OVERWEIGHT BODIES, REAL AND IMAGINED



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Introduction

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CHAPTER OVERVIEW

1: The Obesity Crisis- Causes and Solutions

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1.2: Energy Balance- Energy In, Energy Out–Yet Not As Simple As It Seems

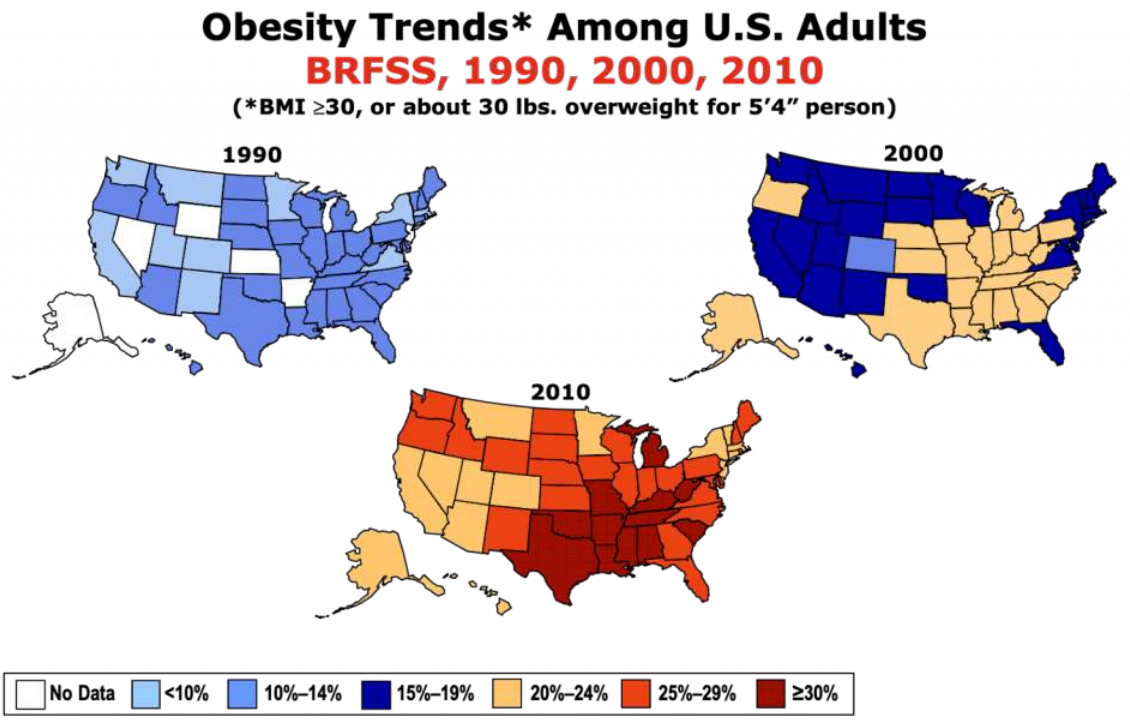
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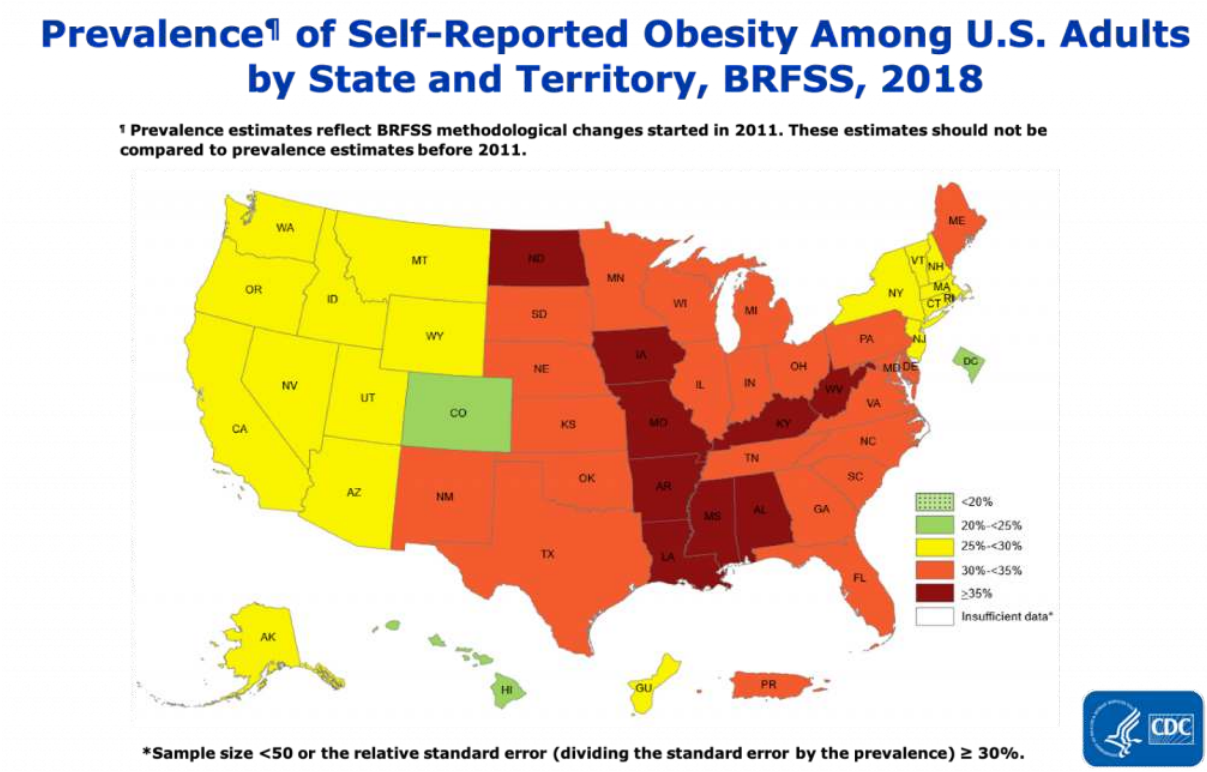
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1.1: The Obesity Crisis- Causes and Solutions

Since the 1980s, the prevalence of obesity in the United States has increased dramatically. Data collected by the Centers for Disease Control and Prevention show rising obesity across the nation, state-by-state.



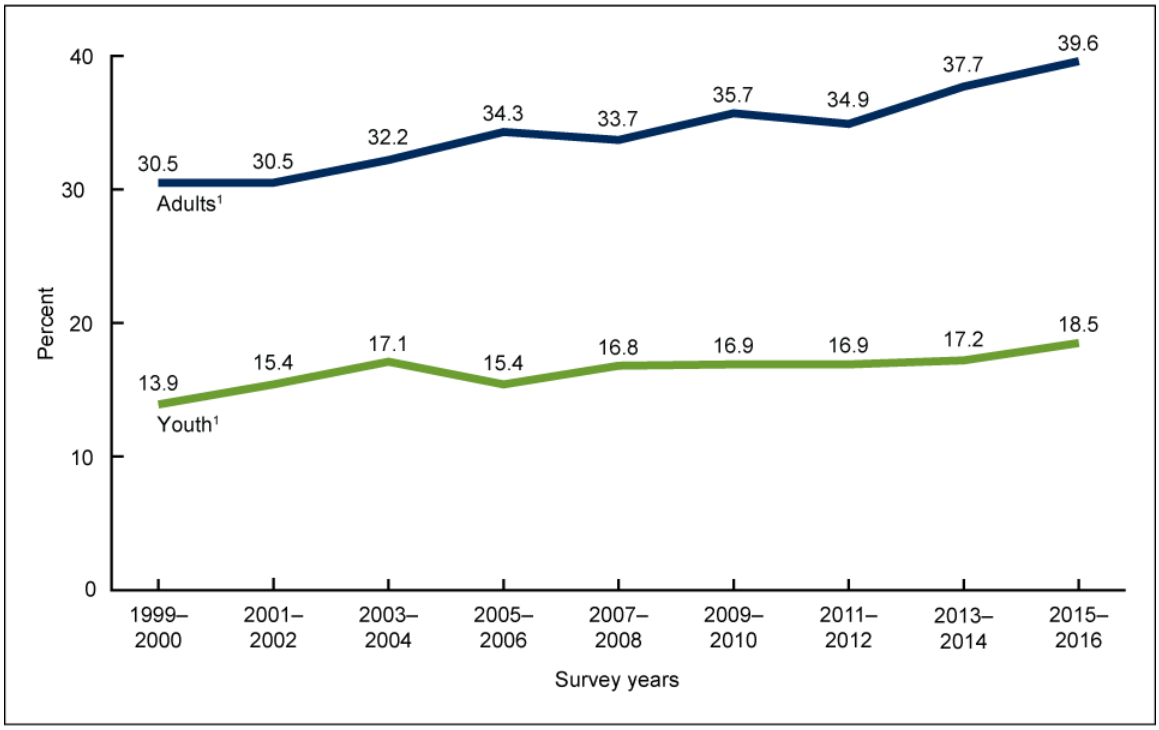
Each year since 1990, the CDC has published maps of the United States in which states are color-coded based on the percentage of their population estimated to be obese. The maps show a clear increase in the prevalence of obesity between 1990 and 2010. The methods used by the CDC to collect the data changed in 2011, so we can't make direct comparisons between the periods before and after that change, but the trend has continued. Every year, more and more people in the U.S. are obese.



The prevalence of obesity among U.S. adults has continued to rise between 2011 and 2018.

These trends are unmistakable, and they're not just occurring in adults. Childhood obesity has seen similar increases over the last few decades—perhaps an even greater concern as the metabolic and health effects of carrying too much weight can be compounded over a person's entire lifetime.

Figure 5. Trends in obesity prevalence among adults aged 20 and over (age adjusted) and youth aged 2–19 years: United States, 1999–2000 through 2015–2016



[1]Significant increasing linear trend from 1999–2000 through 2015–2016.
NOTES: All estimates for adults are age adjusted by the direct method to the 2000 U.S. census population using the age groups 20–39, 40–59, and 60 and over.
Access data table for Figure 5 at: https://www.cdc.gov/nchs/data/databriefs/db288_table.pdf#5.
SOURCE: NCHS, National Health and Nutrition Examination Survey, 1999–2016.

Figure 9.19. Between 1999 and 2016, the prevalence of obesity in both children and adults has risen steadily.

While obesity is a problem across the United States, it affects some groups of people more than others. Based on 2015-2016 data, obesity rates are higher among Hispanic (47 percent) and Black adults (47 percent) compared with white adults (38 percent). Non-Hispanic Asians have the lowest obesity rate (13 percent). And overall, people who are college-educated and have a higher income are less likely to be obese. This health disparities point to the importance of looking at social context when examining causes and solutions. Not everyone has the same opportunity for good health, or an equal ability to make changes to their circumstances, because of factors like poverty and longstanding inequities in how resources are invested in communities. These factors are called “social determinants of health.”

The obesity epidemic is also not unique to the United States. Obesity is rising around the globe, and in 2015, it was estimated to affect 2 billion people worldwide, making it one of the largest factors affecting poor health in most countries. Globally, among children aged 5 to 19 years old, the rate of overweight increased from 10.3 percent in 2000 to 18.4 percent in 2018. Previously, overweight and obesity mainly affected high-income countries, but some of the most dramatic increases in childhood overweight over the last decade have been in low income countries, such as those in Africa and South Asia, corresponding to a greater availability of inexpensive, processed foods.

Despite the gravity of the problem, no country has yet been able to implement policies that have reversed the trend and brought about a decrease in obesity. This represents “one of the biggest population health failures of our time,” wrote an international group of researchers in the journal The Lancet in 2019. The World Health Organization has set a target of stopping the rise of obesity by 2025. Doing so requires understanding what is causing the obesity epidemic; it is only when these causes are addressed that change can start to occur.

Causes of the Obesity Epidemic

If obesity was an infectious disease sweeping the globe, affecting billions of people’s health, longevity, and productivity, we surely would have addressed it by now. Researchers and pharmaceutical companies would have worked furiously to develop vaccines and

medicines to prevent and cure this disease. But the causes of obesity are much more complex than a single bacteria or virus, and solving this problem means recognizing and addressing a multitude of factors that lead to weight gain in a population.

Behavior

At its core, rising obesity is caused by a chronic shift towards positive energy balance—consuming more energy or calories than one expends each day, leading to an often gradual but persistent increase in body weight. People often assume that this is an individual problem, that those who weigh more simply need to change their behavior to eat less and exercise more, and if this doesn't work, it must be because of a personal failing, such as a lack of self-control or motivation. While behavior patterns such as diet and exercise can certainly impact a person's risk of developing obesity (as we'll cover later in this chapter), the environments where we live also have a big impact on our behavior and can make it much harder to maintain energy balance.

Environment

Many of us live in what researchers and public health experts call "obesogenic environments." That is, the ways in which our neighborhoods are built and our lives are structured influence our physical activity and food intake to encourage weight gain. Human physiology and metabolism evolved in a world where obtaining enough food for survival required significant energy investment in hunting or gathering—very different from today's world where more people earn their living in sedentary occupations. From household chores, to workplace productivity, to daily transportation, getting things done requires fewer calories than it did in past generations.



Some elements of our environment that may make it easier to gain weight include sedentary jobs, easy access to inexpensive calories, and cities built more for car travel than for physical activity. Our jobs have become more and more sedentary, with fewer opportunities for non-exercise thermogenesis (NEAT) throughout the day. There's less time in the school day for recess and physical activity, and fears about neighborhood safety limit kids' ability to get out and play after the school day is over. Our towns and cities are built more for cars than for walking or biking. We can't turn back the clock on human progress, and finding a way to stay healthy in obesogenic environments is a significant challenge.

Our environments can also impact our food choices. We're surrounded by vending machines, fast food restaurants, coffee shops, and convenience stores that offer quick and inexpensive access to calories. These foods are also heavily advertised, and especially when people are stretched thin by working long hours or multiple jobs, they can be a welcome convenience. However, they tend to be calorie-dense (and less nutrient-dense) and more heavily processed, with amounts of sugar, fat, and salt optimized to make us want to eat more, compared with home-cooked food. In addition, portion sizes at restaurants, especially fast food chains, have increased over the decades, and people are eating at restaurants more and cooking at home less.

Poverty and Food Insecurity

Living in poverty usually means living in a more obesogenic environment. Consider the fact that some of the poorest neighborhoods in the United States—with some of the highest rates of obesity—are often not safe or pleasant places to walk, play, or exercise. They may have busy traffic and polluted air, and they may lack sidewalks, green spaces, and playgrounds. A person living in this type of neighborhood will find it much more challenging to get adequate physical activity compared with someone living in a neighborhood where it's safe to walk to school or work, play at a park, ride a bike, or go for a run.

In addition, poor neighborhoods often lack a grocery store where people can purchase fresh fruits and vegetables and basic ingredients necessary for cooking at home. Such areas are called "food deserts"—where healthy foods simply aren't available or easily accessible.

Another concept useful in discussions of obesity risk is "food insecurity." Food security means "access by all people at all times to enough food for an active, healthy life." Food insecurity means an inability to consistently obtain adequate food. It may seem counter-intuitive, but in the United States, food insecurity is linked to obesity. That is, people who have difficulty obtaining enough

food are more likely to become obese and to suffer from diabetes and hypertension. This is likely related to the fact that inexpensive foods tend to be high in calories but low in nutrients, and when these foods form the foundation of a person's diet, they can cause both obesity and nutrient deficiencies. It's estimated that 12 percent of U.S. households are food insecure, and food insecurity is higher among Black (22 percent) and Latino (18 percent) households.

Test Your Understanding

Genetics

What about genetics? While it's true that our genes can influence our susceptibility to becoming obese, researchers say they can't be a cause of the obesity epidemic. Genes take many generations to evolve, and the obesity epidemic has occurred over just the last 40 to 50 years—only a few generations. When our grandparents were children, they were much less likely to become obese than our own children. That's not because their genes were different, but rather because they grew up in a different environment. However, it is true that a person's genes can influence their susceptibility to becoming obese in this obesogenic environment, and obesity is more prevalent in some families. A person's genetic makeup can make it more difficult to maintain energy balance in an obesogenic environment, because certain genes may make you feel more hungry or slow your energy expenditure.

Solutions to the Obesity Epidemic

Given the multiple causes of obesity, solving this problem will also require many solutions at different levels. Because obesity affects people over the lifespan and is difficult to reverse, the focus of many of these efforts is prevention, starting as early as the first years of life. We'll discuss individual weight management strategies later in this chapter. Here, we'll review some strategies happening in schools, communities, and at the state and federal levels.

Support Healthy Dietary Patterns

Interventions that support healthy dietary patterns, especially among people more vulnerable because of food insecurity or poverty, may reduce obesity. In some cases, studies have shown that they have an impact, and in other cases, it's too soon to know. Here are some examples:

- Implement and support better nutrition standards for childcare, schools, hospitals, and worksites.
- Limit marketing of processed foods, especially ads targeted toward children.
- Provide incentives for supermarkets or farmers' markets to establish businesses in underserved areas.
- Farmers' markets can expand healthy food options for neighborhoods and build connections between consumers and local farmers.



Place nutrition and calorie content on restaurant and fast food menus to raise awareness of food choices. Beginning in 2018, as part of the Affordable Care Act, chain restaurants with more than 20 locations were required to add calorie information to their menus, and some had already done so voluntarily. There isn't yet enough research to say whether having this information improves customers' choices; some studies show an effect and others don't. Many factors influence people's decisions, and the type of restaurant, customer needs, and menu presentation all likely matter. For example, some studies show that health-conscious consumers choose lower-calorie menu items when presented with nutrition information, but people with food insecurity may

understandably choose higher-calorie items to get more “bang for their buck”. Research has also shown that adding interpretative images—like a stoplight image labeling menu choices as green or red as shorthand for high or low nutrient density—can help. And a 2018 study found that when calorie counts are on the left side of English-language menus, people order lower-calorie menu items. Putting calorie counts on the right side of the menu (as is more common) doesn’t have this effect, likely because the English language is read from left to right. Some studies have also found that restaurants that implement menu labeling offer lower-calorie and more nutrient-dense options, indicating that menu labeling may push restaurants to look more closely at the food they serve.

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1.2: Energy Balance- Energy In, Energy Out–Yet Not As Simple As It Seems

Energy Balance: Energy In, Energy Out—Yet Not As Simple As It Seems

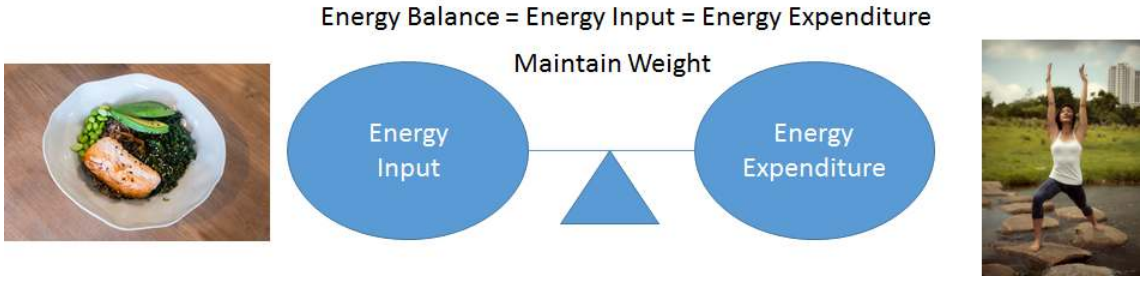
The concept of energy balance seems simple on paper. Balance the calories you consume with the calories you expend. But many factors play a role in energy intake and energy expenditure. Some of these factors are under our control and others are not. In this section, we will define energy balance, look at the different components of energy expenditure, and discuss the factors that influence energy expenditure. We'll also consider some of the factors that affect energy intake and consider why energy balance is more complex than it seems.

Energy Balance

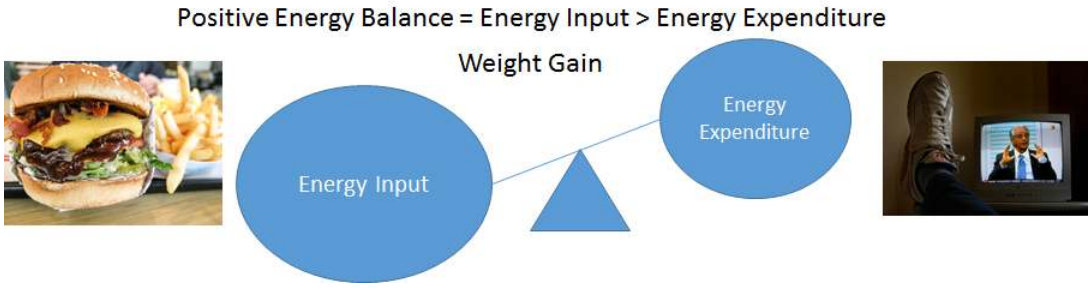
Our body weight is influenced by our energy intake (calories we consume) and our energy output (energy we expend during rest and physical activity). This relationship is defined by the energy balance equation:

Energy Balance = energy intake – energy expenditure

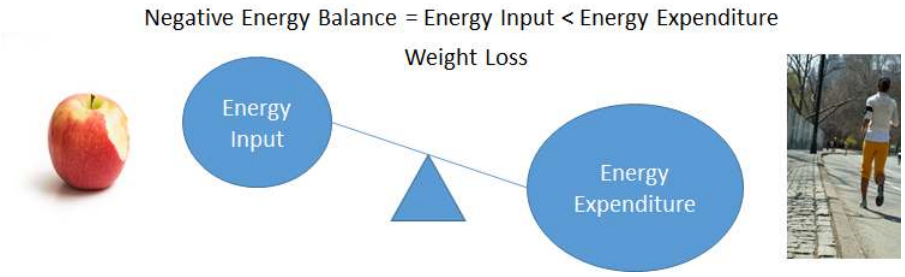
When an individual is in **energy balance**, energy intake equals energy expenditure, and weight should remain stable.



Positive energy balance occurs when energy intake is greater than energy expenditure, usually resulting in weight gain.



Negative energy balance is when energy intake is less than energy expenditure, usually resulting in weight loss.



Energy intake is made up of the calories we consume from food and beverages. These calories come from the macronutrients (carbohydrates, proteins, and fats) and alcohol. Remember that when the body has a surplus of energy, this energy can be stored as fat. In theory, if you consume 3,500 more calories than your body needs, you could potentially gain about one pound, because a pound of fat is equal to about 3,500 calories. If you expend 3,500 more calories than you take in, you could potentially lose about a pound, as your body turns to this stored energy to compensate for the energy deficit. However, in practice, how individuals respond

to an excess or deficit of 3500 calories can be quite variable, and over time, the body adapts to these conditions and resists changes in body weight.

Energy balance is complex, dynamic, and variable between individuals—something we'll explore a bit more later on this page—but it is still a vital concept in understanding body weight. Next, let's look at the energy expenditure side of the energy balance equation, to see the components that make up energy expenditure and the factors that influence them.

Components of Energy Expenditure

The sum of caloric expenditure is referred to as **total energy expenditure (TEE)**. There are three main components of TEE:

Basal metabolic rate (BMR)

Thermic effect of food (TEF)

Physical activity

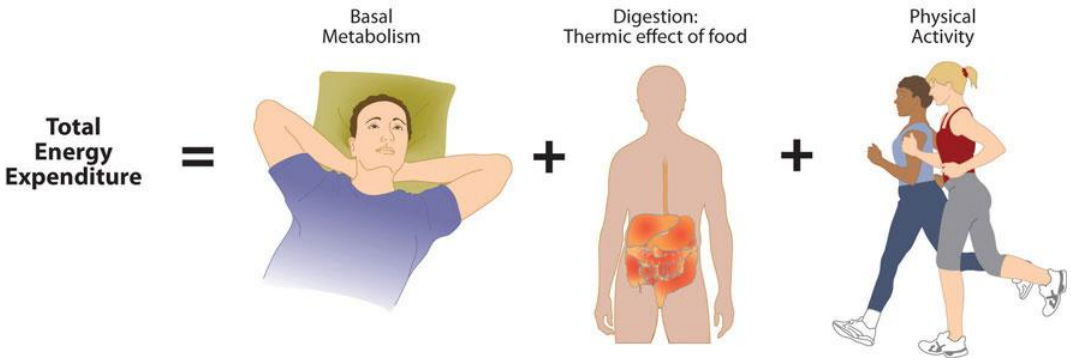


Figure 7.3. Components of total energy expenditure include basal metabolism, the thermic effect of food, and physical activity.

1. Basal Metabolic Rate (BMR)

BMR is the energy expended by the body when at rest. These are the behind-the-scenes activities that are required to sustain life. Examples include:

respiration

circulation

nervous system activity

protein synthesis

temperature regulation

Basal metabolic rate does not include the energy required for digestion or physical activity.

If a person is sedentary or moderately active, BMR is the largest component of energy expenditure, making up about 60 to 75 percent of total energy output. For example, a sedentary person might need about 1800 calories in a day, with about 1200 of them being for BMR.

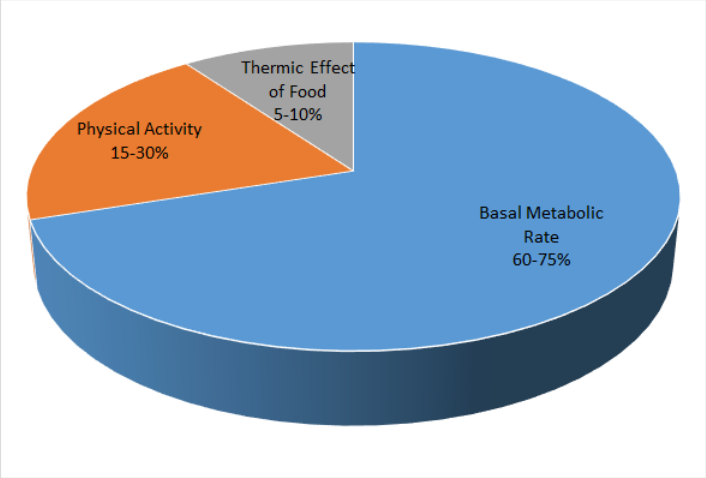


Figure 7.4. Components of energy expenditure and their percent contribution to the total in sedentary to moderately active people.

BMR can vary widely among individuals. An individual's lean body mass—made up of organs, bone, and muscle—is the biggest determinant of BMR, because lean body tissue is more metabolically active than fat tissue. This means that a muscular person expends more energy than a person of similar weight with more fat. Likewise, increasing your muscle mass can cause an increase in your BMR. However, skeletal muscle at rest only accounts for about 18 percent of the total energy expended by lean mass. Most is used to meet the energy needs of vital organs. The liver and brain, for example, together account for nearly half of the energy expenditure by lean mass.

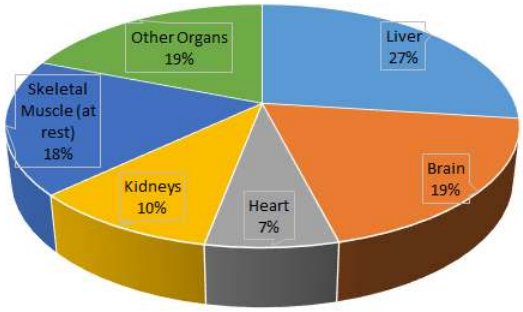


Figure 7.5. Energy expenditure of organs.

BMR depends not only on body composition but also on body size, sex, age, nutritional status, genetics, body temperature, and hormones (Table 9.1). People with a larger frame size have a higher BMR simply because they have more mass. On average, women have a lower BMR than men, because they typically have a smaller frame size and less muscle mass. As we get older, muscle mass declines, and therefore BMR declines as well.

Nutritional status also affects basal metabolism. If someone is fasting or starving, or even just cutting their caloric intake for a diet, their BMR will decrease. This is because the body attempts to maintain homeostasis and adapts by slowing down its basic functions (BMR) to help preserve energy and balance the decrease in energy intake. This is a protective mechanism during times of food shortages, but it also makes intentional weight loss more difficult.

Factors That Increase BMR	Factors That Decrease BMR
Higher lean body mass	Lower lean body mass
Larger frame size	Smaller frame size
Younger age	Older age
Male sex	Female sex
Stress, fever, illness	Starvation or fasting
Elevated levels of thyroid hormone	Lower levels of thyroid hormone
Pregnancy or lactation	
Stimulants such as caffeine and tobacco	

Table 7.1. Factors that Impact BMR

2. Thermic Effect of Food (TEF)

This is the energy needed to digest, absorb, and store the nutrients in foods. It accounts for 5 to 10 percent of total energy expenditure and does not vary greatly amongst individuals.

3. Physical activity

Physical activity is another important way the body expends energy. Physical activity usually contributes anywhere from 15 to 30 percent of energy expenditure and can be further divided into two parts:



exercise-related activity thermogenesis (EAT)

non-exercise activity thermogenesis (NEAT)

EAT is planned, structured, and repetitive physical activity with the objective of improving health (participating in a sport like soccer or strength training at the gym, for example).

NEAT is the energy expenditure for unstructured and unplanned activities. This includes daily-living activities like cleaning the house, yard work, shopping, and occupational activities. NEAT also includes the energy required to maintain posture and spontaneous movements such as fidgeting and pacing.

NEAT can vary by up to 2,000 calories a day for two people of similar size, according to Dr. James Levine, the Mayo Clinic researcher who first coined the term. NEAT may be an important component of obesity, and is currently an area of research.

Factors Affecting Energy Intake

Given the importance of energy's role in sustaining life, it's not surprising that energy balance is tightly regulated by complex physiological processes. The brain (specifically the hypothalamus) is the main control center for hunger and satiety. There is a constant dialogue between our brains and gastrointestinal tracts through hormonal and neural signals, which determine if we feel hungry or full. Nutrients themselves also play a role in influencing food intake, because the hypothalamus senses nutrient levels in

the blood. When nutrient levels are low, the hunger center is stimulated. Conversely, when nutrient levels are high, the satiety center is stimulated.

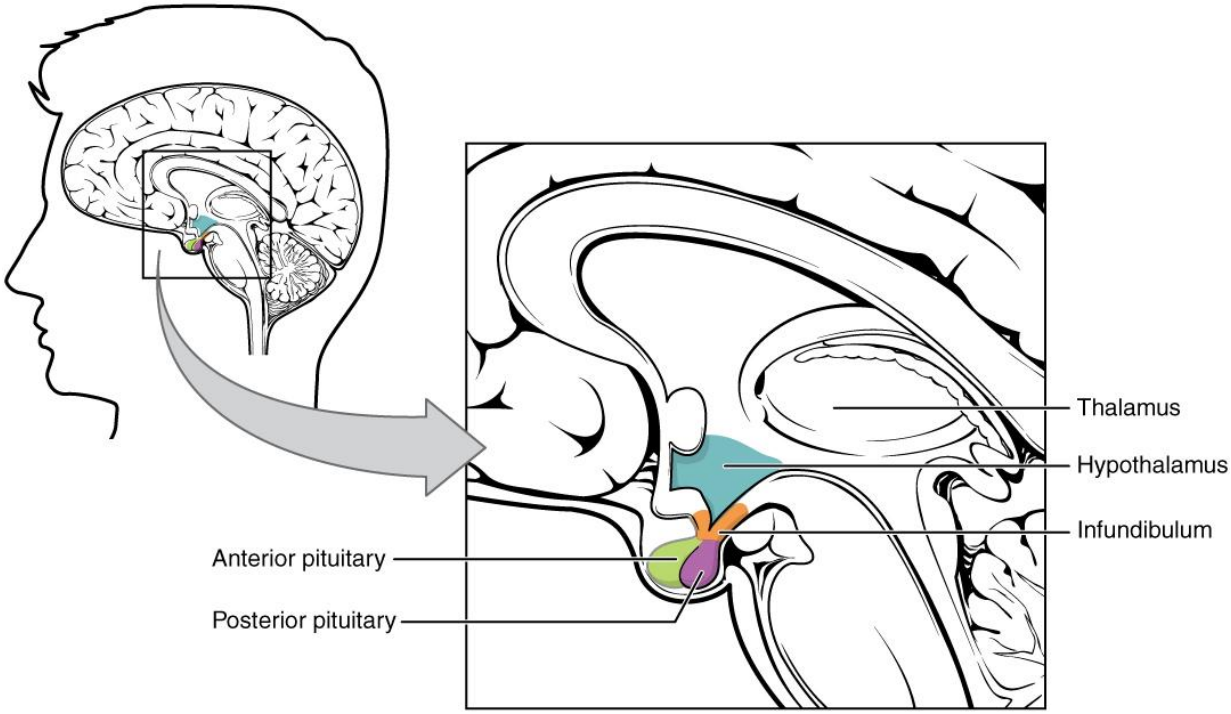


Figure 7.6. The hypothalamus, shown in blue, is about the size of an almond and serves as the hunger center of the brain, receiving signals from the gastrointestinal tract, adipose tissue, and blood and signaling hunger and satiety.

Hunger is the physiological need to eat. When the stomach is empty, it contracts and starts to grumble and growl. The stomach's mechanical movements relay neural signals to the hypothalamus. (Of course, the stomach also contracts when it's full and hard at work digesting food, but we can't hear these movements as well because the stomach's contents muffle the noise.) The stomach is also the main organ that produces and secretes the "hunger hormone," ***ghrelin***, the only gut hormone found to increase hunger. Ghrelin levels are high before a meal and fall quickly once nutrients are absorbed.

Appetite is the psychological desire to eat. **Satiety** is the sensation of feeling full. After you eat a meal, the stomach stretches and sends a neural signal to the brain stimulating the sensation of satiety and relaying the message to stop eating. There are many hormones that are associated with satiety, and various organs secrete these hormones, including the gastrointestinal tract, pancreas, and adipose tissue. ***Cholecystokinin (CCK)*** is an example of one of these satiety hormones and is secreted in response to nutrients in the gut, especially fat and protein. In addition to inhibiting food intake, CCK stimulates pancreatic secretions, gall bladder contractions, and intestinal motility—all of which aid in the digestion of nutrients.

Fat tissue also plays a role in regulating food intake. Fat tissue is the primary organ that produces the hormone ***leptin***, and as fat stores increase, more leptin is produced. Higher levels of leptin communicate to the satiety center in the hypothalamus that the body is in positive energy balance. Leptin acts on the brain to suppress hunger and increase energy expenditure. The discovery of leptin's functions sparked a craze in the research world and in the diet pill industry, as it was hypothesized that if you give leptin to a person who is overweight, they will decrease their food intake. In several clinical trials, it was found that people who are overweight or obese are actually resistant to the hormone, meaning their brain does not respond as well to it. Therefore, when you administer leptin to an overweight or obese person, there is generally no sustained effect on food intake.

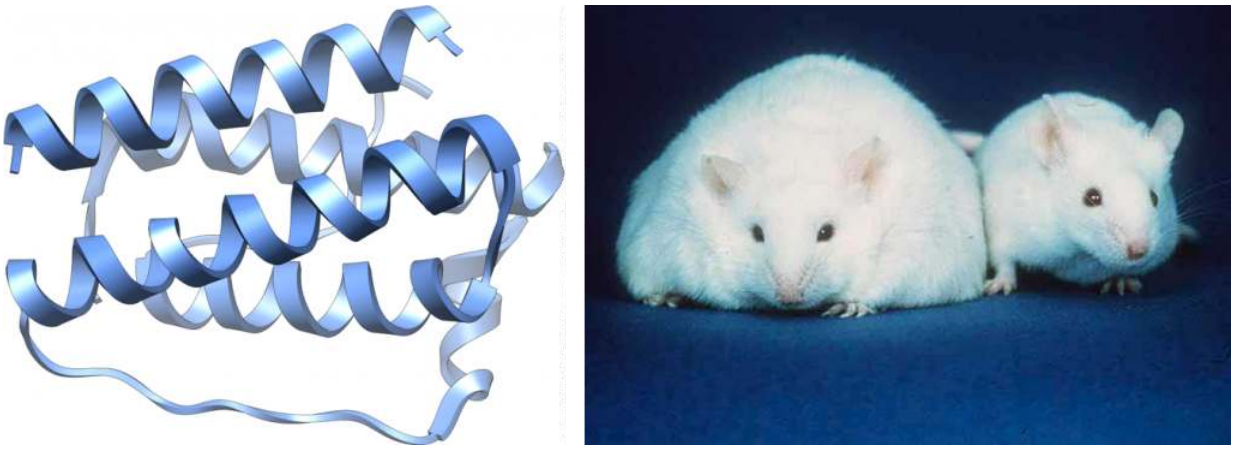


Figure 7.7. The structure of the hormone leptin (left), which is primarily produced by adipose tissue. The obese mouse in the photo has a gene mutation that makes it unable to produce leptin, resulting in constant hunger, lethargy, and severe obesity. For comparison, a mouse with normal leptin production is also shown. Such gene mutations are rare, but they serve as a dramatic illustration of the importance of the hormone in signaling energy balance.

The Complexity of Energy Balance

Energy balance seems like it should be a simple math problem, and in fact, it is based on a fundamental truth in physics—the first law of thermodynamics. This law states that energy can't be created or destroyed; it can only change form. That is, calories that are consumed must go somewhere, and if they aren't metabolized (which converts caloric energy to heat and work energy), they'll have to be stored, usually in the form of adipose tissue. What makes energy balance challenging is the reality that both energy intake and energy expenditure are dynamic variables that are constantly changing, including in response to each other.

Let's first look at the energy intake side. As we've already discussed, how much food we eat each day is not just a matter of willpower or self-control. It's the result of powerful physiological and psychological forces that tell us if we need to eat, or if we've had enough. Our brains are hard-wired to seek food if we're in negative energy balance, an instinct required for survival. This means that if you start to exercise more—increasing your energy expenditure—you will also feel hungrier, because your body needs more fuel to support the increase in physical activity. If you eat fewer calories, perhaps in an effort to lose weight, your stomach will produce more ghrelin, and your adipose tissue will produce less leptin. These shifting hormone levels work together to increase hunger and make you focus on obtaining more calories. People who try to gain weight run into the opposite problem. Their leptin levels increase, suppressing hunger. It's also uncomfortable to eat beyond satiety, and food doesn't taste as good.

Test Your Understanding

Even measuring how much energy is consumed is not as simple as you might think. We can measure the caloric content of food from a chemical standpoint, but we can only *estimate* how much energy a person will absorb from that food. This will depend on how well the food is digested and how well the macronutrients are absorbed—factors which vary depending on the food itself, the digestion efficiency of the person eating it, and even the microbes living in their gut. Two people may eat the exact same meal, yet not absorb the same number of calories.

Energy expenditure is also dynamic and changes under different conditions, including increased or decreased caloric intake. Decreased caloric intake and going into negative energy balance cause a drop in BMR to conserve energy. Muscles also become more efficient, requiring less energy to work, and without realizing it, people in negative energy balance often decrease their NEAT activity level. These adaptations help to conserve body weight and make it more difficult to stay in negative energy balance. People may still be able to lose weight despite their bodies working to prevent it, but maintaining a new, lower weight requires constant vigilance, and weight regain is common.

Research has also shown that people respond differently to positive energy balance. When a group of people are overfed, the amount of weight gained amongst study participants varies widely. In a study of identical twins who were given an extra 1,000 calories per day for 100 days, weight gain varied between 10 and 30 pounds among participants. Weight gain between twins was more similar (though not exactly the same), which may be attributed to genetic factors. People gain and lose weight differently; we don't necessarily follow formulas.

When people say that the answer to the obesity epidemic is to eat less and move more, they're not wrong. But this is also an oversimplified answer, because of all the complexities underlying energy intake and energy expenditure.

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1.3: Indicators of Health- BMI, Body Composition, and Metabolic Health

Determining Your Healthy Size

There are many metrics used to assess body composition (and we'll discuss some of these later), but none give a complete picture of an individual's health. That requires a truly individual assessment, not just of numbers on the scale, but of a person's overall health and well-being in the context of family history and lifestyle.

Here's how the authors of the text, "Sport Nutrition for Health and Performance" describe a healthy body weight:

A weight that is appropriate for your age and physical development.

A weight you can achieve and sustain without severely curtailing your food intake and constantly dieting.

A weight that is compatible with normal blood pressure, lipid levels, and glucose tolerance (in other words, you are metabolically fit)

A weight that is based on your genetic background and family history of body shape and weight (after all the apple doesn't fall too far from the tree



A weight that promotes good eating habits and allows you to participate in regular physical activity

A weight that is acceptable to you

Overall, a healthy size should not be dictated by a formula, the latest fad, or societal expectations. People come in all shapes and sizes, and you have to determine what a healthy size is for you. Yet it's also worth understanding some of the measures used to estimate body composition, how they can be linked to health, and their limitations.

Body Mass Index

Body Mass Index (BMI) is an inexpensive screening tool used in clinical and research settings to assess body weight relative to height. Because it takes height into account, it is more predictive of how much body fat a person has than weight alone. However, BMI is not a direct measure of body fat, so it shouldn't be used on its own to diagnose obesity or the health of an individual.

BMI calculations and categories

BMI is calculated using the following equations:

BMI = [weight (kg)/height (m2)]

OR

BMI = [weight (lb)/height (in2)] x 703

The Centers for Disease Control and Prevention has a BMI calculator on its website:

For adults, BMI ranges are divided into four categories, which are associated with different levels of health risk:

Underweight – BMI < 18.5

Normal weight – BMI from 18.5-24.9

Overweight – BMI from 25-29.9

Obese – BMI from 30 or higher

Obesity is frequently subdivided into categories:

Class 1 obesity: BMI of 30 to < 35

Class 2 obesity: BMI of 35 to < 40

Class 3 obesity: BMI of 40 or higher

(BMI values are interpreted differently for children, because body fatness changes with age and can be different between boys and girls.)

In general, BMI in the "normal" range is associated with better health compared to both underweight and overweight or obese values, because there are risks of carrying both too little and too much body fat. When researchers have looked at BMI and health in large groups of people, they generally find that the lowest risk of disease and of dying younger is in the range of BMI of 20 to 25. As BMI values increase into the overweight and obese ranges, the risk of developing type 2 diabetes, cardiovascular disease and stroke, and even cancer increase, as well as other complications of obesity, such as osteoarthritis. Carrying extra weight not only puts a mechanical strain on the body, but it also negatively impacts metabolic health and increases inflammation.

Limitations of BMI

The advantage of BMI is that it's simple and easy to calculate, but it also has several important limitations. Since it's only based on weight and height, it doesn't distinguish between muscle mass and adipose tissue. It's not unusual for muscular athletes to be classified as overweight based on BMI, but this can be misleading, because they may have little to no excess body fat. On the flipside, BMI can underestimate body fatness in someone with very low muscle mass, such as a person who is elderly and frail. In addition, BMI can't tell us where body fat is located in the body, and as we'll learn, this is a major factor determining its impact on health.

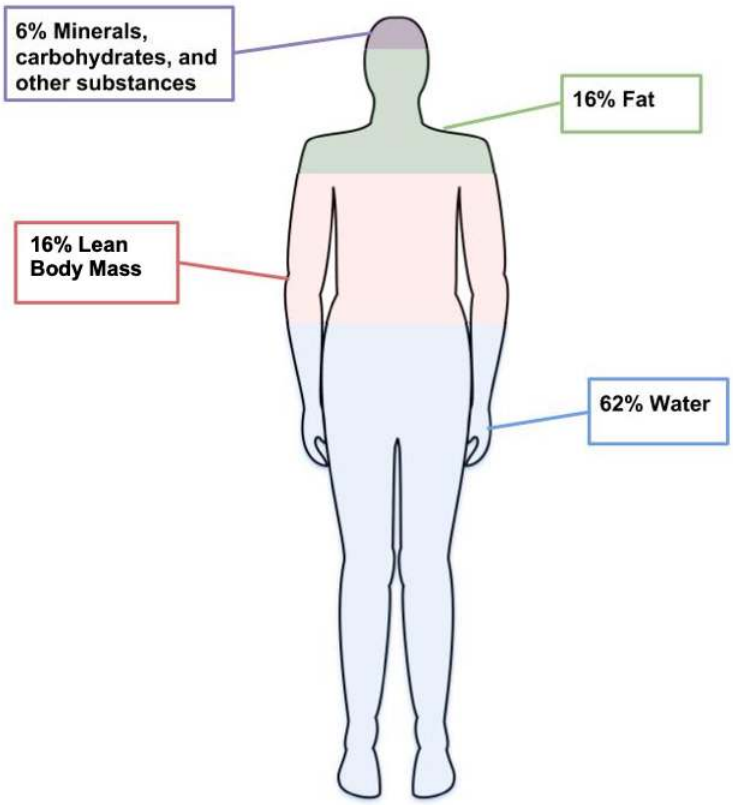
BMI's accuracy in predicting body fatness is also affected by biological sex and race—not surprising given the natural diversity in shape and size of human bodies. At the same BMI, women tend to carry more body fat than men. Also at the same BMI, a Black person tends to have less body fat, and an Asian person tends to have more body fat, compared to a white person. This means that a high BMI may overestimate health risk in a Black person and underestimate health risk in an Asian person. BMI is also not useful for estimating body fatness in a pregnant person, because pregnancy weight gain includes placental and fetal tissues.

All of this means that BMI is not particularly useful for comparing one individual to another individual or even one population to another, because this one number simply doesn't account for all of the underlying diversity in factors like body type, muscle mass, biological sex, and race. And for an individual, one BMI measurement at a single point in time may not be all that meaningful—other measurements and clinical assessments are needed to diagnose obesity and more accurately assess disease risk, as we'll discuss in a moment.

BMI is perhaps most useful for tracking *changes* in body composition over time, whether of a population or an individual. For example, the data on average BMI in the U.S. show a clear increase over the last several decades, and the most likely explanation for that is not that people in the U.S. are all gaining several pounds of muscle each year, but that we're putting on more fat. On the other hand, someone may have a BMI classified as overweight, but if they've been at that BMI their entire adult life and are active and metabolically healthy, that may just be the natural size and shape of their body.

Measuring Body Composition

A person's body mass is made up of water, lean body mass (including organs, bone, and muscle), fat, and other components like minerals. The weight on the scale does not distinguish between these different components, but **body composition** measurements can.



Body composition measurements are used by individuals and researchers to determine how much of a person's weight is made up of body fat and lean body mass. An individual might use body composition measurements to track their progress in building muscle with a new strength training program. Since increased body fat is often a risk factor for diseases like cardiovascular diseases and diabetes, researchers are often interested in this type of data. There are several different methods used to measure body composition, each with advantages and limitations.6

Skinfold test. This is a simple, non-invasive, and low-cost way to assess fat mass. Calipers are used to measure the thickness of skin on three to seven different parts of the body, and these numbers are then entered into a conversion equation. Keep in mind that the accuracy of the skinfold test depends on the skill of the person taking the measurements, the accuracy of the calipers, and the appropriateness of the conversion equations. Best practice is for the same person to take repeated measurements if using them to monitor changes over time. Repeated measurements by different technicians, using different calipers, and different conversion equations will yield very different results.



Bioelectric Impedance Analysis (BIA). This is a simple, non-invasive, quick tool that does not require extensive training. BIA estimates body composition by sending a small amount of electricity through the body. Since water is a good conductor of electricity, and lean body mass contains more water than fat, the rate at which the current travels can be used to estimate percent

body fat. Body fluid levels must be normal with BIA, which is a limitation, since hydration can be impacted by exercise, alcohol, and menstrual cycles.



Figure 7.10. BIA hand device.

Air Displacement Plethysmography (ADP) – This is a non-invasive, quick tool that does not take extensive training. It's more accurate but also more expensive than BIA. While a person sits inside an enclosed chamber (usually called a Bod Pod), changes in air pressure are used to determine the amount of air that is displaced in the test chamber, which can determine body volume. These measurements are then translated into percent body fat. Hydration status can affect the accuracy of this test. This test also needs to be conducted in a facility with a Bod Pod, so it is not as accessible as the skinfold test or the BIA.



Figure 7.11. Body composition measurement with whole-body air displacement plethysmography (ADP) technology or BodPod

Dual energy X-ray absorptiometry (DXA). This method directs two low-dose X-ray beams through the body and determines the amount of energy absorbed from the beams. The amount of energy absorbed is dependent on the body's content of bone, lean tissue mass, and fat mass. Using standard mathematical formulas, fat content and bone density can be accurately estimated. Although this is one of the most accurate methods of measuring fat mass, it is expensive and mostly used in research. It also requires low doses of radiation to the subject being tested, and is not appropriate for pregnant women.



Dual-Energy X-ray Absorptiometry (DXA)

Keep in mind that body composition can be hard to measure accurately when using inexpensive and accessible techniques like skinfold testing and BIA. Your best bet is to pick one method and use that method over time to compare numbers and see how they change. Just don't get too hung up on the actual number, as the accuracy will be questionable depending on the method chosen.

Measuring Fat Distribution

Total body fat is one predictor of health; another is how the fat is distributed in the body. The location of fat is important, because people who store fat more centrally (apple-shaped) have a higher risk for chronic disease—like cardiovascular disease and type 2 diabetes—compared to people who store fat in the hips, thighs, and buttocks (pear-shaped). This is because visceral fat that surrounds vital organs (common in central obesity or apple-shaped fat patterning) is more metabolically active, releasing more hormones and inflammatory factors thought to contribute to disease risk compared to subcutaneous fat. Subcutaneous fat stored just below the skin (common in pear-shaped fat patterning) does not seem to significantly increase the risk for chronic disease.

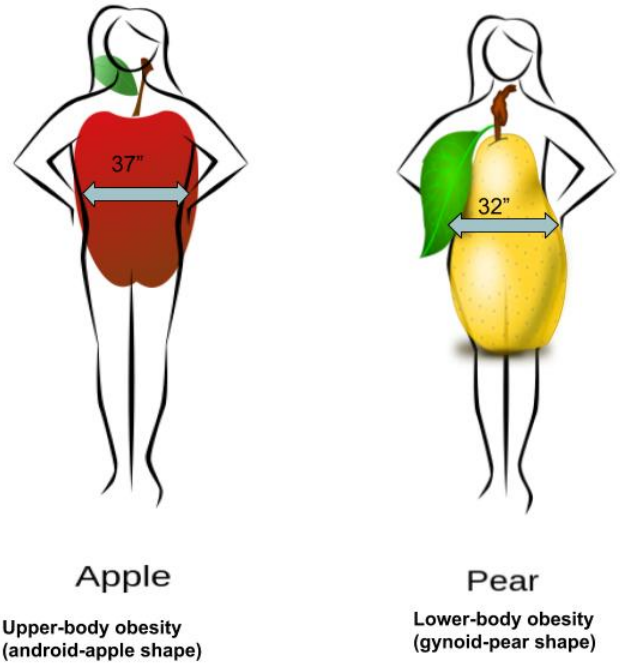


Figure 7.13. Fat can be located in the abdominal region (apple shape) or hips, thighs, and buttocks (pear shape).

Body fat distribution can be measured by waist circumference and waist-to-hip ratio, both of which only require a measuring tape.

Waist circumference is measured just above the hip bone, level with your belly button. Men with a waist circumference greater than 40 inches and women with a waist circumference greater than 35 inches are predicted to face greater health risks.

Waist-to-hip ratio is calculated by measuring waist circumference and hip circumference (at its widest part) and dividing the two values. Abdominal obesity is defined by the World Health Organization as a waist-to-hip ratio above 0.90 for males and above 0.85 for females.

Indicators of Metabolic Health

Metabolic health refers to the body's ability to maintain normal homeostasis and effectively regulate measures like blood pressure, blood lipids, and blood glucose. It is assumed that when an individual is classified as overweight and obese, based on measurements of BMI and body fat composition and distribution, metabolic health is negatively impacted. However, some individuals that meet the criteria for obesity do not experience an increased risk of metabolic health.7 These individuals are known as **"metabolically healthy obese" (MHO)**. Metabolically healthy can be described as an absence of insulin resistance, type 2 diabetes, dyslipidemia, and hypertension.

In contrast, there are also individuals who are classified as a healthy weight (BMI < 25) but show an increased metabolic risk. These individuals are known as ***metabolically obese normal weight (MONW)***. These variations challenge the assumptions we hold about body fatness. It can not always be assumed that thinness equals healthy, and fatness equals unhealthy.

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1.4: Overweight and Underweight- What Are the Risks?

As the previous section illustrated, energy balance is influenced by many factors. Whether an individual is in positive or negative energy balance ultimately influences the overall trend in whether that individual is normal weight, overweight, or underweight. While much of the focus in society is placed on concerns with being overweight or obese, both ends of the weight spectrum are associated with health risks, and being underweight can negatively impact health just as being overweight can. In fact, research has shown a J-shaped association between mortality risk and BMI, with greater risk for dying in underweight and obese populations and the lowest risk occurring in the normal BMI range.

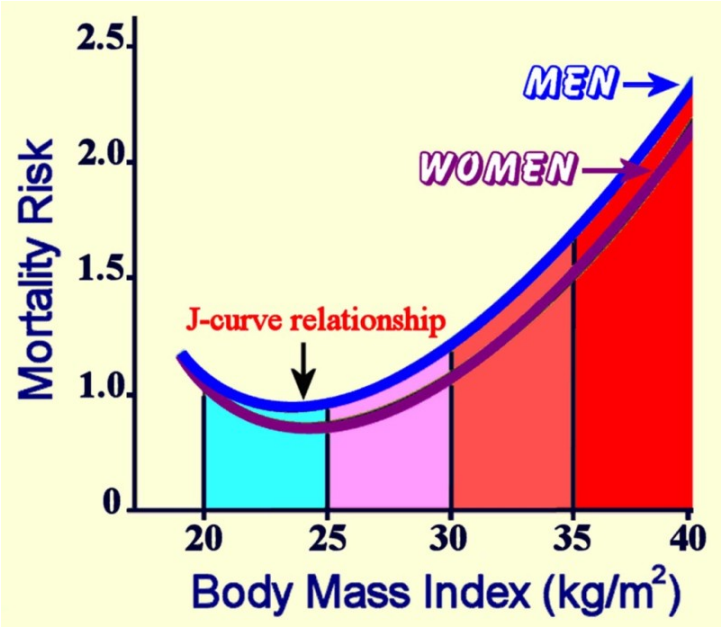


Figure 7.14. The relationship between body mass index and mortality forms a J-shaped curve, demonstrating higher rates of death associated with underweight and overweight/obese, with lowest rates of death associated with normal weight.

What are the specific risks associated with being overweight or underweight? Let's take a closer look at each of these situations.

Figure 7.14. The relationship between body mass index and mortality forms a J-shaped curve, demonstrating higher rates of death associated with underweight and overweight/obese, with lowest rates of death associated with normal weight.

Health Risks of Being Overweight or Obese

The health consequences of too much body fat are numerous. Fat cells are not lifeless storage tanks—they're dynamic, metabolically-active tissue that secrete a number of different hormones and hormone-like messengers, causing low-grade inflammation that's believed to contribute to chronic disease development such as type 2 diabetes, cardiovascular disease, and some types of cancer.

According to the World Health Organization (WHO), there are more people worldwide who are overweight or obese than underweight, and an estimated 2.8 million adults die annually as a result of being overweight or obese. As BMI increases over 25, the risks increase for several health conditions, including:

Heart disease

Type 2 diabetes

Hypertension

Stroke

Osteoarthritis

Sleep apnea

Some cancers (endometrial, breast, colon, kidney, gallbladder, liver)

Depression and anxiety

Difficulty with physical movement

Lower quality of life

Childhood obesity is also a global health concern. In 2016 over 340 million children and adolescents and 41 million preschool children were overweight or obese. And obese children are more likely to become obese adults, develop diabetes and cardiovascular disease at younger ages, and have an increased risk of premature death.

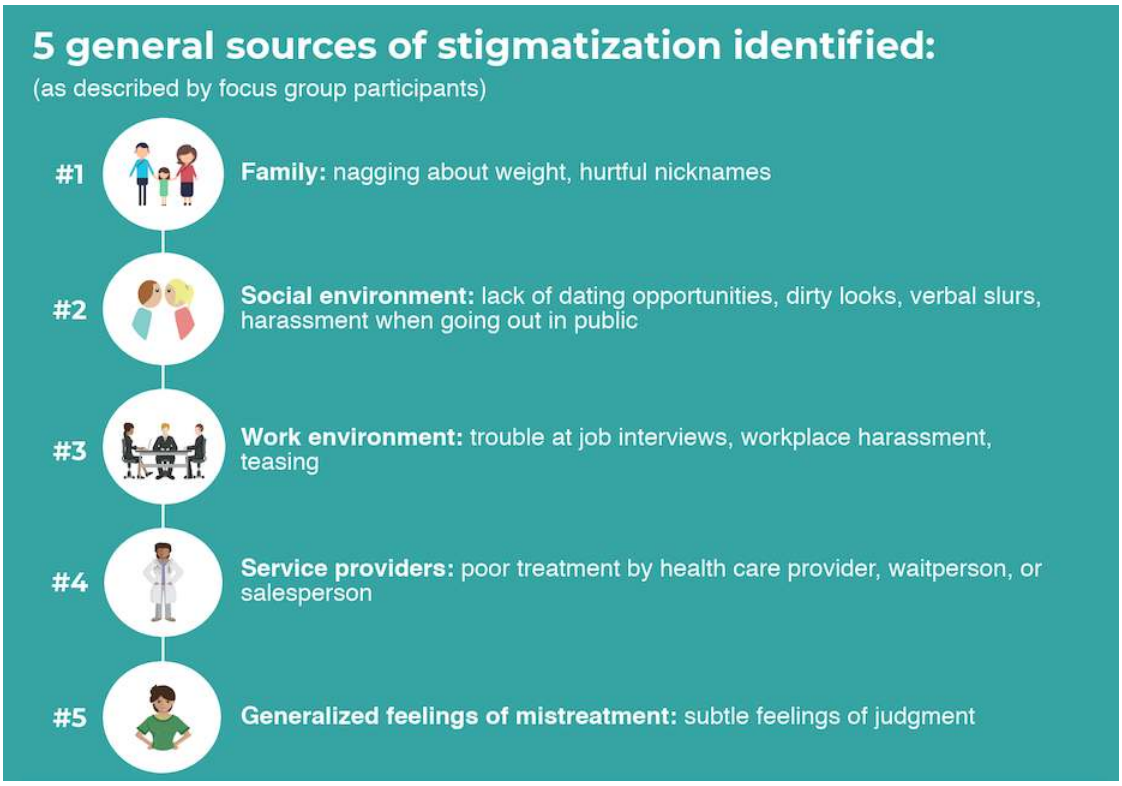
Similar to other public health organizations, the WHO states that the main causes of the global obesity epidemic are increased intake of energy-dense foods and decreased physical activity associated with modernization, industrialization, and urbanization. The environmental changes that contribute to the dietary and physical activity patterns of the world today are associated with the lack of policies that address the obesity epidemic in the food and health industry, urban planning, agriculture, and education sectors.

Economic and Societal Costs of Being Overweight and Obese

The economic burden of overweight and obesity has skyrocketed as obesity rates in the United States continue to climb. According to a recent report, direct health care costs due to overweight and obesity (money directly paid to treat the illness) exceed $480 billion and indirect health care costs (lost economic productivity due to absenteeism, lost wages, and reduced productivity) have surpassed $1.2 trillion.4 On the individual level, people who are obese spend $3,429 more per year for medical care than people of healthy weight.

Social and emotional consequences of being overweight or obese are no less real than economic costs. Individuals with obesity often face discrimination, lower wages, depression, anxiety, and lower quality of life. Weight bias and discrimination are of particular concern for those who are overweight or obese. ***Weight bias*** is defined as “negative weight-related attitudes, beliefs, assumptions and judgments toward individuals who are overweight and obese,” though this bias does extend to those who are underweight as well.

Incidence of weight discrimination has increased by 66 percent since 1995 and occurs at rates similar to that of racial discrimination. According to Rebecca Puhl, PhD, deputy director of the Rudd Center for Food Policy & Obesity at the University of Connecticut, “Bias, stigma, and discrimination due to weight are frequent experiences for many individuals with obesity, which have serious consequences for their personal and social well being and overall health.” Puhl has also noted that “about 40% of the general population reports that it has experienced some type of weight stigma—whether it be weight-based teasing, unfair treatment, or discrimination.” Individuals who are obese are often blamed for their disease and viewed as being lazy, stupid, ugly, and lacking in self-control or motivation. This bias toward people with obesity is seen in many aspects of life, including the workplace, health care, social environments, and even the individual’s own family.



Common sources of weight stigmatization identified by individuals who are overweight or obese include families, social environments, work environments, and service providers, as well as generalized feelings of judgment from others. Source: Cossrow, N. H., Jeffery, R. W., & McGuire, M. T. (2001). Understanding weight stigmatization: A focus group study. Journal of nutrition education, 33(4), 208-214.

Combatting weight bias and discrimination will require change on many levels. Governments can include weight as a category covered in anti-discrimination laws. Anti-bullying efforts at the school level should include policies on harassment and bullying related to weight. Health care should include reimbursement for obesity treatment, and weight bias training should be required for health care providers. And education and awareness about weight bias on an individual level will help change negative attitudes toward overweight and obesity.

Video: "Weight of the Nation: Stigma—The Human Cost of Obesity" by HBO Docs, YouTube (May 14, 2012), 18:54. This is an excellent video to help increase awareness of weight stigma, humanizing the pain and damage caused by weight bias and discrimination.



Health Risks of Being Underweight

The 2015–2016 National Health and Nutrition Examination Survey (NHANES) estimated that 1.5 percent of adults and 3.0 percent of children and adolescents in the United States are underweight. Underweight individuals represent a small portion of Americans, yet the health risks associated with being underweight are an important part of the discussion on nutrition and health.

Being underweight is linked to nutritional deficiencies, especially iron-deficiency anemia, and to other problems such as delayed wound healing, hormonal abnormalities, increased susceptibility to infection, and increased risk of some chronic diseases such as osteoporosis. In children, being underweight can stunt growth. The most common underlying cause of underweight in America is

inadequate nutrition. Other causes are wasting diseases (cancer, multiple sclerosis, tuberculosis) and eating disorders. People with wasting diseases are encouraged to seek nutritional counseling, as a healthy diet greatly affects survival and improves responses to disease treatments.

Eating Disorders

The National Institute of Mental Health (NIMH) defines eating disorders as “serious and sometimes fatal illnesses that cause severe disturbances to a person’s eating behaviors.” People with eating disorders often experience a preoccupation with food choices and body weight, and they frequently have a distorted body image, believing that self-worth is tied to body size and shape.



Eating disorders that result in underweight affect about eight million Americans (seven million women and one million men). And eating disorders have the second highest mortality rate of mental illnesses, outranked only by opioid addiction. Prevention and proper treatment of eating disorders must involve a multi-faceted approach, including physical, emotional, and social issues related to each individual’s needs.

Anorexia Nervosa

Anorexia nervosa, more often referred to as “anorexia,” is a psychiatric illness in which a person obsesses about their weight and about the food that they eat. Anorexia results in extreme nutrient inadequacy and eventually organ malfunction. Anorexia is relatively rare—the NIMH reports that 0.9 percent of females and 0.3 percent of males will have anorexia at some point in their lifetime, but it is an extreme example of how an unbalanced diet can affect health.

Anorexia frequently manifests during adolescence, although it may emerge much later in adulthood as well. People with anorexia consume, on average, fewer than 1,000 calories per day and exercise excessively. They are in a tremendous caloric imbalance. Moreover, some may participate in binge eating, self-induced vomiting, and purging with laxatives or enemas. The exact causes of anorexia are not completely known, but many things contribute to its development including economic status, as it is most prevalent in high-income families. It is a genetic disease and is often passed from one generation to the next. Complications during fetal development and abnormalities in the brain, endocrine system, and immune system may all contribute to the development of this illness.

The primary signs of anorexia are fear of being overweight, extreme dieting, an unusual perception of body image, and depression. The secondary signs and symptoms of anorexia are all related to the caloric and nutrient deficiencies of the unbalanced diet and include excessive weight loss, a multitude of skin abnormalities, diarrhea, cavities and tooth loss, osteoporosis, and liver, kidney, and heart failure. There is no physical test that can be used to diagnose anorexia and distinguish it from other mental illnesses. Therefore, a correct diagnosis involves eliminating other mental illnesses, hormonal imbalances, and nervous system abnormalities. Treatment of any mental illness involves not only the individual, but also family, friends, and a psychiatric counselor. Treating anorexia often involves a registered dietitian, who helps to provide dietary solutions that are adjusted over time. The goals of treatment for anorexia are to restore a healthy body weight and significantly reduce the weight obsession and behaviors associated with the eating disorder. Relapse to an unbalanced diet is high. Many people do recover from anorexia; however, most continue to have a lower-than-normal body weight for the rest of their lives.

Bulimia

Bulimia, like anorexia, is a psychiatric illness that can have severe health consequences. The NIMH reports that 0.5 percent of females and 0.1 percent of males will have bulimia at some point in their lifetime.

Bulimia is characterized by episodes of eating large amounts of food followed by purging, which is accomplished by vomiting and with the use of laxatives and diuretics. Unlike people with anorexia, those with bulimia often have a normal weight, making the

disorder more difficult to detect and diagnose. Bulimia is characterized by signs similar to anorexia such as fear of being overweight, extreme dieting, and bouts of excessive exercise. Secondary signs and symptoms include gastric reflux, severe erosion of tooth enamel, dehydration, electrolyte imbalances, lacerations in the mouth from vomiting, and peptic ulcers. Repeated damage to the esophagus puts people with bulimia at an increased risk for esophageal cancer. The disorder is also highly genetic, linked to depression and anxiety disorders, and most commonly occurs in adolescent girls and young women. Treatment often involves antidepressant medications and, like anorexia, has better results when both the family and the individual with the disorder participate in nutritional and psychiatric counseling.



This photo shows the erosion on the lower teeth caused by bulimia. For comparison, the upper teeth were restored with porcelain veneers.

Binge-Eating Disorder

Similar to those who experience anorexia and bulimia, people with **binge-eating disorder** have lost control over their eating. Binge-eating disorder was only recently classified as a distinct psychiatric illness, becoming formally recognized as a diagnosable eating disorder in 2013. People with binge-eating disorder will periodically overeat to the extreme, but their loss of control over eating is not followed by fasting, purging, or compulsive exercise. As a result, people with this disorder are often overweight or obese, and their chronic disease risks are those linked to having an abnormally high body weight such as hypertension, cardiovascular disease, and Type 2 diabetes. Additionally, they often experience guilt, shame, and depression. Binge-eating disorder is commonly associated with depression and anxiety disorders. According to the NIMH, binge-eating disorder is more prevalent than anorexia and bulimia, and affects almost 3 percent of individuals at some point during their lifetime. Treatment often involves antidepressant medication as well as nutritional and psychiatric counseling.

Orthorexia

Orthorexia is a newer disordered eating behavior defined as an obsession with healthy eating. The term “orthorexia” was first defined in 1998, but it has yet to be formally classified as an eating disorder, making it difficult to determine how prevalent it is. Research suggests it may be identified as a form of obsessive-compulsive disorder. While focusing on a healthy diet isn’t inherently a bad thing, in situations of orthorexia, the individual takes the emphasis of healthy eating, or “clean” eating, to the extreme, so much so that it becomes a fixation, putting their health at risk.

Signs of orthorexia include compulsively reading food labels, cutting several food groups out of the diet, spending an unusual amount of time focusing on what foods may be available at upcoming events, and experiencing a high level of stress when healthy foods are not available. The obsession with healthfulness comes with a high social cost as it is often difficult to enjoy eating out or sharing meals with friends and family.

There is no formal treatment plan for orthorexia, but many eating disorder experts treat it similarly to anorexia and obsessive-compulsive disorder.

Test Your Understanding

If you think you or someone close to you might have an eating disorder and you want to learn more or find resources for help, check out these organizations and links.

The National Eating Disorders Association (NEDA)

ANAD (National Association of Anorexia Nervosa and Associated Disorders) Helpline

Eating Disorder HOPE

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CHAPTER OVERVIEW

2: Managing Obesity

2.1: Best Practices for Weight Management
2.2: Essential Elements and Benefits of Physical Fitness

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2.1: Best Practices for Weight Management

With over 70 percent of Americans currently overweight or obese, it isn't surprising that many individuals report engaging in weight management efforts. In fact, a 2019 report from a national survey on current trends in weight loss attempts and strategies found that 42 percent of adults in the United States had recently attempted to lose weight, primarily through reduced food consumption and exercise. In this unit we examine the best practices for weight management based on the body of evidence from many years of scientific research.



Biology Behind the Challenge of Weight Loss

We have just considered the gravity of the obesity problem in the U.S. and worldwide. How is the U.S. combating its weight problem on a national level, and have the approaches been successful? Successful weight loss is defined as individuals intentionally losing at least 10 percent of their body weight and keeping it off for at least one year. Results from some lifestyle intervention studies suggest that most individuals are not successful at long-term weight loss. Yet an evaluation of successful weight loss involving more than fourteen thousand participants published in the November 2011 issue of the International Journal of Obesity estimated that more than one in six Americans (17 percent) who were overweight or obese were successful at both achieving and maintaining a significant level of weight loss. While this estimate is more promising than other studies suggest, it still raises the question: Why is achieving long-term weight loss so difficult? Much of the explanation lies in understanding the biology of weight loss.

Weight loss has often been viewed as a simple formula: energy in versus energy out. If you consume more calories than you expend, you gain weight. If you expend more calories than you consume, you lose weight. This is the general principle of energy balance, as discussed earlier in this unit, and this principle gives foundation to the basic premise of weight management.

However, the body is more complex than a simple formula. And much like many functions within the body, weight is tightly regulated. In order to prevent perpetual weight loss or weight gain every time environmental or behavioral factors change, mechanisms within the body adjust to help normalize weight at a steady point. But our obesogenic environment often promotes behaviors that encourage excessive caloric intake and lower energy expenditure, leading to a higher steady weight over time. When an individual focuses on losing weight, active weight loss efforts often yield initial weight loss. But those same mechanisms that work to maintain a steady weight also kick in during periods of weight loss to help the body defend the original weight. The body recognizes weight loss as a threat to survival, lowering basal metabolic rate to preserve calories and protect against starvation. Additionally, as someone loses weight, there is less physical mass to the body that has to be moved from place to place throughout

the day, resulting in fewer calories burned through physical movement and activity, and less metabolically active tissue using calories for fuel throughout the day.

Biological differences in individual metabolism may also impact weight loss success. Researchers have found that some individuals have a “thrifty” metabolism, meaning that they have a lower metabolic rate and expend significantly fewer calories when in a fasting (or calorie-restricted) state, common in weight loss efforts. This results in a lower level of weight loss. In contrast, individuals with a “spendthrift” metabolism tend to have a higher metabolic rate in a fasting state, burning more calories and thus yielding bigger weight loss results.6 According to researcher Martin Reinhardt, M.D., “The results corroborate the idea that some people who are obese may have to work harder to lose weight due to metabolic differences.”

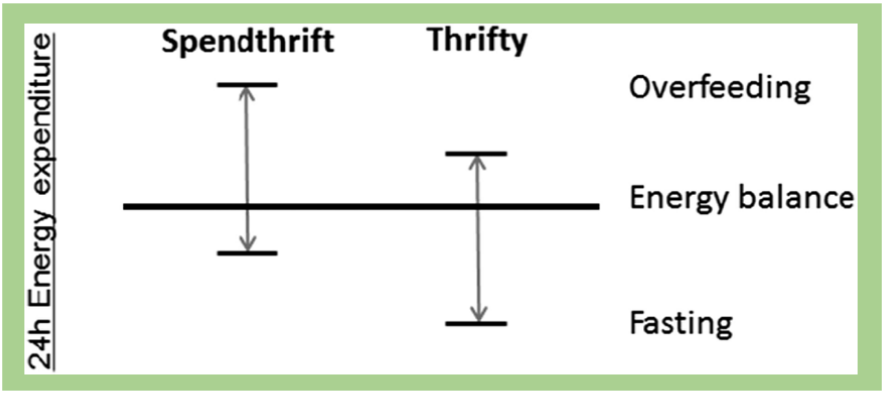


Figure 7.24. Illustration of the concept of spendthrift and thrifty metabolisms, characterized by their response to overfeeding and fasting.

To add to the challenge of metabolic differences, research also suggests that changes in hormone levels due to weight loss may impact the body’s ability to maintain a lower weight. Decreases in thyroid hormones that regulate metabolism, as well as changes in hormones such as leptin and insulin that affect satiety levels, contribute to the challenge of maintaining a lower weight after initial weight loss occurs. In individuals maintaining a 10% or greater weight loss, all of these changes combine to account for an estimated decrease of 300-400 calories in energy expenditure per day beyond what is expected due to the change in body composition alone. These biological factors and their influence on weight are discussed further in the below video.



A YouTube element has been excluded from this version of the text. You can view it online here: https://pb.libretexts.org/overweight/?p=70

VIDEO: “The Quest to Understand the Biology of Weight Loss,” by HBO Docs, YouTube (May 14, 2012), 22:52 minutes.

Evidence-Based Approaches to Weight Loss

In spite of the challenges imposed by biological processes in the body, there is significant evidence to suggest that successful weight loss and maintenance is possible. There are many approaches when considering options for weight loss, and no single treatment is right for everyone. In fact, while following a lower-calorie healthy eating plan is often the first approach to weight loss, research shows that there is no single dietary strategy that is superior to others. For example, a recent trial, called the DIETFITS study, followed participants on either a low-fat or low-carbohydrate diet for one year and found no significant difference in weight loss between study groups. And both dietary strategies produced a range of weight loss results, with some participants losing over 60 pounds and others gaining 20 pounds over the course of the year, suggesting that what works for one individual may produce varying results in others.

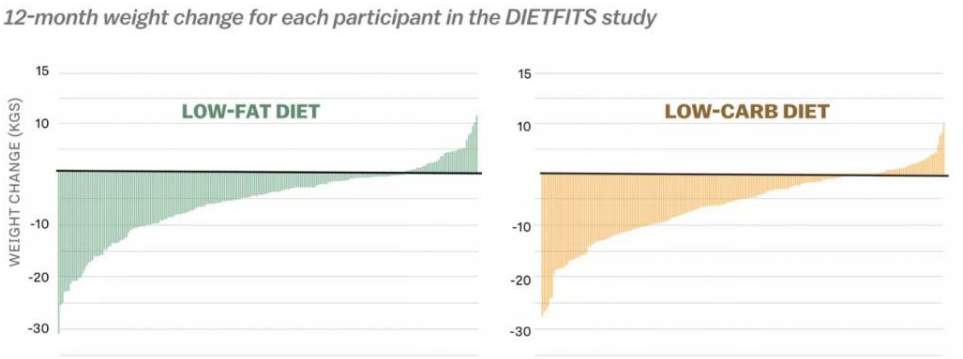


Figure 7.25. Results from the DIETFITS study show that regardless of the type of diet followed, participants experienced a similar wide range of changes in weight.

To learn more about the DIETFITS study, check out the following video.



A YouTube element has been excluded from this version of the text. You can view it online here: https://pb.libretexts.org/overweight/?p=70

VIDEO: "Stanford's Christopher Gardner Tackles the Low-Carb vs. Low-Fat Question." by Stanford Medicine, YouTube (February 19, 2018), 4:08 minutes.

The National Weight Control Registry (NWCR) has tracked over ten thousand people who have been successful in losing at least 30 pounds and maintaining this weight loss for at least one year. Their research findings show that 98 percent of participants in the registry modified their food intake, and 94 percent increased their physical activity, mainly by walking.

Although there were a great variety of approaches taken by NWCR members to achieve successful weight loss, most have reported that their approach involved adhering to a low-calorie, low-fat diet and doing high levels of activity (about one hour of exercise per day). Moreover, most members eat breakfast every day, watch fewer than ten hours of television per week, and weigh themselves at least once per week. About half of them lost weight on their own, and the other half used some type of weight-loss program.

In most scientific studies, successful weight loss is accomplished only by changing the diet and increasing physical activity together. Doing one without the other limits the amount of weight lost and the length of time that weight loss is sustained.

Evidence-Based Dietary Recommendations

The 2020 Dietary Guidelines for Americans offers specific, evidence-based recommendations for dietary changes aimed at keeping calorie intake in balance with physical activity, which is key for weight management. These recommendations include following a healthy eating pattern that accounts for all foods and beverages within an appropriate calorie level, including the following:

A variety of vegetables from all of the subgroups—dark green, red and orange, legumes (beans and peas), starchy, etc.

Fruits, especially whole fruits

Grains, at least half of which are whole grains

Fat-free or low-fat dairy, including milk, yogurt, cheese, and/or fortified soy beverages

A variety of protein foods, including seafood, lean meats and poultry, eggs, legumes (beans and peas), and nuts, seeds, and soy products

Oils, including vegetable oils and oils in foods, such as seafood and nuts

A healthy eating pattern also limits several components of public health concern in the U.S.:

Consume less than 10 percent of calories per day from added sugars

Consume less than 10 percent of calories per day from saturated fats

Consume less than 2,300 milligrams (mg) per day of sodium

If alcohol is consumed, it should be consumed in moderation—up to one drink per day for women and up to two drinks per day for men—and only by adults of legal drinking age.

While these guidelines establish basic recommendations for dietary intake across all food groups, most Americans do not achieve these recommendations. Figure 9.26 shows how Americans are falling short of meeting the recommendations for vegetables, fruit, whole grains, dairy, and seafood and consume well over the recommended amount for refined grains. Meanwhile, many Americans also exceed the recommended limits for added sugars, saturated fats, sodium, and alcohol. Shifting towards more nutrient-dense choices, as recommended in the Dietary Guidelines, would help balance caloric intake and better meet nutrient needs for optimal health.

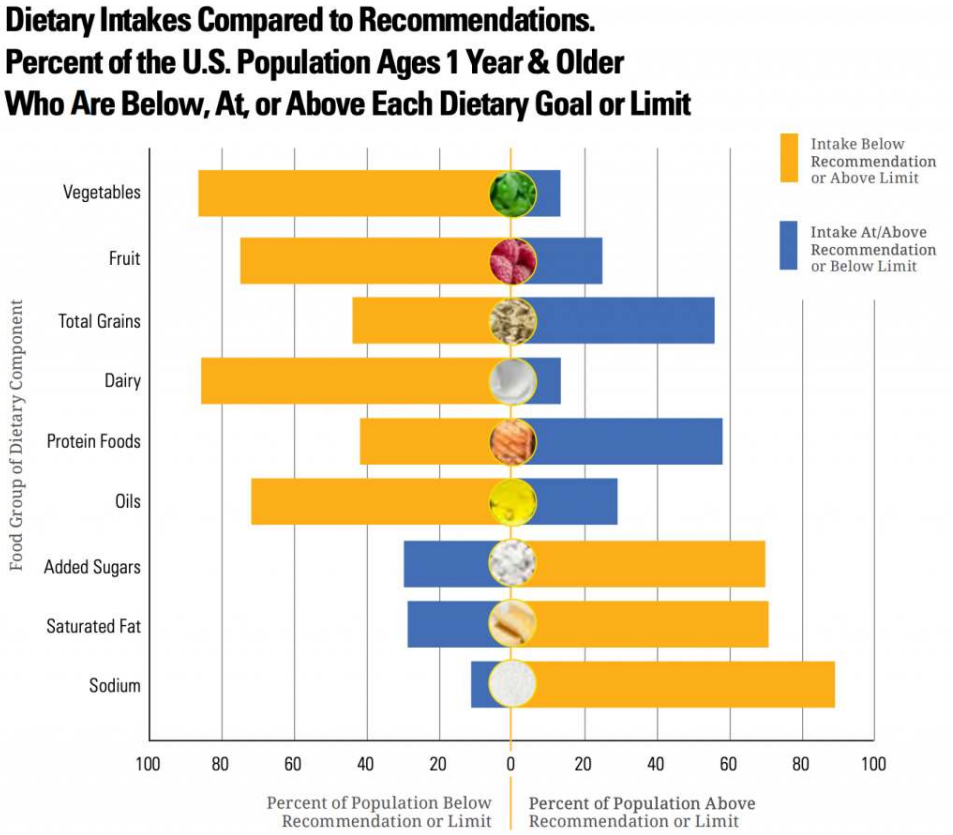


Figure 7.26. This graph indicates the percentage of the U.S. population ages 1 year and older with intakes below the recommendation or above the limit for different food groups and dietary components.

Evidence-Based Physical Activity Recommendations

The other part of the energy balance equation is physical activity. The Dietary Guidelines are complemented by the 2018 Physical Activity Guidelines for Americans, issued by the Department of Health and Human Services (HHS) in an effort to provide evidence-based guidelines for appropriate physical activity levels. These guidelines provide recommendations to Americans aged three and older about how to improve health and reduce chronic disease risk through physical activity. Increased physical activity has been found to lower the risk of heart disease, stroke, high blood pressure, Type 2 diabetes, colon, breast, and lung cancer, falls and fractures, depression, and early death. Increased physical activity not only reduces disease risk, but also improves overall health by increasing cardiovascular and muscular fitness, increasing bone density and strength, improving cognitive function, and assisting in weight loss and weight maintenance.

The key guidelines for adults include the following:

Adults should move more and sit less throughout the day. Some physical activity is better than none. Adults who sit less and do any amount of moderate-to-vigorous physical activity gain some health benefits.

For substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) to 300 minutes (5 hours) per week of moderate-intensity aerobic activity, or 75 minutes (1 hour and 15 minutes) to 150 minutes (2 hours and 30 minutes) per week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity.

Preferably, aerobic activity should be spread throughout the week.

Engaging in physical activity beyond the equivalent of 300 minutes (5 hours) of moderate-intensity physical activity per week can result in additional health benefits and may help with weight loss and weight loss maintenance.

Adults should also do muscle-strengthening activities of at least moderate intensity that involve all major muscle groups on 2 or more days per week, as these activities provide additional health benefits. Exercises such as push-ups, sit-ups, squats, and lifting weights are all examples of muscle-strengthening activities.

The 2018 Physical Activity Guidelines broadly classify moderate physical activities as those when you "can talk, but not sing, during the activity" and vigorous activities as those when you "cannot say more than a few words without pausing for a breath."14 Despite the indisputable benefits of regular physical activity, a 2018 report from the American Heart Association estimates that 8 out of 10 Americans do not meet these guidelines.

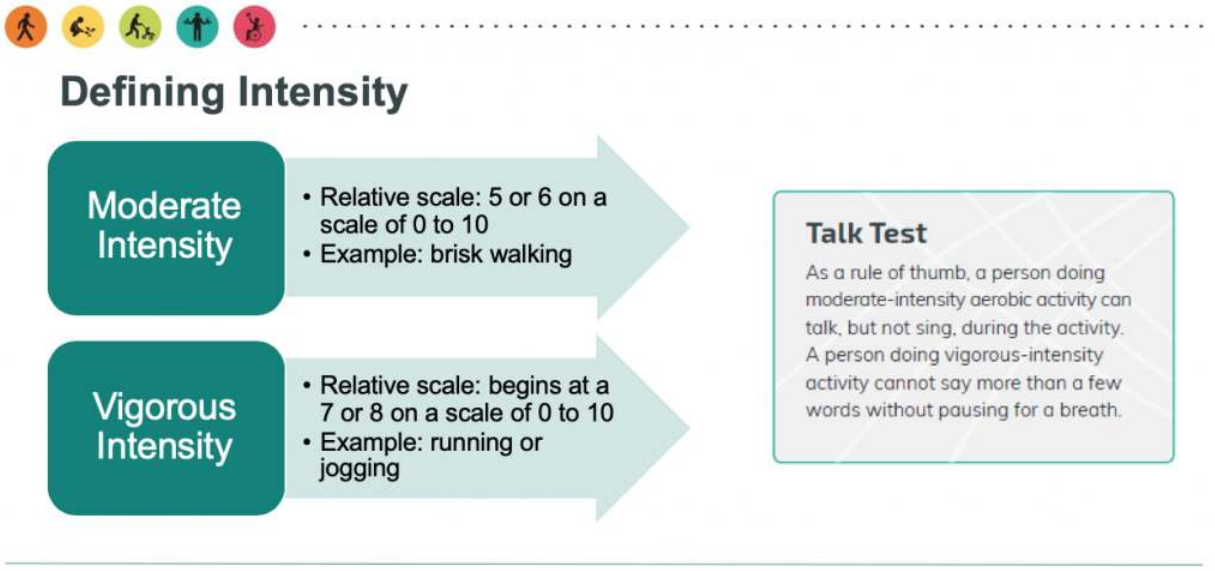


Figure 7.26. This graph indicates the percentage of the U.S. population ages 1 year and older with intakes below the recommendation or above the limit for different food groups and dietary components.

Given the number of Americans that are falling short on both nutrition and physical activity recommendations, it is easy to see that these two areas of behavior are of primary interest in improving the health and weight of our nation.

Evidence-Based Behavioral Recommendations

Behavioral weight loss interventions have been described as approaches "used to help individuals develop a set of skills to achieve a healthier weight. It is more than helping people to decide what to change; it is helping them identify how to change." Cornerstones for these interventions typically include self-monitoring through daily recording of food intake and exercise, nutrition education and dietary changes, physical activity goals, and behavior modification.16 Research shows that these types of interventions can result in weight loss and a lower risk for type 2 diabetes, and similar maintenance strategies lead to less weight regained later.

Behavioral interventions have been shown to help individuals achieve and maintain weight loss of at least 5 percent from baseline weight. The Food and Drug Administration (FDA) considers a 5 percent weight loss to be clinically significant, as this level of weight loss has been shown to improve cardiometabolic risk factors such as blood lipid levels and insulin sensitivity. The behavioral intervention team often includes primary care clinicians, dietitians, psychologists, behavioral therapists, exercise physiologists, and lifestyle coaches. These programs may include a variety of delivery methods, often through group classes of 10-20 participants both in-person and online, and may use print-based or technology-based materials and resources. The interventions usually span one to two years with more frequent contact in the initial months (weekly to bi-monthly) followed by less frequent contact (monthly) in the latter months, or maintenance phase. A variety of behavioral topics are covered over the course of the program and range from nutrition education and goal-setting to problem-solving and assertiveness. Relapse prevention is included as participants move into the maintenance phase.

Behavioral Weight-Loss Treatment Topics

- Self-monitoring
- Healthy food choices
- Physical activity
- Stimulus control
- Eating patterns
- Lifestyle activity
- Thoughts on weight control
- Changing the quality of your diet: fat and fiber
- Problem solving
- Eating in social situations
- High-risk situations
- Restaurant eating
- Assertiveness training
- Recipe modification
- Stress management
- Motivation enhancement
- Relapse prevention

Figure 7.28. Common topics included in behavioral interventions for weight loss, adapted from Smith, C. E., & Wing, R. R. (2000). New directions in behavioral weight-loss programs. Diabetes Spectrum, 13(3), 142-148.

Pharmacotherapy and Bariatric Surgery

In some situations, lifestyle changes in diet, exercise, and behavior modification are not enough to produce meaningful levels of weight loss, and the use of medications may be considered to improve weight loss outcomes. The use of medications is recommended in conjunction with, and not in place of, lifestyle changes. Medications are typically considered for individuals with a BMI over 30, or BMI over 27 with at least one coexisting condition, such as heart disease, type 2 diabetes, or hypertension. Only medications approved by the FDA for weight loss should be used. Over-the-counter weight loss supplements are not monitored by the FDA and are not recommended due to safety concerns.

Surgical interventions may be appropriate for individuals with a BMI over 40 or BMI over 35 with obesity-related coexisting conditions, so long as they're motivated to lose weight and behavioral interventions (with or without medication) have not been effective. Potential candidates for surgery should be referred to an experienced bariatric surgeon for consultation and evaluation.

Non-Diet Approaches

In addition to weight management approaches that focus on the energy balance equation through dietary changes, physical activity programs, and behavioral interventions, there is a growing movement for non-diet approaches for a healthier mentality toward weight, food, and body image. These approaches focus on establishing healthier relationships with food and more body acceptance and positivity regardless of shape and size. Many of these programs seek to normalize relationships with food, make eating an enjoyable experience focused on well-being rather than dieting, do away with shame or guilt often associated with failed weight loss efforts, and promote respect and inclusivity for all people regardless of weight or size. Mindful eating or intuitive eating are common components of these approaches.

One of these approaches, the ***SatterEating Competence Model***, is based on four components: eating attitudes, food acceptance, regulation of food intake and body weight, and management of the eating context. According to Ellyn Satter, a registered dietitian and family therapist and the founder of the model, competent eaters are "confident, comfortable, and flexible with eating and are matter-of-fact and reliable about getting enough to eat of enjoyable and nourishing food." This approach enhances "the importance of eating by making it positive, joyful, and intrinsically rewarding." This model emphasizes that by developing a healthier relationship with food, individuals will yield the following benefits:

Have better diets

Feel more positive about food and eating

Have better overall health

Have the same or lower BMI

Sleep better

Be more active

Have better physical self-acceptance

Be more trusting of themselves and others

Health at Every Size (HAES) is another movement started by the Association for Size Diversity and Health (ASDAH) organization as an alternative to weight-centered health models. HAES aims to decrease our culture's obsession with body size and weight, decrease weight discrimination and stigma, and instead promote size acceptance and inclusivity. Key principles of the HAES approach include:

Acceptance and respect for the inherent diversity of body shapes and sizes

Health enhancement through policies and services that promote well-being in all aspects of health, including physical, economic, social, emotional, and spiritual needs

Respectful care and elimination of weight bias and discrimination through proper education and training

Eating behaviors driven by hunger, satiety, nutritional needs, and pleasure instead of external regulation by diets and eating plans

Physical activity through life-enhancing movement for all sizes and abilities

To learn more about non-dieting approaches for a healthy lifestyle, check out the following video.

VIDEO: "Why Dieting Doesn't Usually Work,"from TED, 12:30 minutes.

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2.2: Essential Elements and Benefits of Physical Fitness

Becoming and staying physically fit is an important part of achieving optimal health. A well-rounded exercise program can improve your health in a number of ways. It promotes weight loss, strengthens muscles and bones, keeps the heart and lungs strong, and helps to protect against chronic disease. There are four essential elements of physical fitness: cardiorespiratory endurance, muscular strength and endurance, flexibility, and maintaining a healthful body composition. Each component offers specific health benefits, but optimal health requires some degree of balance between all four.

Some forms of exercise confer multiple benefits, which can help you to balance the different elements of physical fitness. For example, riding a bicycle for thirty minutes or more not only builds cardiorespiratory endurance, it also improves muscle strength and muscle endurance. Some forms of yoga can also build muscle strength and endurance, along with flexibility. However, meeting fitness standards in all four categories generally requires incorporating a range of activities into your regular routine. As you exercise regularly, your body will begin to change and you will notice that you are able to continue your activity longer and with greater ease.

The Essential Elements of Physical Fitness

Cardiorespiratory Endurance



Cardiorespiratory endurance is built by aerobic exercise, which involves activities that increase your heart rate and breathing such as walking, jogging, or biking. Aerobic exercise is continuous exercise (lasting more than 2 minutes) that can range from low to high levels of intensity. It increases heart and breathing rates to meet increased demands for oxygen in working muscles. Regular, moderate aerobic activity— about thirty minutes at a time for five days per week—trains the body to deliver oxygen more efficiently, which strengthens the heart and lungs and reduces the risk of cardiovascular disease.

Strengthening your heart muscle and increasing the blood volume pumped each heartbeat boosts your ability to supply your body's cells with oxygen and nutrients, to remove carbon dioxide and metabolic wastes. It also leads to a lower resting heart rate for healthy individuals. In addition to the benefits of aerobic training for cardiovascular health, it is also an excellent way to maintain a healthy weight.

Muscle Strength

Muscle strength is developed and maintained by weight or resistance training, often called anaerobic exercise. Anaerobic exercise consists of short duration, high intensity movements that rely on immediately available energy sources and require little or no oxygen during the activity. This type of high intensity training is used to build muscle strength with short, high-intensity activities. Building muscle strength and endurance is not just crucial for athletes and bodybuilders—it's important for children, seniors, and everyone in between. The support that your muscles provide allows you to work, play, and live more efficiently.

Strength training often involves the use of resistance machines, resistance bands, free weights, or other tools. However, you do not need to pay for a gym membership or expensive equipment to strengthen your muscles. Homemade weights, such as plastic bottles filled with sand, can work just as well. You can also use your own body weight and do push-ups, leg squats, abdominal crunches, and other exercises to build your muscles. If strength training is performed at least twice a week, it can help to improve muscle strength and to increase bone strength. It can help manage health conditions like diabetes, arthritis, dementia, hypertension, and many others. Strength training can also help you to maintain muscle mass during a weight-loss program.

Flexibility

Flexibility is the range of motion available to your joints. Yoga, tai chi, Pilates, and stretching exercises work to improve this element of fitness. Stretching not only improves your range of motion, it also promotes better posture, and helps you perform activities that can require greater flexibility, such as chores around the house. In addition to working on flexibility, older adults should include balance exercises in their regular routine. Balance tends to deteriorate with age, which can result in falls and fractures.

Body Composition

Body composition is the proportion of fat and fat-free mass (which includes bones, muscles, and organs) in your body. A healthy and physically fit individual has a greater proportion of muscle and smaller proportion of fat than an unfit individual of the same weight. Although habitual physical activity can promote a more healthful body composition, other factors like age, gender, genetics, and diet contribute to an individual's body composition. You can refer back to Unit 7 for a detailed discussion on body composition, how it is measured, and how it is used as an indicator for health.



The Benefits of Phsyical Activity

Regular physical activity is one of the best things you can do to achieve optimal health. Individuals who are physically active for 150 minutes per week lower the risk of dying early by 33 percent compared to those who are inactive.3 The 2018 Physical Activity Guidelines for Americans were issued by the Department of Health and Human Services (HHS) to provide evidence-based guidelines to Americans aged 3 and older about how to improve health and reduce chronic disease risk through physical activity. You can review the guidelines here, including recommendations for children, adolescents, and adults.4

Key Guidelines for Adults

- Adults should move more and sit less throughout the day. Some physical activity is better than none. Adults who sit less and do any amount of moderate-to-vigorous physical activity gain some health benefits.
- For substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) to 300 minutes (5 hours) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) to 150 minutes (2 hours and 30 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Preferably, aerobic activity should be spread throughout the week.
- Additional health benefits are gained by engaging in physical activity beyond the equivalent of 300 minutes (5 hours) of moderate-intensity physical activity a week.
- Adults should also do muscle-strengthening activities of moderate or greater intensity and that involve all major muscle groups on 2 or more days a week, as these activities provide additional health benefits.

Source: 2018 Physical Activity Guidelines for Americans

Improving your overall fitness involves sticking with an exercise program on a regular basis. If you are nervous or unsure about becoming more active, the good news is that moderate-intensity activities, such as brisk walking, are safe for most people. Also, the health advantages of becoming active far outweigh the risks. Physical activity not only helps to maintain your weight, it also provides a wealth of benefits—physical, mental, and emotional.

Table 10.1. Physical and emotional benefits of exercise.

The FITT Principle

One helpful tool for putting together an exercise plan is the FITT acronym. FITT stands for:

Frequency – how often you exercise

Intensity – how hard you work during your exercise session

Time – how long you exercise for

Type – what kind of exercise you do

You can manipulate the principles of FITT to better meet your exercise goals and to boost your motivation to exercise. You will be more likely to stick to a workout plan that has flexibility and works with your lifestyle. By changing up the types of exercise you do, varying the intensity of your workouts, and by choosing days of the week and times of the day that work best with your schedule, you can create a plan for success with your exercise goals. As you design your physical activity plan, make sure to outline the components of the FITT principle to establish more detailed goals and create purpose for your workouts.

Part Two: Cultural Awareness

Dealing with Inactivity

Inactive adults or those who don't yet do 150 minutes of physical activity a week should work gradually toward this goal. The initial amount of activity should be at a light or moderate intensity, for short periods of time, with the sessions spread throughout the week. The good news is that "some is better than none."

People gain some health benefits even when they do as little as 60 minutes a week of moderate-intensity aerobic physical activity.

To reduce risk of injury, it is important to increase the amount of physical activity gradually over a period of weeks to months. For example, an inactive person could start with a walking program consisting of 5 minutes of slow walking several times each day, 5 to 6 days a week. The length of time could then gradually be increased to 10 minutes per session, 3 times a day, and the walking speed could be increased slowly.

Muscle-strengthening activities should also be gradually increased over time. Initially, these activities can be done just 1 day a week starting at a light or moderate level of effort. Over time, the number of days a week can be increased to 2, and then possibly to more than 2. Each week, the level of effort (intensity) can be increased slightly until it becomes moderate to high.

Flexibility Activities

Flexibility is an important part of physical fitness. Some types of physical activity, such as dancing, require more flexibility than others. Stretching exercises are effective in increasing flexibility, and thereby can allow people to more easily do activities that require greater flexibility. For this reason, flexibility activities are an appropriate part of a physical activity program, even though they have no known health benefits and it is unclear whether they reduce risk of injury. Time spent doing flexibility activities by themselves does not count toward meeting the aerobic or muscle-strengthening guidelines (Physical Activity Guidelines for Americans).

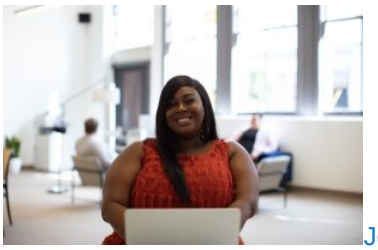
Warm-up and Cool-down

Warm-up and cool-down activities are an acceptable part of a person's physical activity plan. Commonly, the warm-up and cool-down involve doing an activity at a slower speed or lower intensity. A warm-up before moderate- or vigorous-intensity aerobic activity allows a gradual increase in heart rate and breathing at the start of the episode of activity. A cool-down after activity allows a gradual decrease at the end of the episode. Time spent doing warm-up and cool-down may count toward meeting the aerobic activity Guidelines if the activity is at least moderate intensity (for example, walking briskly as a warm-up before jogging). A warm-up for muscle-strengthening activity commonly involves doing exercises with lighter weight.

Getting and Staying Active: Real-Life Examples

Adults can meet the Physical Activity Guidelines in all sorts of ways and with many types of physical activity. The choices of types and amounts of physical activity depend on personal health and fitness goals.

Here are three examples.



Jean: An Inactive Middle-Aged Woman

- Her goals: Jean sets a goal of doing 1 hour a day of moderate-intensity aerobic activity on 5 days a week (a total of 300 minutes a week). Weighing 220 pounds, Jean is obese and wants to lose about 1 pound of weight each week.
- Starting out: Jean cuts back on her caloric intake and starts walking 5 minutes in the morning and 5 minutes in the evening most days of the week. She walks at a 2.5 mile-an-hour pace. Although physical activity tables show this to be light-intensity activity, for her level of fitness and fatness, it is appropriate moderate–intensity activity.
- Making good progress: Two months later, Jean is comfortably walking 30 to 40 minutes at moderate intensity to and from her bus stop every day. She then adds variety to her activity by alternating among walking, riding a stationary cycle, and low-impact aerobics. She also begins muscle-strengthening activities, using elastic bands twice each week.
- Reaching her goal: Eventually, Jean works up to 300 minutes a week of moderate-intensity aerobic activity, including her brisk walks to and from the bus stop. She has lost 40 pounds of weight in 1 year, with most of the weight loss occurring the previous 6 months when she mastered her diet and was able to do greater amounts of physical activity.

Douglas: An Active Middle-Aged Man

- His goal and current activity pattern: Douglas was a soccer player in his youth. His goal is to get back into shape by becoming a regular recreational runner. In addition to his job operating heavy equipment, he walks 30 to 40 minutes a day on 5 days each week. He also lifts weights 2 days a week.
- Starting out: Douglas starts a walk/jog program with a co-worker and plans to gradually replace walking with jogging and then running. The first week he goes out on 5 days, walking for 25 minutes and jogging for 5 minutes.
- Making good progress: Each week, Douglas gradually increases the time spent jogging (vigorous-intensity activity) and reduces the time spent walking (moderate–intensity activity). He also continues his weight-lifting program.
- Reaching his goal: Eventually, Douglas is running 30 to 45 minutes 4 days a week and lifting weights 2 days a week. He goes for a 1-hour bicycle ride on most weekends.

Anita

- Her goals and current activity pattern: Anita plays league basketball (vigorous-intensity activity) 4 days each week for 90 minutes each day. She wants to reduce her risk of injury from doing too much of one kind of activity (this is called an overuse injury).
- Starting out: Anita starts out by cutting back her basketball playing to 3 days each week. She begins to bicycle to and from campus (30 minutes each way) instead of driving her car. She also joins a yoga class that meets twice each week.
- Reaching her goal: Eventually, Anita is bicycling 3 days each week to and from campus in addition to playing basketball. Her yoga class helps her to build and maintain strength and flexibility.

Achieving Target Levels of Physical Activity: Possibilities Are Endless

These examples show how it’s possible to meet the Guidelines by doing moderate-intensity or vigorous-intensity activity or a combination of both. Physical activity at this level provides substantial health benefits.

- Ways to get the equivalent of 150 minutes (2 hours and 30 minutes) of moderate-intensity aerobic physical activity a week plus muscle-strengthening activities:
- Thirty minutes of brisk walking (moderate intensity) on 5 days, exercising with resistance bands (muscle strengthening) on 2 days;
- Thirty minutes of brisk walking on 2 days, 60 minutes (1 hour) of social dancing (moderate intensity) on 1 evening, 30 minutes of mowing the lawn (moderate intensity) on 1 afternoon, heavy gardening (muscle strengthening) on 2 days;
- Thirty minutes of an aerobic dance class on 1 morning (vigorous intensity), 30 minutes of running on 1 day (vigorous intensity), 30 minutes of brisk walking on 1 day (moderate intensity), calisthenics (such as sit-ups, push-ups) on 3 days (muscle

strengthening);

- Thirty minutes of biking to and from work on 3 days (moderate intensity), playing softball for 60 minutes on 1 day (moderate intensity), using weight machines on 2 days (muscle-strengthening on 2 days); and
- Forty-five minutes of doubles tennis on 2 days (moderate intensity), lifting weights after work on 1 day (muscle strengthening), hiking vigorously for 30 minutes and rock climbing (muscle strengthening) on 1 day.

Learning Activity Find out what kind of physical activity suits you the best at the BAM website.

Personalize the Benefits of Regular Physical Activity

Adults need to identify benefits of personal value to them. For many people, the health benefits, which are the focus of the Physical Activity Guidelines for Americans, are compelling enough. For others, different reasons are key motivators to be active. For example, physical activity:

- Provides opportunities to enjoy recreational activities, often in a social setting;
- Improves personal appearance;
- Provides a chance to help a spouse lose weight;
- Improves the quality of sleep;
- Reduces feelings of low energy; and
- Gives older adults a greater opportunity to live independently in the community.

Set Personal Goals for Physical Activity

The Guidelines alone don't provide enough information for individuals to decide the types and amounts of activity that are appropriate for them. Individuals should set goals for activity that allow them to achieve benefits they value. Simple goals are fine. For example, a brisk walk in the neighborhood with friends for 45 minutes 3 days a week and walking to lunch twice a week may be just the right approach for someone who wants to increase both physical activity and social opportunities.

In setting goals, people can consider doing a variety of activities and try both indoor and outdoor activities. In particular, public parks and recreation areas in the United States offer opportunities to experience nature and be physically active at the same time.

The best physical activity is the one that is enjoyable enough to do regularly.

Learning Activity Try this interactive online tool if you want help scheduling your own physical activity calendar. More tips about scheduling your physical activity are available at Adult Guidelines.

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CHAPTER OVERVIEW

3: Dismantling Weight Bias Towards Overweight Patients in Healthcare

3.1: Acknowledging Personal Bias and Experience
3.2: Systemic Design Approach
3.3: The Rise of Anti-Diet Culture
3.4: Empathy Map
3.5: Findings
3.6: Primary Research- Interviews
3.7: Roadmap for Next Steps

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3.1: Acknowledging Personal Bias and Experience

Before we delve into the project's primary content, I must acknowledge my personal experience with the issue at hand and the possible biases that accompany it. Weight bias in healthcare is a complication I have faced for most of my life and continue to face today. I understand the challenges it brings and the toll it takes on one's health. I have been misdiagnosed, dismissed and have had to resist biased care at almost every single medical appointment I have had.

Additionally, I have taken part in plenty of debates on the issue with people in my circle who do not necessarily understand it because they might not have experienced it themselves or are conditioned to ignore it. In these debates, I have never been able to make a solid case for the debilitating effects of weight bias or its existence as I have no experience in the medical field, only personal stories. This inability was my primary motivation to undertake this project. An academic-level analysis of this prevalent problem and establishing dialogue with others who have faced the issue would be my ammunition against the nay-sayers. However, as I write this paper, at the culmination of my research study, I must admit that it is not the deniers I need to confront, but rather a whole system that I and many others who want to see a change in this sector need to intervene in. This chapter will provide an outlook on how it is a systemic issue and propose feasible ways to interrupt the vicious cycle of biased healthcare and the harmful consequences faced by fat patients.



My own experience with weight stigma naturally instills some biases in me. I have determined the following biases that I hold in regards to weight stigma in healthcare:

- When someone comments on my weight or my health status, I automatically think they are condescending.
- All healthcare providers hold negative views of fat patients.
- All fat patients follow weight loss methods because their doctors have forced them.

Doing the research for this project had made it clear that these biases are all factually incorrect.

For this reason, through the toolkit, I came up with a three-point action plan to keep these biases in check as I proceeded with the study. These points are:

- I will read and insert more secondary research about the healthcare provider's perspective and struggles.
- I will not succumb to personal feelings of resentment. I will acknowledge them when they appear and ensure they do not cloud the project.
- I will not portray healthcare providers as antagonists in the study. They are crucial to solving the problem. Solutions in the world are not achieved by attacking and alienating a primary stakeholder in an issue.

As you read through the next sections, please keep in mind that these action points were thoroughly applied at every step of the project. The unity of actors in the system is crucial to reducing healthcare weight bias in Ontario.

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3.2: Systemic Design Approach

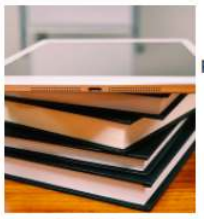
Systemic design integrates systems thinking and theory with advanced design methods to affect anticipatory change in complex social and socio-technical systems. It embraces pragmatism and multiple perspectives to describe a system and its problems and structures (Jones, 2014). The concept of systems thinking reveals the complexity, interrelationships, and many of the interdependencies that exist in our surroundings (Buchanan, 2019). The issue of weight bias in the Ontario healthcare system has multiple layers. It is not solely about a fat patient and the bias they face from their doctors. It involves other professionals in healthcare, as well. It involves the subsystem of governance, both provincial and federal, and health policy-makers. The education sector plays a significant role, as does the research community. Since the issue is entrenched in social stigma and prejudice, there is high engagement from activists and advocates in the system, especially during these times of social justice movements via online channels.

Test Your Understanding

With a multitude of actors involved, there are many influences and tensions in the system. Proposal of change in one node of the system may bring instability to another. The problem may be committed by one subsystem, but its roots can be found in another. Solving the problem is not a one-off, stand-alone endeavour. It will involve years of collaboration and the analysis of several different perspectives. Therefore, the problem of weight bias can be categorized as a 'wicked problem.' These are ill-defined, complex problems that are difficult to solve through straightforward tactics (Glen et al, 2014). This wicked problem is part of a more extensive socio-technical system of healthcare in Ontario. It is important to note that wicked problems have no ultimate test of a solution, and there are no stopping rules (Jones, 2014). Some symptoms of the problem might get solved, but new symptoms may appear.

With that in mind, the most effective path of conducting a problem-solving research study of such a complex issue is by implementing a systemic design analysis. This ensures a thorough examination of all the different elements of the problem. It helps us understand how occurrences of weight bias between doctors and their patients in the healthcare system are influenced by governance, education, culture, and society and how the solution spaces can account for them all.

This project uses the Systemic Design Toolkit developed by Namahn in collaboration with Peter Jones (Systemic Design Association) and Alex Ryan (MaRS Discovery District) (Systemic Design Toolkit, 2020) as the framework for primary research, analysis and problem-solving. It is a seven-step process that involves firstly framing the system; listening to and understanding the system; defining the desired future; and ultimately intervening in the system through leverage points, an intervention model and a transition plan. Some steps of the toolkit employ foresight tools to stay aligned with the essence of problem-solving through design by taking into account future implications and scenarios. This is a necessary action to take in these unpredictable times.



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The rest of the paper will follow the Systemic Design toolkit structure, going through each step in detail. The research methodology, findings and insights are all embedded in these steps.

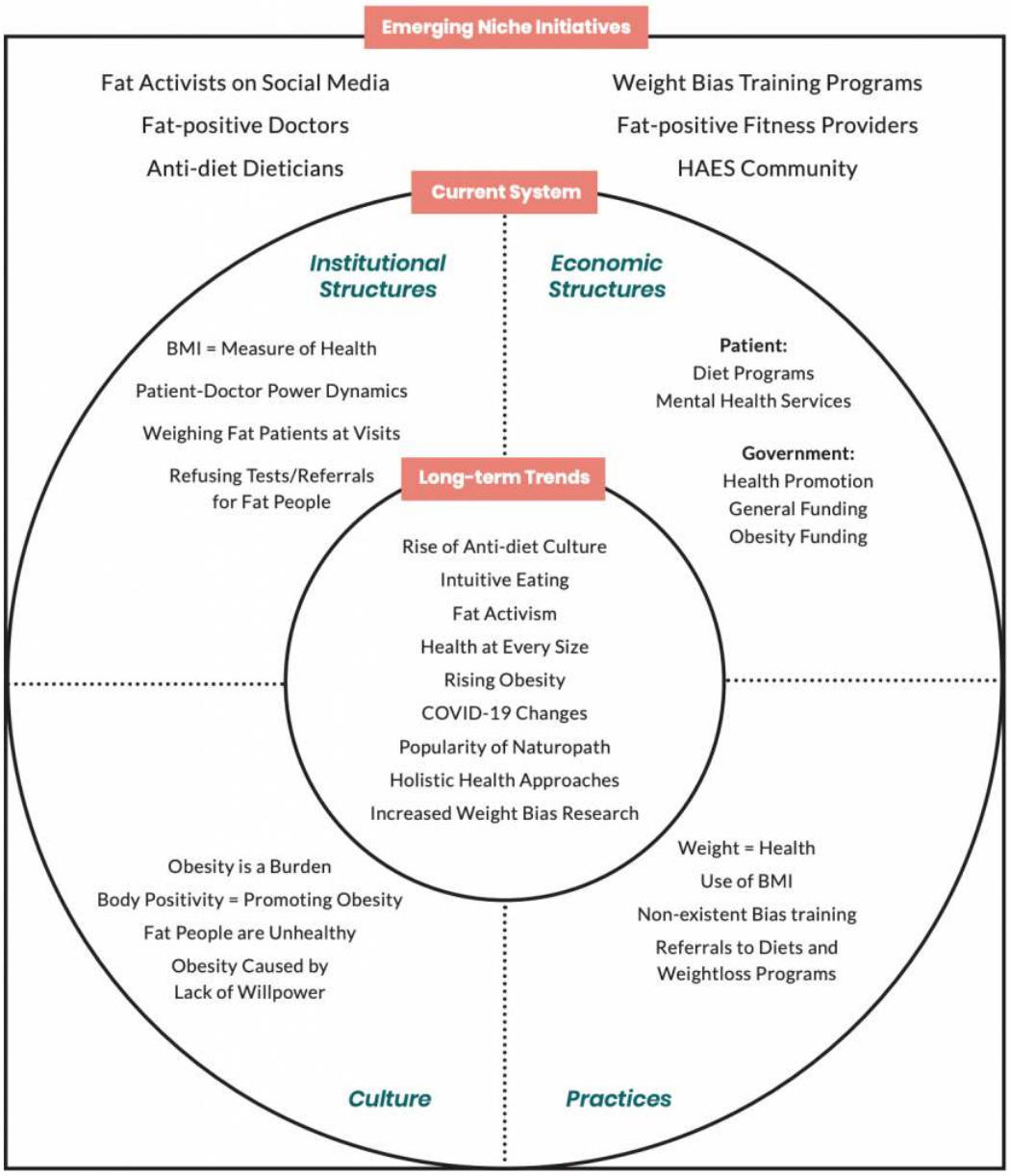
The first step in the toolkit seeks to frame the system. It involves setting the boundaries of the system in space and time, identifying the hypothetical parts and relationships (Systemic Design Toolkit, 2020).

For this project, this step will consist of a high-level review of the healthcare weight bias landscape and the actors involved, using the Rich Context Tool and a knowledge versus power-based Actors Map. This will frame the direction of this study and introduce the system that the project will be working with.

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3.3: The Rise of Anti-Diet Culture

Rich Context Tool



The Rich Context tool is a technique that helps understand the "big picture" by mapping the current practices, trends and innovative initiatives in the system. It is used to generate a shared understanding of the current situation (Systemic Design Toolkit, 2020).

Long-term Trends

Around the general landscape of weight bias, some long-term trends are emerging.

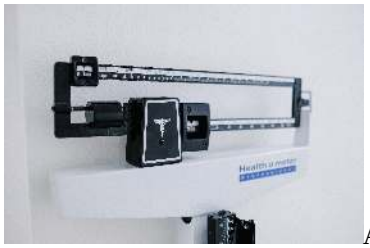
These could have a potential influence on the issue and a positive impact on fixing the issue. The trends include:

Rise of Anti-diet Culture

While the dieting industry in the United States is estimated to be worth 72 billion dollars (Market Data LLC, 2019), diet-culture resistance is a growing trend. The anti- diet movement spearheaded by intuitive eating practices is a way of thinking about eating

that takes you back to babyhood when you ate what you wanted for as long as you wanted and when full, turned away (LaMotte, 2020). It discourages restricting food groups and food items, which is a standard in dieting plans. The notion is that if you allow yourself to eat everything whenever you crave it, you will be able to prevent yourself from overeating and falling into unhealthy eating habits. Dieting is standard advice given by doctors to their fat patients. Some doctors will give the usual "eat less, move more" lecture ("Obesity Not Defined," 2020), and others will refer patients to specific dieting programs or clinics, whether the patients want to or not. However, the data show that 95% of people who go on diets fail at them, and if they have lost weight, two-thirds of them gain even more weight back (LaMotte, 2020). With the rise of this trend, patients are more exposed to intuitive eating habits and benefits. Therefore, it can have a positive effect on biased dieting advice from doctors, as more and more patients refuse to follow them.

Health at Every Size Ideologies



Anti-diet culture is one of the underpinnings of the Health at Every Size movement. It is a movement working to promote size acceptance, end weight discrimination, and lessen the cultural obsession with weight loss and thinness. The HAES movement promotes balanced eating, life- enhancing physical activity, and respect for the diversity of body shapes and sizes (Association of Size Diversity and Health, 2020).

This approach proposes that any intervention strategy for obesity should be one that promotes the development of a healthy lifestyle (Penney & Kirk, 2015). While many critics might accuse this way of thinking as 'glorifying' obesity, which they only see as unhealthy, the HAES culture is slowly trending upwards and giving fat patients more empowerment to stand up for their health and body in biased settings.

Test Your Understanding

Fat-positive Activism



The rise of anti-diet and HAES movements has propelled the rise of fat-positive activism. Fat-positive or fat acceptance movements have been around since the 1960s. It has been around through different waves and forms for about 50 years, but currently, fat acceptance is a social justice movement aiming to make body culture more inclusive and diverse in all its forms (Severson, 2019).

With the rise of social media and influencer roles, the movement has skyrocketed in popularity. Fat acceptance supports the equal rights of fat bodies in all aspects of life, including healthcare. Hence, it has the ability to have immense effects on the stigmatized treatment of larger bodies by healthcare providers.

Rising Rates of Obesity

The rise of positive movements has not yet made its effect on the daily systemic structures in which fat people face prejudice because of their weight. Weight bias is more ubiquitous than ever, especially in healthcare, with providers and researchers believing they are taking the right approach. However, rates of obesity continue to rise. If diets work, weight loss programs work, and 'tough-love' care works, why is obesity continuing to increase? The rate of obesity has tripled over the past three decades in Canada, and now about one-in-four Canadians are obese, according to Statistics Canada ("Obesity not defined," 2020). Furthermore, is obesity

really the issue since it is a construct of BMI? Or, could we attribute the issue to the poor health of fat people caused by biased healthcare, socio-economic factors and societal stigma that prevents them from living and sustaining healthy lives? That is a conundrum that warrants a different research question, but it nevertheless influences this landscape.

Pandemic as a Catalyst for Healthcare Innovation

Lastly, the COVID-19 pandemic has completely revamped healthcare. It has revealed the gaps and shortcomings in the province's healthcare system. In the past few months, the world has seen the pace of healthcare innovation accelerate rapidly, with the typical timeline of years becoming weeks or days. Under normal circumstances, healthcare innovation is costly and time-consuming. However, COVID-19 has pushed healthcare innovation to develop at unprecedented speed, with individuals focusing on solving real-world problems and collaborating with cross-functional teams (Palanica & Fossat, 2020). This is a fundamental shift that can positively affect the issue of weight bias. If this healthcare prioritization rate continues, the implementation of weight bias interventions will be much smoother.

Current System

In the current system of weight bias, the tool revealed the following structures and practices:

Economic Structures

The economic structures can be divided into two categories – patient expenses and government expenses. Due to weight bias, the patient may face additional costs in accessing dieting programs that doctors recommend. They may also face the cost of mental health resources that they require to treat harmful emotional effects from biased care. On the government side, rising rates of obesity are increasing expenditure. It is estimated that the economic costs of obesity in Canada range from $4.6 billion to $7.1 billion annually (Public Health Agency of Canada, 2011).

Cultural Structures

The cultural notions that exist in the current system include a plethora of biased beliefs that antagonize fat people. It is a common assumption that fat people are lazy and have no control over their appetite. They lack willpower, lead very unhealthy lives and are at high risk of mortality because of their own failures. Doctors' explicit impressions of patients with obesity tend to be that they are non-compliant and sloppy (Alberga et al, 2016).

Institutional Structures



The structures in play that encourage weight bias in healthcare settings include the power dynamics between doctors and their patients. Doctors often exert control over their fat patients in the form of tests or referral refusal. This can be caused by an implicit bias rooted in another institutional structure that BMI is an accurate representation of health. This belief is strengthened in medical education. Studies show that explicit weight bias in medical students increases significantly during medical school (Phelan et al, 2015).

Practices

Common practices in the system currently are based on the belief that weight determines the health status of a patient. Referrals to diet and weight loss programs are expected and encouraged for all fat patients. Medical schools lack weight bias training, and there are currently no educational interventions actively at play (Poustchi et al, 2013).

Emerging Initiatives

While the current system appears to be discouraging regarding weight bias reduction actions, there are emerging initiatives on the horizon carried out by stakeholder groups such as influencers, HAES fitness providers and dieticians, and fat-positive doctors. There is no system-wide collaborative push, but individuals are working hard in the space to bring change.

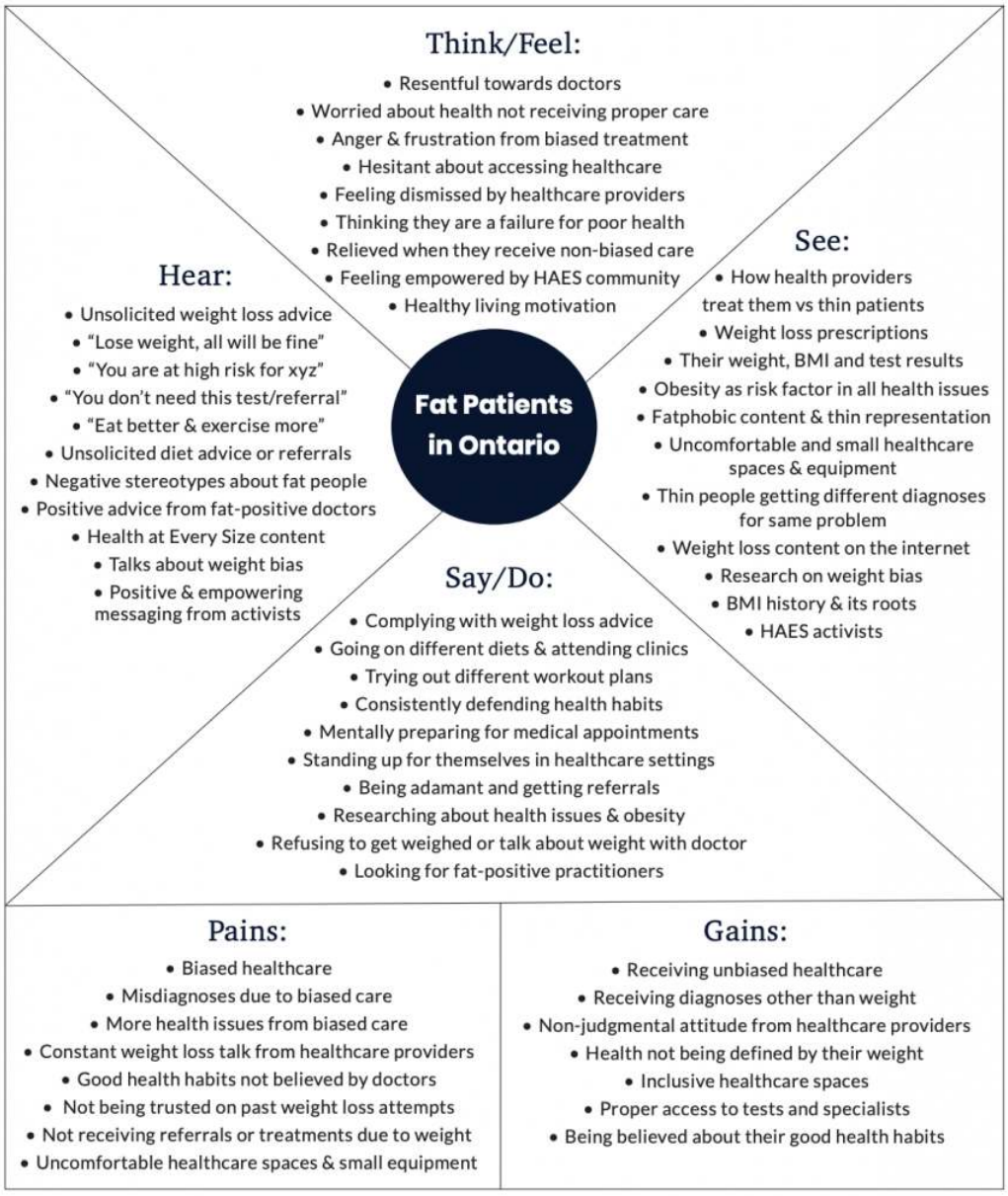
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3.4: Empathy Map

Empathy Map

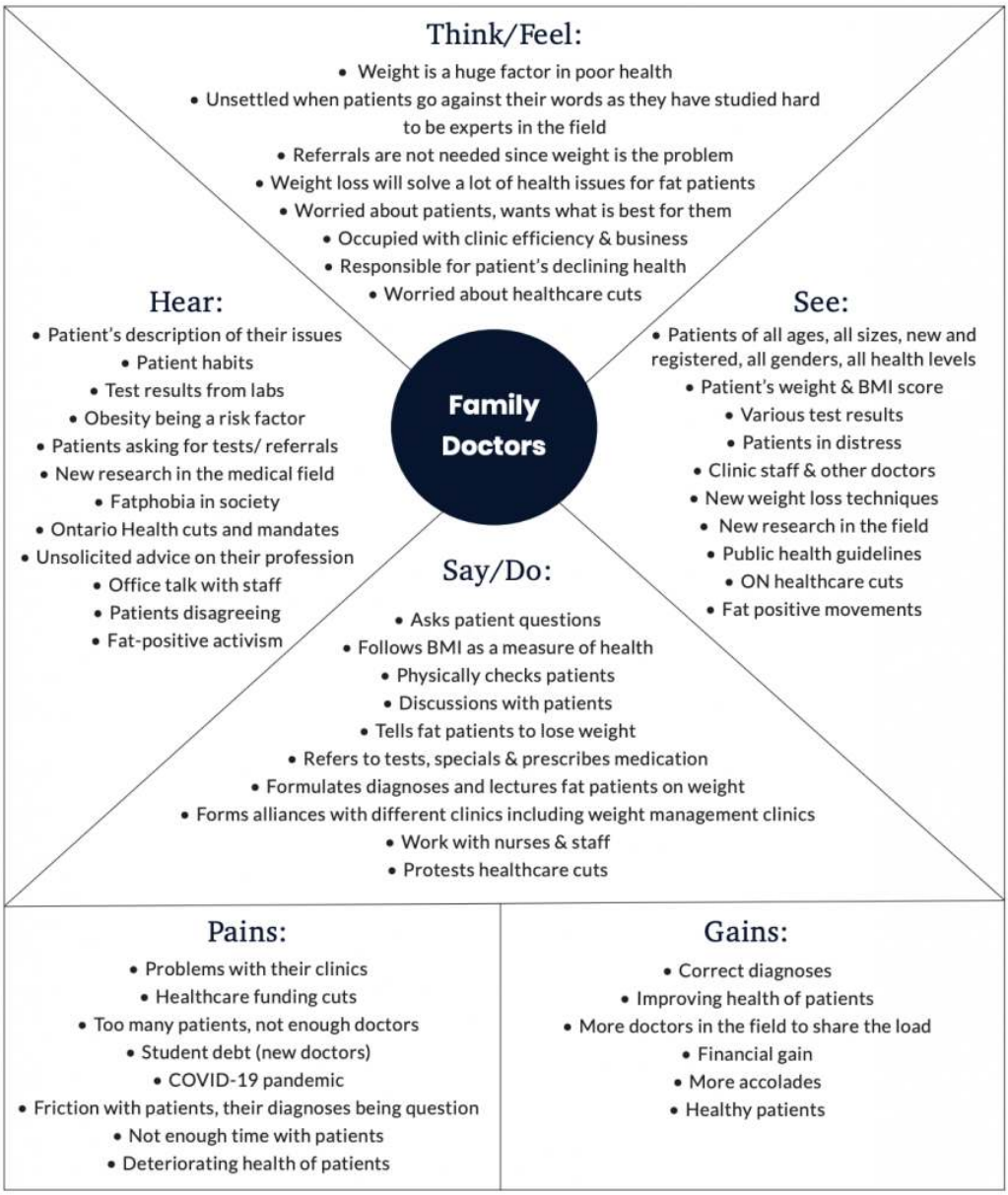
Now that the primary actors have been finalized to be fat patients and family doctors, it is crucial to understand them better on a personal level. The Empathy Map tool was employed for this task.

Empathy Map: Fat Patients



The Empathy Map, developed by visual thinking company Xplane, yields a clearer understanding of a stakeholder's environment, behavior, concerns, and aspirations. This tool uses simple directive questions like what does the person see, think, hear, do and say, plus pains and gains of the individual to develop the stakeholder's persona.

Empathy Map: Family Doctors



Insights from Step 2

The culmination of the interview and survey analysis, followed by the empathy mapping of the two main stakeholders, resulted in the following insights:

1. Healthcare cuts, overwhelming patient numbers and resulting visit time limits amplify the discriminatory treatment of fat patients by family doctors. Healthcare cuts back in 2014 led to some clinics posting signs indicating patient visits can only last 15 minutes — thus, patients were asked to keep their questions and concerns down to one or two issues (Seth, 2016). According to many of the interview participants from this study, this is a practice that is still exercised today in most clinics.

2. The most significant friction in the relation between the patient and the family doctor comes at the moment of diagnosis. During this point in the service, patients get schooled on their weight and how weight loss will solve their issues. This friction can be conscious, unconscious, or miscommunication, depending on whether the doctor holds more implicit or explicit biases.

3. The moment of diagnosis is a moment of triumph for the doctor. They believe they are treating and helping their fat patients, but this moment is actually a moment of failure and high stress for the fat patient. According to some patient participants from the interviews, they are often unable to explain their frustrations to the doctor. Moreover, if they do, some doctors do not understand it or dismiss it.

This step starts with identifying the leverage points that can be worked with (Systemic Design Toolkit, 2020).

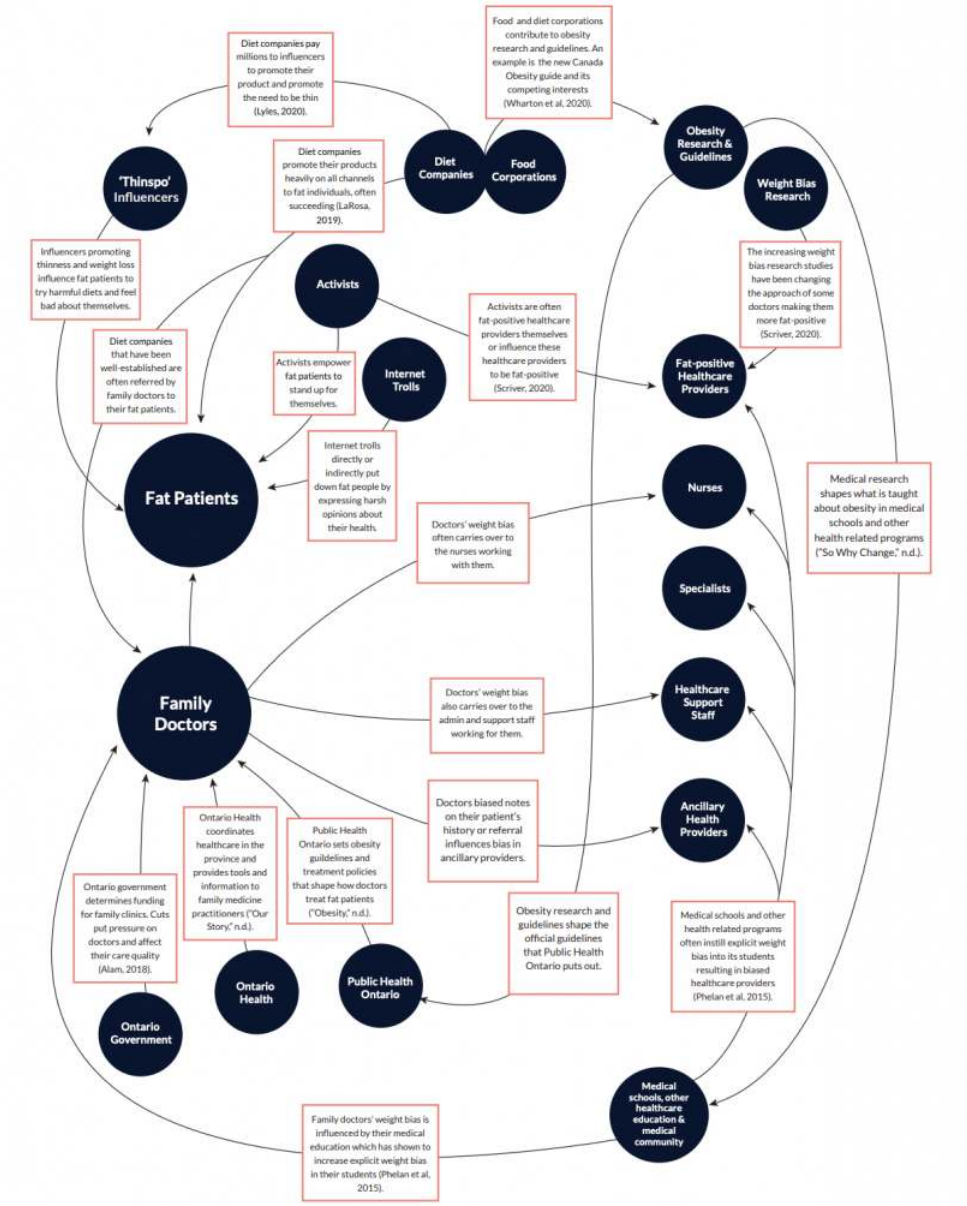
In this project, the data and insights gathered from Steps 1 and 2 will be analyzed in this step using methods such as systems map, causal loops and causal layered analysis to understand the influences and barriers in the system.

Systems Map

Systems Map is a technique for visualizing the system, its structure and the interrelations between its elements (Systemic Design Toolkit, 2020). For the healthcare weight bias system map, influences were chosen to be plotted for further investigation into the power dynamics that emerged in the Step 1 Actors Map. The map focused on the various sub actors, how they affected each other and the two main stakeholders – fat patients and family doctors.

The map on the following page demonstrates the influences some of the more powerful stakeholders have on the other actors in the system. These influences can be helpful or deterring. They were determined using interview data and various secondary sources.

Influences



Influences

Diet companies pay millions to influencers to promote their product and promote the need to be thin (Lyles, 2020).

Diet companies promote their products.

Food and diet corporations contribute to obesity research and guidelines. An example is the new Canada Obesity guide and its competing interests (Wharton et al, 2020).

Influencers promoting thinness and weight loss influence fat patients to try harmful diets and feel bad about themselves.

Diet companies that have been well-established are often referred by family doctors to their fat patients.

Activists empower fat patients to stand up for themselves.

Activists are often fat-positive healthcare providers themselves or influence these healthcare providers to be fat-positive (Scriver, 2020).

The increasing weight bias research studies have been changing the approach of some doctors making them more fat-positive (Scriver, 2020).

Internet trolls directly or indirectly put down fat people by expressing harsh opinions about their health.



Doctors' weight bias often carries over to the nurses working with them.

Medical research shapes what is taught about obesity in medical schools and other health related programs ("So Why Change," n.d.).

Doctors' weight bias also carries over to the admin and support staff working for them.

Ontario government determines funding for family clinics. Cuts put pressure on doctors and affect their care quality (Alam, 2018).

Ontario Health coordinates healthcare in the province and provides tools and information to family medicine practitioners ("Our Story," n.d.).

Public Health Ontario sets obesity guildelines and treatment policies that shape how doctors treat fat patients ("Obesity," n.d.).

Doctors biased notes on their patient's history or referral influences bias in ancillary providers.

Obesity research and guidelines shape the official guidelines that Public Health Ontario puts out.

Medical schools and other health related programs often instill explicit weight bias into its students resulting in biased healthcare providers (Phelan et al, 2015).

Family doctors' weight bias is influenced by their medical education which has shown to increase explicit weight bias in their students (Phelan et al, 2015).

When observing the Influence map, an obvious one is that of medical education on family doctors and other healthcare providers, which is the source of most of their knowledge and practices. Another undeniable influence is that of Ontario Health and Public Health Ontario on family doctors. Ontario Health is an agency recently created by the Government of Ontario with a mandate to connect and coordinate the province's healthcare system. They ensure that health professionals have the tools and information required to deliver the best possible care within their communities (Our Story, n.d.). This new system was introduced in early 2019 by the current provincial government (Jeffords & Jones, 2019). Ontario Public Health, on the other hand, creates health promotion policies and provides education and professional development to Ontario's health providers ("Ontario Public Health," 2020).

The big takeaway from these influences is that change initiatives in these two subsystems, education and governance, will be mandatory to solve the issue of weight bias in family medicine today.

A second revelation from the map is the overwhelming societal forces on fat patients. While activists and social media advocates build their confidence and empower them to receive proper healthcare, the same amount of influence is expelled from the opposite side, consisting of 'thinspiration' influencers or internet trolls. These conflicting messages often confuse fat patients and further corrode the relationship between them and their biased doctors.

Another striking influence in the system is that of food or dieting corporations on obesity research and guidelines, which shape the protocols encouraged by Public Health Ontario, and thus influence health providers, particularly family doctors. This is problematic because the same protocols that guide our healthcare providers on treating fat patients have contributions from corporations that benefit from the insecurities of fat patients. In a recent Zoom panel hosted by FoodShare Toronto on the topic "Dismantling Fat Shaming and Weight Stigma, one of the panelists, Anshuman Iddamsetty, who is a Toronto-based writer and producer working on fat liberation (Iddamsetty, 2020), pointed out that the new Canadian obesity guideline includes numerous contributors with competing interests. The most questionable contributor is an individual who sells Optifast Meal Replacements

through a weight-management center (Foodshare Toronto, 2020). This means someone who makes a profit off of people with obesity has contributed to the national obesity care guidelines. How is that fair? This is an accurate example of how corporate influence shapes the healthcare fat patients receive.

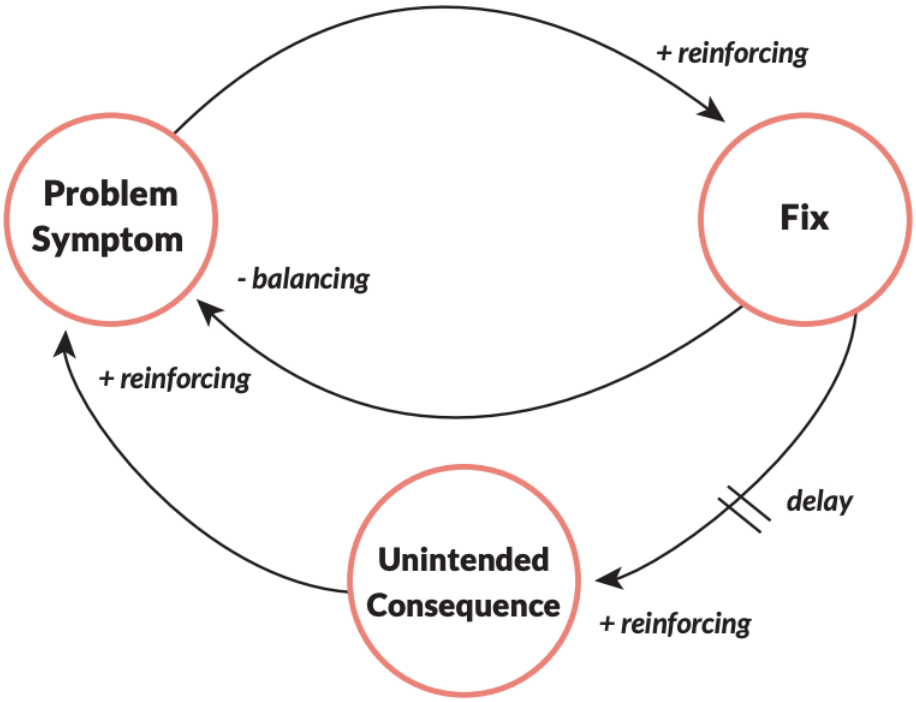
Causal Loops

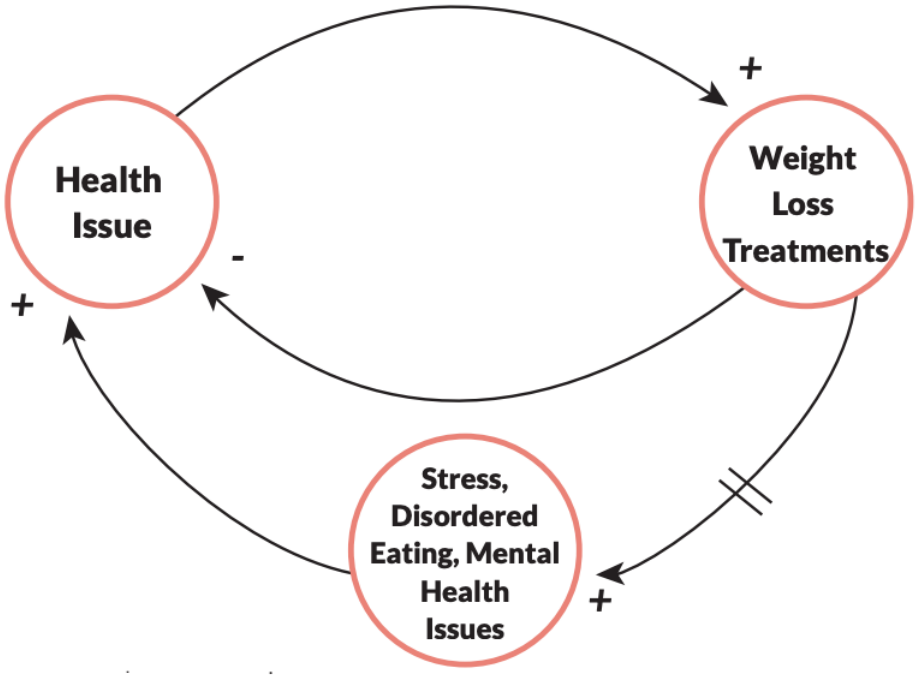
The influence map provides a robust comprehension of the dynamics in the healthcare weight bias system. Now, the goal is to pinpoint some persistent occurrences that must be interrupted to bring change in the system. This is best achieved by determining causal loops in the system. Causal loop diagrams begin as qualitative descriptions outlining how one thing causes another in either a positive or negative direction. Typically, feedback loops are identified between the different elements. They can be reinforcing, or positive feedback loops, where A produces more B, which in turn produces more A or they can be balancing or negative feedback loops, where a positive change in one leads to a push back in the opposite direction (Peters, 2014).

For this project, existing system archetypes are used to discover the healthcare weight bias system's feedback loops. System archetypes are feedback loops that capture common anticipated problems that can occur in diverse systems. They are powerful tools for easy diagnosis and identification of problem patterns (Kim, 1992). The two archetypes identified in this system are the Fixes That Fail archetype and Limits to Success archetype.

Fixes That Fail Archetype

In a "Fixes That Fail" archetype, a problem symptom demands resolution. A solution is quickly implemented that alleviates the problem, but it also produces unintended consequences that exacerbate the problem. Over time, the problem symptom returns or is made worse by the same solution that was used to fix it (Kim, 1992).





A central issue in the system, which encapsulates the experiences of the participants interviewed, can be represented by this archetype. Fat patients go to the doctor with health issues. The doctors implement a fix, which is to lose weight. While the fix might temporarily mitigate some of the issues, over time, it results in the unintended consequence of mental health issues, eating disorders and physiological stress, making the initial health issue worse. In summation, weight loss is a fix that often fails.

Limits to Success Archetype

In a “Limits to Success” archetype, continued efforts initially lead to improved performance, but over time the system encounters a limit which causes performance to decline, even if efforts are sustained (Kim, 1992). One of the most frustrating consequences of biased healthcare that fat patients deal with can be represented by the Limits to Success archetype. Fat individuals engage in healthy living by practising good nutrition and physical activity habits and researching Health at Every Size concepts. This motivates them to stay healthy and get preventive healthcare. However, when accessing preventive care, they face bias and judgement, causing various physical and mental health issues, thus dampening their efforts to lead healthy lives. Stigmatizing healthcare limits their success of good health. This stigma is driven by constraints such as biased medical education and lack of health policies against weight bias.

Causal Layered Analysis

Now that influences and persistent problems in the healthcare weight bias system are more apparent, the next move is to learn more about the deeper roots of the issues. This deeper dive into the problem can be conducted using the Causal Layered Analysis (CLA) tool. CLA is a foresight tool that seeks to unpack the deeper future. It has four dimensions (Inayatullah, 2008).A Causal Layered Analysis of weight bias in healthcare revealed the following causes and contributors to the issue:

After completing the CLA, it became evident that the presence of weight bias in healthcare comes down to three implicit beliefs held by society:

1. Fatness is a symbol of greed and gluttony.

2. Death is scary, and obesity quickens it.

3. Doctors are put in a superior position rather than being seen as partners in taking care of our health.

Insights from Step 3

The culmination of Step 3 tools brought forward the following new insights:

1. There is not enough qualitative research surrounding obesity, even though the root causes of obesity are linked to emotional, societal and environmental reasons.
2. Obesity is often embedded in a one size fits all notion. Fatness looks different for everybody. Different fat people have different health effects if any. However, the treatment is the same for all of them.
3. There is a vast disconnect between the governance and medical community subsystems and the advocacy subsystem. The systems mapshowed no direct line of influence. We all know the scientific effects of obesity and weight bias. On the other hand, we have witnessed the social uprising of fat-positive movements and influencers on the internet. However, there is no collaboration between the two to advance the lives of fat people and reduce barriers like weight bias.

Now that we have framed the system, listened to the primary actors through interviews and Empathy Mapping, and tried to understand the system's connections and deep roots, the next move is to help the stakeholders articulate the common desired future in Step 4.

For this project, this step involved conducting a foresight workshop with the participants who identified as fat patients, to determine their desired future of dismantling weight bias in healthcare.

Primary Research: Three Horizons WorkshopMethod

The workshop utilized the foresight tool Three Horizons Framework. Three Horizons is a futures technique that connects the present with desired futures and helps identify the transition stage that emerges from conflict between the embedded present and these imagined futures (Curry & Hodgeson, 2008). Horizon 1 depicts today's challenges.

Horizon 3 depicts the future one wants. Between them, Horizon 2 demonstrates the transition from today's challenges to the desired future. The secondary spaces under the horizons are also used to generate points such as pockets of the future present today, aspects of today we want to keep in the future, and transition procedures that are already happening. When using the tool, the starting point would be Horizon 1, listing the challenges, followed by jumping forward to Horizon 3 to share the desired future.

Once those are completed, participants would work through Horizon 2 to discover the transition points needed to reach the goals in Horizon 3.

At the end, the secondary spaces would be tackled. These are based on a specific time period ranging from short-term, like two to five years, to long-term, such as twenty years or more. It varies depending on the industry (Curry & Hodgeson, 2008). The following diagram displays the framework with the definitions.

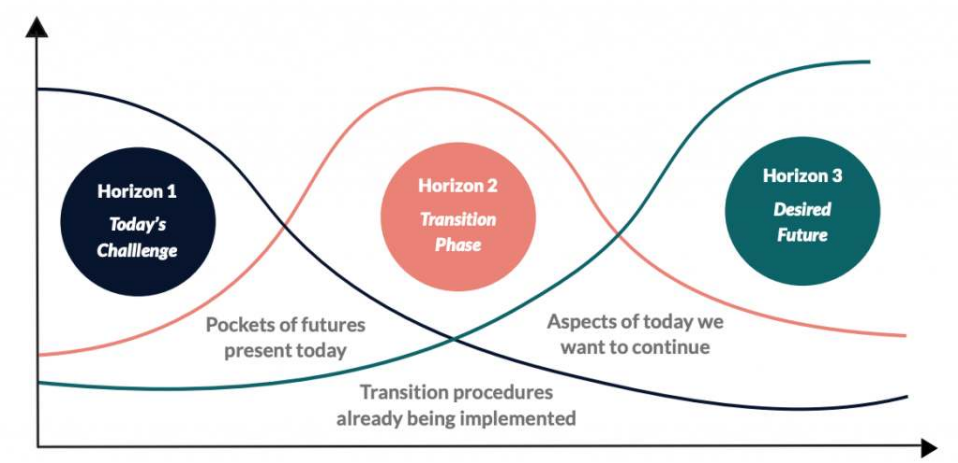


Figure 12: Three Horizons Framework

This tool was built for collaborative use. It is relatively comprehensible and straightforward to use for workshops with non-practitioners (Curry & Hodgeson, 2008).

This is critical when approaching issues like weight bias in healthcare because it allows the actor group most affected by it, the fat patients, to ideate the future they want.

Experience

Workshop participants were recruited at the same time as the interview participants.

Five of the 13 participants from the interviews also opted to participate in the workshop. The criteria were the exact same as interviews. They had to self-identify as fat or be medically classified as overweight and had to have accessed healthcare services in Ontario. On the day of the workshop, one of the participants cancelled, so the workshop was ultimately conducted with four participants.

The session started with an introduction of the framework and how to use it, followed by questions from the facilitator to guide the participants in filling out the Three Horizons framework. The framework was shared through the screen so participants could witness the facilitator writing down the points being made. Participants actively engaged with not only the framework questions but also in discussions with each other. The workshop lasted for an hour and a half.

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3.5: Findings



As the participants navigated through each of the Horizon spaces and accompanying questions, the following findings emerged:

Horizon 1

What are the challenges fat patients face today when accessing healthcare?

- A lack of empathy from their doctors.
- A myriad of assumptions about their health habits and past weight loss attempts.
- Constant recommendation of losing weight no matter what the illness is.
- Fear of misdiagnoses.
- A battle to get referred for tests or to specialists.
- Mistrust from doctors on health habits and activities.
- Medical appointments being 'hijacked' by weight loss.
- Anxiety and hesitancy to get check-ups.
- A lot of exhausting efforts to research and prepare before appointments.
- Formal diagnoses on eating disorders.
- Physical barriers, particularly gowns, chairs and blood pressure cuffs.

Horizon 3

What is the desired future? What kind of changes do we want to see to make healthcare better for fat patients?

- Removal of BMI as a health assessment.
- Doctors who understand the harm of diet culture and fatphobia.
- Doctors who listen to fat people and show more empathy.
- Switching from an outcome-oriented healthcare model (weight loss) to a behavior- oriented one (healthy choices).
- Change in language around obesity. Neutralizing use of the word 'fat.'
- Changed curriculum in medical school and extra required certification for existing doctors.
- Eating disorder diagnoses based on behaviors, not physical appearance.
- More qualitative research before obesity is listed as a risk factor in a disease. An example of this is the hasty decision to list obesity as a risk factor for COVID-19 with very little research on other factors such as race, socio-economic status, quality of care or other health conditions an individual might have (Byrne, 2020).



Horizon 2

What do we need to start doing to get to that desired future? What steps need to be taken, and who needs to take them?

- Bias training programs should focus on increasing empathy for fat patients in doctors.
- Health at Every Size training should be offered in medical schools or through continuing education.
- Change in curriculum in medical schools should be made to mandate a certain number of hours in weight bias training.
- Advocacy on a grassroots level and from healthcare providers is required.
- Recognizing fat healthcare workers, their contribution and experiences in the system.
- Academic research from all fields (social, economic, science) on weight bias.
- More education around eating disorders on all bodies is crucial.
- Removing morality from the discussion of health.
- Drafting health policy proposals to fight weight bias.

Secondary Spaces

What changes from our desired future are present today? Is change starting to happen?

- Empathetic fat-positive doctors already exist in some capacity.
- More and more advocacy is happening around condemning weight bias in healthcare.
- More fat inclusive languages are slowly being used in all settings.

Are there any aspects of the present day that we want to continue into our desired future?

- Academic research into weight bias has been rising in the last 15 years. Continuation of this research is required to fight the issue.
- Continuation of advocacy is essential to tackling the issue as there is a lot of pushback from society.

Who is already working to help us get to our desired future?

- The HAES community educates people on the importance of health, healthy living and behavior for all body sizes and weight.
- Canadian Eating Disorder Association makes people aware of the 'atypical' forms of eating disorder which include all the symptoms but in those who don't match the physical description of the condition ("Other Specified," 2019).
- Social media influencers use their platform to fight the issue and encourage fat positivity.
- Fat-positive fitness professionals who offer fitness coaching and classes for all bodies, making it easier for fat individuals to stay active.
- BalancedView BC provides online weight bias training program for the province's health professionals (Balanced View, 2015).

Three Horizons Framework for Family Doctor

To complement the fat patient-centric framework, the Three Horizons exercise was also completed from a family doctor's perspective. Since this was done individually by the researcher rather than in a workshop setting with doctor participants, some of the points are presumptive. Secondary research such as a detailed blog post written by an Ontario family doctor and news articles were used to produce the findings.

These sources contained information on the challenges family doctors face and how it negatively affects their practice. This helped in filling out the first horizon about today's challenges. The desired future and transition points were then hypothesized based on these challenges. The main purpose of this exercise was to build more empathy for the family doctors and interpret their struggles and desires better.

What are the challenges family doctors in Ontario face today?

- Overwhelming workload. Too many patients and not enough family doctors, particularly outside of urban centers (Alam, 2018).
- Ongoing funding cuts by the Ontario government (Alam, 2018).
- Fewer medical school students are opting for family medicine, particularly clinic- based practice (Ray, 2017).
- Less integrated patient data system, especially in small towns (Alam, 2018).
- Family clinics are not backed up by a large institution, unlike hospitals (Kupfer, 2020).
- COVID-19 pandemic changes, particularly around personal protective equipment (PPE) shortage and adapting to virtual care (Kupfer, 2020).

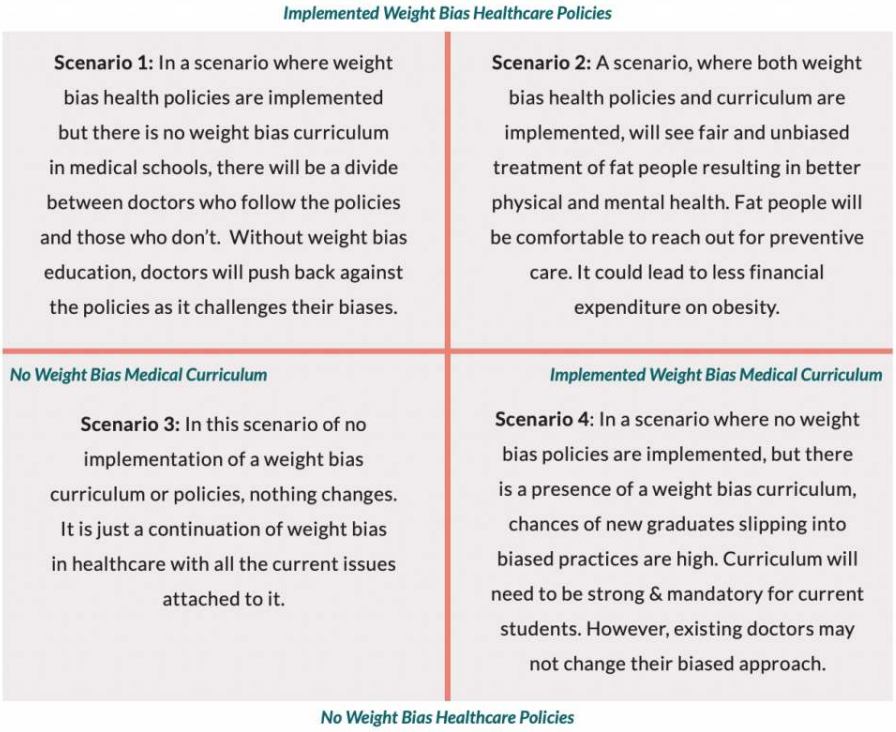
What is the desired future? What kind of changes will improve family medicine?

- More new doctors in family practice.
- More medical school graduates specializing in family practice.
- More time to give to patients.
- Increased government funding focused on family medicine.
- A detailed, sophisticated data management system.
- More PPE during the pandemic and support from the government for post-pandemic changes.

What do we need to start doing to get to that desired future? What steps need to be taken, and who needs to take them?

- Medical school incentives to pursue family medicine.
- More funding and grants to start up a family practice.
- Research and funding to explore healthcare data management innovations.
- Start designing post-pandemic plans to anticipate changes and necessary resources.

The 2 x 2 matrix belows demonstrates the implications of these scenarios:



Secondary Spaces

What changes from our desired future are present today? Is change starting to happen?

- Pandemic response and plans are being carried out by individual practitioners (Kupfer, 2020).

*A **re there any aspects of the present day that we want to continue into our desired future?***

- Virtual care could continue on some level, depending on the patient issue, as it saves time and makes the clinic more efficient.

Who is already working to help us get to our desired future?

- Family clinics are banding together and forming support groups to help each other out.

Insights from Step 4

Completion of the Three Horizon frameworks, from the perspective of both primary actors, resulted in the following insights:

1. The current challenges for fat patients are mostly embedded in assumptions made by healthcare providers and the mistrust between them and their fat patients.
2. The desired future for fat patients is built on trust and understanding. Weight bias destroys that between a patient and their doctor. First and foremost, these patients want a better relationship with their doctors, followed by policy and protocol changes.
3. The education sector and the government need to step into a more active role regarding this issue. The future can only be achieved with all nodes in the system working together.
4. Current initiatives are only happening through individuals. Currently, there is no collective, collaborative change-making on the horizon.
5. The desired future for family doctors is efficiency and more time for their patients. They want to run their practice and help their patients without the worries of funding cuts, a low number of family doctors, and a slow data management system.

Before diving into Step 5, it is critical to recap the last four steps and the insights they generated –

Step 1 analyzed the weight bias landscape by identifying structures, practices, trends, and stakeholders. This framed the project to focus on the two primary actors: fat patients and healthcare providers, and investigate how the other stakeholders affect them.

Step 2 investigated the primary actors through primary research and created Empathy Maps to better comprehend their perspectives and experiences with the issue of weight bias. Healthcare providers were further specified to be family doctors since primary research revealed that they are the biggest perpetrators of weight bias. This step generated insights about how external factors often augment doctors' biased attitudes and that the most prominent tension between the doctor and the fat patient comes at the moment of diagnosis when the appointment is overpowered by talk of weight and weight loss.

Step 3 explored the main actors' relationships with the secondary and examined the deeper causes of the issue. At the end of this step, it was evident that research around obesity was not perfect, focusing on quantitative figures rather than qualitative attributes. It was also exposed that there is a massive disconnect between the weight bias issue's advocacy aspect and the scientific side of it.

Step 4 probed into the future state of the issue and what kind of changes are desired by the two primary actors. This step constructed the notion that the ultimate desired future is to have a more positive relationship between fat patients and their doctors.

While changes will need to be made in education and regulation, the betterment of the human relationship and partnership between the two primary actors is most coveted.

Now, in **Step 5**, with the help of the findings and insights discovered in the previous steps, possible ideas are formulated to address this project's research question.

Intervention Strategy Model

The exploration of possibility spaces is initiated by using the Intervention Strategy Model from the Systemic Design Toolkit. This tool is based on the intervention levels determined by Donella Meadows. They refer to critical areas in a system in which one can intervene (Meadows, 1999). By exploring different possible interventions, one can make sure the future combination of interventions will cover the big picture (Systemic Design Toolkit, 2020). These intervention areas include the following: constants, parameters, buffering capacities, physical and digital structures, delays, balancing and reinforcing feedback loops, information flows, rules, self-organization, goals, and paradigms.

Possible Solution Spaces

The conglomeration of the insights from previous steps has ultimately led to the creation of four possible solution spaces.

Solution Space 1

Ontario Public Health policies regarding how overweight patients are treated in family medicine

The research has revealed that fat patients' experience with their family doctors is brimming with weight bias. From physical barriers to staff attitudes and doctor diagnoses, every aspect is stressful, frustrating, and unfair for fat patients. However, there are currently no interventions present from a policy perspective to tackle the issue. By implementing formal guidelines on weight bias consequences and policies on tackling weight bias at the doctor's office, fat patients can achieve fair treatment. This has the

potential to decrease obesity mortality rates and advance the livelihoods of fat patients. The types of policies that can be introduced include simple notions such as:

1. Weight cannot be the principal diagnosis for a fat patient's issue since weight is not the sole cause of any illness. While obesity is considered a risk factor for many illnesses, not all people with obesity have the illnesses ("Health Risks Related," n.d.).
2. Non-invasive tests and referrals to specialists should be given without hesitation. The rule is simple. If the doctor is not referring the patient to tests or specialists because they think it is just a weight issue, then it is not a valid reason. This was a major complaint from the study participants.
3. Adopt a behavior-oriented treatment model rather than an outcome-focused one. This remarkable idea was shared by one of the study participants. They described this model as doctors focusing more on their patients' lifelong healthy behaviors versus pushing weight loss goals on them.

An underlying aim of policy development is to address health inequities and lessen the health gap (Bergeron, 2018), and biased treatment of a large portion of the population, resulting in many dire consequences, is undoubtedly a case of inequities in healthcare.

Solution Space 2

Adding in a weight bias curriculum in family medicine education across Ontario

There are currently six medical schools in Ontario ("Medical Schools," 2020). After reviewing the publicly available foundational curriculum of all six schools, there was no evidence found of weight bias training or even courses on treating patients with obesity. With obesity rates in Ontario at over 26% (Statistics Canada, 2019), it is alarming that medical students coming out of schools in the province do not get any empathy training on treating fat patients.

The solution space prioritizes adding a weight bias curriculum in family medicine programs in Ontario medical schools. It can be passed on to other specializations later on. While the inclusion of this training should be mandatory, it can be part of electives to start with. This ensures that future graduates are more informed on the issue. For current professionals and those who fulfill medical education in other provinces or overseas, the proposal is to create weight bias certification courses through Continuing Studies at certain schools.

Solution Space 3

Increasing qualitative research on obesity as a condition and risk factor.

This possibility space puts forward the notion of slowing down and including more qualitative research into obesity as a risk factor. More research into social conditions, secondary illnesses, medical history, and economic conditions should be conducted before listing obesity as a risk factor for new diseases and further stigmatizing fat patients.

Solution Space 4

Removing weight management/dieting competing interests from any report or research on obesity

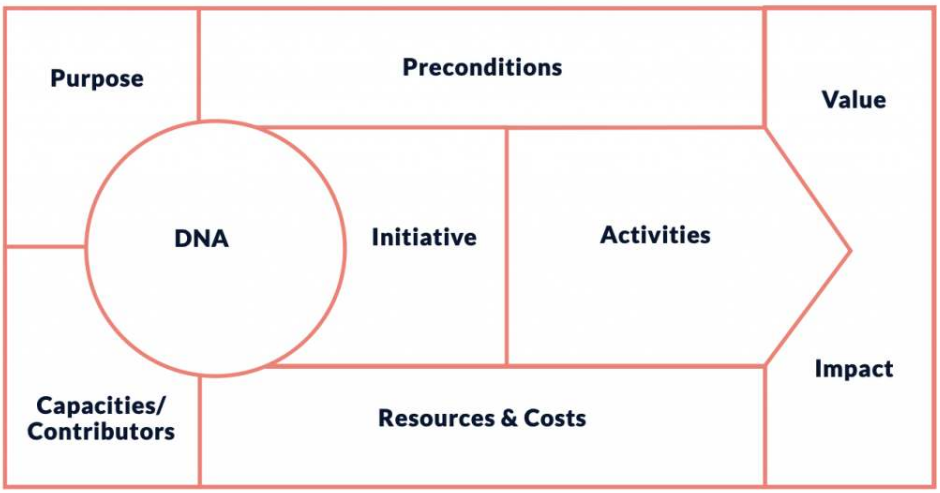
Weight management competing interests in research reports and health guidelines for obesity redact these materials' academic validity. They contribute to sustained, biased healthcare. Removing these competing interests and avoiding contributions from such individuals or corporations will result in more dependable and viable research/ guidelines or, at least, maintain their scientific dignity.

The four solution spaces delve into four different sectors of the system – governance, education, research, and corporate involvement. If progress could be made in all these subsystems, overwhelming results could be achieved for the issue as a whole. However, if we travel back to the original research question, it aims to find answers to reducing weight bias in Ontario's healthcare. Therefore, while solution spaces 3 and 4 champion significant proposals, they are much broader and not specific to Ontario. Solution spaces 1 and 2, on the other hand, include strategies that can definitely be put into action with stakeholders and resources in the province. Hence, this project will move forward with Solutions 1 and 2.

To further converge on a solution model, a quick future state scenario analysis was conducted through a 2 x 2 matrix to see what kind of scenarios are produced when one, both, or neither of the solutions are implemented.

The matrix consisted of an X-axis that ranged from no weight bias training existing in family medicine education to weight bias training implemented in family medicine education. The Y- axis ranged from no existence of healthcare policies in regards to weight bias in family medicine to healthcare policies of such sorts being implemented. Forecasting possible future states using these ranges resulted in the following scenarios:

Collaboration Model



Scenario 1: Implemented weight bias policies but no weight bias curriculum

In this scenario, Public Health Ontario puts out policies that set fair and appropriate care standards for fat patients by family doctors. Doctors in family practices across Ontario have to follow basic standards such as diagnosing beyond weight, referring to necessary tests and specialists despite weight and following a behavior-oriented treatment model. However, in this scenario, medical education continues using the current curriculum with no additional training on weight bias.

Scenario 2: Implemented weight bias policies and implemented weight bias curriculum

This scenario represents the desired future for this issue. Not only does Public Health Ontario put out the policies described in Scenario 1, medical schools also introduce weight bias training in their curriculum for current students, and through continuing education for existing professionals.

Scenario 3: No weight bias policies or weight bias training in the curriculum

This scenario represents the current state of things, with neither initiative being implemented in family medicine practices and education.

Scenario 4: Implemented weight bias curriculum but no weight bias healthcare policies

This scenario is the opposite of Scenario 1. Medical schools in Ontario revamp their curriculum to include weight-bias training and offer courses through continuing studies, but there is no policy-level intervention to complement this initiative in professional settings.

Looking at the four scenarios, one can deduce that to effectively reduce weight bias in family medicine, both solution spaces – creating new policies and adding a weight bias curriculum – will need to be considered. In the next steps, an intervention model and an implementation roadmap will be proposed to reach the goal of reducing weight bias in Ontario healthcare.

The model for change, also known as the intervention model, describes the DNA of change within a system; it contains the principles/activities that will enable change in the system (Systemic Design Toolkit, 2020). This step will combine the policy and curriculum solution spaces from the last step to create an intervention model that will seek to create change through governance and education. During Step 3 of this project, a key insight, which will be crucial for this new model, was discovered. This insight demonstrated a considerable disconnect between the scientific research side of weight bias and obesity and the social activism side.

Both subsystems have the same goal. They both want to see better health and respect, proper treatment, and unbiased diagnoses of fat people in healthcare so that fat people can sustain their health and improve their livelihoods. Merging these two groups will form the backbone of this new strategy.

The key theme in this intervention model is collaboration. First, there is a collaboration of two different solution spaces: policy and curriculum. Second, there is the collaboration of different sub-systems – governance, education, and social activism – which is mandatory to make this initiative possible. Therefore, the best way to present this model is to draft it on the Collaboration Model Canvas from the Systemic Design Toolkit.

The Collaboration Model is similar to a Business Model Canvas (BMC). The BMC allows businesses to design, describe, invent, and pivot their business model by determining core structures such as key activities, resources, partners, financials, values, etc. (Osterwalder et al, 2010). The Collaboration Model uses similar segments to build an intervention model, but with a focus on collaborators working on the solution, their capacities, values, and resources (Collaboration Model, n.d.).

Collaboration Model

DNA– What key characteristics will inspire the collaboration?

Purpose – What is the main purpose of the collaboration?

Capacities – Who will contribute? With what capacities?

Initiative – What is the purpose of the joint initiative? What changes do you want to achieve? For whom? What are the short-term and long-term goals?

Activities – What are the key activities?

Value/Impact – What is the value created in the short-term and long-term? What is the value for the collaborating organizations and community? How will this be measured?

Preconditions – Are there any regulations, processes or attitudes that should change to make the initiative possible or more impactful?

Resources and Costs – What resources and finances are required? Where will they come from?

Collaboration Model: Reducing Weight Bias in Ontario Healthcare

DNA

The key characteristics of this strategy are embedded in system-wide collaboration with the partnership of scientific researchers and social activists. The strategy promotes policy and curriculum changes to reach compassion and respect between family doctors and fat patients.

Purpose

This collaborative strategy aims to bring holistic change so that not only does it make a difference now, but that change also sustains. Introducing policy changes will tackle weight bias in the existing family medicine system, but intervening in the medical education system will improve the issue for the future. Social activism will get the engine running, but science will need to fuel that engine to bring validity to the claims.

Contributors and their Capacities

This strategy's main contributors are weight bias researchers, obesity researchers, fat activists and influencers, health policy-makers, the Ontario government, and medical school faculties. Weight bias researchers will need to continue providing studies on weight stigma. Obesity researchers will need to measure the different outcomes of reducing weight bias in healthcare, for example, whether proper care reduces the rate of mortality for fat patients. Fat liberation activists will be the driving force of the movement, bringing awareness and the attention of decision-makers to the issue. Health policymakers will need to investigate the problem and work through the policy development process to implement new policies. The Ontario government will need to support the policy-makers and ensure sufficient funding is available for family practices to allay other issues in the

system. Lastly, medical school faculties will need to work within their institutions to convince the authorities to make curriculum changes.

Initiatives

The initiative encompasses three main goals, reducing weight bias in family clinics, increasing respect and empathy between the family doctors and fat patients, and working towards a behavior-focused care model rather than outcomes. These will advance and improve healthcare for all fat patients. The short-term goals are to gain momentum and support for policy and curriculum changes and see an increase in the number of fat-positive clinics and family doctors. The long-term goal is to see the policy changes enacted and weight bias curriculum added, and a province-wide decrease of weight bias in family medicine.

Activities

The key activities are divided into two streams – education and policy. Both streams begin with organizing fat activists, obesity and weight bias researchers and family doctors who already support the cause. The next step is to collaborate with influential stakeholders in each stream to draft and present proposals that build a case for the problem. From there on, continuous efforts are required from activists, researchers, and partners to build a curriculum and place the issue on the table of Public Health Ontario's policy-makers. A more detailed glance at the activities and future steps will be provided in Step 7's roadmap.

Value Created/ Measuring Impact

The strategy produces incredible value for fat patients by creating judgment-free health experiences and better physical and mental health due to respectful healthcare. It also creates value for the healthcare community, whose worry is the 'obesity epidemic' and its effects. Evidence abounds that health can be improved through physical activity, maintaining proper nutrition, and reducing stress, even in the absence of weight loss (Mann et al, 2015). Therefore, if family doctors in the province adopt the behavior-centric model of treating their fat patients, the negative results from obesity can be mitigated. In fact, a non-biased healthcare approach towards fat people will eliminate their hesitancy to access preventive care. More preventive care could further reduce fat people's health problems, thus lengthening their lives and possibly reducing the morbidity levels attached to obesity. There are a few possible ways to measure the impact of this strategy long term. Obesity rates, depression rates in fat people, and eating disorder rates would be good indicators of change. Expansion of the strategy federally and globally would prove its ability to reduce weight bias.

Preconditions

Certain attitudes will need to change to implement this model. Incredible perseverance and continued efforts are required consistently throughout the process. Once the ball is rolling, contributors will need to move from the awareness stage to the action phase without stopping awareness. An open-minded and positive attitude is necessary because ideas and efforts might get shut down, considering how accepting weight bias is in this society. Ultimately, negative attitudes about fat people and being fat will need to be kept in check, as they creep up very quickly.

Resources and Costs

The strategy will require a lot of time and energy from activists and researchers. It needs the support of organizations with financial capability already working towards similar issues. Free, earned, and shared media is critical to gain momentum as well as GoFundMe campaigns and other grants. In the later stages, the government will need to allocate funding to implement the health policies, and universities will need to budget expenditures on running weight bias training courses. This comprehensive education and governance strategy driven by the partnership of activism and research sets up a strong foundation toward decreasing weight bias in Ontario family clinics. In the next step, a roadmap will be introduced to demonstrate the implementation procedure.

Step 7 of the Systemic Design toolkit involves creating a transition plan to implement the new intervention strategy. This step utilizes the Roadmap for Transition tool, which plans the implementation of the interventions so that change occurs by design. It is used to map the transition toward the desired goal by planning and growing the intervention model in time and space (Systemic Design Toolkit, 2020).

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3.6: Primary Research- Interviews

Method

Interviews were chosen as the primary instrument to investigate deeper into the system's main actor – fat patients. They are the main stakeholder this project aims to serve, so it was essential to give them the opportunity to speak about their experiences. Interviews allow more freedom to learn from people and give them the reins to shape the direction of the process (Sanders & Stapper, 2012, p. 68). This was an important characteristic required for this project; therefore a semi-structured interview format was followed with guiding questions from the researcher. This structure allowed the participants to relay as much information about their experience as they wanted, but with specific questions that helped them stay on topic.

Interview questions were divided into three main sections. The first section contained demographic questions inquiring the age range and gender of the interviewees. This section also determined whether the participant had been classified as overweight by their healthcare provider. The second section consisted of questions regarding the participant's experience with weight bias and how they felt or coped during these encounters. The last section questioned about weight bias management and consequences. It inquired about the interviewee's willingness to access healthcare and any strategies they use when doing so. Ultimately, the main goal of the interviews was to get a better understanding of the occurrence of weight bias in Ontario healthcare and how it has affected fat patients.

Experience

Recruitment for the interviews was carried out on social media platforms, specifically through Instagram and Facebook posts and stories. The criteria for participants were that they had to self-identify as fat or be medically classified as overweight. They also had to have accessed healthcare in Ontario. The first level of recruitment came in the form of opportunistic sampling. Followers with personal connections to the researcher volunteered to participate. The second level of recruitment, where most participants were gathered, was done through snowball sampling. Followers of the researcher's social media accounts shared the recruitment materials on their own accounts. (Sanders & Stapper, 2012, p.153-154). Recruitment was carried out over three weeks, simultaneously with the interviews taking place. At the end of the research period, a total of 13 interviews were conducted. Interviews generally lasted an average of 30 to 35 minutes. All participants answered all the questions and even shared extra information on their own accord. They were passionate about describing their experiences, and every participant wanted a change in the system.

Findings

Out of the 13 participants interviewed, 12 were female, and one was gender-fluid. Participant ages ranged from 26 to 58, with more than half of them being in their 30s. All but one are currently classified as overweight by their healthcare provider. The average number of years these patients have been classified as overweight is 22 years.

Some of the critical findings discovered after analyzing the responses about weight bias experiences are:

- Ten out of the 13 participants had faced most of their weight bias from their current or previous family doctors.
- Participants primarily faced weight bias during preventive care and physicals.
- Participants have had their injuries dismissed, with their doctors resorting to weight as the cause.
- For eight out of the 13 participants, the principal diagnosis for their ailment was weight, and the main treatment was weight loss. However, each of the eight had a different issue they went in with.
- Participants were denied referrals to further tests and specialists.
- Participants have been coerced into following dieting advice and plans.
- Ten out of the 13 participants could not maintain weight loss prescribed by the doctor and gained more weight plus developed mental health complications and eating disorders.
- The participants' biggest frustration was that even if they followed healthy lifestyles such as eating nutritious food or exercising daily, their doctors did not believe them.
- There was an extensive list of physical barriers shared: small gowns, small chairs, small blood pressure cuffs, judgemental messaging, public weighing scales and unstable beds.

Some of the key findings discovered after analyzing the responses about weight bias effects and management are:

- Eight out of the 13 total participants said they are now reluctant to access healthcare, especially preventive care.
- Less than half said they still access preventive care but prepare intensively before going. They mentally get themselves ready to stand up for themselves, do their own research and read up on Health at Every Size affirmations. Much effort is made.
- Some other tactics they commonly use are being persistent about getting diagnoses beyond weight, refusing to get weighed or discussing weight, and actively looking for fat-positive providers.

Interviews also brought up some unique, absorbing insights from some of the participants. One participant mentioned that they have not faced as much weight bias at appointments during the ongoing pandemic simply because they were over the phone. Another participant mentioned that it is not just medical professionals who show judgment but also office staff at clinics such as receptionists and administrators.

Some pointed out that they do not understand why doctors think fat people are not aware of their weight. These people live in their bodies every day and understand their weight and their abilities. Chances are they have also tried numerous weight loss plans in their lifetime.

Another insight shared was that when fat patients have positive healthcare experiences, it feels like a rare moment of celebration and triumph, which is problematic, considering it is an essential service. One participant also mentioned that what frustrated them the most is the lack of dignity they experience when they are continually being told to lose weight as if they are a little child being told to obey rules.

In conclusion, the interviews painted a grim picture of the realities of weight bias in healthcare currently in this province.

The second primary research method used was a survey to measure the level of weight bias healthcare providers in Ontario held. The survey was designed using three pre-existing scales: Beliefs About Obese People, Attitude Towards Obese People and Fatphobia Scale. These scales are part of the bias toolkit created by the Rudd Centre for Food Policy and Obesity (The Rudd Centre For Food Policy & Obesity, n.d.).

Beliefs About Obese People (BAOP) is an 8 – statement scale that measures belief about the underlying reasons for obesity. Items are scored on a 6-point Likert scale (strongly disagree to strongly agree). Higher scores indicate the belief that genetic and environmental causes drive obesity, and lower scores indicate that obesity is caused by a lack of personal control (Poustchi et al, 2013).

Attitudes Towards Obese People (ATOP) is a 20 – statement scale that measures perceptions regarding obese people. Items are also scored on a 6-point Likert scale (strongly disagree to strongly agree). Higher scores indicate more positive attitudes, and lower scores indicate more negative attitudes (Poustchi et al, 2013).

Fat Phobia Scale (FPS) is a 14 – item scale that requires participants to indicate which adjective better describes obese people on a 5-point scale, e.g. active to inactive. Higher scores indicate high levels of fatphobia, thus more negative stereotypes (Poustchi et al, 2013).

The survey had three sections with each of these scales. ATOP and FPS scales were reduced to 10 items only to ensure the survey was not too long. Survey data was analyzed using the instructions provided by each scale.

Causal Layered Analysis for the Issue of Weight Bias in Healthcare

Worldview

These ingrained societal beliefs enforce the systemic causes that encourage weight bias. Diving into literature and stories surrounding the systemic causes revealed these worldviews. Primary data from the interviews also reflected some of these sentiments. Observation into social media comments on the literature pieces also disclosed these perceptions in people.

- All fat people lead unhealthy lifestyles, and being fat is one of the worst things. Making anything fat inclusive encourages poor health habits (Cernik, 2018).
- Healthy habits and being thin makes you morally superior. Being fat is a sign of failure because you eat poorly and stay on the couch (Your Fat Friend: 2020).
- Fat people are an economic burden (Tremmel et al, 2017).

- Doctors know our bodies best. They have gone through rigorous education, so they are always right.

Myth/Metaphor:

Unconscious beliefs that drive the worldviews listed above. These beliefs were extrapolated from both interview data and secondary research findings (which revealed worldviews) and rewritten to summarize overall feelings.

- Fat is evil.
- Obesity kills.
- Doctors are angels in white coats (A metaphor often used to describe doctors).

Fill in the blank to show common myths and misunderstandings about obesity.

Experience

Survey recruitment was carried out through opportunistic and snowball sampling via Instagram, Facebook, as well as LinkedIn. The participant criteria were that they had to be a healthcare professional or student in Ontario. This included general physicians, specialists, nurses, technicians, physiotherapists, dieticians, mental health professionals and paramedics. Acquiring survey participants was a bit more frustrating because the response was not as big. Recruitment was carried out over a full month. In the end, ten participants completed the survey.

Limitations

With such a low number of participants, saturation was not reached, and the survey data was not correctly representative. For future improvements, creating a shorter survey and allowing for a more extended recruitment period could help get more responses. Direct recruitment could also provide more fruitful results.

Findings

In total, 60% of the respondents had positive attitudes towards obese people (ATOP), and 60% believe that obesity is under the obese individual's personal control (BAOP).

All the respondents scored above-average on the Fatphobia Scale, indicating the presence of fatphobia. Despite the low numbers and lack of representative data, some compelling anecdotal findings were discovered:

Respondents who had more negative attitudes towards obese people believed obesity was in personal control of the individual. However, at the same time, half of the people who had positive attitudes also held the same belief about personal control.

More positive attitudes accompanied Fatphobia scores that were on the lower side.

The lowest fatphobia scores were the ones who believed that obesity is more controlled by genetics and the environment. However, only 20% felt this way.

In conclusion, while the survey was not a successful research method in representing primary data in this province, it was still representative of the data found in the secondary sources on this topic.

Upon completing data analysis from the two research methods, it was determined that one of the primary actors, healthcare providers, should be narrowed down to family doctors. This resulted from the finding that most participants experienced the highest amount of weight bias from family doctors. A 2019 study, "Examining Weight Bias among Practicing Canadian Family Physicians," concluded that negative attitudes towards patients with obesity exist among family physicians in Canada. Many of them reported feelings of frustration with patients with obesity and agreeing that people with obesity increase demand on the public healthcare system (Alberga at al, 2019). So while the survey in this study did not yield representative data, there is sufficient information available on the existence of biases among family doctors. In addition to having access to existing literature, focusing on just family doctors will make synthesizing more manageable since different healthcare providers have different influences, barriers, and characteristics.

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3.7: Roadmap for Next Steps

The proposed solution hinges on three critical phases – activism, partnerships and decision-making efforts. These phases are ongoing once they start. Once they accomplish the first objective of reducing weight bias in family medicine in Ontario, they can continue working for another healthcare aspect or a different location. Activism must not stop once partnerships are established, and partnerships must not get ignored once decision-makers take the lead. Both activism and partnerships are maintained while resolutions are being formed. All three need to be working in tandem.

The circular timeline below shows that all phases are ongoing until goals are met. Its circularity conveys that this plan goes beyond the first ten years, as it tackles other healthcare sectors after finding success in family medicine. The healthcare landscape is huge and weight bias is prevalent in every part of it. Therefore, the efforts do not stop.

Strategic Roadmap

The following roadmap gives an overview of the transition steps. It is based on the Roadmap for Transition tool. While it would be preferred to achieve the goal in the shortest amount of time possible, realistically, it would require about five to ten years to mobilize and carry out the plan. Keeping this in mind, this roadmap is based on a ten-year timeline.

A Summary

This paper sifted through a description of the issue, findings from primary research, a synthesis of the problem using systemic design methods, and a high-level strategic proposal and plan that lays out the essential steps required to tackle the issue of weight bias in Ontario healthcare. A review of the landscape revealed that there are more actors than just patients and doctors that directly or indirectly contribute to the issue.

The prominent research finding that family medicine is the most pervasive environment for weight bias against fat patients narrowed the synthesis to concentrate on this sector of healthcare in the province. Mapping the system revealed the disconnect between the scientific perspective of weight bias and obesity, and the social advocacy side.

Defining the future led to the comprehension that it is not just about functional systemic changes, but primarily about emotions and the fabric of a doctor-patient relationship. Ultimately, these discoveries led to four different solution spaces consisting of policy-making, curriculum, research and corporate involvement. The decision to focus on policies and education was made to concretely respond to the research question – How might we reduce weight bias to improve healthcare for overweight patients in Ontario? The solution model and the roadmap was based on a three-prong model of activism, partnerships and decision-making.

Moving Forward

Despite all of those steps, this paper is just a drop in the bucket of the healthcare weight bias issue. Unfortunately, that bucket barely has anything in it. The issue of weight bias affects millions of individuals globally; however, it only accounts for a small number of research studies. Therefore, moving forward, a lot more research is required from all disciplines. Scientific research on the effects of weight bias on physical and mental health, investigative research on the viability of the BMI, economic research on the burdens of weight bias and much more. From these research studies, proposals need to be made to try to solve the issue in various sectors of health in different places.

However, that is just the beginning. The issue faces a fair share of dismissal and critique from society and any improvement means continuous, constant and lasting efforts are mandatory. It is a long battle. Unfortunately, with the arrival of the COVID-19 pandemic and its worsening effects, touching on any other issue in the healthcare space has been delayed. Currently, the focus is on controlling and ending the pandemic, but through that, a number of discrepancies in the healthcare system are surfacing. This pushes the issue of weight bias further back on the priority list. However, vaccine distribution is underway, and there is light at the end of the pandemic-filled tunnel. The time will eventually arrive to address the ‘weight bias epidemic,’ and preparations must be underway. The movement has begun. It is now time to propel it forward.

Next Steps

A Note From The Author

I want to thank you all for taking the time to read through this paper. As mentioned earlier, this issue is very close to me and I plan to continue the work. However, as the paper indicates, I cannot manage it alone. If you are a fellow researcher, a healthcare professional, a social media activist/ influencer, an academic or someone who cares about the problem and wants to do something about it, please reach out to me. I would love to collaborate and take this forward. Email me at ireenahaque@outlook.com and we can get started!

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CHAPTER OVERVIEW

4: Public Health Needs to Decouple Weight and Health

4.1: Cultural Lens and How Culture Influences Your Perceptions

4.2: I’m Not Biased, Am I?

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4.1: Cultural Lens and How Culture Influences Your Perceptions

Cultural Awareness, Sensitivity, and Safety

Culture can be defined in terms of the shared knowledge, beliefs, and values that characterize a social group. Humans have a strong drive to maintain the sense of identity that comes from membership in an identifiable group. In primeval and nomadic times, a person's survival likely benefited from establishing strong bonds with an in-group of trusted relatives or clan-mates with whom one co-operated and shared, versus an out-group against which there was competition for scarce resources. Within the intermixing of modern society, many of us seek to retain a sense of cultural identity and may often refer to our cultural roots, or use double-barreled descriptions such as Asian-American. It is important that we are all aware of our own cultural influences and how these may affect our perceptions of others, especially in the doctor-patient encounter. In many subtle ways, the cultural identities of both doctor and patient affect their interaction, and in a diverse country this can form an exciting challenge.

Culture and individual

We all perceive others through the filter or perspective of our own cultural upbringing, often without being aware of it: communication can go wrong without our understanding why. The clinician must become culturally aware and sensitive, and then culturally competent so that she or he can practice in a manner that is culturally safe.

Cultural awareness

Cultural competency in medical practice requires that the clinician respects and appreciates diversity in society. Culturally competent clinicians acknowledge differences but do not feel threatened by them. "Culturally competent communication leaves our patients feeling that their concerns were understood, a trusting relationship was formed and, above all, that they were treated with respect." While a clinician will often be unfamiliar with the culture of a particular patient, the direct approach is often the best: ask the patient what you need to understand about her culture and background in order to be able to help her. A direct approach helps establish mutual respect and tailor the best and most appropriate care for each patient.

Awareness of one's own culture is an important step towards awareness of, and sensitivity to, the culture and ethnicity of other people. Clinicians who are not aware of their own cultural biases may unconsciously impose their cultural values on other people. As physicians, we must make multiple communication adjustments each day when interacting with our patients to provide care that is responsive to the diverse cultural backgrounds of patients in our highly multicultural nation.

Cultural safety refers to a doctor-patient encounter in which the patient feels respected and empowered and that their culture and knowledge has been acknowledged. Cultural safety refers to the patient's feelings in the health care encounter, while cultural competence refers to the skills required by a practitioner to ensure that the patient feels safe.

To practice in a manner that is culturally safe, practitioners should reflect on the power differentials inherent in health service delivery. Taking a culturally safe approach also implies acting as a health advocate: working to improve access to care; exposing the social, political, and historical context of health care; and interrupting unequal power relations. Given that the patient exists simultaneously within several caring systems, influenced by their family, community, and traditions, the culturally safe practitioner allows the patient to define what is culturally safe for them.

Our culture influences the way we perceive virtually everything around us, often unconsciously. Several useful concepts describe issues that can arise:

- *Ethnocentrism*. The sense that one's own beliefs, values, and ways of life are superior to, and more desirable than, those of others. For example, you may be trained in Western medicine, but your patient insists on taking a herbal remedy. You may be tempted to say "So, why are you consulting me, then?" Ethnocentrism is often unconscious and implicit in a person's behavior. Personal reflection is a valuable tool for physicians to critically examine their own ethnocentric views and behaviors.
- *Cultural blindness*. This refers to attempts (often well-intentioned) to be unbiased by ignoring the fact of a person's race. It is illustrated in phrases such as 'being color blind', or 'not seeing race'. However, ignoring cultural differences may make people from another culture feel discounted or ignored; what may be transmitted is the impression that race or culture are unimportant and that values of the dominant culture are universally applicable. Meanwhile, the person who is culturally blind may feel they

are being fair and unprejudiced, unaware of how they are making others feel. Cultural blindness becomes, in effect, the opposite of cultural sensitivity.

- *Culture shock*. Most physicians come from middle-class families and have not experienced poverty, homelessness or addictions. Exposure to such realities in their patients therefore requires great adaptations and can be distressing. This is a common experience in those who have visited a slum in a developing country, but may also arise at home in confronting abortion, infanticide, or female circumcision.
- *Cultural conflict*. Conflict generated when the rules of one's own culture are contradicted by the rules of another.
- *Cultural imposition(or cultural assimilation or colonialism)*. The imposition of the views and values of your own culture without consideration of the beliefs of others.
- *Stereotyping and generalization*. What may be true of a group need not apply to each individual. Hence, talking about cultures can lead to dangerously prejudicial generalizations. Prejudice is the tendency to use preconceived notions about a group in pre-judging one of the group's members, so applying cultural awareness to individuals can be hazardous. Yet, on the other hand, ignoring culture (cultural blindness) can be equally detrimental. The key is to acknowledge and be respectful of differences, and to ask patients to explain their perspective when in doubt.

The Relevance of Culture for Health

Culture influences health through many channels:

- *Positive or negative lifestyle behaviors*. While we often focus on the negative influences of lifestyle behavior—such as drug cultures, or the poor diet of some teen cultures, for example—we should not neglect the positive cultural influences on behaviors and practices. For example, Mormons and Seventh Day Adventists have been found to live longer than the general population, in part because of their lifestyle including the avoidance of alcohol and smoking, but also because of enhanced social support.
- *Health beliefs and attitudes*. These include what a person views as illness that requires treatment, and which treatments and preventive measures he or she will accept, as with the Jehovah's Witness prohibition on using whole blood products.
- *Reactions to being sick*. A person's adoption of the sick role (and, hence, how he or she or he reacts to being sick) is often guided by his or her cultural roots. For instance, "machismo" may discourage a man from seeking prompt medical attention, and culture may also influence from whom a person will accept advice.
- *Communication patterns*, including language and modes of thinking. Beyond these, however, culture may constrain some patients from expressing an opinion to the doctor or may discourage a wife from speaking freely in front of her husband, for example. Such influences can complicate efforts to establish a therapeutic relationship and, thereby, to help the patient.
- *Status*. The way in which one culture views another may affect the status of entire groups of people, placing them at a disadvantage. The resulting social inequality or even exclusion forms a health determinant. For example, women in some societies have little power to insist on condom use.

What elements of a patient's culture should a health care provider consider when deciding how best to manage a case?

Cultural influences may affect a patient's reaction to the disease, to suggested therapy, and to efforts to help them prevent recurrences by changing risk factors. Therefore, it may be important for health care providers to find out about such possibilities; they can explain that they need them to tell about their family's and community's feelings about health recommendations. Health care providers should explain that they are not familiar with their community and want them to tell if they may have beliefs or obligations that the health care provider should be aware of, such as any restrictions on diet, medications, etc., if these could be relevant.

Difference between cultural competence and cultural safety

Cultural competence is included within cultural safety, but safety goes beyond competence to advocate actively for the patient's perspective, to protect their right to hold the views they do. When a patient knows that you will honor and uphold their perspective and not try to change it, they will be more likely to accept your recommendations. A physician who practices culturally safe care has reflected on their own cultural biases, recognizes them and ensures that their biases do not impact the care that the patient receives. This pattern of self-reflection, education, and advocacy is also practiced at the organizational level.

Example: Breast Cancer in Asian Women

Asian women, in general, and Vietnamese women, in particular, have been identified as ethnic groups that are not participating in breast cancer screening programs in the U.S. The reasons are complex and Vietnamese women may be especially vulnerable due to cultural variances in beliefs, health practices, language barriers, lack of access to care due to socio-economic factors, as well as the long term effects of the migration that occurred at the close of the Vietnam war.

Learning Activity

Find out about how culture impacts health decisions and access by visiting each of the websites linked in the list below:

- Hispanic-Latino Culture
- Chinese Culture
- Iraqi Culture
- Vietnamese Culture
- Lesbian, Gay, Bisexual, and Transgender Health Issues

What are some of the positive and/or negative ways that culture impacts an individual's health care decisions and access?

Show an Example Answer

Stigmatized Illnesses and Health Care

Being disabled because of a disease or injury can lead to benefits – for example, a parking space that is close by. In some instances, the benefits are very attractive, but in most countries of the world, the disabled have no access to any governmental help, and insurance premiums are so high that only a minority of the population can participate in disability compensations schemes. In some situations, disability due to a war injury or to some other situation that confers hero status can also bring social respect and moral prestige to the disabled person.

For the vast majority of disabled people, however, the disadvantages of disability are much more important than its advantages. A restriction of the possibility of participation in normal social life and limitations in the pursuit of personal happiness are often grave and depressing for the person with an impairment that causes a disability.

When the disease or the situation that has produced impairment is stigmatized, the limitations of functions are aggravated and the possibility of compensating disability is significantly reduced. There are a number of diseases that are stigmatized—mental disorders, AIDS, venereal diseases, leprosy, and certain skin diseases. People who have such diseases are discriminated against in the health care system, and they usually receive much less social support than those who have non-stigmatizing illnesses and—what is possibly worst—they have grave difficulties in organizing their life if their disease has caused an impairment that can lead to disability and handicaps.

Mental disorders probably carry more stigma (and consequent discrimination) than any other illness. The stigma does not stop at the persons who are suffering from a stigmatized illness. Their immediate and even remote families often experience significant social disadvantages. The institutions that provide mental health care are stigmatized. Stigma reduces the value of the persons who have a mental disorder in the eyes of the community and the government.

Medications that are needed in the treatment of mental disorders, for example, are considered expensive even when their cost is much lower than the cost of drugs used in the treatment of other illnesses: they are not considered expensive because of their cost but because they are meant to be used in the treatment of people who are not considered to be of much value to the society.

The awareness of the fact that stigmatization is one of the major—if not the major—obstacles to the improvement of care for people with stigmatized illnesses is gradually growing. In a number of countries, governments, non-governmental organizations, and health institutions have launched campaigns to reduce stigma related to illness. They display posters and distribute leaflets, as well as organize radio and television programs.

There is, however, an important sector employing many individuals that does not participate very actively in the reduction of stigma and in efforts to eliminate the discrimination that follows it. It is the health sector—which, by its definition, could gain from the reduction of stigma almost as much as the individuals who have the stigmatized illness. The managements of general hospitals, as well as heads of various medical departments, often refuse to have a department of psychiatry and, if they accept it, they usually assign the worst accommodation for it—in a remote corner of the hospital grounds, for example, or in the lowest (sometimes partly

underground) floor. In the order of priority for maintenance or renovation work, departments of psychiatry come last although they are often in a pitiful state. Doctors who are not involved in mental health care participate and sometimes excel in making fun of the mentally ill, of psychiatrists, and of mental illness. They will often refuse to deal with physical illness in a person with a mental disorder and send such patients to their psychiatrist although they are better placed to deal with the physical illness than the psychiatrist.

Nor are the psychiatrists and other mental health care staff doing as much as they should about the reduction of stigma. They seem unaware of the stigmatizing effects of their use of language—they speak of schizophrenics when they should say a person with schizophrenia, and about misbehavior or lack of discipline when they should make it clear that behavioral abnormalities are part of the illness they are supposed to recognize and treat. In some countries, they requested and received longer holidays or somewhat higher salaries saying that they deserve this because they deal with dangerous patients—although they have publicly proclaimed that mental illness is a disease like any other. They often disregard complaints about the physical health of people with mental disorders and do not do much about them, thus providing sub-optimal care and contributing to the tendency to dismiss whatever people with mental illness may be saying. In their teaching activities, stigmatization as well as the prevention of discrimination and its other consequences often receive only minimal attention.

Perhaps it is impossible for the health care workers themselves to launch large anti-stigma programs: what, however, they should and can do is to examine their own behavior and activity to ensure that they do not contribute to stigmatization and consequent discrimination. They should also participate in the efforts of others to reduce stigma or initiate such efforts whenever possible. Doing nothing about stigma and discrimination that follows it is no longer an acceptable option.

The Cultural Meaning of Illness

Our culture, not our biology, dictates which illnesses are stigmatized and which are not, which are considered disabilities and which are not, and which are deemed contestable (meaning some medical professionals may find the existence of this ailment questionable) as opposed to definitive (illnesses that are unquestionably recognized in the medical profession) (Conrad and Barker 2010). For instance, sociologist Erving Goffman (1963) described how social stigmas hinder individuals from fully integrating into society. The stigmatization of illness often has the greatest effect on the patient and the kind of care he or she receives. Many contend that our society and even our health care institutions discriminate against certain diseases—like mental disorders, AIDS, venereal diseases, and skin disorders (Sartorius 2007). Facilities for these diseases may be sub-par; they may be segregated from other health care areas or relegated to a poorer environment. The stigma may keep people from seeking help for their illness, making it worse than it needs to be. Contested illnesses are those that are questioned or questionable by some medical professionals. Disorders like fibromyalgia or chronic fatigue syndrome may be either true illnesses or only in the patients' heads, depending on the opinion of the medical professional. This dynamic can affect how a patient seeks treatment and what kind of treatment he or she receives.

In terms of constructing the illness experience, culture and individual personality both play a significant role. For some people, a long-term illness can have the effect of making their world smaller and more defined by the illness than anything else. For others, illness can be a chance for discovery, for re-imaging a new self (Conrad and Barker 2007). Culture plays a huge role in how an individual experiences illness. Widespread diseases like AIDS or breast cancer have specific cultural markers that have changed over the years and that govern how individuals—and society—view them.

Today, many institutions of wellness acknowledge the degree to which individual perceptions shape the nature of health and illness. Regarding physical activity, for instance, the Centers for Disease Control (CDC) recommends that individuals use a standard level of exertion to assess their physical activity. This Rating of Perceived Exertion (RPE) gives a more complete view of an individual's actual exertion level, since heart-rate or pulse measurements may be affected by medication or other issues (Centers for Disease Control 2011a). Similarly, many medical professionals use a comparable scale for perceived pain to help determine pain management strategies.

Consider these questions:

1. What diseases are the most stigmatized?
2. Which are the least?
3. Is this different in different cultures or social classes?

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4.2: I’m Not Biased, Am I?

Summary



Bias is a universal human condition. It is not a personal defect, but it is important to recognize your biases and manage them. We cannot cure unconscious bias, but we can address it. This lesson will provide you the opportunity to identify your personal biases. You have them, even if you think you don’t! You are encouraged to try this lesson so you can be more aware of your personal biases and take the necessary steps to reduce their impact on your life.

Activities in this Seminar

Your seminar consists of a variety of pages and activities to help you learn this concept. Navigate by scrolling through the pages, or by clicking a page name below.

- **Engage** – introductory warm-up activity.
- **Explore** – collection of resources to read, watch and try.
- **Explain** – discuss your ideas / opinions / understandings.
- **Evaluate** – quiz for your own self-checking.
- **Elaborate** – task or project where you can show what you know.
- **Express** – wrap-up activity where you reflect on your learning.

Learning Objectives

Learning Target

I can recognize my implicit bias and outline ways to manage my bias.

Habits of Mind

Thinking about thinking (Metacognition)

Critical Thinking Skills

Analyze/apply

Academic/Concept Vocabulary

Conscious

Egalitarian

Explicit Bias

Implicit bias

Explicit bias

Unconscious

Standards

CC.8.5.11-12.G Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.

Resources Needed

Access to the Internet

Computer or mobile device

Engage

Directions

Click on the link below to participate in a brief study conducted by Harvard University. You will be asked to agree to the terms. Select a test that you are interested in completing. You can choose between approximately 20 tests (gender, sexual orientation, age, weight, etc.). The purpose of the Implicit Association Test is for you to discover if you have an automatic preference for a particular group over another.

Explore

Directions

Explore these resources to learn about the implicit bias. You can pick and choose to read, watch, then do the activity listed.

Read



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Read the Unconscious Bias article to gain a better of understanding of unconscious bias and how you can make an effort to prevent your biases from affecting your decisions. For a more detailed look at the types of cognitive biases, read 12 Cognitive Biases That Prevent You From Being Rational. For a more simplified chart of the types of cognitive bias, take a look at 20 Cognitive Biases That Screw Up Your Decisions.

Watch



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Watch this brief video (Understanding Unconscious Bias) to gain a better understanding of unconscious bias and how you can make an effort to prevent your biases from affecting your decisions. Google created a short video titled, Unconscious Bias at Google, to provide insight on the importance of recognizing your personal biases and limiting their effects. For a more detailed look at the types of cognitive biases, watch 12 Cognitive Biases Explained.

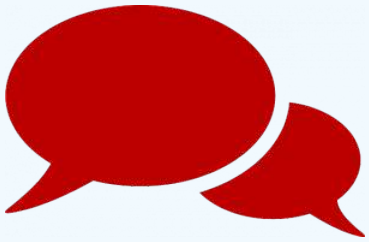


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Do

Head over to Quizlet to practice flashcards, matching, and other activities to help enhance your understanding of the types of cognitive biases.

Explain



Implicit (or unconscious) bias refers to bias that we are unaware of, bias that just sort of happens. It happens automatically when our brain makes quick judgments of people based on our cultural background and experiences.

Directions

Take the Snap Judgment quiz to discover your unconscious bias.

Discussion questions:

Which of the people in the Snap Judgment quiz do you think you were quickest to judge? What made you so quick to judge?

Evaluate

Directions

Now it is time to self check how much you have learned about bias. If you do not know as much as you thought, go back to the "Explore" section of this seminar and reread, rewatch, or redo the activities listed. See your facilitator if you have questions.

Click here to take the quiz online. You do not have to log into the quiz site in order to take this quiz. If a window pops up asking you to sign up for the quiz site, just close the sign-up window and start your quiz.

Elaborate



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Directions

As human beings, we tend to share common cultural traits with the people we trust most. Complete the Trusted 10 activity to outline the ten people that you trust most. Try to avoid listing family members. If you can't think of ten people that you trust, simply list as many as you can. Before you type on the template, be sure to *make a copy* of the document. Only type on your copy. When you have finished the activity and responded to the questions, submit your answers for review. Your responses to the Trusted 10 activity will be scored using this rubric.

Express

> Did you realize that you were guilty of being biased before this lesson? Have you ever felt like a victim of bias? How can you be an ally to students at school or families in the community who experience bias?

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CHAPTER OVERVIEW

5: Understanding and Managing Bias - Exercises

5.1: The Elephant and the Rider

5.2: Implicit Bias Activity

5.3: Empathy, Bias' Cousin

5.4: Additional Reading and Activities

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5.1: The Elephant and the Rider



NYU psychologist Jonathan Haidt describes the brain as “the elephant and the rider.” The analogy describes the emotional side of the brain as an “elephant,” and the rational side of the brain as a “rider”. Before we can truly identify and work on our own biases, we need to get the elephant and the rider working together, meaning the emotional and rational sides.

This exercise should help you direct your rational side (the rider) whilst motivating your emotional side (the elephant) to stay on task and complete the toolkit.

To get you started, write down the conscious goals you want to achieve using this toolkit. List as many as you would like!

Example

My conscious goals for using this toolkit:

- “I hope to understand my biases, and know how to identify when I am being biased.”

Now, what do you think you will need to do to motivate the elephant (the emotional side of your brain) so it doesn’t derail you from your goal?

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5.2: Implicit Bias Activity

Imagine you are an HR hiring manager for an up-and-coming internet-based organization in Silicon Valley. You must hire someone analytical, well-educated, and with good technical skills. You receive dozens of CVs and your job is to pick someone who can do the job with ease. You secure four interviews. One with Michael Gallager, Tamikha Johnson, Patricia Morales and Wang Xiu Ying.

These imaginary four people have the same qualifications, went to the same school, studied at the same college and have the same work experience.

Who do you give the role to? Choose one:

Michael Gallager, Tamikha Johnson, Patricia Morales, Wang Xiu Ying

Regardless of the decision you made, it was made due to your bias. Unconscious biases like these in the workplace (and beyond!) can be debilitating and unfair for many. Our own bias is shaped in many ways; one of the major ways our bias is shaped is through the influences we have in our life.

For the purpose of this toolkit, we have geared this activity toward your own intentions for using this guide. However, you can apply this same technique to any project or initiative you take on.

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5.3: Empathy, Bias' Cousin

Meet Empathy, Bias' Cousin

Focusing on other's feelings, emotions and needs can help bring a sense of joy and fulfillment into our lives. Understanding empathy can help us tackle our own biases. Empathy can be broken into three categories:

Cognitive empathy

The ability to understand someone else's point of view and perspective.

Emotional empathy

Feeling what someone else feels as your own.

Empathic concern

Unconsciously or consciously figuring out what someone might need from you.

Biases and empathy are intertwined, so it's important to figure out how strong our empathy muscle is. This allows us to, by default, become better at assessing our biases.

It's important to build self-awareness around our own empathy beliefs. When we grow our self-awareness, we can begin to see what thoughts/biases about our own empathy might exist. Using the space below, do your best to write down three of your own empathy beliefs.

Examples

- **Empathy Proof 1**: I can relate to other people's emotions easily
- **Empathy Proof 2**: I can be less empathetic to people who are aggressive or rude
- **Empathy Proof 3**: After a long day, I can run out of empathy for my loved ones at home

The Empathy Quotient (EQ) test1, developed by Simon Baron-Cohen at the Autism Research Centre at the University of Cambridge, can be used to better understand your own empathy.

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5.4: Additional Reading and Activities

Truly understanding your biases and increasing your capacity for empathy is an incredibly difficult practice. We're not going to undermine that. In addition to the activities we've taken you through, we've curated a list of six additional resources for you to explore.

The Privilege Walk

The Privilege Walk, via the Dolores Huerta Foundation for Community Organizing, is an excellent one for group settings. It is designed to reveal to each participant the relative privilege they have benefited from, in comparison to those around them.

The Privilege Walk

10 Examples That Prove White Privilege Exists In Every Aspect Imaginable

A powerful breakdown by Jon Greenberg in *Everyday Feminism* that shines a light on the "vast array of benefits and advantages not shared by many People of Color (POC)."

10 Examples That Prove White Privilege Exists In Every Aspect Imaginable

The Origins of Privilege

By Joshua Rothman in the *New York Times*: an interview with Peggy McIntosh, author of the seminal work, "White Privilege and Male Privilege: A Personal Account of Coming to See Correspondences Through Work in Women's Studies."

The Origins of Privilege

The "Flip it to Check" Approach

Presented in an excellent TEDx talk by Roche's Global Head of Human Resources Kristen Pressner, the "flip it to check" approach is a very simple but profound exercise. Before you make a statement with a value judgment— one that's based on gender, race, age etc.— swap the term with a different gender, race or age. If the sentence now contains an assumption that "sounds off," then it's likely a biased statement.

For example, imagine you're considering promoting a woman on your team. Yet, because the new role comes with a lot of travel and she has young kids at home, you decide against offering her the role. Now flip the scenario to test it: would you make that same decision if that employee were a man?

The next time you make a value-based statement, change out the gender/ age/race and see if the statement or question sounds off.



A YouTube element has been excluded from this version of the text. You can view it online here: https://pb.libretexts.org/overweight/?p=138

The SPACE2 Model of Inclusion

To truly train or manage your implicit bias, it's important to bring those unconscious thoughts into your consciousness, and continue to critically examine them regularly. The SPACE2 Model includes six evidence-based strategies that "activate controlled processing and enable individuals to detect and override their automatic reflexes".

The SPACE2 Model of Inclusion

Implicit Association Test (IAT)

To help uncover implicit biases and stereotypes, Harvard University devised a set of tests called the Implicit Association Test (IAT). This test measures the strength of associations between concepts (e.g., Asian people, fat people) and evaluations (e.g., good, bad) or stereotypes (e.g., smart, lazy). Each concept is paired with a positive or negative association and assigned a letter on the keyboard. Participants are then presented a stimuli (a photo or word) and asked to respond with either key. The premise is that it is easier to make a response when the closely-related items are on the same key.

The results of the IAT are classified into three groups: a slight association, a moderate association, or a strong association. For example, we would say that a participant has a strong implicit preference for straight people relative to gay people if they are significantly faster to complete the task when Straight People + Good / Gay People + Bad are paired together compared to when Gay People + Good / Straight People + Bad are paired together.

The IAT is a well-validated measure, independent of variables such as handedness, hand-eye-coordination, in-group bias or even familiarity. As the test measures implicit bias, the results can surprise you. It is important though to remember that showing a moderate or even strong result should not be seen as a negative or immediately label you as prejudiced; the IAT is a great tool to help you discover your unconscious biases, and it's what you do with the knowledge of your unconscious that makes it powerful.

Project Implicit

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Glossary

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