



Does Poverty Increase Risk of Obesity? How Family Income to Poverty Ratio Relates to BMI



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Introduction

- Census and other data sets are often used to find relationships between demographics and health conditions. Specifically, the connection between socioeconomic status and obesity can be compared using these information banks.
- Studies often focus on participants' likelihood of being diagnosed with obesity compared to their economic status, the population of obesity cases in specific regions, or community characteristics and the relation to the residents' health status'.
- It is typically concluded that economic hardships lead to a higher possibility of being diagnosed with obesity; gender and age are also two factors that have been found to alter chances of diagnosis.
- This study aims to examine the association between economic hardships and obesity

Study Purpose

This research aims to find health statistics at the national level. The analysis of data will be used to determine national nutrition statuses, benefit public health knowledge, and be used in many other health science research projects.

Methods

Dataset

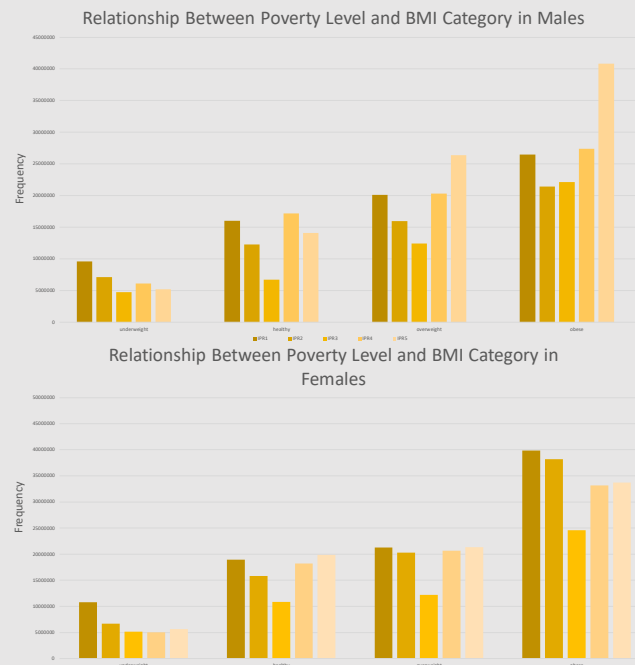
- Data from the National Health and Nutrition Examination Study from 2017-2020 (pre-pandemic) was used for this study.
- The ratio of family income to poverty statistics (IPR) were used and split into categories (1 = 0 - 0.99; 2 = 1.0 - 1.99; 3 = 2.0 - 2.99; 4 = 3.0 - 4.99; 5 = 5.0+). The same was done with the BMI statistics (underweight = 0 - 18.4; healthy weight = 18.5 - 24.9; overweight = 25 - 29.9; obese = 30+).

Statistical Analysis

- SAS software was used to find the weighted frequencies of each BMI category within the five IPR categories.
- Analysis also included specific demographics (race and gender) to examine further differences.
- Chi-Square analysis were performed to investigate the relationship between IPR and BMI. Chi-Square analyses were run separately for each race/ethnic group.

Results

- The results from the data show there is significant association between poverty levels and BMI categories.
- The relationship between the two variables can be visualized with graphs focused on specific genders or races. There are more cases of obesity diagnosed where the ratio of family income to poverty is greater than or equal to 5.0 (IPR 6) across all subgroups.
- The data of males had a chi-squared value of 156.0968 and a P-value less than 0.0001. The values of the female data set had a chi-squared value of 79.4229 and a P-value less than 0.0001.



Category	Chi-Squared	P-Value
Non-Hispanic Whites	100.9926	<0.0001
Non-Hispanic Blacks	259.0114	<0.0001
Hispanic/Other	89.3744	<0.0001
Males	156.0968	<0.0001
Females	79.4229	<0.0001

Conclusion

- After analyzing the data, it can be concluded that there is a significant association between the family income to poverty ratio and obesity rates in the US.
- This information can be used in further public health research along with community level research. It can help providers find solutions to lowering the national obesity rates and increasing overall health of those who are underserved.

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