



Healthy, Hunger- Free Kids Act Related to Childhood Obesity

Colleen Cobb, Taylor Hill, Gayatri Kotaru, & Hannah
Thelander

What is Healthy, Hunger-Free Kids Act (HHFK) ?

- Established in 2010, HHFK was designed to improve child nutrition and promote physical activity for all students .
- First time in 30 years, gave schools the opportunity to make changes to the breakfast and lunch programs provided to the students
- This change affected 50 million children at 99,000 schools daily



What did each meal include?

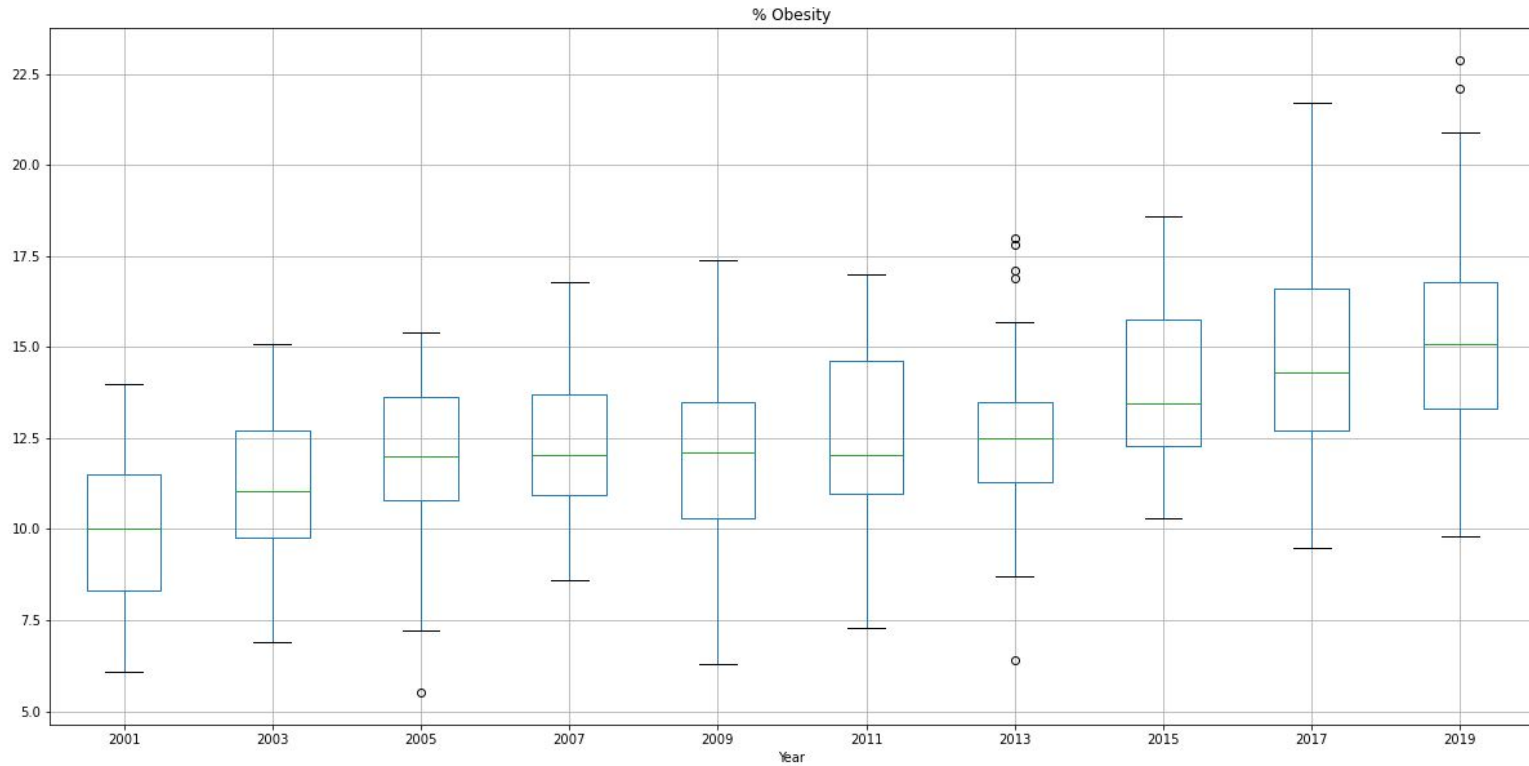
Fruits
Vegetables
Grains
Protein
Dairy



Null Hypothesis: There was no difference in childhood obesity after the implementation of Healthy Hunger-Free Kids Act

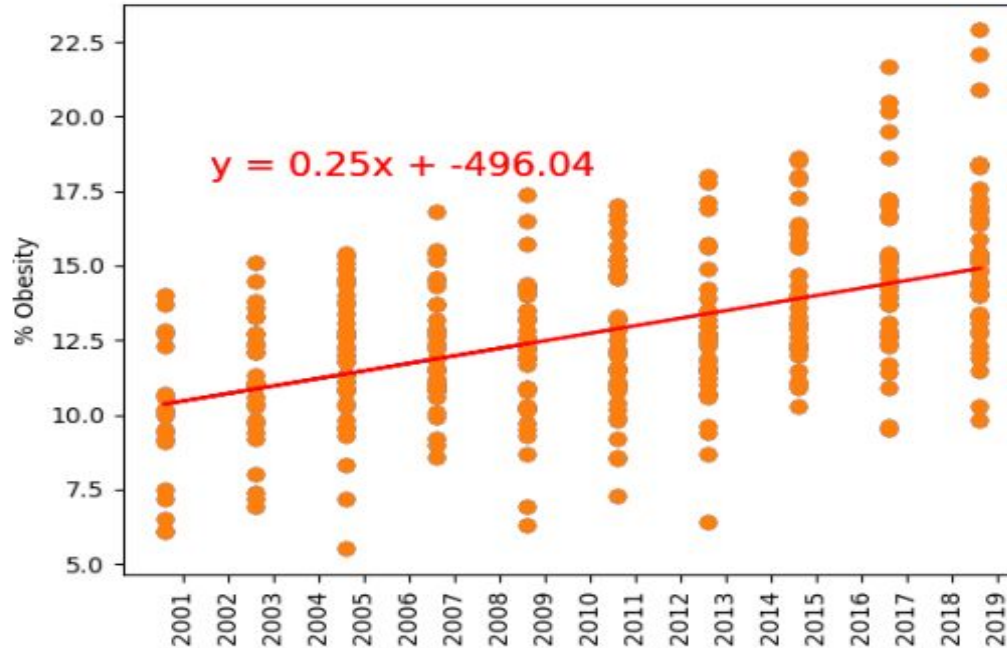
Hypothesis: There was a statistically significant difference in the percentage of children with childhood obesity after the implementation of the Healthy Hunger-Free Kids Act in 2010

Boxplot grouped by Year



pvalue=4.120303786727125e-19 - We do see a statistical change in obesity over the years.

- The r-squared value is less than 1, So we can say there is only 25% of variance is accountable. We can see increase in the percent of Obesity as Year goes by.

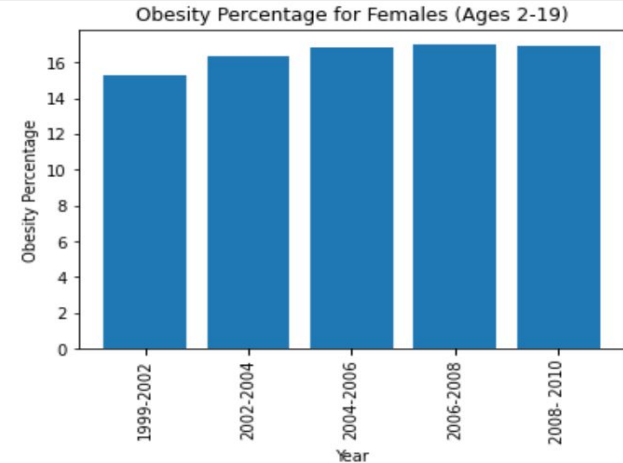
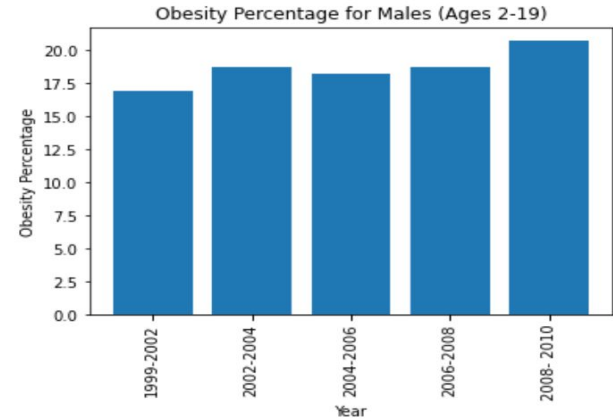


OBESITY SCATTER PLOT FROM 2001- 2019

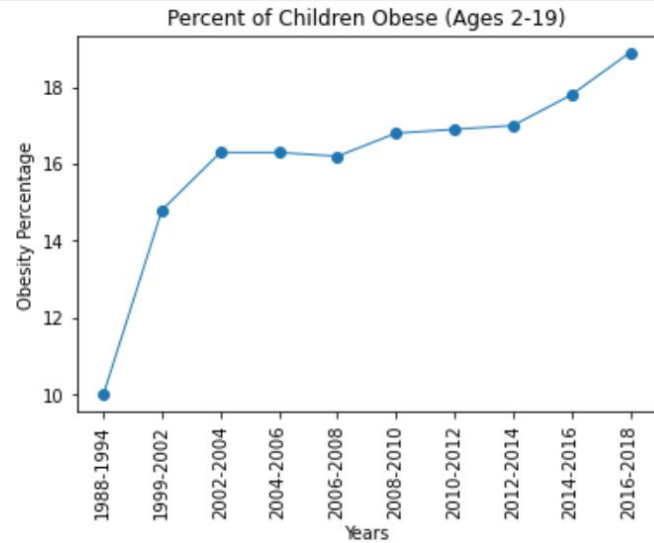
Was the Healthy Hunger-Free Kids Act successful in decreasing the rate of childhood obesity?

Obesity Rates Before HHFK

- Obesity rates were at a steady increase
- For males between the ages of 2-19 years old there was a slight decrease in obesity in the years 2004-2006
- Overall, the obesity percentage from the years 2008-2010 was the highest percentage of all years

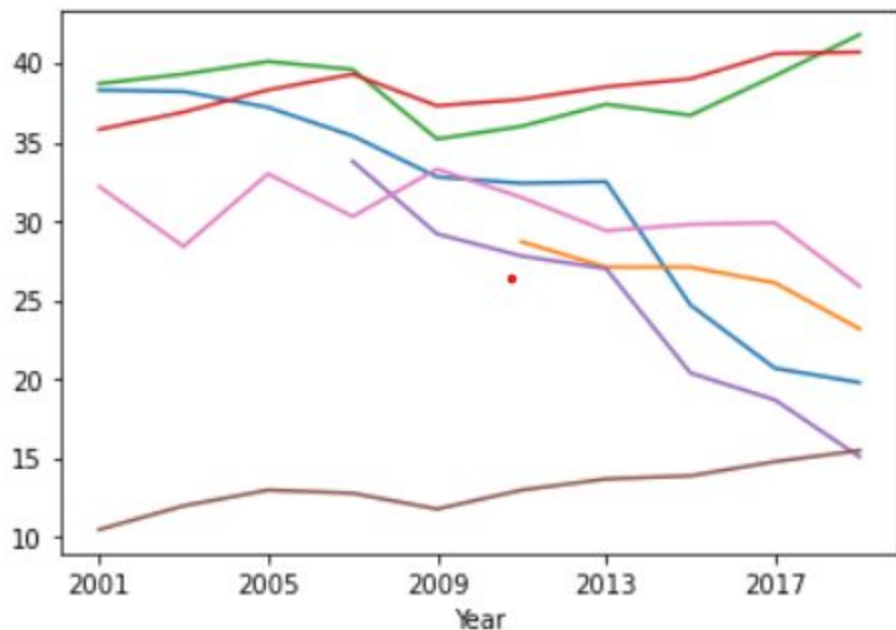


Obesity Rates from 1988 - 2018





Program Effects on Student Health



- Percent of students in grades 9-12 watching 3 or more hours of television each school day
- Percent of students in grades 9-12 who achieve 1 hour or more of moderate-and/or vigorous-intensity physical activity daily
- Percent of students in grades 9-12 who consume fruit less than 1 time daily
- Percent of students in grades 9-12 who consume vegetables less than 1 time daily
- Percent of students in grades 9-12 who drank regular soda/pop at least one time per day
- Percent of students in grades 9-12 who have obesity
- Percent of students in grades 9-12 who participate in daily physical education

Was this program successful?

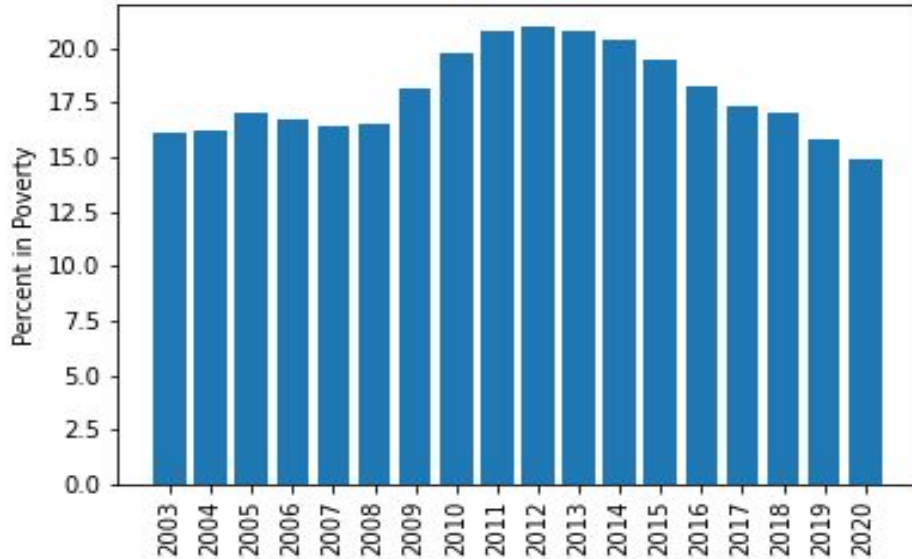
- Obesity rates continue to increase as seen in the previous graph
- Overall, the program was unsuccessful in reducing childhood obesity but may have helped slow the curve



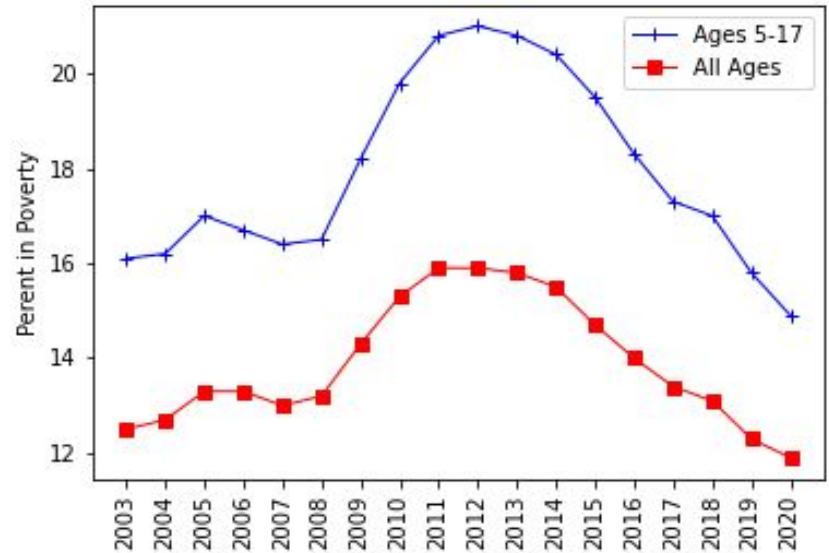
Is there a relationship between children in poverty and the prevalence of childhood obesity?

- Peak in poverty percent in the United States was in 2012 with 21% of children ages 5-17
- The percent of children ages 5-17 in poverty is significantly greater than all ages in poverty throughout the years

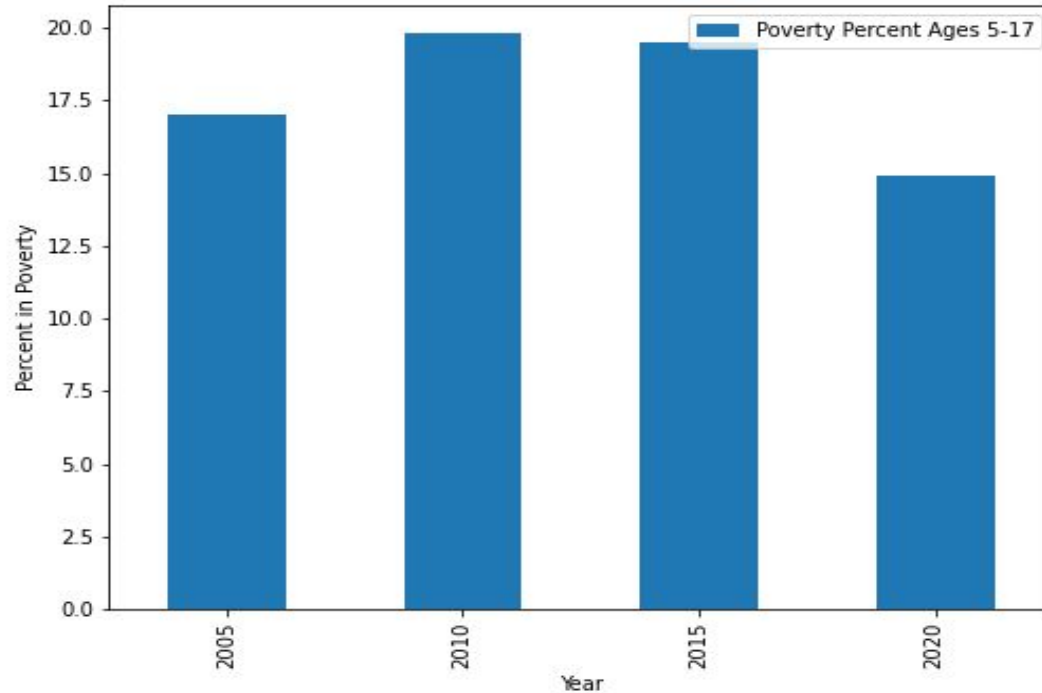
Percent of Children (Ages 5-17) in Poverty by Year



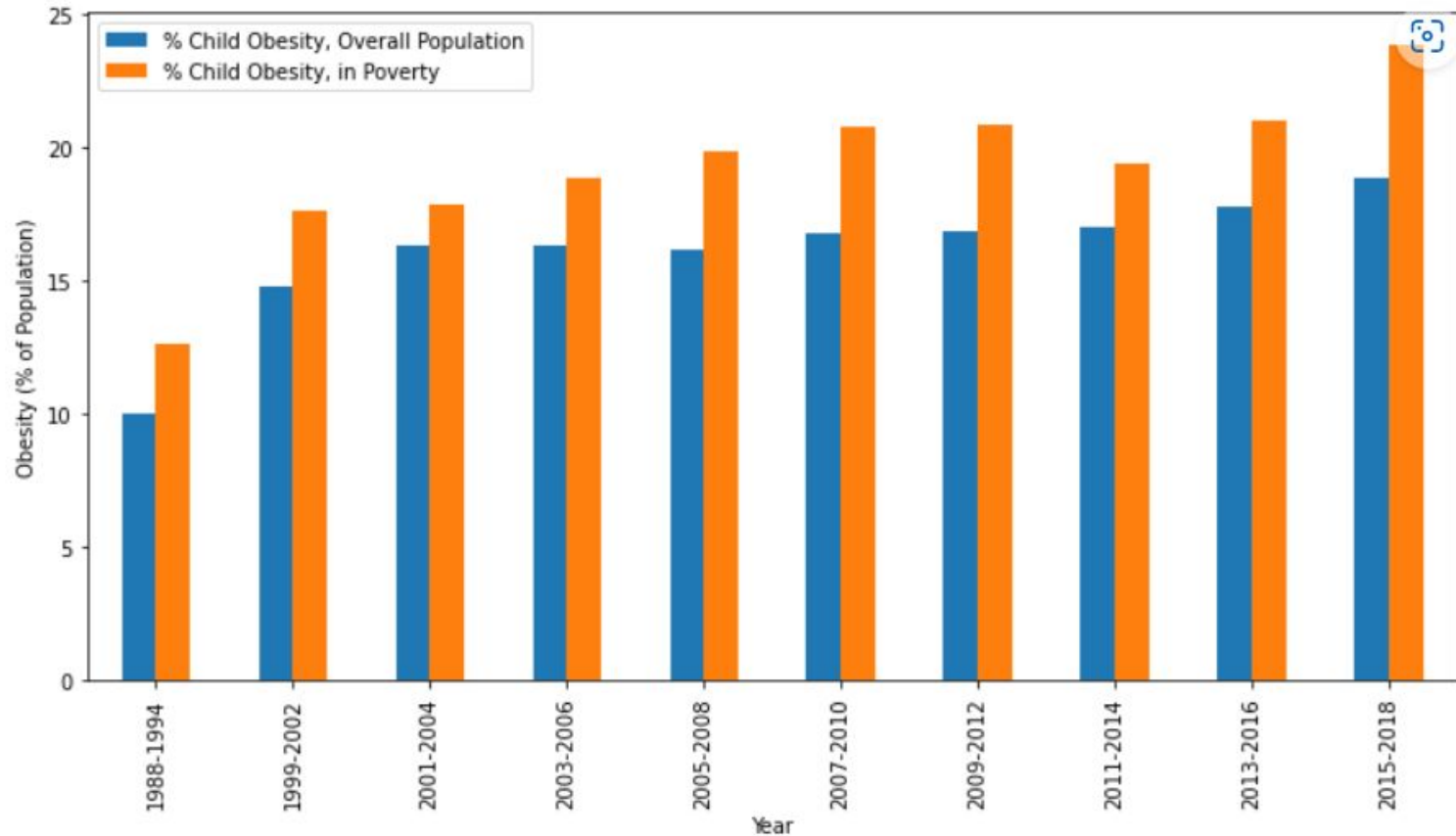
Poverty Percent by Year



- Closer look into poverty percentages over time within the 5-17 year old age group
- 2010 with the highest percentage at 19.8% and 2020 with the lowest percentage at 14.9%



Obesity vs Poverty

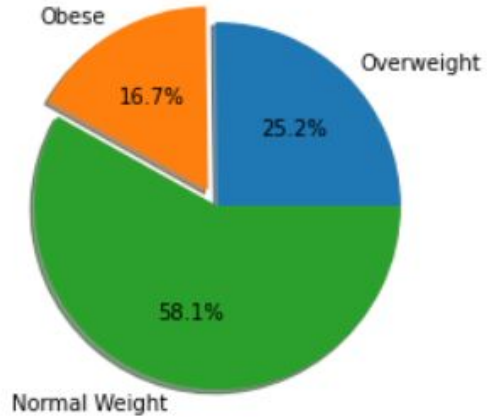


Were there long-term effects on obesity related to this program?

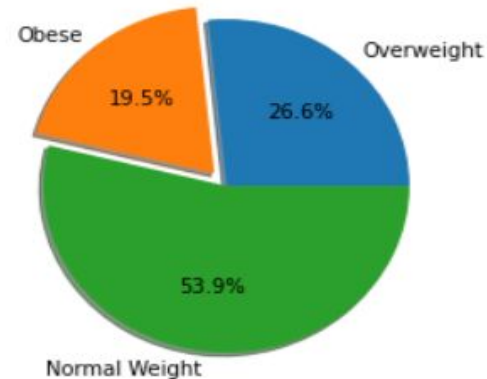
Pie Charts of Obesity in Young Adults who would have been adolescent age 2015 & 2020

- Obesity for adults ages 18- 24 was 15.2 % of overall population in 2011
- Statistics for young adults aged 18 - 24, who would have been adolescents when HHFK enacted, do not show decreases in obesity.
- Surveys from 2015 and 2020 show that obesity continued to increase for young adults in this age bracket

Obesity in Adults 18 - 24, 2015



Obesity in Adults 18 - 24, 2020



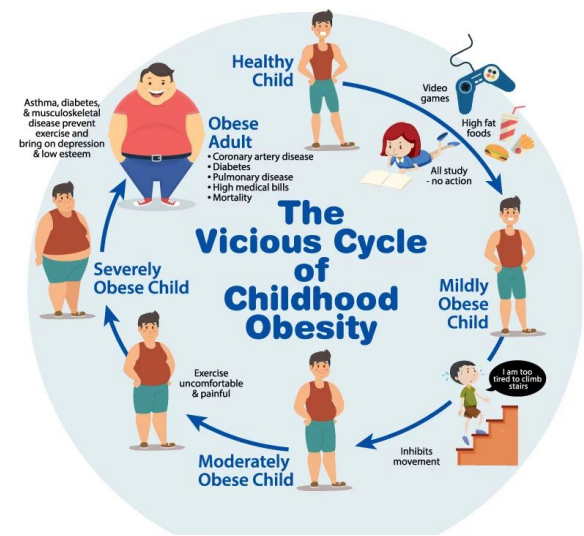
How could we improve the act?

Based on the analysis, it's clear that school policies alone are not sufficient to impact childhood obesity rates.

Changes to diet and exercise in children's homes are also needed to reduce childhood obesity in the US.

Limitations:

- Fluctuation in national economy
- The data could not be broken down into which specific schools participated in this program
- Other variables may have impacted obesity rates (exercise, health compliance, etc.)
- Does not take into account access to nutritious food outside of school





Thank you for listening!

Resources

<https://data.cdc.gov/>

<https://chronicdata.cdc.gov/resource/hn4x-zwk7.json>

<https://chronicdata.cdc.gov/resource/hn4x-zwk7.json>

<https://data.cdc.gov/resource/9gay-j69q.json>

<https://www.census.gov/programs-surveys/saipe/data/api.html>

<https://catalog.data.gov/dataset/adolescent-obesity>

<https://catalog.data.gov/dataset?tags=obesity>

<https://catalog.data.gov/dataset/obesity-among-children-and-adolescents-aged-219-years-by-selected-characteristics-united-s>

https://data.world/health/childhood-obesity-in-the-us/workspace/file?filename=child_ob_gender.csv