

COMPARISON OF THE AVAILABILITY OF HEALTHY FOODS IN LOW INCOME AND HIGH INCOME NEIGHBORHOODS IN PHILADELPHIA

Obesity in America and diseases associated with obesity, including diabetes and heart disease, are recognized as some of the greatest threats to the health of Americans today. Recent studies have shown that the cost and availability of a product as well as the location of stores offering healthy food may influence what a person eats. The main objective of this study was to determine if there is a relationship between income within a neighborhood and the types of healthy foods offered to the community through local retailers within the city of Philadelphia. Our hypothesis was that neighborhoods with a higher percent of their population living below the poverty level will have less healthy foods available at local retailers compared to neighborhoods where very little of the population lives below the poverty level. In order to test our hypothesis, two neighborhoods in Philadelphia were chosen using US Census bureau data. The first neighborhood was defined as high income (HI), where less than 10% of the population had incomes below the poverty level; the second neighborhood was defined as low income (LI), where 40% of the population had incomes below the poverty level. The Nutrition Environment Measures Survey in Stores (NEMS-S), developed and validated by researchers at Emory University, was used to compare the availability of healthy food choices to residents in the two different neighborhoods. Using this survey it was concluded that HI neighborhoods have more healthy food choices of better quality than LI neighborhoods. It is anticipated that the broader impact of this research and research similar to it in other cities may influence policy makers to ensure equal access to healthy food choices for all individuals in order to prevent obesity and related diseases.

INTRODUCTION

Americans face the widespread health challenge of obesity and diseases associated with obesity including diabetes and heart diseases. Obesity and the chronic illnesses that accompany it like diabetes and heart disease kill on average 112,000 Americans per year.⁶ Obesity is often associated with the dietary choices a person makes. These dietary choices are often influenced by what a person has available and affordable to them.⁴

Recent studies have shown that low income households may face higher prices for food due to the lack of supermarket availability in their neighborhoods.¹ This lack of supermarkets results in stores unable to carry affordable healthy food options.^{1,3} Often, households in these neighborhoods have easy and affordable access to unhealthy food options, which may lead to overeating and a rising number of obese Americans. While Americans in general are not consuming enough fruits and vegetables,⁵ low-income households are less likely to consume enough fruits and vegetables and meet other dietary guidelines than high income households.⁶ Recent studies which placed affordable fruits and vegetables in low-income areas showed an increase in fruit and vegetables consumption among the residents of those areas.² The main objective of our research was to determine if there is a relationship between neighborhood income and the availability and costs of healthy foods offered to the community through local retailers by comparing food retail stores in two different neighborhoods in Philadelphia, Pennsylvania.

Student Researcher: Derek Dale

Mentors: Valerie Darcey, Jennifer J. Quinlan, Drexel University, Dept. of Bioscience and Biotechnology, Philadelphia, Pa

MATERIALS AND METHODS

Selection of Stores

Two neighborhoods in Philadelphia with distinctly different socioeconomic status were identified. One represents a low income (LI) neighborhood of Philadelphia and the other represents a high income (HI) neighborhood of Philadelphia. The neighborhood boundaries were identified by Zip code. The LI neighborhood's total population was 41,709 (0.09% White, 97% African American, and 1.3% Hispanic). This neighborhood had 40% of the population living below the poverty level. The HI neighborhood's total population was 8,359 (87.6% White, 6.3% African American and 2.9% Hispanic). This neighborhood had 7.6% of the population living below the poverty level. Stores for each neighborhood were identified using the Dun and Bradstreet database of stores as well as googlemaps.com. The stores from googlemaps.com were identified by using keywords such as market, supermarket, minimarket, food stores, convenience stores, etc. The sample size that was used for this study was 30. Twenty-four stores were in the LI neighborhood and the remaining 4 were in the HI neighborhood. The HI neighborhood had fewer stores to begin with and then many of the stores in the HI neighborhood would not allow us to conduct the survey and so the number of stores included for HI neighborhood data is significantly smaller than the number of stores averaged for LI neighborhood data.

Survey of Food Choices Available in Stores

The 30 stores were surveyed using the Nutritional Environmental Research

survey in Stores (NEMS-S). The survey was developed and validated by researchers at Emory University.¹ It was designed specifically to survey the healthfulness of food choices in stores. The survey has 10 sections including: milk, fruits, vegetables, frozen dinners, bread, baked goods, baked chips, beverages, ground beef and hotdogs. Fruits and vegetables were scored based on availability and quality while the other 8 sections were scored on availability of an identified healthy option and comparison of price between the healthy option, if available, and the “standard” item identified for that section. The score ranges for each are as follows: availability points were from 0 to 27, price points were from -8 to 17 and quality points were from 0 to 6. The final score = availability + price or availability + quality. The final scores could therefore range from -8 to 50.

RESULTS

The average healthfulness score for HI neighborhood stores was higher than LI neighborhood stores – that is 24.2 and 8.2, respectively ($P < .01$). The average availability score (that is, availability of healthy options) for HI

neighborhood stores was higher than that of LI neighborhood stores, 1.79 and 0.59, respectively ($P < .01$). The average price score for HI neighborhood stores was slightly higher than that of LI neighborhood stores ($P > .01$). The average quality and availability of fruits and vegetables of HI neighborhood stores was higher than that of LI neighborhood stores ($P < .01$).

DISCUSSION

By comparing healthy food choices available in two different neighborhoods in Philadelphia, we found that the HI neighborhood had greater availability of healthy food options, as well as higher availability and quality of fresh fruits and vegetables. We did not find a statistically significant difference in the prices of healthy food choices between the two neighborhoods. This may be because both neighborhoods had relatively high prices (indicated by low scores for the price part of the survey). Additionally, some items may be pre-priced by the company that makes and distributes the item. Overall our research agrees with other researchers who found that populations of low income

may have less access to healthy food choices and high quality fruits and vegetables. This may, in turn, result in higher rates of obesity and related diseases in these populations.

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