

# Obesity in the US and UK

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## Abstract

The United Kingdom and the United States of America are similar countries but have very distinct differences. Both countries are a group of states that share one government, but their government systems differ, the UK is a constitutional monarchy- parliament system, whereas the United States is a federal constitutional republic. In addition, both countries have unique cultures that greatly influence diet. Between 1960 and 2014, there was a continuous increase in overweight individuals, obese people, and extremely obese people in the United States. According to data from the National Health and Nutrition Examination Survey, more than one in three adults in the United States were considered obese in 2014. Another poll done by the United States Centers for Disease Control and prevention that questioned over 200,000 adults about their self-reported BMI or body mass index, found that 21% of Americans fall into class 2 or 3 obesity.

**Keywords:** Obesity; BMI; Population; Overweight

## Introduction

The United States is widely known around the globe as a gluttonous country, and without a doubt obesity is a problem in the United States, the country is ranked 12<sup>th</sup> in the world for percent of obese population [1-3].

According to the UK's National Health Service, or NHS, obesity levels are more than triple what they were in 1980, when only 6% of men and 8% of women were obese. Based off information from NHS Digital (formerly Health and Social Care Information Centre), the data provider for the NHS, 24.8% of adults are obese, and 61.7% are either overweight or obese. Both developed countries have come to experience the same problem, under different circumstances, which leads to the question: How are the causes and effects of obesity similar and different in the United States and the United Kingdom? The obesity epidemic in the United States and UK developed from similar circumstances that simply developed in different geographic locations. Both societies have created an environment conducive to having an overweight population.

## What is obesity?

Obesity is measured in adults using the BMI scale, or body mass index, which is defined as a person's weight in kilograms, divided by their height in meters squared. This equation should end with a number between 15 and 40+, and this number is generally used as an estimate of body fatness. The BMI scale is broken up into categories, anything less than 18.5 is underweight, anything between 18.5 and 25 is considered healthy, 25-30 is overweight, and anything thirty or higher is considered obese. As the phrase «Obesity epidemic» is used throughout this paper, it will be referring to the abundance of both overweight and obese people. The scale of obesity is also broken into subcategories, 30-35 is class 1 obesity, 35-40 is class 2 obesity, and 40+ is class 3 obesity. BMI is not a definite scale of obesity as it only measures weight, not body composition, but has been shown to moderately correlate with other measuring standards of body fat [4].

Obesity in children is also evaluated using BMI, but the scale to determine obesity is based on percentile (separated by age and sex), instead of a strict scale. For children overweight is defined by the CDC as being at or above the 85<sup>th</sup> percentile and below the 95<sup>th</sup> percentile, and childhood obesity is over the 95<sup>th</sup> percentile [5].

## RAP Methods

By comparing sources across multiple different disciplines, the causes and effects of obesity are highlighted. This comparative review of Effects of Obesity examines multiple sources from different databases and academic journals, that compare sources examining the same topics, including Health effects of obesity, social attitude about obesity, childhood obesity, economic effects of obesity, and causes of obesity. Sources examining an effect of obesity in the United States, and then more sources examining the same topic in the UK will support these findings. The goal of these findings is to show how the obesity epidemic in the US and UK are similar. These findings are significant because they could be used to identify problems that could be solved in similar ways in both countries. The study that inspired this research was a study done in 2001 that compared the epidemic of obesity across three countries. This study focused on the US, China and Russia and compared obesity as a function of socioeconomic status. This led to a comparative study between the US and UK to determine the similarities between two of the most developed countries in respect to obesity.

## Food industry and obesity

McDonalds makes roughly 10 Billion dollars every year and has over 14,000 locations in the United States [6]. McDonald's is the largest fast food chain in the United States based on profit, and is feeds unhealthy food to the population, with options like the Denali Big Mac that are up to 850 calories for only a burger. A study published in 2010 strove to examine the relationship between geographical location and obesity rate in 3 million school children and over 1 million pregnant women. The study found that students with a fast food restaurant within a tenth of a mile from their school had a 5.2% increased rate of obesity. It was also found that non-fast-food restaurants did not correlate with an increased obesity rate.

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According to Public Health England, or PHE, there were over 50,000 fast food restaurants in England alone (Public Health England). With a population of about 53 million people, that puts England at about 1 fast food restaurant per thousand people. There are about 50,000 fast food restaurants in the US, and children between the ages 6 and 14 eat fast food 157 million times per month.

Another concerning aspect of the fast food industry is the advertising targeted towards children and adolescents of all ages. Some of the methods used include television advertisements, product placement, the internet and toys or products associated with other popular brands. In 1999, assorted companies spent 7.3 billion dollars on advertising, with 1 billion of this amount dedicated to candy and snacks. Young children have lots of buying power even if they do not have money.

Marketing teams know that if children want a product bad enough, they can pester their parents who might end up buying the product for them. As of now, there are few regulations on the advertisement of food to children in the US. The governing body for these regulations is the Children's Advertising Review Unit, a sub-unit of the National Council of Better Business Bureaus [7]. This is not a government sponsored organization and has no power but works based on voluntary compliance.

In the UK, there is also a self-governing body that restricts on the advertising of «high fat, sugar and/or salt» or HFSS foods. According to the UK Code of Broadcast Advertising, advertisements for HFSS foods are prohibited before, during, or after shows that are specifically for children under 16 (UK's Restrictions). In the US, there are multiple instances of celebrities like LeBron James and Dwight Howard endorsing fast food restaurants by being in commercials advertising places like McDonalds. Conversely, in the UK, advertisements are prohibited from taking advantage of licensed characters or celebrities popular with children to promote the sale of HFSS foods or drinks [8-11].

### Sedentary and inactive lifestyles

In modern society, people are spending more time sitting, whether in school, in traffic or at work. This has led to a distinction between sedentary and inactive lifestyles. The term sedentary is often used to describe an inactive lifestyle, but actually refers to sitting for excessive periods of time, and it has been determined that the two have similar but distinct effects. Less than 5% of adults in the US participate in 30 minutes or more of physical activity per day. Not only do people not work out every day, but only one third of adults meet recommended standards for physical activity. This means that some of the increase in obesity could be a result of a sedentary lifestyle. The percentage of men who reported being inactive went from 11% to 43%, and the percentage of women went from 19% to 52% [12-14].

The UK is also going through a similar crisis, with about 39% of adults that fail to meet government recommendations for physical activity. The recommendation from the UK government is 150 minutes of moderate intensity activity and 2 or more days of strength activities per week. Not only are many the adults in the UK inactive, 60% of them are not aware of the government's guidelines. This may create a need for a government program to help increase awareness.

### Social attitude about obesity

One of the detrimental health effects mentioned earlier was "psychosocial effects" which are mainly self-perception and social

stigma from being overweight. Overweight and obese people are often considered lazy or not committed to losing weight and are blamed for their weight. It is also a common belief that "weight stigmatization" is for the benefit of obese people, and that it should be motivation to lose weight, but this is not the case, and it harms the efforts of obese people to be health [15].

In 2016, the CDC conducted a study on US public schools, to determine whether or not schools use wellness programming about weight to promote weight stigmatization. It was found that 47.4% of schools used some kind of obesity prevention program, and that 15% of schools used programs that were proprietarily developed, and that focused on the weight of students and staff instead of proper nutrition and exercise. Informing student about the risks of obesity it key to reducing the epidemic, and there are many other efforts to reduce obesity in schools.

In a study published in 2015, Stuart WF et al. examined anti-fat attitudes in the UK, with a survey with a sample size of 2380 people, with data broken up by gender, age, BMI and exercise frequency [16]. This study had subjects respond to questions that used multiple scales to measure anti-fat attitude, which includes the Attitudes Towards Obese Persons, Beliefs About Obese Persons and Anti-Fat Attitudes Scale. It was found that anti-fat attitudes were present among all groups, including the obese people surveyed. This data makes it evident that the UK needs intervention for its citizens perceptions of obese people (UK ADULTS).

### General health effects of obesity

There are multiple negative health effects associated with being overweight or obese, and they are directly tied to BMI. Some of these devastating health effects include high blood pressure, diabetes, heart disease, joint problems, sleep apnea, cancer, and psychosocial effects (Obesity Stanford Health Care). These effects are universal and can affect anyone that is obese. Data from the National Health and Nutrition Examination survey that was analyzed by the New York Obesity Research Center came to the conclusion that overweight and obese people were likely to die anywhere from 4.40 to 14.16 years earlier than their lighter counterparts. Another study done in 2009 compares the obesity epidemic in the United States to the widespread smoking problem. At this time, 5-15% of deaths in the United States were due to obesity, and 18% due to smoking. The study hypothesized based off survey data tracking the increase in BMI and decrease in smoking, that half of the United States population would be considered obese by 2020. Based off only the increase in obesity, there would be a projected 1.04-year decrease in life expectancy.

One of the most significant effects of obesity is the correlation with diabetes. The American Diabetes Association defines type 2 diabetes (also known as hyperglycemia) as a condition that causes the body not be able to use insulin properly, and essentially causes a person's pancreas to not be able to keep up with their blood sugar levels. Both being obese and having diabetes are associated with insulin resistance, but not all cases develop into hyperglycemia. There are two types of obesity, type 1 and type 2. Type 1 is genetic, and type two is most often developed.

Of the 25.8 million cases of diabetes in the US, 95% are type 2 diabetes. Similarly, approximately 90% of the 3.6 million cases of diabetes in the UK that are type 2. Type two diabetes is heavily influenced by weight, in the US, about 90% of type 2 diabetics are overweight or obese.

## Economic effects of obesity

The number of people that are affected by obesity is appalling, and the cost of the related health effects is very great. According to the Centers for Disease Control and Prevention, medical costs related to obesity have an estimated cost of 147 billion dollars in the United States [4]. This is not including lost productivity due to obesity. According to research done in 2010, the total economic burden (medical costs and loss of productivity) was about \$ 218 Billion, after including about \$ 65 Billion for lost productivity. There are multiple cost estimates for individual costs for diseases directly related to obesity, about \$ 1,744 for undiagnosed diabetes, \$ 6,649 for diagnosed diabetes, and around \$ 700 per American citizen, even those who do not have diabetes. Another effect of obesity is increased absenteeism in the workplace due to obesity. A study done on Shell oil showed \$11.2 Million dollars per year due to obesity related absenteeism.

According to the Health Select committee or HSC, the total cost for obesity (only BMI >30) and its consequences in 2002 was between 3.3 and 3.7 billion Pounds. Only about 1 Billion of this estimate was actually used to treat obesity and direct consequences of it, and the majority of the figure was used treating other health conditions related to or resulting from obesity.

**Childhood obesity:** One after effect of the epidemic of adult obesity, is an increased rate of childhood obesity. In a systematic review of literature on incidence of obesity during childhood in the United States, it was found that in 2012 16.9% of children were classified as obese, with the highest prevalence being ages 12-19. Even though there is a scale used to measure obesity (BMI), the standards set to be considered obese are arbitrary. Being obese is generally having excess body fat. A study done in the 1990's showed that 52% of children who are obese between ages 3 and 6 are obese at age 25 opposed to only 12% of normal weight children that end up obese at age 25. For the most part, young children's diets are controlled by their parents, so they do not have complete control over how they eat. The high rates of childhood obesity are a direct effect of parent's poor lifestyle choices that carry over to their kids.

In the UK, nearly a third of children 2-13 years old are overweight or obese, which leads to more obese adults that are seven times more likely to become type 2 diabetic than adults that are a healthy weight. The obesity epidemic is affecting low income children the most, kids age 11 who come from the lowest economic class are three times more likely to be obese than their wealthier counterparts. One of the most concerning factors of childhood obesity is the soft drink industry in the UK. Teenagers are the largest consumers of sugary drinks in the UK, and the calorie dense drinks make it easy for young people to exceed their recommended daily sugar and caloric intake.

Not only are children at risk for obesity, but they also suffer from the other health risks that come along with higher weight. Children can suffer from psychological damage, and according to a study published in a BMJ Journal in the Archives of Disease in Childhood, Low self-esteem and behavioral problems are more common in obese children. Another risk factor is heart disease, there is an abundance of risk factors for heart disease that are more abundant in obese children.

One major influence on the diet and weight of children is their parents and their eating habits. This starts when a child is born; breastfeeding is often the feeding method of choice for parents and can have a small effect on reducing the likelihood of a child being obese.

**Schools:** In the US, there are many ways that people try to lose

weight, from celebrity diets to juice cleanses. It has been shown that obese children are more likely to be obese as adults than their normal weight counterparts. This means obesity prevention could start during childhood. There are standards set in schools for what can be served for lunches. Based on the National School Lunch Act, in the US, meals must consist of Milk, a protein source, a vegetable or fruit, a bread and a source of fat in the form of butter or margarine.

In the UK, Education secretary Michael Gove announced new standards in 2014 for all lunches served in schools. The goal for the new standards were designed to let school cooks have more freedom and flexibility to serve lunches that were healthy, but also enjoyable for students. The new standards require at least: a portion of vegetables, at least 3 fruits or vegetables per week, less than 2 portions of fried food per week, and no more than 2 portions of a pastry. The new standards also emphasize whole grains instead of refined carbohydrates, and on drinking water instead of sugary drinks.

Both the US and UK realize that students need proper nutrition in schools to learn and are implementing this in similar ways. The menus might differ, but the goal of providing healthy meals is similar. Both countries have a program where economically disadvantaged students can receive free or reduced lunches at school. In 2016 in the US, to qualify for reduced price lunch, a household's income must be less than 185% of the Federal Poverty Guidelines, and to qualify for free lunch, a household's income must be less than 130% of the Federal Poverty Guidelines. In the UK, there are multiple guidelines to determine who can qualify for free or reduced lunch. Year 1 and 2 students receive free lunches, and other students whose parents qualify for income support and/or other job-related income support. Even if the government cannot control what students bring for lunch, students receiving subsidized lunches will be eating meals that are not conducive to obesity.

Another key factor influencing obesity in schools is amount of time and funding dedicated towards physical activity time for students. There is an abundance of legislature at the state level that discusses general physical activity requirements and dedicated recess time. Obesity is a national problem, and the legislature across states is inconsistent, for example in Colorado there is no physical education required in schools, contrary to this, some states have set amounts of minimum time spent on physical activity. Florida has a requirement for students in Kindergarten through 5<sup>th</sup> grade to participate in at least 150 minutes of activity per week, and for students in grades six through eight at least one class period of physical education for one semester of each school year. In the US, there is an initiative called «Let's Move» developed by former First Lady of the United States, Michelle Obama. This initiative has many parts, including nutrition in schools and «Active Schools», Let's Move also helps provide resources to make more Active Schools. An Active School is a school that integrates at least 60 minutes of physical activity into every school day. Another measure of the active school is whether or not a Comprehensive School Physical Activity Program, which is a measure of physical activity in schools defined by the Center for Disease Control.

In the UK, schools are separated into years instead of grades like the US, and these years are split into larger groups called key stages (Table 1).

Year Group one is equivalent to kindergarten in the US. These key stages are split up to better group the goals of the educator. In 2013, the Department of Education in England published Statutory guidance for National curriculum in England: Physical education programmes of study. This page details how students through different grade levels and



School type	Key stage	Year group	Age of children
Primary	1	1,2,3	7-May
Primary	2	4, 5, 6	11-Aug
Secondary	3	7, 8, 9	14-Dec
Secondary	4	10, 11	15-16
Secondary	5	12,13	17-18

**Table 1:** In the UK, schools are separated into years instead of grades like the US, and these years are split into larger groups called key stages.

ages should be exposed to physical education. In key stage 1, the focus is on developing the coordination and team working skills of students. As students get older, into key stages 2 and 3, and ages 8 to 14, the focus is still mostly on developing physical skills, but also starts to put emphasis on student interest and health benefits of physical activity. In the 4<sup>th</sup> key stage, the emphasis is put on demanding physical activities and developing personal fitness to promote an active lifestyle. These principles were detailed in Statutory Programmes of Study and are issued by law.

In the US, the goals of physical education are not united or defined across the country. The goals of the UK physical education laws are to develop young adults and adults that are able and knowledgeable enough to maintain an active lifestyle. This is key to reducing obesity, if kids are introduced to engaging ways to stay active, they could be more likely to stay active as adults.

One possible problem with trying to integrate more physical education programs in schools is availability of resources. If the goal is to make a nationally mandated physical education program in the US, schools located in low income areas may have trouble procuring funding for equipment or other necessities for physical education. A possible solution for this is a section of the National budget put towards reduction in obesity as a national health crisis.

## Conclusion

All of the seven sections of obesity researched had similarities between the US and UK present, but there are some positive aspects that could be shared between countries.

The US and UK both have a governing body that regulates their advertisements, and there are positive aspects of both. While the Children's Advertising Review Unit of the US organization is not government sponsored, the UK Code of Broadcast Advertising is run by the government. One aspect the US might be able to take from the UK is not allowing fast food companies or unhealthy foods to be endorsed by celebrities or characters that could target children. This could run into some potential issues though, partially because some companies and food brands already have a reputation with children. The rates and effects of sedentary and inactive lifestyles are also similar in both countries. The rate of reported inactive lifestyles is greater than 40% in both countries. There is also a significant number of adults in the UK who are unaware of the government standards which is likely also true in the US. One solution that could have impact in both countries is a work subsidized gym membership for employees. This would provide access to a place for people to work out and get active. However, there are a few problems with this proposal, in the US certain gym memberships could be considered a fringe benefit for tax purposes, which leads to an even greater cost for the employer. Another issue with this idea is that some people just do not want to be active. Even with access to a gym, there is no guarantee that people would become more active. Governing bodies have already put in

place guidelines for recommended amounts of exercise, but a large percentage of the population is unaware of these guidelines. One way the governments of the US and UK could increase awareness of the risk of obesity and inactive lifestyles is to develop a federally funded campaign similar to the antismoking campaign in the US. According to the US's Center for Disease Control, the Tips from Former Smokers campaign that originally aired in 2014 and a similar campaign run in 2012, have helped over 400,000 people quit smoking permanently. The smoking and obesity crisis are very similar, around 70.2% of adults in the US are obese or overweight, and only 15.5 adults smoke cigarettes. This also has some limitations, there is a stigma in the US against smokers, and there is already a stigma against obesity in the US, which could be made worse by a campaign trying to reduce obesity. If there are ads aired on television and other public media sources, there could be additional and unintended psychological effects on obese people. The goal of this campaign should not be to condemn people that are currently obese, but to increase awareness of the risk factors associated with obesity.

Economic strain, weight stigma and general health effects of obesity are also very significant issues that are present in both countries but are also very hard to eliminate. As long as there are obese people, there will be people suffering from the biological health effects of obesity. The best way to eliminate these effects is to reduce weight among obese people, but the best method to achieve weight loss is a controversial subject. The economic strain of in both countries is a direct result of the abundance of health issues that are related to obesity. Unless there is some way unknown to science as of now to modify biology, there will be health effects that will affect many obese people, and so long as these effects are being treated, there will be a cost associated with the treatment. Whether this cost is directly to the patient or to taxpayers who fund national health care will depend on the country. Weight stigma will also be a hard issue to rid both nations of, people are constantly judged for who they are and what they look like. In the US, under the ADA or Americans with Disabilities Act, obesity is not specifically designated as a disability, but if an employee could prove that their obesity is caused by a physiological disorder there could be protection under the ADA (Robertson). In the UK, under Equality act 2010, obesity is not specifically listed as a protected class, but can be considered a disability under under certain circumstances where obesity is an impairment to work. If both the US and the UK considered specifically including obesity as a disability or outright saying that people cannot be discriminated against for obesity, weight stigmatization and discrimination could decrease. Childhood obesity running rampant in both countries and is heavily influenced by the habits children develop in school. Reducing or eliminating the issue of childhood obesity is the key to reducing the growth of the entire obesity epidemic. Because the obesity epidemic affects children of lower income brackets more, both countries have implemented a system to provide free or reduced meals in order to ensure students receive some proper nutrition. As of now, there is no national structure for physical education in the US, while the UK has national mandated goals for different aged students. If the US was able to implement similar national goals, even without completely changing the legislature in every state, there could be increased activity in schools, and hopefully a more active country in the future. Overall, the obesity epidemic is almost not separate in both countries, but one epidemic that is starting to span the globe. Obesity is having a significant toll on the economy, health and future of the UK and the US, and the two countries can work together to a better future.

## References

1. Buneman P, Müller H, Rusbridge C (2009) Curating the CIA world factbook. *IJDC* 4: 29-43.
2. Overweight & Obesity Statistics (2017) National institute of diabetes and digestive and kidney diseases, USA.
3. Walgate R (2003) US obesity grows 74% in a decade (News). *Bulletin of the WHO* 81: 153.
4. Defining Adult Overweight and Obesity (2016) Centers for disease control and prevention.
5. Defining Childhood Obesity (2016) Centers for disease control and prevention.
6. McDonalds Systemwide Restaurants (2016)
7. Story M, French S (2004) Food advertising and marketing directed at children and adolescents in the us. *Int J Behav Nutr Phys Act* 1: 3.
8. Cheung PC, Cunningham SA, Narayan KV, Kramer MR (2016) Childhood obesity incidence in the united states: a systematic review. *Childhood Obesity* 12: 1-11.
9. Youfa Wang (2001) Cross-national comparison of childhood obesity: the epidemic and the relationship between obesity and socioeconomic status. *Int J Epidemiol* 30: 1129-1136.
10. Currie J, Dellavigna S, Moretti E, Pathania V (2009) The Effect of Fast Food Restaurants on Obesity and Weight Gain. NBER working papers 14721.
11. Greenberg JA (2013) Obesity and early mortality in the United States. *Obesity* 21: 405-412.
12. Hammond RA, Levine R (2010) The economic impact of obesity in the United States. *Diabetes Metab Syndr Obes* 3: 285-295.
13. Food and Nutrition Service (2012) Nutrition standards in the national school lunch and school breakfast programs final rule. *Fed Regist* 77: 4088-4167.
14. Owen N, Sparling PB, Healy GN, Dunstan DW, Matthews CE (2010) Sedentary behavior: emerging evidence for a new health risk. *Mayo Clin Proc* 85: 1138-1141.
15. Puhl, Rebecca M, Chelsea AH (2010) Obesity Stigma: Important Considerations for Public Health. *Am J Public Health* 100: 1019-1028.
16. Flint SW, Hudson J, Lavallee D (2015) UK adults' implicit and explicit attitudes towards obesity: a cross-sectional study. *BMC Obesity* 2: 31.