**Data Science Bootcamp: Walkability and Obesity (500 USA Cities) Project 1**

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**Background**

Obesity is know to be a very complex social health issue with many confounding factors. We wanted to look at another popular metric in discussion nowadays, walkability, and its effects on obesity rates for US cities. We will be comparing obesity rates for various different metrics including income, walkability, and winter length to determine how much of an effect walkability has on obesity.

**Project Description and Questions**

Walkability has become a very talked about topic when it comes to city planning and even when considering places to live. Younger people are becoming very concerned about it. How important is walkability when it comes to population healthcare dynamics, in this case obesity. We also wanted to look at confounding factors (in this case income or average weather).

How is city walkability correlated with obesity rate in over 18 adults?

How does income level change obesity rate when it is controlled for?

Does winter length have an effect on obesity rate when walkability is controlled for?

What about walkability? Does weather effect it?

**Findings and Implications**

Walkability, income, and weather (avg temps & precipitation) all have an impact on US adulthood obesity. We found that income is the most impactful factor based on our study, but weather and walkability also play a role.

**Income**

* The analysis highlights a consistent pattern: higher income levels are associated with lower obesity rates. Understanding this relationship is essential for developing targeted public health strategies and policies aimed at reducing obesity and promoting well-being.
* Further research, including a broader range of factors and regional considerations, would enhance our understanding of the complex dynamics between income and obesity.

Some of the factors that may affect the correlation between income and obesity. The higher the income the higher are:

* **Income Disparities:**  
  Studies consistently show an inverse relationship between income and obesity, meaning that lower income levels are associated with higher rates of obesity.
* **Food Access and Availability:**  
  Low-income individuals may live in areas with limited access to grocery stores or markets that offer fresh and affordable produce, leading to reliance on cheaper, but less nutritious, food options.
* **Education and Awareness:**

Higher income is often associated with better educational opportunities, which can lead to greater health awareness and knowledge about nutrition and healthy lifestyles.

* **Work and Lifestyle:**  
   Lower-income jobs may involve long hours, high stress, and limited opportunities for physical activity. Sedentary jobs and a lack of time for exercise can contribute to weight gain.
* **Cultural and Social Factors:**  
  Cultural norms and social influences can contribute to dietary choices. In some communities, certain foods may be traditional or culturally significant, but they might not always align with optimal nutritional guidelines.
* **Healthcare Access:**

Limited access to healthcare services, including preventive care and weight management programs, can be a barrier for lower-income individuals seeking guidance on healthy living.

**Weather**

* Temperatures alone do not have a correlation to US Adult obesity %
* Precipitation alone does have a moderate positive correlation to US Adult obesity %
* When we bucket the cities to look at winter conditions (considering avg. low temps & precipitation), we viewed an inverse relationship in the data. As temps decreased the obesity % increased.
* The results show there is some correlation between a city's weather (temperatures/precipitation) and adult obesity. The correlation is slight to moderate at best. Many other factors that were not considered in this analysis could have an impact on the obesity percentages. For Example: we could have considered the amount of snow and/or the length of the winter season in the winter analysis

**Walkability**

* refers to the ability to safely walk to services and amenities within a reasonable distance, usually defined as a walk of 30 minutes or less
* A higher number (or score) means a location within a city has more accessible goods and services by foot
* Walkability alone has no correlation to a city's obesity rate when income is controlled for.
* Such an area specific metric needs to be controlled for
  + Instead of dating one random point, create an evenly spaced grid of addresses to create an “average walkability score”
  + Even doing this, there is no correlation
* Much more important to look at walkability in a spatial setting compared to distilling it down to a single number