMI adults are nearly 3 times as likely as persons with “normal” BMI to say that they have been denied appropriate medical care. In adults and children, experiences with weight stigma predict future weight gain and risk of having an “obese” BMI, independent of baseline BMI.<sup>7</sup>

There is robust evidence linking a focus on weight and the experience and consequences of weight bias in health care. Internalizing weight bias can have far reaching harms including increased binge eating, perception of less competence for physical activity, and exercise avoidance.<sup>1</sup> What if by counseling patients on their weight we are unintentionally discouraging them from moving their bodies? Increased attention on body weight is also associated with negative emotions and decreased cognitive control.<sup>1</sup> One of the biggest concerns is that patients with overweight and obesity delay or avoid health care due to experiences of weight stigma including patronizing and disrespectful treatment. As early as 1994, researchers were noting that women with higher BMIs delayed or avoided medical care because of embarrassment and a desire not to be lectured about their weight.<sup>8</sup> In this study, 26% of participants with obesity delayed or avoided health

care because of “not wanting to be weighed on the provider’s scale” and roughly 30% of those surveyed delayed or avoided health care because of a fear of being “told to lose weight.”<sup>8</sup> Additionally, assumptions about weight gain and attribution of all health issues to excess weight have been found to be barriers for participation in treatment as well as have a negative effect on the patient-clinician relationship.<sup>1</sup>

In our Family Medicine practice, we stopped the routine weighing of adult, nonpregnant patients for follow-up appointments unless specifically requested by the clinician or patient or indicated by the chief complaint. We are currently surveying patients, staff, and clinicians to understand more about the impact of this change. Since we have been discussing the process of routine weights at our practice, we have heard repeatedly from patients and clinicians about how the shame and stigma affect care. During one clinician meeting, 2 physicians confessed that they were waiting to schedule preventive health visits themselves until they lost weight.

### **WHAT DO WE GAIN BY ROUTINELY WEIGHING PATIENTS?**

We owe it to our patients to be more thoughtful about how clinical routines might go against our obligation to first do no harm. According to “The U.S. Weight Loss Market: 2022 Status Report & Forecast” by Marketdata, the weight loss industrial complex is a \$72 billion industry that stands to lose a lot of money if a nuanced relationship between weight and health is better understood by health professionals and patients. A recent review concluded that the amount of time required to deliver the full 2020 United States Preventive Services Task Force (USPSTF) recommendations across an average adult panel size would take 8.6 working hours per day.<sup>9</sup> It is clear that we do not have enough time in the day or the typical 20-minute visit to accomplish all the prevention, chronic disease management, and acute concerns that patients bring to their appointments. In the setting of this scarcity of time, what we prioritize in our visits suggests value. When we routinely weigh patients soon after they walk in our door, we risk communicating that the number on the scale is more important than health behaviors that we do not discuss at each visit such as physical activity and nutrition.<sup>10,11</sup>

### **WHAT COULD WE LOSE BY NOT WEIGHING PATIENTS?**

During the height of the COVID-19 pandemic when most primary care visits were switched to telemedicine, I found myself asking for home blood

pressure data much more often than weights. As I understood more about the prevalence and risks of weight bias, it became clear that routine patient weights may cost more than they benefit. There is very little evidence in the literature to guide a thoughtful approach to weighing patients. In 2012, the USPSTF recommended screening for obesity in adults but stated there were no direct trials that compare screening versus not screening and that there was no evidence to guide the appropriate interval for this screening.<sup>12</sup> In the most recent update to this recommendation, the USPSTF does not address screening at all noting that “Because screening for obesity is now part of routine clinical practice, it was not a focus of this review.”<sup>13</sup> This is the risk of something becoming routine—we forget that there was no evidence to support doing it from the beginning.

Screening for unintentional weight loss in adults is not a USPSTF recommendation. In one article about screening for nutritional status from the Netherlands, it was found that malnutrition was much more common in hospitalized and nursing home patients as compared with ambulatory patients.<sup>14</sup> In another study, unintentional weight loss was found to be extremely uncommon among patients of the 7 family medicine practices whose records were reviewed. Of the 45 total patients identified, the majority of the cases were not found to have a definitive etiology. Among those where an etiology was found, depression was the most prevalent diagnosis (18%), while cancer was found in 7 patients total.<sup>15</sup>

The biggest concern when we surveyed colleagues was missing weight loss due to cancer that would otherwise be unnoticed by the patients themselves, their family, or the clinician. We routinely screen all adult patients for depression and recommend that in the pre-session huddle clinicians request a weight for patients where it would be clinically useful. Any patient who wants to be weighed can also request it. We get weights routinely when patients come for a complete physical examination. We believe this best represents an evidence-based approach that limits the risks associated with avoiding health care due to fears of the scale. It is the rare quality improvement project that actually results in less work for the team.

### WHAT COULD WE DO INSTEAD?

A meta-analysis looking at 1.7 million individuals showed that the greatest reduction in life expectancy was related to current smoking status (4.8 years).<sup>16</sup> Physical inactivity was associated with a 2.4-year reduction and diabetes was associated with a 3.9-year reduction in life expectancy. Ob-

sity was associated with a 0.7-year reduction.<sup>16</sup> Let us spend our precious time with patients counseling and advocating for health behavior changes like routine physical activity, promotion of fruit and vegetable consumption, and smoking cessation. Let us focus our public health campaigns and advocacy on systemic interventions that make it easier to maintain active lifestyles and nutritious eating patterns. We know that most of the patients we counsel to lose weight will not be successful with it—the vast majority of patients who lose weight regain it within 5 years.<sup>17</sup> Nothing else we recommend so frequently in medicine has so little chance at long-term success.

### CONCLUSION

We believe routinely measuring weight and calculating BMI upon check-in for all patients is at best wasteful of resources and at worst increases health disparities and the experience of weight bias. Any discussion of weight in our culture cannot be removed from the larger antifat societal context. By eliminating weighing patients when they first enter our clinic, we hope to communicate that we prioritize evidence-based practices that focus on their health and not an artificial “ideal weight” determined by an astronomer in the 19th Century.

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