



# Weight Management and Health for People Living with Chronic Conditions

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Bhriana Onuoha



## **EXECUTIVE SUMMARY**

Obesity is one of the most critical nutritional diseases in today's world. While research behind obesity intervention have, for the past few decades, circumnavigated topics like diet and workout programs, modern medicine has proven that medical interventions, in conjunction with diet and exercise, can drastically aid in the treatment of obesity. A new generation of anti-obesity drugs, namely glucagon-like peptide 1 (GLP-1) receptor agonists, have garnered positive results with patients living with obesity. This brief will focus on the relationship between nutrition, obesity, and weight management with patients with chronic diseases, and the recent medical interventions to combat today's obesity crisis.

### **ABOUT THE AUTHORS:**

**Bhriana Onuoha** is the NHC Senior Coordinator, Communications

### **RESEARCH BRIEF DESIGN:**

**Breshay Moore** is the NHC Manager, Digital Media

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## UNDERSTANDING TODAY'S OBESITY “EPIDEMIC”

In 1998, the National Institutes of Health declared obesity a disease, followed by The Obesity Society in 2008. However, it was not until June 2013 when the House of Delegates of the American Medical Association (AMA), one of the most influential medical associations in the U.S., voted to recognize obesity as a disease that treatment and prevention efforts were taken seriously.

Obesity is a major public health concern, replacing malnutrition and infectious diseases as the most significant contributors to poor health. Approximately, 2 billion adults globally are overweight or struggle with obesity, while 462 million are underweight.<sup>1</sup> Obesity rates in the U.S. have reached epidemic levels, with one third of the adult population and 17% of children ages 2 to 19 affected. According to the World Health Organization, close to 3 million people die every year because of dangerous levels of body fat.

To diagnose obesity, doctors measure a person's weight against what is considered "healthy" for their height. The screening tool for this process is called the body mass index (BMI). To determine BMI, weight in kilograms is divided by the square of a person's height in meters. Overweight is defined as a BMI within the 25 to < 30 range, a BMI of 30 or higher is categorized as obese.<sup>2</sup> While criticism against BMI is extensive, it is important to note that BMI does not measure body fat directly, rather it is moderately correlated with more direct measures of body fat obtained from skinfold thickness, bioelectrical impedance, underwater weighing, dual energy x-ray absorptiometry (DXA), and a variety of other methods.

## POOR NUTRITION AND OBESITY

A high BMI is strongly correlated with adverse health outcomes. These conditions include cardiovascular disease, type 2 diabetes, sexual and mental health problems, respiratory issues, and metabolic syndrome — to name a few. As a country, the U.S. has a complicated relationship with food and exercise.

Americans have been riddled by fad-diet advice, and the complexities and discrepancies that accompany them, but there has not been a lot of focus on food as sustenance. This lack of focus is reflected in the country's economy, where a marketing analysis found that the U.S. spent \$1.09B on advertising on canned, frozen, and preserved fruits and vegetables<sup>3</sup>, compared to the \$5B spent on food fast restaurant marketing in 2019.<sup>4</sup> Furthermore, a 2017 study from the University of Connecticut's Rudd Center for Food Policy and Health found that 80% of the \$14 billion spent on food marketing in the U.S. concentrated on sugar drinks, fast food, and “unhealthy” snacks.<sup>5</sup> The negative effects of this marketing on the health of children and teenagers are extreme and can affect their dieting habits.



Diet is essential to understanding the development of obesity. Consuming nutrient-deficient beverages and foods, for example, including many processed foods, can lead to obesity and other chronic conditions that puts people at risk of at least 13 types of cancers, including endometrial (uterine) cancer, breast cancer in postmenopausal women, and colorectal cancer.<sup>6</sup> From birth, issues like infant breast feeding, the age of introduction to foods, intake of sugary beverages, fast-food consumption, and the content of family meals are all contributing factors to obesity (and childhood obesity).<sup>7</sup> Engaging in less nutritious eating habits at such an early age can be detrimental to the overall positive trajectory of overall health.

## OBESITY IS THE LEADING CAUSE OF CARDIOMETABOLIC CONDITIONS

Obesity is associated with a variety of cardiometabolic disorders. The impact of obesity or excess body weight/fat, for example, can be a risk factor for conditions like type 2 diabetes, hypertension, metabolic syndrome, and some cancers.<sup>8</sup> An estimated 47 million people in the U.S. live with cardiometabolic disorders. These disorders and diseases are common and often preventable and include heart attack, stroke, diabetes, insulin resistance, and non-alcoholic fatty liver disease.<sup>9</sup> This population is also positioned to have an increased risk of developing heart disease or type 2 diabetes. Cardiometabolic disorders represent a cluster of interrelated risk factors, primarily hypertension, elevated fasting blood sugar, dyslipidemia, abdominal obesity, and elevated triglycerides.<sup>10</sup>

In previous research, obesity has been linked to excessive adiposity, a condition of being severely overweight. Evidence from a 2016 study found that when evaluating the relationship between cardiovascular disease (CVD) and obesity, factors like the degree and duration of one's obesity are determinants.<sup>11</sup> For example, the prognosis of a patient who newly suffers from obesity may be vastly different than one who struggled with obesity for years. Although there are exceptions to the rule, like the “fat but fit” paradigm, most epidemiological evidence has linked elevated levels of body fat to CVD.

## THE INTANGIBLE DISPARITIES OF OBESITY

Obesity can be linked to genetics, and addressing nutrition is only one of many aspects. Over the past two decades, obesity has grown with determinants that range from physiological to sociological factors including diet, physical activity, psychological factors, stress, socioeconomics, and discrimination in health care and health access.<sup>13</sup> Demographics of people who tend to experience a higher prevalence of obesity are women, those in low socioeconomic status (SES), underrepresented minority groups, and rural residents.<sup>14</sup> These specific demographics convey a correlation between socioeconomic status and nutritional health.



However, racial and ethnic disparities play a significant role in obesity in varying communities. For example, rapid weight gain during infancy has been observed to impact African American children more than White children and predicts increased future health problems in this group.<sup>15</sup> A 2019 study published in *Public Access* found that African Americans and Hispanic/Latino children are more likely to have lower quality diets, often riddled with ultra-processed carbohydrates, trans fats, sugars, and foods with little to no nutritional value.<sup>13</sup> Moreover, African American and Hispanic children consume sugar-sweetened beverages and fast food by the age of two, which is earlier than any other racial and ethnic demographic.

Poor dietary health choices can be attributed to obesogenic environments. Obesogenic environments are characterized by having more features that promote obesity and fewer resources that promote healthy eating and lifestyle<sup>14</sup> in which the population(s) reside. For example, these environments typically have fewer grocery stores, fewer produce options within existing supermarkets, and have many fast food establishments.<sup>14</sup> As a result, the affordability and prevalence of fast-food restaurants compared to the scarcity and unaffordability of fresh and/or nutrient-rich foods contribute to obesogenic environments.

Nothing is clear cut; the same goes for obesogenic environments. Obesogenic environments are not evenly distributed as there is variation by area demographics, SES, urban sprawl, land use mix, and racial composition.<sup>14</sup> Moreover, lower SES neighborhoods and those that are racially segregated with disproportionately more residents who are



underrepresented racial and ethnic minorities tend to be more obesogenic. When looking at the populations of “who lives where,” it is dismissive to deny that racial residential segregation in the U.S. is not an indicator of structural racism. Structural racism may be defined as “the macrolevel systems, social forces, institutions, ideologies, and processes that interact with one another to generate and reinforce inequalities among racial and ethnic groups.”<sup>16</sup> A 2014 study published by the National Institute of Health examined area-level racial inequalities in SES and health,<sup>17</sup> demonstrating that states and counties with larger average differences in SES indicators, such as income and educational attainment between Blacks and Whites have worse health outcomes, including increased risk of heart attack,<sup>18</sup> a cardiovascular disease outcome commonly associated with obesity. There is no denying that structural racism is another determinant in the obesity epidemic.

## THE ECONOMICS OF OBESITY AND PHARMACOTHERAPY

In the last decade, obesity has become the most prevalent chronic disease in the U.S., amounting to an estimated \$147 billion in health care costs annually.<sup>19</sup> The Patient Protection and Affordable Care Act (ACA), enacted in 2010, included provisions for private and public health insurance plans that expanded coverage for lifestyle/behavior modification and bariatric surgery for the treatment of obesity. Pharmacotherapy, also known as drug therapy, is another tool in the fight against obesity; however, most insurance companies do not cover it. A 2022 survey conducted by the International Foundation of Employee Benefits Plans found that only 22.2% of employer-sponsored insurance plans offered coverage for weight loss drugs.<sup>20</sup> This small percentage of coverage is a barrier to access therapy from which patients could benefit.

Bariatric surgery, though an efficacious treatment for obesity, comes with operational costs that can deter some members of the affected patient community. On one hand, having bariatric surgery may reduce the overall cost of long-term treatment of obesity and any related comorbidities. On the other hand, the cost ranges from \$17,000 to \$26,000 (USD), according

to the American Society for Metabolic and Bariatric Surgery,<sup>21</sup> depending on factors such as type of surgery, location, and services rendered. Not all insurance companies cover the costs associated with the procedure. Medicaid, for example, covers some forms of the surgery, as long as the surgery is deemed a medical necessity<sup>22</sup> (e.g., the patient’s treating physician has exhausted all other possibilities). Additionally, the out-of-pocket costs typically need to be paid prior to the surgery. These costs can pose a problem for patients with financial need. Pharmacotherapy is a less invasive treatment option than bariatric surgery. One type of treatment, glucagon-like Peptide-1 (GLP-1) agonists, is utilized in the treatment of type 2 diabetes and obesity, to stimulate the release of insulin and suppress glucagon secretion only when blood glucose concentrations are elevated.<sup>23</sup> The physiological response to oral ingestion of nutrients involving the incretin system is reduced in some patients with type 2 diabetes but may be augmented by administration of GLP-1 receptor agonists.

Despite the drug’s effectiveness and proven ability at helping obese persons lose significant amounts of weight, insurance providers do not typically cover GLP-1s meant for treating obesity. The cost of the drug, an estimated \$10,000 annually, coupled with lack of insurance coverage has prevented access to those who could benefit from it. Some health plans require evidence that lifestyle/behavior modifications have not previously worked before exploring the pharmacotherapy route. Other payers require a coinciding behavioral weight-loss program if coverage for the drug is provided. In some circumstances, acquiring coverage does not mean permanent coverage for patients, as health plans may require weight loss milestones as a prerequisite for maintaining coverage. Other plans will discontinue coverage if the payer deems that the patient has lost enough weight.<sup>20</sup> The factors needed to determine what results or interventions are “enough” is often unclear.

Coverage for obesity drugs is an added challenge for Medicare and Medicaid patients. Medicare provides health insurance coverage to 65 million people in the U.S., including 57 million senior adults and eight million adults with disabilities. Federal legislation has barred Medicare from covering weight loss drugs, including older generation weight-loss drugs. The Treat and Reduce Obesity Act of 2023 was introduced to Congress, but the bill is presently under review. Medicaid, moreover, provides coverage to lower SES populations, serving an estimated 92 million enrollees as of June 2023.<sup>24</sup> Today, the government's role in funding obesity intervention largely focuses on policies like national surveillance, obesity education and awareness, grant-based food subsidy programs, zoning for food access, nutrition labeling, dietary guidelines, food marketing changes, and pricing policies.<sup>25</sup> Nutrition intervention programs have been proven effective,<sup>26</sup> but that does not mean that other treatment options should not be explored.

## FOOD AS MEDICINE

Diet is another effective route patients can take to combat obesity.<sup>27</sup> A study published in the University of Texas' MD Anderson Cancer Center detailed that eating a plant-based diet — vegetables, whole grains, beans, and fruits — can help reduce risk for cancer, along with several other chronic diseases. Diets based in plant foods are associated with a lower occurrence of coronary heart disease and cancer of the lung, colon, esophagus, and stomach.<sup>28</sup> In addition to avoiding cancer and combating obesity, plant-based diets have also been proven to be effective treatments for diabetes, hypertension, hyperlipidemia, and heart disease.

Eating a balanced diet, in conjunction with moderate exercise, breeds positive health benefits, but access to nutritious food is not so simple for everyone. The September 2022 White House Conference on Hunger, Nutrition, and Health brought renewed attention to the issue and served as a call to not just end hunger but reduce the prevalence of chronic disease.<sup>29</sup> The Food as Medicine initiative recognizes that access to high quality foods is imperative for good health.

It also recognizes disparities in food access within the U.S. During the conference, approximately 33.8 million were reported to live in households with food insecurity and about half of all American adults had “...one or more preventable chronic disease, many of which are related to poor-quality eating patterns<sup>29</sup>.”

Other diets that manage specific conditions such as diabetes, certain autoimmune conditions, inflammation, among others can also be effective for those who are overweight or categorized as obese. For these dietary habits, food would function as preventative medicine, encouraging health and well-being. When evaluating the general U.S. patient population, there is a strong correlation between food security status and health status; furthermore, there is an existing correlation between income, wealth, and health status (Figure A).<sup>30</sup> Studies from the National Health Interview Survey emphasize the tradeoffs low-income households have to make between food and other living necessities.<sup>31</sup> Additionally, information from the same report read that food insecurity is a risk factor for the underuse of medication — due to costs — among adults with chronic diseases.



## TREATING PREEXISTING CONDITIONS CAN LEAD TO OBESITY

Medicine-related weight gain is another contributing factor that cannot be overlooked. Certain medications adversely affect the body's metabolism, causing bodies to burn fat at a slower-than-normal rate. Other medications may affect the body's ability to store and

absorb sugars and other nutrients. In some cases, medications have been linked to shortness of breath, resulting in people on certain medications reducing or eliminating exercise.

Whether the reason is known or still a medical anomaly, there are a handful of medications that may cause weight gain. These drugs include medicines for diabetes (i.e., insulin, thiazolidinediones, and sulfonylureas); antidepressants; antipsychotics; epilepsy medicines; steroid hormones; and blood pressure-reducing medicines.<sup>32</sup> These conditions are prevalent in the U.S. population, with more than 30 million Americans diagnosed with diabetes as of 2021 and approximately 7.4 million relying on insulin to manage their condition.<sup>33</sup>

Antipsychotic-induced weight gain (AIWG), according to the NIH, contributes to weight gain and affects a large part of the American patient population. An estimated 19.1 percent of adults in the U.S. civilian noninstitutionalized population reported experiencing any mental illness in 2018<sup>34</sup> ; 37.3 million noninstitutionalized people in 2018 reported obtaining at least one antidepressant prescription while 6.1 percent reported obtaining at least one antipsychotic (Figure B).<sup>34</sup> Additionally, antipsychotics are known to impair glucose metabolism, increase cholesterol and triglyceride levels, and cause arterial hypertension, which can lead to metabolic syndrome.<sup>35</sup> Patient populations who are at risk of the effects of obesity due to treating existing conditions (i.e. taking medications for other illnesses) must be considered when evaluating the best treatment approach.

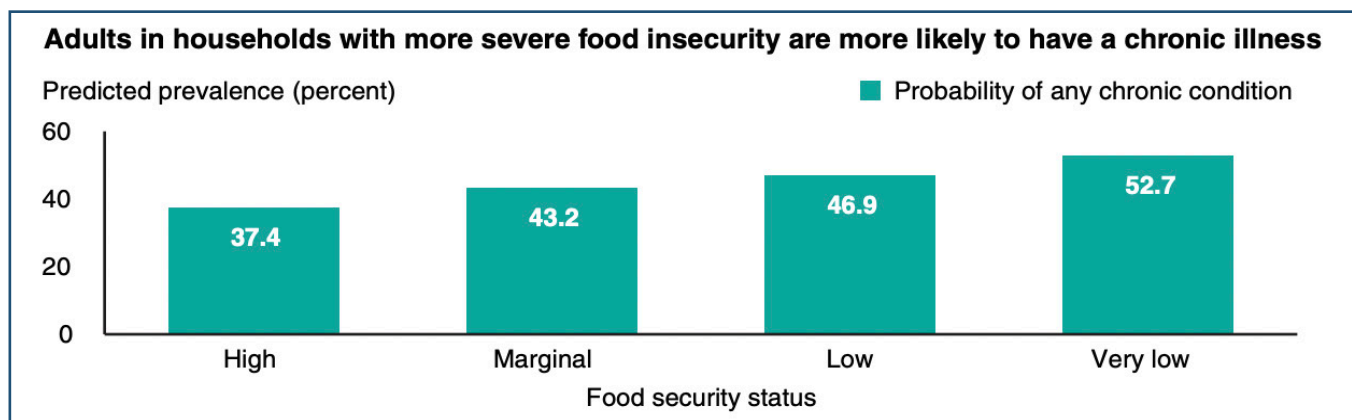
## CONCLUSION

While traditional approaches to combating obesity, like maintaining a healthy lifestyle (i.e., staying active, establishing a healthy relationship with food, following a nutrition-dense diet, getting adequate rest, etc.) are effective, modern-day medications may decrease the chances of obesity and obesity-related diseases. Because the factors that contribute to obesity are complex and range from diet, activity (or inactivity), to socioeconomic factors, and preexisting medical conditions, innovative approaches should be explored

by patients, medical professionals, and insurance companies alike. Anti-obesity drugs may be initiated when appropriate criteria are met, especially if self-directed or professionally directed lifestyle treatment are not effective.<sup>36</sup> People who struggle with obesity should have access to a wide variety of treatments and interventions, whether diet, exercise, social drivers, or medication, to help manage this growing global public health concern.

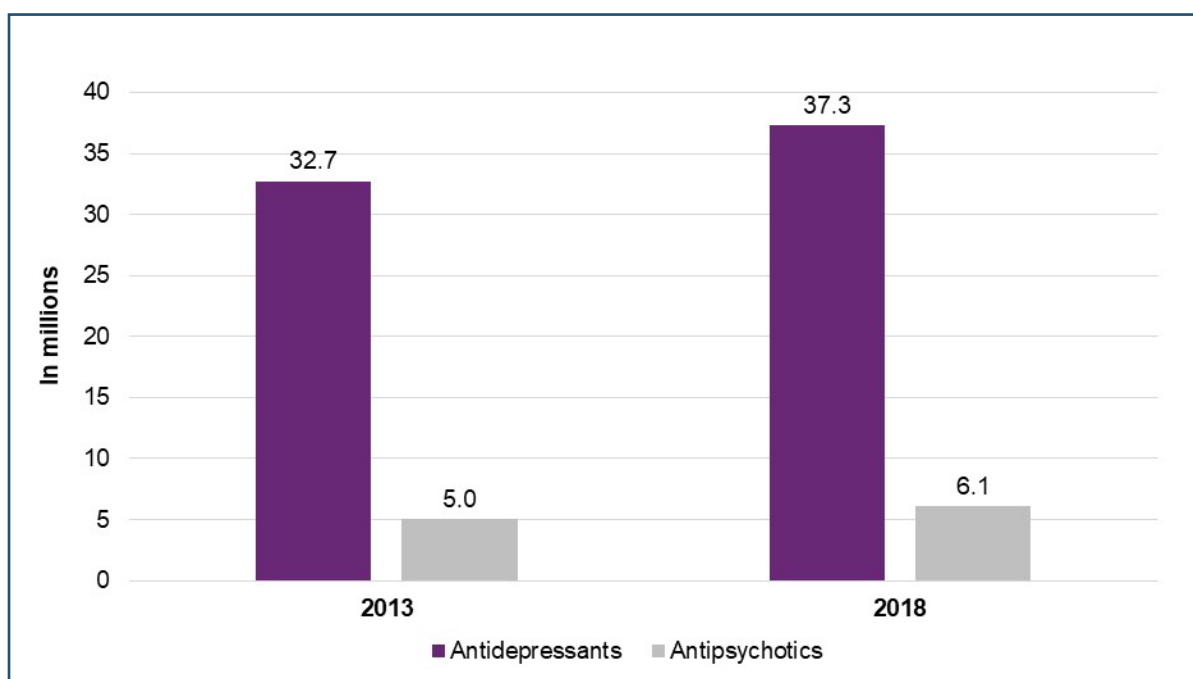


**Figure A: Prediction of prevalence (percentage) of chronic illness based on food security status**



**Source:** USDA, Economic Research Service calculations using National Health Interview Data 2011-2015. Gregory, Christian & Coleman-Jensen Alicia, 2018

**Figure B: Utilization totals (in millions) for U.S. noninstitutionalized civilians who obtained at least one antidepressant and/or antipsychotic from 2013 to 2018**



**Source:** Agency for Healthcare Research and Quality, Center for Financing, Access and Cost Trends, Medical Expenditure Panel Survey, Household Component, 2013 and 2018, [https://meps.ahrq.gov/data\\_files/publications/st534/stat534.shtml](https://meps.ahrq.gov/data_files/publications/st534/stat534.shtml)

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<sup>1</sup> In the 1980s, a study<sup>12</sup> was published that demonstrated that individuals with a low cardiorespiratory fitness level had a higher risk of mortality eight years down the line when compared to those who were moderately fit. This finding has been found on multiple occasions since then. In the 1990s, research found what is today called the “fat but fit paradigm,” meaning that a person’s fitness level might attenuate some of the adverse effects of obesity.



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1730 M Street NW, Suite 650 • Washington, DC 20036-4561 • [info@nhcouncil.org](mailto:info@nhcouncil.org) • 202-785-3910