

FACTORS THAT IMPACT ACCESS TO QUALITY FOOD IN THE INNER CITY

by

Paula Ijeoma Ilochi

B.A., University of Pittsburgh, 2007

Submitted to the Graduate Faculty of
the Graduate School of Public Health in partial fulfillment
of the requirements for the degree of
Master of Public Health

University of Pittsburgh

2011

UNIVERSITY OF PITTSBURGH

Graduate School of Public Health

This thesis was presented

by

Paula Ijeoma Ilochi

It was defended on

March 23, 2011

and approved by

Christopher Keane, ScD, MPH, Assistant Professor, Behavioral and Community Health Sciences. Graduate School of Public Health, University of Pittsburgh

Tracy Soska, MSW, LSW, Director of Continuing Education and COSA Director, School of Social Work, University of Pittsburgh

Thesis Director: Martha Ann Terry, PhD, Assistant Professor, Director, Master of Public Health Program, Behavioral and Community Health Sciences, Graduate School of Public Health, University of Pittsburgh

Copyright © by Paula Ilochi

2011

FACTORS THAT IMPACT ACCESS TO QUALITY FOOD IN THE INNER CITY

Paula Ijeoma Ilochi, MPH

University of Pittsburgh, 2011

Abstract

Food insecurity is an issue that disproportionately affects inner city communities. While food insecurity focuses more on the individual level, food deserts affect the community on a societal level. Food insecurity is an issue of public health significance because it affects food environments and has negative consequences on those living in food insecure communities. This review discusses factors that impact access to quality food in inner city communities such as lack of grocery stores, school environments and food affordability and how these factors can lead to an inadequate food supply, poor nutrition, obesity and chronic diseases. Food insecurity often results in an increase in food related health risks such as malnutrition, obesity, type 2 diabetes and cardiovascular disease among other things which can ultimately result in death. Food affordability, knowledge of school environments and supermarket politics regarding negative outcomes of food insecurity are highlighted. Recommendations are provided to address ways that inner city communities can have better access to nutritional food. These recommendations include mobilizing the community via the Mobilizing for Action through Planning and Partnerships (MAPP) strategic approach, food labeling and diversifying neighborhood income.

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
2.0	BACKGROUND	5
3.0	METHODS	8
4.0	RESULTS	11
4.1	POVERTY AND POOR FOOD CHOICES.....	11
4.2	SCHOOL FOOD ENVIRONMENTS.....	13
4.3	OTHER FACTORS THAT AFFECT FOOD CHOICES	14
4.4	COST INFLUENCES ON DIETARY BEHAVIOR	18
4.5	POLICIES	21
5.0	DISCUSSION	23
5.1	GAPS IN LITERATURE.....	26
5.2	DEVELOPING AN INTERVENTION	27
5.2.1	Food Labeling	28
5.2.2	MAPP.....	29
5.2.3	Mixed Income Neighborhoods.....	30
6.0	CONCLUSION.....	33
	BIBLIOGRAPHY.....	36

PREFACE

From an outside observation, a master's thesis may appear to be a solitary project. However, to complete a project of this magnitude requires a network of support and I am especially grateful to my thesis director, Dr. Martha A. Terry for all of her support throughout every phase of this process and my thesis committee members, Tracy Soska, and Christopher Keane for their continued guidance, support and encouragement to complete this project.

1.0 INTRODUCTION

The increasing unhealthy food environment in the inner city results in many issues regarding nutrition and physical well being. Access to stores that sell affordable, nutritious food is a prerequisite for adopting a healthful diet (Azuma, Gilliland, Vallianatos & Gottlieb, 2010). When a community does not have access to stores that provide healthy options, it is nearly impossible to maintain a nutritious diet. People make food choices based not solely on personal preference but also on environmental factors such as food access, availability, and affordability (Azuma et al., 2010). Urban communities are perceived to have high crime, making walking to stores dangerous and deterring grocers from building stores in these areas (Bolen & Hecht, 2003). A decrease in the number of major supermarkets often creates an increase in the number of small corner stores and convenience stores. Convenience stores are likely to have higher priced fruits and vegetables which results in decreased affordability and accessibility.

Neighborhoods that lack access to healthful foods have been coined “food deserts” (Lane et al., 2007; Cummins & Macintyre, 2002). The term “food desert” was first used by a resident of a public sector housing unit in the West of Scotland in the early 1990s (Cummins & Macintyre, 2002). “Food deserts” refers to a situation in which poverty and social inequality could cause poor health because they restrict the availability and affordability of healthy foods (Cummins & Macintyre, 2002). “Food deserts” also refers to an area where high competition

from the multiples (large chain supermarkets) has created a void (Walker, Butler, Kriska, Keane, Fryer, & Burke, 2010). This idea comes from the theory that the growth of large chain supermarkets in more affluent areas offers consumers a better quality, variety and price for food options consequently forcing smaller, independent neighborhood grocery stores to close. Walker et al., (2010) considered a food desert as an area not having a supermarket or large grocery within a fifteen minute walk or located within .5 mile, from the consumer's home. There are limited amounts of research conducted on the topic of food deserts; and one explanation for this is that household food security, not to food deserts, is assessed annually and forms the basis of numerous research studies in the United States (Walker et al., 2010).

In America, the prevalence of obesity is rising, and nutrition has come to the forefront as one of the major modifiable determinants of chronic disease (Story, Kaphingst, Robinson-O'Brien & Glanz, 2008). An association between poverty, food insecurity and obesity may exist, and this is viewed as a paradox (Drewnowski, 2004). How is it possible for people to experience obesity when they are suffering food insecurity? Living in poverty is often associated with an increase in stress, depression and disrupted eating habits. Less frequent food purchases made by low-income families can lead to periods of overeating followed by periods of under eating, which may have metabolic consequences. Obesity has been repeatedly linked to consumption of low-cost foods (Drewnowski, 2007). Diets high in energy-dense foods such as potato chips, refined sugars and fried foods ultimately result in reduced satiation, overeating and weight gain and a diet that consists of high energy-dense foods is likely to lead to increased health risks that could ultimately result in morbidity (Drewnowski, 2004).

Among adults, obesity is defined as having a Body Mass Index (BMI) greater than 30; for children and adolescents, being obese is defined as having a BMI higher than the 95th percentile

of a specified reference population (Ogden, Yanovski, Carroll & Flegal, 2007). BMI is determined by the individual's body weight divided by his/her height (Ogden et al. 2007). Residents who shopped in more disadvantaged neighborhoods had a higher BMI (Walker et al., 2010). In the years 2003 and 2004, 32.9% of adults age 20 to 74 were obese, and more than 17% of teenagers (12-17) were considered overweight (Ogden et al., 2007). A higher body weight is associated with an increased incidence of a variety of conditions such as diabetes mellitus, cardiovascular disease and nonalcoholic fatty liver disease (Ogden et al., 2007). It is logistically difficult to measure body fat in population studies. Being obese and overweight has financially expensive consequences and the largest increase to health costs were seen in the late 90's. Direct health costs attributable to obesity have been estimated at \$52 billion in 1995 and \$75 billion in 2003 (Center for Disease Control). In addition, among children and adolescents the annual hospital costs related to being overweight and obese more than tripled over the past twenty years rising to \$127 million during 1997-1999 (Center for Disease Control) In 1996, \$31 billion of the treatment costs for cardiovascular disease were related to being either overweight or obese (Center for Disease Control)

While increased attention has been devoted to reducing rates of obesity and increasing access to quality foods, research is finding that certain communities do not have access to healthy food options. In particular, urban communities are experiencing limited access to healthy dietary choices in their neighborhoods. The built environment plays a major role in having access to quality food. Factors that can create an insufficient built environment and therefore influence poor nutritional choices include unsafe neighborhoods for walking and convenience stores that lack the necessary food options to aid in making healthy food choices (Walker et al., 2010). Research has found that many urban communities lack supermarkets, and supermarkets

are invested in neighborhoods with purchasing power; therefore, poorer inner city communities are less likely to have access to supermarkets (Walker et al., 2010). Furthermore, the decrease in supermarkets often results in an increase in convenience stores and convenience stores are likely to have higher prices than supermarkets due to theft, therefore increasing the prices of goods (Walker et al., 2010).

This literature review explores factors that impact food choices in the inner city of the United States. Factors affecting food environments such as access, affordability and availability are considered in this literature review, to provide a better understanding of the lack of access to quality food. The second chapter provides background information about the negative health outcomes of unhealthy food choices and eating habits. Chapter Three discusses the methods utilized to gather information for the literature review, and the criteria on which articles were selected, considering that there is a large amount of research that has been done on this topic. Following the method section are the results, where major relevant findings are presented that provide insight into the potential factors related to lack of healthy food choices in the inner city. The major findings are included and the literature and also note gaps in the research. The fifth chapter of this paper discusses the implications of the findings and explains how the findings are related to the lack of access to quality food in the inner city. The discussion also reviews some of the major trends in the literature to find a common thread regarding the issue of access to quality food options in the inner city communities. These major trends reveal the overarching issues while addressing potential solutions. The paper concludes with a summary of what has been presented in the paper and provides recommendations such as, MAPP, food labeling and diversifying community income to address the issue of access to quality food in the inner city of the United States.

2.0 BACKGROUND

An environment that is not conducive to healthy, nutritional food choices often lends itself to negative outcomes. A lifestyle that includes poor nutrition can result in unhealthy eating, health issues and poor child development. The point that will be discussed first is that of what contributes to unhealthy eating. Less allocation of shelf space in community grocery stores to healthier products has been associated with lower consumption of foods among local residents (Cummins & Macintyre, 2006). In addition, proximity to a supermarket has been associated with higher fruit and vegetable intake as well as better diet quality among low-income households (Cummins & Macintyre, 2006). Food is now readily available and accessible in multiple settings throughout the day. There is an increase in processed and convenience foods that are available in larger portion sizes and at relatively low prices (Story et al., 2008). More parents are working longer hours and more meals are eaten away from home; the school food environment includes high-calorie, low nutrition foods and there has been a mass exodus of grocery stores from inner city neighborhoods and an influx of convenience stores (Story et al., 2008). Collectively, these environmental changes have influenced what, where and how much we eat and are believed to play a major role in the current obesity epidemic (Story et al., 2008).

When an individual is obese, certain “brakes” act to decrease chances of an individual gaining more weight. Physically, the individual begins to move more slowly and may have

difficulty breathing or standing for an extended period of time because of excess weight (Swinburn & Egger, 2004). Physiology attempts to slow down weight gain as well. Most obese people experience reduction in appetite, slower metabolism, increased fat oxidation, and increased activity of the sympathetic nervous system among other things (Swinburn & Egger, 2004). The rate of weight gain increases dramatically when an individual overeats and does not consume nutritional food.

Being overweight or obese plays a major role in the negative health outcomes of an individual. Obesity is associated with substantial loss of quality of life and social stigmatization (Swinburn & Egger, 2004). The mechanics of the body tend to break down, which can result in lower back pain, chest pains, obstructive sleep apnea, fatigue, asthma and a plethora of disorders deriving from added stress to the body (Swinburn & Egger, 2004). Psychologically individuals may experience anxiety, stress, depression and guilt because of their image, consequently resulting in binge eating for emotional comfort (Swinburn & Egger, 2004). On the opposite end of the weight spectrum, food insecurity commonly leads to a deficiency of nutrients and energy (Bolen & Hecht, 2003). A person who is malnourished, or lacking a sufficiently nutritious diet, is likely to experience extreme thinness, loss of muscle tissue, short stature and increased risk of infection and diseases (Bolen & Hecht, 2003). An insufficient intake of fruits and vegetables has been linked to cardiovascular disease and some forms of cancer, and insufficient intake of the necessary amount of vitamins and minerals may lead to a compromised immune system (Bolen & Hecht, 2003).

Poor nutrition among school aged students is a result of food insufficiency, defined as not having enough food or poor nutrition, and has an impact on school aged children's cognitive, academic and psychosocial development (Alcumo et al., 2001). Malnutrition is associated with

decreases in motor skills, cognitive deficits and decreases in school performance (Alcumo et al., 2001). Studies have found that children who consume foods with low or no nutritional value can be apathetic, withdrawn, and passive and have decreased motivation and heightened anxiety (Alcumo et al., 2001). In addition to the behavioral issues associated with poor nutritional intake, these children who are consuming low energy-dense foods are likely to be absent or late for school, receive special education services or repeat grades (Alcumo et al., 2001).

3.0 METHODS

Articles for the literature review were gathered utilizing the University of Pittsburgh Library system. Scopus was the first database source utilized to gather information. Scopus is a large database that covers over 16,000 peer reviewed journals in the scientific, medical and social sciences fields. The phrase used to gather information for this literature review was “access to quality foods and inner city.” This search revealed 10 articles with subjects such as shopping for fruits and vegetables, measuring food environments, disparities in food access, gentrifying neighborhoods and food insecurity. The phrase “factors impacting food choices and inner city” yielded no results.

Another database utilized was JSTOR, which is an online journal storage database that provides full-text searches of back issues of several hundred well known journals dating back to 1665. Again, “access to quality foods in the inner city” was entered; 1,693 article titles were returned on subjects such as regulatory practice and food policy implementation, community gardens, food deserts and food stamp program. Only three articles utilized in this literature review were derived from JSTOR because many of the articles that came up were about cities outside of the United States and focused primarily on the intervention side as opposed to the background information surrounding this issue. JSTOR served as a tool that helped develop a research question and determine which key phrases to look for in search engines. The most

utilized data source was PubMed, an online journal database that focuses on life science and biomedical topics. “Access to quality foods in the inner city” was again entered into the search engine, and 702 results were returned. Subjects of these included mapping evolution of food deserts in Canada, childhood obesity, race and predictors of socioeconomic status, supermarket accessibility, food store availability and inner city neighborhoods. PubMed focused on mesh terms, which are terms used to describe the subject of each journal article. Some of these terms included food diary, food habits, food supply/economics, fruit, poverty and socioeconomic status. These terms helped determine what the articles would be focusing on; if these terms were mentioned in multiple articles, these articles were then chosen for the literature review.

It was necessary to research “policies surrounding access to healthy food” as well as “interventions” because articles related these topics were not brought up by using “access to quality food and inner city.” PubMed was used to gather information on policies related to access to quality food and well as interventions, and 2,900 articles were found that included policies that have been implemented. Articles were reviewed only if the word “policy” was in the title and if they were relevant to the inner city. It was difficult originally to utilize PubMed because every phrase did not reveal applicable results. For example, “factors and food choices in urban areas” was initially searched; however, only 10 results were returned and the subjects included urban areas in Brazil, Sweden, New Zealand, Indonesia and Costa Rica. Therefore, it was important to be as specific as possible when deciding which key phrases should be utilized to gather articles. Researching urban areas outside of the United States did not apply to the research question regarding what factors impact access to quality food in the inner city of the U.S. Incorporating the phrase “Access to quality foods and inner city” often brought up articles related to domestic violence and drug abuse in all search engines used for this literature review.

These articles were irrelevant because they did not address the issues impacting access to quality foods in the inner city.

In the JSTOR database, the phrase “inner city” brought up literature relating to the dangers of the inner city from a historic viewpoint. The journals that appeared were from the late 60’s and early 70’s; however, considering that the issue of access to quality food is relevant to today, only articles dated after the year 2000 were considered pertinent for the results section and articles older than this were used for background information in the results section. In Scopus, adding “inner city” brought up literature that focused on food insecurity and food disparities. Scopus articles focused primarily on the household as opposed to the individual. Of the 10 articles that were returned from this search, three related to households and neighborhoods, whereas PubMed articles focused on the demographics of the population, and race was a major factor. To conduct this literature review, it was necessary not only to focus on the minority population when gathering information, but to focus on all those who lived in the “inner city.” Incorporating literature that focused on all races made it possible to have more diverse and comprehensive information related to the issue of factors that impact access to quality foods. JSTOR was helpful in collecting background information related to negative healthy outcomes of poor food choices. Finally, forty-one articles were used to create the literature review.

4.0 RESULTS

Despite the known health benefits of diets that are high in fruits and vegetables, only 40% of Americans meet dietary guidelines that include the recommended servings of these foods (Cassady, Jetter & Culp, 2007). As a result of poor diet, obesity has become a national epidemic in the U.S. (Wilson, Musham & McLellan, 2004). Research shows that chronic diseases such as obesity, Type II diabetes and hypertension are more prevalent among minorities compared with Whites and that intake of fruits and vegetables is lower than recommended for low-income Whites as well as African American groups (Resnicow et al., 2001; Henry, Reicks, Smith, Reimer, Atwell & Thomas, 2003). This section discusses the factors that directly impact access to healthy food options. Topics such as poverty and poor food choices, food environment, cost of healthy food, access to healthful food environments and policies that have been implemented to decrease inadequate access to healthy foods will be discussed.

4.1 POVERTY AND POOR FOOD CHOICES

Obesity rates in the U.S. have risen dramatically over the past 20 years (Drewnowski & Specter, 2004). By the year 2000, 64% of adults aged 20 or older were classified as overweight and 30% were classified as being obese (Drewnowski & Specter, 2004). According to the United States

Surgeon General, more than 60 percent of the U.S. population is either obese or overweight (Bolen & Hecht, 2003). Rising rates of obesity have been linked to the growing consumption of snacks, sugary beverages, and fast food intake (Drewnowski & Specter, 2004). These foods are known as energy-dense foods, often taste better than healthier food options and can be purchased at a much lower price. In 2000, the average American consumed 152 pounds of sweetener, which is equivalent to 52 teaspoons of added sugar per day (Story, Kaphingst, Robinson-O'Brien, & Glanz, 2007). Approximately 40 percent of added sugars came from high fructose corn syrup and nearly 50 percent of calories in the U.S. diet were derived from added sugars and fats (Story et al. 2007). U.S. farm policies have contributed to the overproduction of certain crops, specifically corn and soybeans, thereby creating artificially lower prices (Story et. al., 2007). These lower prices make energy-dense foods affordable for those on food stamps or other forms of public assistance; consequently, these products are more likely to be found in lower income areas. Healthy fruits, vegetables and other specialty crops receive little government support, resulting in higher costs of fruits and vegetables (Story et al., 2007).

Some studies have been conducted to determine what else has contributed to this rising epidemic in the U.S. Some literature suggests that the rising rates of obesity are linked to poverty (Drewnowski & Specter, 2004; Bolen & Hecht, 2003; Cummings & Macintyre, 2005). Despite the abundance of food in the U.S., an increasing number of Americans are suffering from food insecurity (Bolen & Hecht, 2003), defined as limited or uncertain availability of nutritionally acceptable or safe food (Drewnowski & Specter, 2004). When people do not have the money to purchase food they often skip meals, eat fewer portions and eat food that is poor in quality. Dietz (1995) saw the relationship between cycles of food restriction (poverty) and cycles of plenty and

argued that obesity caused hunger; in other words, obesity is an adaptive response to episodic food insufficiency.

4.2 SCHOOL FOOD ENVIRONMENTS

Quality food environments affect children as well. Children cannot always be monitored, and the school environment can have a large impact on the dietary intake of children and teenagers. School aged children eat up to two meals and snacks away from home, and food is typically available through federally reimbursed school meals (Story et al., 2008). Many schools have vending machines, a la carte items and school stores that sell a variety of sugary or “energy-dense” snack options (Drewnowski & Specter, 2004). Energy-dense food items such as cookies, candy bars and sodas contain a large number of calories and promote overconsumption (Drewnowski & Specter, 2004). While many schools have policies in place that determine the nutrition standards for breakfast and lunch options, federal requirements do little to combat high calorie foods that are consumed outside of school breakfasts and school lunches (Drewnowski & Specter, 2004).

Sugary drinks and snack foods are offered not only on school grounds; many schools are surrounded by fast-food restaurants and convenience stores, which provide an opportunity to make unhealthy food choices away from school property (McCann, 2006). A study conducted on elementary schools in Harlem, New York, found that every school had unhealthy food sources in close proximity (McCann, 2006). Another study conducted in Chicago, Illinois, found that fast-food restaurants were clustered near schools, with more than three times as many restaurants

near schools than would be expected if their location were unrelated to school location (McCann, 2006). Apparently, the number of fast-food restaurants close to school grounds is no accident. McCann (2006) states the following: “Ray Kroc, of McDonald’s fame, wrote of identifying locations for new McDonald’s restaurants by flying over neighborhoods in a single-engine aircraft, looking for schools” (p.10). This research is relevant because inner city schools are often located within walking distance of children’s homes. Therefore, an unhealthy school environment is often associated with an unhealthy neighborhood environment.

4.3 OTHER FACTORS THAT AFFECT FOOD CHOICES

The literature review shows that other factors affect food choices, such as family traditions, locale, store types, cost, dietary behavior and policies. Wilson, Musham and McLellan (2004) focused on mother-daughter roles in establishing food and diet behaviors in South Carolina. Researchers on this study conducted focus groups during which mothers were encouraged to discuss their childhood eating patterns. Many of the participants grew up in very large families where nutrition was not a focus but where availability of food was. Available foods for these mothers were mainly those grown on family farms; therefore, their childhood diets could be described as healthy (Wilson, Musham & McLellan, 2004). However, with changes in society and the need for women to contribute to their family income, women working away from home was a factor that contributed to poor eating by women and their children because time became a factor in this equation. These women found that once they came home from work, it was very

tiring to create a meal from scratch and more convenient to grab fast food for dinner (Wilson, Musham & McLellan, 2004).

Locality plays a major role when discussing access to quality food (Morland et al., 2001). A study was done in the states of Mississippi, North Carolina, Maryland, and Minnesota to determine whether neighborhood characteristics played a role in location of food stores and food service places (Morland et al., 2001). Researchers utilized the 1997 North America Industry Classification System codes and definitions to describe types of food stores and food service places (e.g. grocery stores, supermarkets and convenient stores) that were located in the states (Morland et al., 2001). Results showed that there were over three times as many supermarkets in higher income areas as in lower income areas and that full-service restaurants were more prevalent in higher income neighborhoods than in lower income areas (Morland et al., 2001). The majority of residents in the lower income areas were African Americans while those in higher income areas were wealthier White Americans, or the area was racially mixed. Furthermore, food access is determined by store type (i.e. grocery stores vs. supermarkets) and not the number of stores in the area (Block & Kouba, 2005). Many corner grocery stores used to provide meat, dairy, produce and other foods; however, now these stores are often stocked primarily with alcohol, cigarettes and microwaveable food (Bolen & Hecht, 2003). Many convenience storeowners have found it difficult to sell fresh foods because they lack the adequate experience with produce and perishables. Corner stores are likely to rely on non-perishable foods that have long shelf life because stock turnover is generally slower than in a larger supermarket (Bolen & Hecht, 2003). Also, storeowners must meet the demand of their customers and unfortunately alcohol, tobacco and snack foods are more likely to sell (Bolen & Hecht, 2003).

Another study focused on food access availability and affordability in three Los Angeles communities (Azuma et al., 2010). This study utilized the community-based participatory research approach. Community members were trained to conduct a food assessment which mapped the number and type of retail food outlets in a defined area. Grocery stores were sampled to determine if they sold healthy foods and the cost associated with these foods (Azuma et al., 2010). Of the 1,272 food establishments mapped in the three neighborhoods, only 1,023 actually met the criterion of a retail food outlet. A retail food outlet was an establishment that sold food such as a supermarkets, restaurants, gas stations and convenience stores. If an establishment did not sell food, such as soup kitchens or food banks, these establishments did not meet the criteria. The most common types of retail food outlets were fast-food restaurants (30%) and convenience stores (22%) (Azuma et al., 2010). Supermarkets comprised 2% of the total. Fast-food restaurants and marketing campaigns were noticeably directed towards minorities (Lewis et al., 2005). The lack of grocery stores in low-income neighborhoods often stands in sharp contrast to an abundance of fast-food restaurants (McCann, 2006). Often times, access to healthy food options in lower income communities is limited largely due to the lack of supermarkets. Lane et al. (2008) discuss the history behind supermarkets in inner city areas:

Beginning in the 1960s supermarket chains began to leave many inner cities. Four supermarkets closed in Syracuse prior to 1975. This shift left smaller, corner markets to serve as the primary food sources for many inner-city residents as few of the urban poor had transportation to suburban grocery store. Store owners, interviewed by researchers in other cities, argue that new supermarkets require substantial amounts of land that are often not available in inner-city neighborhoods (p. 416).

Various factors contribute to the lack of supermarkets in the inner city. Low income areas are thought to not have a favorable retail environment (McCann, 2006). Many inner city

communities are less likely to have a large amount of space that would be conducive to standard building structures (McCann, 2006). Some lots can be oddly shaped, making it difficult to build on since investors believe oddly shaped lots give their store an unattractive appearance (Pothukuchi, 2005). In addition, transportation and store operating costs such as, rent, labor and insurance are often more expensive in inner city neighborhoods than in the suburbs further, making the suburbs a more attractive option (McCann, 2006).

A healthy food environment also means that people can reach local food retail outlets by using convenient modes of transportation (Azuma et al. 2010). Research has drawn a distinction between potential access (where a consumer could shop) and realized access (where a consumer actually shops) (Raja, Ma, Yadav, 2008). Most studies do not take into account the accessibility of supermarkets (Raj et al. 2008). How far consumers must travel to their supermarkets plays a major role in food accessibility. Many urban areas are not walkable or do not have easily accessible routes that individuals can use to get to their destination. Some neighborhoods may not have sidewalks, or the bus may not be routed in such a way that allows people to be transported to their local supermarkets.

One of the major challenges in studying the effects of the environment on diet is characterizing the local food environment (Moore, Roux, Nettleton & Jacobs, 2007). Characterizing food environments by the number of supermarkets in the area assumes that only supermarkets offer healthy foods. It also assumes that the availability and quality of foods offered by supermarkets do not vary across neighborhoods (Moore et al., 2007). Surveying may provide information about foods that are actually available, which may not be captured by data on the locations of supermarkets (Moore et al., 2007). A limitation of this approach is people may not report truthfully; therefore, results may not accurately prove that the neighborhood

environment is playing a role in making healthy choices. Instead, there may be a possibility that people are choosing to make unhealthy choices. Also, it is assumed that people know what is healthy and what is not. Another limitation to researching dietary behavior is that researchers often focus on individual dietary components, e.g. fruit and vegetable consumption (Moore et al., 2007). Foods are not consumed in isolation, and it is difficult to determine what exactly contributes to a diet resulting in obesity. Therefore, it is necessary to use strategies that comprehensively measure the local food environment.

4.4 COST INFLUENCES ON DIETARY BEHAVIOR

Food price is among the many factors that influence people's food choices (Bowman, 2006). One concern of people who are in the lower socioeconomic bracket is affordability (Morland, Wing, Roux & Poole, 2001). Low-income people must choose foods based on price (Azuma et al., 2010). According to the National Health and Nutrition Examination Survey 2001-2002, people in households with an annual income of less than \$25,000 consumed 5.04 servings of fruits and vegetables per day while those who make above this annual income consumed an average of 5.56 servings of fruits and vegetables (Cassady et al., 2007). Bowman (2006) conducted a study that looked at how a person's attitude toward food price could influence food purchase decisions and, consequently, impact diet quality. The aim of the study was to compare socioeconomic, dietary and health status of female food shoppers who considered food price very important with women who did not consider food price important (Bowman, 2006). Bowman (2006) found that

food prices were very important to nearly 50% of the women who participated in the study. The research conducted found that women who lived in low-income, food insecure households were more likely to consider food prices to be very important (Bowman, 2006). These women were less likely to purchase high-priced foods and more likely to consume inexpensive, highly sweetened foods. These women were also more likely to be overweight and suffer health conditions such as heart disease, high blood pressure and diabetes (Bowman, 2006).

A market basket study was conducted in 25 supermarkets across three time periods to account for seasonal variation in produce prices (Cassady et al., 2007). Market basket analysis is a method used to study the composition of the basket of products/goods purchased by one household during a single shopping trip. The stores were selected from census tracts with a variety of income levels in Sacramento and Los Angeles, California (Cassady et al., 2007). Participants were asked to go into various supermarkets and compare prices of fruits and vegetables per unit in the state of California. This allowed for the direct comparison of costs based on the actual environment in different types of stores as well as different neighborhoods. The results showed that the 2005 Dietary Guidelines market basket cost 4% less than the Thrifty Food Plan and was significantly more inexpensive in low-income areas and at bulk supermarkets (Cassady et al., 2007)¹. The Thrifty Food Plan market basket includes all of the fruits and vegetables on the Thrifty Food Plan shopping list which fall into each of the 2005 Dietary Guidelines subgroup (Cassady et al., 2007). When comparing only for items such as fruits and vegetables, the cost was lower in low income areas than in higher income areas. However, when comparing on complete market baskets, which includes dairy, bread, meat and foods, the cost

¹ According to Cassady et al. (2007) the Thrifty Food Plan is commonly used in market basket studies because it was developed to show that low-income consumers can eat healthfully on food stamp allocations.

was significantly higher in low income areas than in more affluent areas (Cassady et al., 2007). The study concluded with a recommendation that policies should be used to make fruits and vegetables more affordable for low-income families (Cassady et al., 2007).

A study conducted in 1992 by the West Regional Office of Consumers Union utilized the term “redlining” when describing the cost differences in urban areas (Bell & Burlin, 1993). Redlining refers to economic discrimination of certain consumers on the basis of race, area of residency and gender (Bell & Berlin, 1993). The research team compared food prices in seven low-income and middle-income neighborhoods in Oakland, California. The market-basket model was used in this study to compare the cost of grocery items. Participants were surveyed to determine how far they traveled to do their weekly shopping and the average cost of their shopping trips. The study found large differences across the sites in the cost of the same market basket of food items for a family of four (Bell & Burlin, 1993). The findings showed that there were in fact benefits to having a large supermarket chain in a neighborhood. A larger supermarket helped to keep prices low; however, when these stores were absent, prices were more likely to be dramatically higher (Bell & Burlin, 1993). According to some local residents, one local grocery store that was studied was reported to have old produce and spoiled meat. Participants also stated that this store was more likely to raise its prices on the first and fifteenth of the month when government assistance was issued (Bell & Burlin, 1993). In addition, researchers found that consumers could save up to \$65.99 per market basket by shopping at their major supermarket chain as opposed to shopping at an independent grocery store (Bell & Burlin, 1993).

4.5 POLICIES

While it is evident that obesity is rising faster than ever among Americans, some policies have been put in place to stop the rise in obesity. In recent years, many states and local school districts passed legislations and regulations which recommend that if energy-dense foods are available in schools, they should consist solely of fruits, vegetables, whole grains, and nonfat/low-fat dairy products (Story et al., 2008). Twenty-nine states have adopted competitive school food and beverage policies, and implementation of the school food and beverage policies has occurred in the past five years (Story et al., 2008). Only 16 states require nutrition standards for competitive foods and beverages at school. Competitive school foods are any foods and beverages that are sold outside of the federal meal programs (Story et al., 2008). This can include foods sold in vending machines, bake sales or even convenience stores that surround school premises.

The federal reimbursable school meal programs are expected to establish local school wellness policies to address nutrition and physical activities. A researcher in Chicago, Kelly Brownell, is looking to enforce “junk food free zones” around schools (McCann, 2006). To date, few jurisdictions have restricted fast-food restaurants around school property. However, fast-food outlets in Detroit, Michigan, are required to be 500 feet away from school grounds; Arden Hills, Minnesota, requires that fast food outlets be 400 feet away from school grounds (McCann, 2006). Other efforts to improve the quality of foods in schools could include farm-to-school programs, which link local farmers providing fresh locally grown produce to school food service cafeterias and school gardening programs (Story et al., 2008). There is a need for classroom nutrition education to complement changes in the school food environment.

The Nutritional Labeling and Education Act were set in place to enable consumers to make healthful decisions (Satie et al., 2005). Federal and state laws do not require restaurants to provide nutrition content on their menus; rather, the provision of nutritional information is voluntary (Story et al., 2007). Many restaurants provide information on their websites or brochures. A report released by the Federal Drug Administration (Story et al., 2007), recommended that food establishments provide consumers with caloric information in a standard and accessible format and increase the availability of low-calorie menu items. One survey found that only 44% of the top 300 United States restaurant chains provided nutrition information for most of their standard menu items. Of the restaurants with nutrition information, 86% provided information on their websites, which requires internet access, and do not make the information available at the point of decision making (Story et al., 2007).

5.0 DISCUSSION

There are major trends related to marketing energy-dense foods, the demographics of those who are more likely to suffer from food insecurity and problems with mobilizing the community. In the majority of the articles reviewed for this paper, race was identified as playing a major role in who was more likely to suffer from food insecurity. Overwhelmingly, blacks and non-white Hispanics were more likely to lack of supermarkets in their neighborhoods or to have higher levels of poverty that contributed to poor nutrition or hunger. Whites were more likely to live near supermarkets and therefore more likely to purchase fresh fruit and produce at the most competitive prices (Lavin, 2005). Research has shown that when minorities live in close proximity to supermarkets, their diets were likely to include more fruits and vegetables and less high-calorie, processed food. Regardless of race, when consumers did not live in close proximity to supermarkets, they were less likely to purchase fruits and vegetables because this was considered a luxury food item that would not fill the consumer (Lavin, 2005). A diet that consists of whole grains, lean meats, fruits and vegetables is far more expensive than a diet containing refined sugars and fried foods. Research suggests that people who are very concerned about health and nutrition will likely live in an area that promotes a healthier lifestyle (Monsivais & Drewnowski, 2009). That is, these people will choose a residential location that is conducive to exercising and closer to stores that provide healthier food options.

There are four major streams of food flow in the United States: large corporations such as Wal-Mart, Giant Eagle and Giant that are located in various communities across the U.S.; charitable food assistance organizations such as soup kitchens and food banks; federal nutrition safety nets such as WIC; and community food security that connects the consumer directly with the food source, such as urban gardens and farmers markets (Pothukuchi, 2004). While there are four major food streams, marketing and sales come largely from one source, and that is the large corporations. Today, four grocery firms account for 42 percent of national retail sales: Kroger, Albertson's, Wal-mart and Krebs (Pothukuchi, 2004).

Based on the literature reviewed, large corporations are more likely to locate their stores outside of urban communities. There are various reasons why large supermarket chains are not in urban communities, such as the belief that their stores will not be as profitable or that higher crime may result in stolen goods, or no land available on which to build grocery stores. It is believed that suburban areas provide more space for parking, easier loading and unloading by trucks and convenient access to highways (Pothukuchi, 2005). On the other hand, urban areas are perceived as being disadvantageous for development and planning of supermarkets. Although research has shown that inner city supermarkets have a higher profitability due to need in the community, inner cities are still perceived as not having the potential to support supermarkets (Pothukuchi, 2005).

It is important to pay attention to how the poor are treated in comparison to those who are not at or below the poverty line. The food quality varies by neighborhood income and the Hope VI policy showed benefits that arise when neighborhood incomes are mixed. Those individuals who would not have access to a supermarket in their prior neighborhoods are now exposed to these food markets because of the nature of their environment. What makes this unfortunate is

that these individuals would not have the same opportunities had they remained in their old neighborhoods. Individuals should not have to relocate to have access to a supermarket or to no longer be surrounded primarily by convenience stores. However, considering the financial reasons as to why supermarkets are not heavily populating the poorer neighborhoods, it is necessary to ensure that neighborhoods have mixed incomes and are not dominated by either extreme levels of poverty or wealth.

In order to address the needs of the community, community involvement is essential in the beginning stages of planning. Many of the people who are advocates and volunteers for making a change in inner cities are community members. Food banks and soup kitchens are run by volunteers or underpaid workers who cannot make the change their community needs alone. Workers have complained that they lack healthcare, adequate wages and benefits (Pothukuchi, 2004). It is important that these communities are receiving support for those who are giving their time and energy to improve the health of their communities. If these stakeholders are not being taken care of, the sustainability of community assistance programs will be short lived. Without a sustainable intervention, community food needs will never be addressed. Furthermore, schools play a very important role in the food environment.

Majority of meals are consumed outside of the homes and children who attend school in inner city neighborhoods are surrounded by competitive foods that are often higher in calories and low in nutrition. It is important to pay attention to the food environment that surrounds many inner city schools. It is necessary to promote a healthier school food environment by motivating children to make healthier decisions via education. While it is difficult to change attitudes about food choices, children at this age should be taught alternative ways to engage in healthier eating.

Implementing a farm-to-school program allows children to learn how to care for a garden and what meals they can prepare from their gardens.

5.1 GAPS IN LITERATURE

Little empirical work has been done on types of neighborhood food environment in which people live, and even less has been done on racial disparities in these neighborhood food environments (Raja, Ma & Yadav, 2008). Most qualitative studies do not directly measure the quality of food. More emphasis is put on the proximity of supermarkets as opposed to local grocers that provide quality foods at affordable prices. A community cannot be food secure unless the food environment provides nutritionally adequate, affordable and culturally appropriate food for everyone (Raja, Ma & Yadav, 2008). All three aspects are rarely considered together, although they are interconnected.

The food environment is dynamic, and although research has been done across the U.S. that focuses on income and racial composition in urban and rural areas, it is yet to be determined if findings from one specific area can be broadly applied to areas with similar demographics (National Academy of Sciences, 2011). To date, most studies have been cross-sectional in regards to determining what factors influence access to food and environment; however, longitudinal studies should be utilized because they reveal valuable information about a population over a period of time (National Academy of Sciences, 2011). Longer time frames are critical for accurately assessing the role the environment plays on health. Special attention to intermediate steps such as shopping behavior, dietary intake and eating behaviors are necessary to understand

the effect that environment has on one's diet. The majority of studies use the home as a focal point when determining what healthy options are available in one's environment; however, little research has taken into account areas surrounding where people work, which is important considering that a large amount of food is consumed away from home.

Today, one in three children is either overweight or obese, and this is the first generation that will likely not outlive their parents due to issues with weight. While lately there has been a lot of attention on creating healthy food environments in school settings, little has been researched regarding child care settings (Story et al., 2008). This is a problem because the majority of children under the age of five spend an average of 29 hours a week in some form of child care setting; 41 percent spend 35 hours per week (Story et al., 2008). This situation reflects an important missed opportunity to promote health. The majority of childcare programs are run by the state, and each state has its own guidelines. Of all the states that regulate child care facilities, only Michigan and West Virginia require that meals and snack follow the Dietary Guidelines for Americans (Story et al., 2008).

5.2 DEVELOPING AN INTERVENTION

Decreasing rates of obesity requires a change in environment and policy (Lavin, 2005). Better availability of healthful foods, such as low-fat and high-fiber foods, has been associated with eating a more healthful diet. To date, much research related to access to nutritional food has

focused on why certain areas have access to healthier food choices while others do not. Though the rate of obesity is continuing to steadily increase, a solution has yet to be discovered. Many factors contribute to an unhealthy dietary lifestyle. To change a person's dietary behavior requires that a person feels a sense of self-efficacy. Eating is a social activity; therefore, an intervention must be developed to combat this issue on a community level. It is necessary to conduct a needs assessment to determine what the community finds helpful in terms of accessing grocery stores and making healthier options available. It is difficult to determine the needs of the community without first gaining entrée into the community and researching the issue at a community level. The remainder of this chapter presents interventions that could decrease negative health outcomes associated with poor food choices.

5.2.1 Food Labeling

Many researchers as well as community members are very interested in how one can use knowledge about nutrition to decrease negative health impacts associated with poor dieting. Satia et al. (2005) looked at whether or not nutrition labels were adequate tools to improve food choices as well as enable healthful dietary practice among African Americans. A population-based cross-sectional survey was conducted in North Carolina that studied 658 African Americans between the ages of 20-70 (Satie et al., 2005). Participants were asked how often they read labels before purchasing food items to determine whether or not reading labels resulted in healthier decisions. The authors found that 78% of African Americans paid attention to labels before purchasing; however, the majority of participants did not adhere to the dietary guidelines such as eating the recommended servings of fruits and vegetables (Satie et al., 2005). The 78%

of African Americans who took note of labels were more likely to pay attention to their fat intake, which shows that nutrition labels are effective (Satie et. al 2005). Based on this information, it is necessary to not only educate individuals on the importance of reading food labels and understanding how to decipher the meaning of food labels but also to continue posting nutritional information on restaurant menus. If people have this information readily accessible, they are more likely to make a healthier decision (Satie et. al 2005).

5.2.2 MAPP

A model known as Mobilizing for Action through Planning and Partnerships (MAPP) is a strategic approach to community health improvement. MAPP was developed to provide structured guidance resulting in an effective strategic planning process that is relevant to public health agencies and the communities they serve (Lenihan, 2005). MAPP allows communities to improve health and quality of life by mobilizing partnerships and taking strategic actions (Lenihan, 2005). One possible intervention to address obesity that could be designed using the MAPP framework is organizing transportation that will take community members to supermarkets and farmers markets. Most of the studies conducted on factors related to access to quality foods focused on neighborhoods. If neighborhoods mobilized their community members and provided transportation for community members, access to quality foods could increase. This plan would have to be adequately promoted so that community members are aware of what is going on. One way to ensure that the community is aware of this intervention is to involve them in the planning and implementation process. Community members are aware of their needs, and an intervention will be best designed by gathering information from community members. It

is also important to have community members take a lead role in this intervention to add an element of trust.

Although this model can help to create a stronger community and increase the visibility of public health in the community, one of the drawbacks is that it relies solely on the community for its success. MAPP must be a community-driven process. There must be a high level of participation from members of the community in order for the intervention to be a success. However, there may be opposition to change on a community level before change actually happens. If people have grown accustomed to eating unhealthy for the majority of their life, it may be very difficult to convince them to change, especially if there are no apparent health issues.

5.2.3 Mixed Income Neighborhoods

The Hope VI policy of public housing redevelopment has been in operation since 1993 and is based on the idea that neighborhood environments make an important difference in the opportunities and quality of life of public housing residents (Goetz, 2010). Hope VI sought to provide a range of benefits to the residents of distressed public housing via involuntary displacement and relocation on residents in the short term (Goetz, 2010). Essentially, people were provided vouchers to move into new neighborhoods with favorable living conditions. The idea was that a move out of the projects was a move up the socioeconomic ladder. Hope VI allowed for a more diverse income level because people often moved into areas with a lower rate of poverty as well as reduced crime rates. Because their new neighbors were not as uniformly

poor as their housing project neighbors, residents began to benefit from the social capital generated by a more differentiated social network (Goetz, 2010).

While this policy had good intentions, there were some issues associated with this policy. Residents felt that they did not experience a sense of community because they were less likely to talk to their new neighbors and people did not always move into neighborhoods that were far from their previous homes both in distance and in poverty levels (Goetz, 2010). Furthermore, children relocated by Hope VI did not experience educational achievement because often times, children remained in the same urban school system (Goetz, 2010). People experienced greater financial insecurity due to the increased housing costs and many people faced evictions (Goetz, 2010).

Research has indicated that income level is related to access to quality foods and this intervention is recommended based on the intentions of the Hope VI policy. Individuals who reside in lower income areas are less likely to have access to quality foods, and supermarkets are less likely to be located in these areas because of fear that the income generated from the community will not be enough to support operating costs (Bolen & Hecht, 2003). A possible solution to this is to create a community that has mixed income residents. A mixed income neighborhood will likely increase the net worth of the community, and supermarkets will be more likely to build in these areas because of the potential growth their stores will experience. One way of promoting a mixed income neighborhood is to ensure that crime rates are low by having a neighborhood watch or police involvement. Also, providing affordable housing can influence movement into a community. Many of the people displaced due to the Hope VI model were given vouchers to move into a better neighborhood with the hopes of them moving of the socioeconomic ladder. It is difficult to increase the revenue or net worth of a community if the

neighborhoods are populated with people at or below the poverty line. The diversification of income will not only increase the visibility of supermarkets, it is possible that a wider variety of food choices will be made available as well. As mentioned earlier, people make food choices based not only on access but on what recipes have been passed down through generations. Allowing people the opportunity to have access to various kinds of ingredients may encourage more cooking and less frequent trips to cheaper and larger portion fast food options.

6.0 CONCLUSION

This literature review focused on some of the factors that are related to access to food and food choices in the inner city. The first chapter of the review provided background information on negative health outcomes that arise when people do not have access to nutritional food. We see that less access often leads to consumption of low cost and high calorie foods, which in turn leads to various chronic health problems as well as poor development in children. In order to study this issue of food insecurity, a literature search was performed to identify sources the various literary tools utilized to provide information on the various factors impacting access to nutritional food choices. The findings revealed that a lack of access to stores that sell affordable health food is a problem in the inner city. The results sections showed that there was in fact a causal link between poverty and poor food choices and that evaluating food access, availability, and affordability in a community is the first step toward improving these environmental factors. This literature review also discussed the significance of the school food environment and how children can be affected by lack of nutritional foods in a school setting. Considering that children eat at least two of their meals at school, the school environment plays a significant role in the consumption of school aged children. Various policies have been implemented to address the issue of food insecurity. Hope VI, an approach to creating mixed income neighbors, was used as the basis for a proposed intervention.

While there is not yet a sustainable solution to increase access to quality food, this literature review suggests the following three interventions to help combat factors that impact access to nutritional foods: food labeling, using MAPP, and developing mixed income neighborhoods. These suggested interventions focus on ways to educate, mobilize and diversify the community increase access to affordable and nutritional food markets. Despite the large number of articles and journals that were reviewed on the topic of food insecurity, there are some limitations to this literature review. No new data have been contributed because previously conducted research was reviewed. Only articles English in were reviewed. Furthermore, the articles focused on inner cities across the United States and not on any one state or region in particular. It is difficult to come up with a solution that can be applied to every state because every state has its own policies and limitations. More research must be conducted to have a stronger understanding of why particular inner city communities do not have access to nutritional food choices.

Not having adequate access to food has many negative outcomes. Poor nutrition can lead to malnutrition or obesity and both may ultimately lead to death. Some research focuses on the paradox of food insecurity and obesity. When an individual does not have access to foods that are nutritional, she may make poor decisions in regards to food choices, which could ultimately lead to an increase in health problems. While convenience stores are readily accessible in many inner city areas, research has shown that there is a significant increase in the cost of produce that are sold in these stores. Most convenience stores do not have the ability to store produce, resulting in lack of produce or spoiled produce. Inner city neighborhoods must reach a point where supermarkets are accessible to community members, resulting in a decrease in food deserts. This literature review looked at the increase of fast food restaurants in the inner city and the role it plays on food insecurity. Fast food restaurants often offer a large amount of food for a

small amount of money. This goes beyond the realm of what the community can do; it requires help from city electives and officials. Once this issue is seen as a crisis that is a top priority, change may be evident in the inner city.

To help decrease the number of inner city communities that do not have access to quality food, a needs based assessment is necessary. A participatory community based approach would help get a better understanding of how to make changes in the community to bring about a change in the environment and access to quality foods. Community members could be surveyed on the issues in their communities and share this information with an authority figure such as the mayor or a representative for the community. Community gardens and farmers markets are not a year round solution. Policies must be implemented to increase the number of supermarkets in the inner city. A community level approach is the best way to begin to tackle an issue as large as this as well as an understanding that a measurable change in environment will take time, keeping in mind that changes such as these will take time.

BIBLIOGRAPHY

- Abye, B.A., Devine, C.M., Odoms-Young, A.M. (2006). Values Expressed Through Intergenerational Family Food and Nutrition Management Systems Among African American Women. *Family Community Health*, 29, 5-16.
- Alcumo, K., Olson, C., Frongillo, E., (2001). Food Insufficiency and American School Aged Childrens Cognitive, Academic and Psychosocial Development. *Pediatrics* 108 (3) 824b.
- Antin, T. M., Hora, M. T. (2005). Distance and Beyond: Variables Influencing Conceptions of Food Store Accessibility in Baltimore, Maryland. *Practicing Anthropology* 27 (2) 15-17.
- Azuma, A. M., Gilliland, S., Vallianatos, M., Gottlieb, R. (2010). Food Access, Availability, and Affordability in 3 Los Angeles Communities, Project CAFÉ 2004-2006. *Preventing Chronic Disease*, 7 (2) 1-9.
- Bell, J., Burlin, B. M. (1993). In Urban Areas: Many of the Poor Still Pay More for Food. *Journal of Public Policy and Marketing*, 12 (2) 268-270.
- Block, D., Kouba, J. (2006). A comparison of the availability and affordability of a market basket in two communities in the Chicago area. *Public Health Nutrition*, 9 (7) 837-845.
- Bolen, E., Hecht, K. (2003). Neighborhood Groceries: New Access to Healthy Food in Low-Income Communities. *California Food Policy Advocates*
- Bowman, S.A. (2006). A comparison of the socioeconomic characteristics, dietary practices, and health status of women food shoppers with different food price attitudes. *Nutrition Research*, 26, 318-324.
- Cassady, D., Jetter, K.M., Culp, J. (2007). Is Price a Barrier to Eating More Fruits and Vegetables for Low-Income Families? *Journal of American Dietetic Association*, 107, 1909-1915.
- Facts About Obesity." *Center for Disease Control*. N.p., 03 March 2011. Web.16Apr2011.<http://www.cdc.gov/pdf/facts_about_obesity_in_the_united_states.pdf>.

- Cummins, S., Macintyre, S. (2002). “Food deserts”—evidence and assumption in health policy making. *BMJ*, 35 (325) 436-438.
- Cummins, S., Macintyre, S. (2006). Food environments and obesity—neighbourhood or nation? *International Journal of Epidemiology*, 35 100-104.
- Dietz, W.H., (1995). Does Hunger Cause Obesity? *Pediatrics in Review*, 95 (5) 766-767.
- Drewnowski, A., Specter, S.E. (2004). Poverty and obesity: the role of energy density and energy costs. *American Journal of Clinical Nutrition* 79 6-16
- Drewnowski, A. (2004). Obesity and the food environment: Dietary energy density and diet costs. *American Journal of Preventative Medicine* 27 (3) 154-162.
- Goetz, E. (2010). Better Neighborhoods, Better Outcomes? Explaining Relocation Outcomes in Hope VI. *A Journal of Policy Development and Research* 12 (1) 5-32.
- Haire-Joshu, D., Brownson, R.C., Nannery, M.S., Houston, C., Steger-May, K., Schechtman, K., et al. (2003). Improving dietary behavior in African Americans: The Parents As Teachers High 5, Low Fat Program. *Preventative Medicine*, 36 (1) 684-691.
- Henry, H., Reicks, M., Smith, C., Reimer, K., Atwell, J., Thomas, R. (2003). Identification of factors affecting purchasing and preparation of fruit and vegetables by stage of change for low-income African American mothers using the think-aloud method. *Journal of the American Dietetic Association*, 103, 1643-1646.
- Lane, S.D., Keefe, R.H., Rubinstein, R., Levandowski, B.A., Webster, N., Cibula, D.A., et al. (2008). Structural violence, urban retail food markets, and low birth weight. *Health & Place*, 14, 415-423.
- Lavin, M. (2005) Supermarket Access and Consumer Well-Being: The case of Pathmark in Harlem. *International Journal of Retail and Distribution Management*, 33 (5) 388-398.
- Lenihan, P. (2005). MAPP and the Evolution of Planning in the Public Health Practice. *Journal of Public Health Management and Practice*, 11 (5) 381-388.
- Lewis, L.B., Sloane, D.C., Nascimento, L.M., Diamant, A.L., Guinyard, J.J., Antronette, D.C., et al. (2005). African Americans’ Access to Healthy Food Options in South Los Angeles Restaurants. *American Journal of Public Health*, 95 (4) 668-673.
- McCann, B. (2006). Community Design for Healthy Eating. *Robert Wood Johnson Foundation*.
- Monsivais, P., Drewnowski, A. (2009). Lower-Energy-Density Diets are Associated with Higher Monetary Costs per Kilocalorie and Are Consumed by Women of Higher Socioeconomic Status. *Journal of American Diet Association*, 109 (5) 814-822.

- Moore, L. V., Roux, A.V. D., Nettleton, J. A., Jacobs Jr., D. R. (2008) Associations of the Local Food Environment with Diet Quality—A comparison of Assessments based on Surveys and Geographic Information Systems. *American Journal of Epidemiology* 167 (6) 917-924.
- Morland, K., Wing, S., Roux, A.D., (2002). The Contextual Effect of the Local Food Environment on Residents' Diets: The Atherosclerosis Risk in Communities Study. *American Journal of Public Health*, 92 (11) 1761-1767.
- Morland, K., Wing, S., Roux, A.D., Poole, C. (2002). Neighborhood Characteristics Associated with the Location of Food Stores and Food Service Places. *American Journal of Preventative Medicine*, 22, 23-29.
- Nayga, R.M., Capps, O. (1999). US consumers' perceptions of the importance of following the US dietary guidelines. *Food Policy*, 24, 553-564.
- Ogden, C., Yanovski, S., Carroll, M., Flegal, K. (2007). The Epidemiology of Obesity. *Gastroenterology*, 132, 2087-2102.
- Patterson, B.H., Block, G., Rosenberger, W.F., Pee, D., Kahle, L.L. (1990) Fruit and Vegetables in the American Diet: Data from the NHANES II Survey. *American Journal of Public Health*, 80 (12) 1443-1448.
- Pothukuchi, K. (2004). Community Food Assessment: A First Step in Planning for Community Food Security. *Journal of Planning Education and Research* 23 (4) 356-377.
- Pothukucki, K. (2005) Attracting Supermarkets to Inner-City Neighborhoods: Economic Development Outside the Box. *Economic Development Quarterly*, 19 232-243.
- Raja, S. Ma, C., Yadaw, P. (2008) Beyond Food Deserts: Measuring and Mapping Racial Disparities in Neighborhood Food Environments. *Journal of Planning Education and Research*, 27 469-483.
- Resnicow, K., Jackson, A., Wang, T., De, A.K., McCarthy, F., Dudley, W.N., et al. (2001). A Motivational Interviewing Intervention to Increase Fruit and Vegetable Intake Through Black Churches: Results of the Eat for Life Trial. *American Journal of Public Health*, 91 (10) 1686-1693.
- Robinson, T. (2008). Applying the Socio-ecological Model to Improving Fruit and Vegetable Intake Among Low-Income African Americans. *Journal of Community Health*, 33 (1) 395-406.
- Satia, J. A., Galanko, J. A., Neuhouser, M.L. (2005). Food Nutrition Label Use Is Associated with Demographic, Behavioral, and Psychosocial Factors and Dietary Intake among African Americans in North Carolina. *Journal of the American Dietetic Association*, 105 (1) 392-402.

- Shankar, S., Klassen, A.C., Garrett-Mayer, E., Houts, P.S., Wang, T., McCarthy, M. et al. (2006). Evaluation of a nutrition education intervention for women residents of Washington, DC, public housing communities. *Health Education Research*, 22 (3) 425-437.
- Story, M., Kaphingst, K. M., O'Brien, R. R., Glanz, K. (2008) Creating Healthy Food and Eating Environments: Policy and Environmental Approaches. *Annual Review of Public Health*, 29 253-272.
- Swinburn, B., Train, G. (2004) The Runaway Weight Gain Train: Too Many Accelerators, Not Enough Brakes. *British Medical Journal*, 329 736-739.
- Walker, R., Butler, J., Kriska, A., Keane, C., Fryer, C., Burke, J. (2010). How Does Food Insecurity Impact Residents of a Food Desert and a Food Oasis? *Dissertation*. (UMI No. ETD-06072009-082158) Retrieved March 23, 2011, from Dissertations and Thesis Database.
- Wilson, D.B., Mushmam, C., McLellan, M.S. (2004). From Mothers to Daughters: Transgenerational Food and Diet Communication in an Underserved Group. *Journal of Cultural Diversity*, 11 (1) 12-17.