Determinants of the Obesity and Overweight – A Data Analysis on Population of England

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2020/12/8

Abstract

World Health Organization stated that the total number of people who are disturbed by obesity and overweight issues have been significantly and rapidly increased since the early 21st century, in both developing and developed countries. For investigating the potential determinants of these unpleasant problems, we focused on a data set from Health Survey for England (HSE) by the method of multilevel regression on different neighborhood areas. The results showed that the (to be filled out).

Keywords:

Obesity and Overweight, BMI, Multilevel Regression,

Introduction

With the fast development of global economy and technology, human living quality has been significantly improved since the 21th century. However, behavioral manners associated with diet are inevitably influenced with increasingly-rapid pace of life, result in an urgent public health issue in both developing and developed countries — obesity. According to World Health Organization (WHO), obesity, or overweight, is defined as abnormal or excessive fat accumulation on human body. The occurrence of obesity and overweight performs like a severe global pandemic in recent years: research published on Lancet medical journal reports that the total number of obese adults has been exponentially increased in last decades, accounting for approximately 13% of global population by 2016. People with obese issues are vulnerably exposed with a risk to health, such as heart disease, diabetes and cancer. Besides, evidence suggests that individuals' social activities and psychological health are inevitably impacted as well.

The reasons linked to obesity and overweight remain as a complex problem that involves an individual's personal characteristics, genetic heritage, social culture, etc., not only his or her diet habit. Specifically, people accumulate body fat due to physical inactivity and excess food intake, however, it also related to diet culture, food supply, and living surroundings. Therefore, individual choice and social environment are two main factors included in topics about obesity and overweight. The obesity and overweight issue is generally measured by body mass index (BMI), which was first proposed by Adolphe Quetelet and improved as a modern term by Ancel Keys in 1972. It is a faction between body mass (weight) and square of height as following:

$$BMI = \frac{Mass_{kg}}{Height_m{}^2}$$

Basically, a person is obese if his or her BMI is equal or greater than 30, a person is overweight if his or her BIM is equal or greater than 25.

Consequently, recognizing the link between obesity and potential factors could be fundamentally necessary for protecting people from the risk of chronic or acute disease resulted from obesity, as well as improving the quality of our daily life. In this report, we worked on a dataset from Health Survey for England conducted in 2019, started with the process of data cleaning and explanatory data analysis. Then we investigated the the variations of BMI across socio-demographic characteristics by a series of multilevel models.

Preliminary Analysis

Data source and Cleaning

Descriptive Statistics with table and figures.

Methods

Construct Model

Model selection and comparison

Results

Discussions

Summary

Weakness and Future Work

Reference