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Relationship Between Family Income and Obesity Among African American Adults

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Walden University
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Abstract

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Charles D. Boison

MS, Troy State University, 2001

BS, University of Science and Technology, Kumasi, Ghana, 1993

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Public Health

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Abstract

Obesity is a chronic disease that is caused by a number of factors such as diet, genetics, physical inactivity, and poor dietary habits. This research focused on how income affects obesity among a target population in the African American community in Durham, North Carolina (NC). It has been noted that chronic diseases that are diet-related, for example, obesity, diabetes, hypertension, and high cholesterol, affect African Americans disproportionately, especially those who earn low income. Some studies have also reported that those who make higher income have higher rates of obesity. This inconsistency and gap in the literature prompted research on this topic. Therefore, the purpose of this research was to study the relationship between family income and obesity among African Americans. The study sought to address the key factors that contribute to low family income among African Americans in Durham, NC and the ways in those key factors contribute to obesity among African Americans in Durham, NC. This study implored a qualitative approach by using an individual interview method to glean the lived experiences of participants in Durham, NC. Thirty participants were interviewed and themes from the interviews were analyzed. The health belief model was chosen as the theoretical framework for this study to understand the data and explain beliefs, attitudes, and health behaviors. Key results indicated that low family income contributes to obesity. The study contributes to social change by recommending that policy makers advocate for an increase in national minimum wage, encourage educational approaches to prevent obesity, promote good eating habits, and promote adequate physical activity among African Americans.

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Dedication

To God be the glory for the great things He has done. Without the favor, grace, and wisdom of God, this work would not have been accomplished. He deserves the dedication of this achievement. I also give out a shout out of dedication to my wife, Lydia, whose constant support and encouragement helped me through this academic journey. Special mention goes to my kids, Davina, Janelle, and Joelle, for their patience and understanding while their daddy spent hours working on this project during times that they needed his attention.

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Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

Introduction

Obesity is a chronic disease that has been a health issue for both developed and developing countries (Dinsa, Goryakin, Fumagalli, & Suhrcka, 2012). Dinsa et al. (2012) have noted that among countries that are regarded as developed, obesity is a condition that is considered to affect people who are of lower socioeconomic status (SES) compared to those with a higher SES. As far as developing countries are concerned, Dinsa et al. implied that there is a debate that continues on whether the effects of obesity are more on the poor or the rich. A study by Sobal and Stunkard (2007) showed that a positive relationship exists between SES and obesity among people in developing countries. In other words, obesity seemed to be a predominant health problem among the richer or more affluent people in such countries. McLaren (2007) compared obesity among developed and developing countries with the use of the human development index (HDI). The application of the HDI focuses on the level of socioeconomic development of any country as it combines three notable indicators: income per capita, literacy rate, and life expectancy (McLaren, 2007). The World Bank defines low- and middle-income countries as those with per capita income at a maximum of US$12,275 (Dinsa et al., 2012). This study focused on obesity as it relates to the United States, a developed country, and in particular, Durham, North Carolina (NC), as it grapples with obesity and its health effects.

The income earned by African Americans has contributed to what type of food they eat and the kind of lifestyle they live (Schneider, 2011). For the purpose of this

study, family income is the total money or financial resources generated by the same household for its upkeep, payment of bills, and taking care of other responsibilities. This includes compensations from wages, social security, child support, food stamps (welfare), pensions, capital gains, and dividends. These have had a direct effect on their health status, especially in the aspect of obesity. The target population for this study was located in Durham, NC. This community was chosen because of its concentration of African Americans living in the area. The problems that have led to this study focus around three major issues: (a) family income contribution to obesity, (b) obesity as a health issue, and (c) a gap in literature that suggests that this study is needed.

In 2011, African Americans constituted 38% of the population living in Durham, and 22% of the entire North Carolina population (U.S. Census Bureau, 2013). Poor nutrition, which could be a result of low family income among African Americans in comparison with other races/ethnicities, contributes to obesity (Samani-Radia & McCarthy, 2011). Berkman and Kawachi (2000) have also noted that low educational status among African Americans leads to low family income, which leads to obesity by virtue of the type of foods African Americans purchase and consume.

Background

The effects of income on obesity have been noted in studies that have compared measures of growth and the percentage of body fat in children from two contrasting backgrounds as far as income is concerned (Samani-Radia & McCarthy, 2011). In their cross-sectional study, Samani-Radia and McCarthy (2011) noted that children from families with lower income were significantly shorter and much heavier with a higher

body mass index (BMI) compared to those of the same age, but from families with higher family income. The study showed that the prevalence of being overweight/obesity was greater among children from lower income families based on percent body fat (overweight/obese). The authors noted that regardless of the assessment tool that was used, overweight/obese children as a group were significantly shorter for their age group when compared with children of normal weight/normal fat status.

The results from the study by Samani-Radia and McCarthy (2011) confirmed the influence of income on obesity prevalence. However, according to these researchers, the reason why BMI tends to function variably along group divisions of income is not clear, but a shorter height-for-age for those categorized as lower income earners might be one explanation. These observations or findings prompt important questions that pertain to the causes and consequences of obesity among children who come from a background of lower income.

In a qualitative study performed by Bragg, Tucker, Kaye, and Desmond (2009), they found that being overweight and obesity among adolescents and adults has increased significantly in the United States. According to the researchers, since 2006, more than 17.1% of adolescents between 12 - 19 years were considered overweight and more than 33% were considered obese (Bragg et al., 2009). African Americans and Hispanics are disproportionately affected as minority populations with obesity and these racial groups have shown higher rates of obesity (Bragg et al., 2009). The study noted that low-income African American and Hispanic youth are affected disproportionately by most of the

health problems that can possibly be prevented through the engagement of health promotions (Bragg et al., 2009).

In NC, it has been documented that the highest income group has the highest percentage of people at healthy weight and the lowest income bracket show the highest percentage of obesity (The North Carolina Behavior Risk Surveillance System [NC-BRFSS], 2008). In 2005, 36.7% of African Americans, Non-Hispanic adults in NC were considered to be obese (NC-BRFSS, 2008). Among Caucasian children (generally), obesity is noted to decline as parental income and education increases (NC-BRFSS, 2008). However, different patterns have been shown to occur among children who come from different minority groups. Troiano and Flegal (1998) found that among 12- to 17-year-old non Hispanic Caucasian children, obesity rates declined for boys and girls with increases in family income. They also noted that, "By contrast, among African Americans and Hispanics, girls' obesity rates increase with income; boys' rates show no consistent pattern" (Troiano & Flegal, 1998, p. 497). It is this inconsistency and gap that makes the pursuit of my research very significant.

The disparity in income and obesity assumes unpredictability as related in a study by Gordon-Larsen, Adair, and Popkin (2003), who asserted that maintaining adolescents in the same environments and altering only family income and parental education produced a limited effect on the disparities in the prevalence of obesity. Therefore, increasing family income without substantial difference in the environment or residential location did not improve or narrow the disparity. Other factors that should be considered are contextual, biological, environmental, and socio-economic factors (Gordon-Larsen et

al., 2003). Interestingly, increased family income helps to control some of these factors and could lead to decreased obesity (Gordon-Larsen et al., 2003).

Basic Information about Durham

Durham is a fast growing city situated near the center of NC. The importance of the location of this city in reference to the background is the proportion of African Americans living there and how income affects their obesity. The city is between Wake, Orange, and Chatham counties and makes up the majority of Durham County. It has 107.37 square miles of land area and 0.91 square miles of water area. As of 2010, Durham's total population was 228,330, and this is an increase of 22.08% from the 2000 census (NC-BRFSS, 2008). Its population growth rate is known to be higher than that of the state average rate of 18.46%, and also higher than the national average rate of 9.71% (NC-BRFSS, 2008). The median household income was $46,972 as of 2006 - 2010 and has grown by 14.12% since 2000 (NC-BRFSS, 2008). The growth rate of income was known to be higher than the state rate of 10.57% and was lower than the national average rate of 19.17% (NC- BRFSS, 2008). The median house value was $176,000 as of 2006 - 2010 and has since grown by 40.05% since 2000 (NC-BRFSS, 2008). The growth in home values is lower than the state average rate of 42.38% and is lower than the national average rate of 50.42% (NC- BRFSS, 2008). The NC-BRSSS (2008) further gave the population breakdown as follows: Caucasian - 96,932; African American - 93,517; Hispanic - 32,459; Asian American- 11,574; Native (American Indian, Alaska Native, Hawaiian Native, etc.) - 1,327. The population of African Americans was 40.96%, which is very close to that of whites (42.45%).

The social and economic well-being of Durham is reflected in the general state of NC. For instance, the State Center for Health Statistics and Office of Minority Health and Health Disparities (2010) noted that the percentage of African Americans families in NC who live below the federal poverty level ($21,834 annual income for a family of four) in 2008 was 21.3%, compared to 6.7% for Caucasians. The report also stated that of the families that have a single female householder, 37% of African American families lived in poverty compared to 24.5% of the families headed by single Caucasian females. The unemployment rate for African Americans was also double that of Caucasians (11% vs. 5.4%) in 2008. Low income, low educational level, and unemployment were all noted as associated with higher rate of health problems (North Carolina Center for Health Statistics and Office of Minority Health and Disparities, 2010).

The United States Department of Agriculture (USDA; 2014) noted that the adult obesity rate in Durham is 30.3%, and this is about the same as the average in the United States. The USDA (2014) also noted that the population of Durham is now 273,292; the poverty rate is 18.4% and child poverty is 24.2%. The USDA (2014) reported that a grocery store to every 1000 people in Durham is 0.18% and 27% of the total population has low access to grocery stores. In terms of stores per 1000 people, available convenience stores constitute 0.43%, specialized stores constitute 0.04%, Supplemental Nutrition Assistant Program (SNAP)-authorized stores constitute 0.71%, and Women, Infants, and Children (WIC)-authorized stores constitute 0.2% (USDA, 2014). In terms of the percentage of population in Durham with low access to grocery stores, residents with low income comprise 6.2%, children with low access comprise 6.5%, and that of seniors

with low access comprise 2.9% (USDA, 2014). Representative sampling details of educational attainment of the community and the average income of African Americans living in the target population were obtained and analyzed during the interview process. The family income of African Americans of the target population, which has some significance to the status of obesity, was the focus of this research.

Problem Statement

The Centers for Disease Control and Prevention (CDC, 2013) noted that in 2008, medical costs associated with obesity were estimated at $147 billion, with medical costs for obese people being $1,429 higher than those with normal weight. In general, two-thirds of NC adults were found to be overweight or obese using their BMI (North Carolina Behavior Risk Factor Surveillance System, 2008). According to Schneider (2011), obesity is usually defined in terms of BMI, which is calculated by dividing an individual's height in meters by the square of his or her weight in kilograms (p. 262). The CDC has agreed on a definition of overweight as having a BMI between 25 and 29.9 and obesity as having a BMI of 30 or greater. The CDC noted that obesity is higher among non-Hispanic African American and Mexican-American men who earn higher incomes than those who earn lower incomes. The age-adjusted rate of obesity for non-Hispanic African Americans was 47.8% according to the CDC. The report also stated that women who earn higher income are less likely to be obese than those of lower income (CDC, 2013). The former assertion is in contrast to statement made by Berkman and Kawachi (2000) that African Americans earn lower family income, and therefore, are subject to higher obesity rates. There is some gap in the literature that needs to be studied to

ascertain the relationship that exists between family income and obesity. This gap was the main focus of this study and the inconsistency in the literature as far as the relationship between family income and obesity is concerned was addressed. The interplay of location and race/ethnicity might have some bearing on this study because among NC adults: 22.6% of Caucasian, non-Hispanic adults; 36.7% of African American, non-Hispanic adults; 33.5% of American Indian, non-Hispanic adults; 14.3% of non-Hispanic adults of other races, and 22.1% of Latino/Hispanic adults were obese (North Carolina State Center for Health Statistics, 2007). However, the rates were different in a state such as Oklahoma, where Weedn, Ang, Zeman, and Darden (2012) found that the lowest rate of overweight and obesity was noted in African American children (14.1% and 10.9%, respectively; $P < .0001$). When overweight and obese categories were combined, American Indians had the highest rate at 36.1%, whereas African American children had the lowest rate at 25.1% ($P < .0001$) (Weedn et al., 2012). These contrasting statistics prompted my research on the disparity among race/ethnicity and contributed to a gap in literature as far as the relationship between family income and obesity is concerned. The findings from this study helped to fill this gap and added some meaning to the statement made by Novick et al. (2008) that the disparity in family income is a contributing factor to health status. Because Durham, NC has a high population of African Americans, the findings from this study provided some reasons why African Americans earn lower income, how these could be used to provide solutions to earn higher income, or how they can live a better lifestyle with their incomes. The responses from these face-to-face interviews will help agencies, organizations, and physicians to provide better information

to help the target population create better lifestyles. This could ultimately lead to a social change among residents of Durham, NC.

Purpose of the Study

The purpose of this research was to provide a qualitative insight into the relationship that might exist between income earned by African American families in Durham, NC and how this contributes to obesity. A number of quantitative studies have been conducted to assess obesity as an independent variable, but few delve into the life experiences of individuals and families in the context of income. Although some qualitative studies have been done with respect to obesity and other factors (Mendez et al., 2004), a focus on Durham, NC appears to lack detailed qualitative studies. Therefore, this study sought to study the factors that lead to low income earned by African Americans and how these in turn lead to obesity among the chosen target population.

As envisaged, responses to the interviews conducted helped to answer the research questions. The responses also helped to bridge the gap in literature and could provide social change such as finding ways to eat healthy meals even with lower income, exercising at recommended times to reduce obesity, and staying healthy at all times.

Research Questions

The research questions that were focused on in this study are the following:

Research Question 1: What are the key factors that contribute to low family income among African Americans in Durham, NC?

Research Question 2: How do these key factors contribute to obesity among African Americans in Durham, NC?

These questions are important and worth studying because responses to them indicated that more income would make a difference in what African Americans in Durham eat, and the amenities that are available to them by virtue of their income and economic status. The responses also led to some findings that irrespective of income earned, this ethnic group might be prone to this chronic disease through other factors such as genetics or environmental factors such as lack of amenities and equipment for physical activities. The dwelling locations of the target population and other factors that lead to increased obesity were central to the formulation of questions to participants. These questions helped to address the current issues associated with low income earned by African Americans that have contributed to their obesity. In essence, responses to the main research questions of this study played a major role in finding out if in actuality the income earned by families under consideration contribute to obesity or the income earned plays no significant role in this chronic disease. Moreover, these questions led to the factors that contribute to low family income that ultimately contributes to obesity. For instance, are African Americans who live in low income neighborhoods obese because they lack the means to perform the required physical activities? Are they obese because they lack access to good nutrition, or can they live on low income in a poor neighborhood and still maintain a healthy lifestyle? This study also revealed the factors that hinder the target population from earning enough family income, which ultimately affects how they live, what they eat, and how these lead to obesity.

Theoretical Framework

The philosophical worldview that seemed appropriate for this research is that of social constructivism. This worldview is based on the assumption that individuals desire and so seek an understanding of the world in which they live and work (Creswell, 2009). They would also gravitate towards finding subjective meanings and experiences that are directed towards certain objects (Creswell, 2009). This implies that although individuals may or may not have control over causes of obesity, they would attempt to find these causes and look for remedies or solutions to them.

Based on the philosophical worldview described above, the selected appropriate theory applicable to this research was the health belief model (HBM). The HBM was chosen because of its ability to explain various health behaviors (Mckenzie, Neiger, & Thackeray, 2009). The HBM is recorded as one of the most frequently used theories in the application of health behaviors. It is a value-expectancy theory that was developed during the 1950s by psychologists in an attempt to explain why people would use or not use available health services (Mckenzie et al., 2009). According to Mckenzie et al. (2009), the HBM stands on three pillars of hypotheses, which are:

1. The existence of sufficient motivation (health concern) to make health issues salient or relevant;
2. The belief that one is susceptible (vulnerable) to a serious health problem or to the sequelae of that illness or condition. This is often termed perceived threat, and

3. The belief that following a particular health recommendation would be beneficial in reducing the perceived threat, and at a subjectively acceptable cost. (p.171)

According to Schneider (2011), the HBM is a model that helps to explain how people's behavior is affected by their own beliefs. Schneider pointed out that for individuals to change their behavior towards certain behaviors there must be a belief in a personal threat. This means the individual must be susceptible to some condition or threat. Schneider also implied that for people to overcome a behavior, they should have a belief in response efficacy, meaning that there is something they can do to alleviate or eliminate the source of the threat.

By linking the concepts provided by Mckenzie et al. (2009) and that of Schneider (2011), this research identified behavioral sources in response to the research questions that underline this study. The key factors that contribute to low family income among African Americans in Durham, NC (target population), and how the low income contributes to obesity was explained by the HBM. The HBM helped to explain the threat posed to the target population, how the target population feels threatened by this, and the efficacy they display to counteract this situation. The methodological approach in the use of the HBM model was that of phenomenology. This is discussed briefly in the Nature of the Study section that follows.

Nature of the Study

This research focused on obesity with relation to how it is affected by family income. This research was qualitative. Qualitative research is known to have five major

qualities, which are as follows: (1) it is naturalistic, (2) the data produced is descriptive, (3) there is the display of concern, (4) the process is inductive, and (5) it has a goal as its meaning (Crosby, DiClemente, & Salazar, 2006).

With qualitative strategies being more useful with natural occurring and contextual situations rather than controlled situations that use the quantitative approach (Rudestam & Newton, 2007); the social constructivist approach is more appropriate to this study. This naturalistic approach enabled the collection of data in a natural setting of the participants' home. Quite often individuals may want to guard their privacy, especially when it comes to the income they make and what type of foods they can afford or eat and also how their income determines where they live. However, the communities these people lived in and the income they earned determined the data that were obtained.

Qualitative research more often uses descriptive data, which can take several forms (Crosby et al., 2006). This could be words, pictures, charts, records, and narratives. It is possible to integrate a bit of numerical data in terms of income, although qualitative research is not often represented in numerical terms (Crosby et al., 2006). Because this study focused on the reasons people do what they do or are, using the process-focused approach of qualitative research seemed most appropriate.

The inductive nature of qualitative research has an advantage over quantitative, stemming from the fact that it is better achieved through observations that could constitute a theory. As Crosby et al. (2006) has noted about this type of inquiry, the observations made could lead to a pattern of gathering data and then their interpretation.

As far as qualitative research is concerned, Rudestam and Newton (2007) have given very illustrative reasons for the choice of this approach, which align with my objectives. For instance, phenomenology uses the identification of locating participants who have actually experienced the phenomenon. Inequalities in status quo and economic status among African Americans are a canker that is breaking the morale of many an African American (Berkman & Kawachi, 2000). Rudestam and Newton's discussion of the instrumentation (measures) in qualitative study is very unique and applicable to my study. According to them, the observer plays an important role in the instrumentation process. Therefore, improvement in human observation is very critical for reliability and validity in this qualitative research. Rudestam and Newton noted that interviewing is a tool of qualitative studies, in which the researcher can get very close to the participants. The method of gathering data, which might lead to high fidelity and high structure by way of open-ended interviews (Rudestam & Newton, 2007), is an appealing quality of qualitative research.

Possible Types and Sources of Information or Data

As mentioned earlier, interviews were conducted to collect my data. Open-ended interviews were used. This included face-to-face interviews, which provided very useful demographic information and other information pertinent to this study. Based on a review of previous research studies, common interview questions, which captured responses to answer my research questions, were crafted to serve as a guide (see Appendix C).

Upon approval of Walden University's Institutional Review Board (IRB) and participants' consent, data were collected from participants that focused on basic

demographics, which related participants' income to the type of resources they can afford. Other pertinent information that was relevant to this study was obtained from the participants directly in the form of interviews. For instance, information from women who participate in the Women, Infant, and Children's (WIC) program as well as dependence on government subsidies were used to obtain some information as to how their socioeconomic status contributes to obesity. I targeted a population sample size of 30 with participants aged between 18 - 65 years.

Other Information

It was envisioned that the results from this research will influence social change in Durham and the nation as a whole. Although several factors lead to obesity, the role of family income was focused on in this study, and the analysis and conclusion made might help individuals and families in Durham control or curb obesity with the income they make or what they can do with their income to prevent this chronic disease. The information could also help physicians, providers, politicians, and lawmakers to address the needs of their patients, clients, and citizens to live a better life.

Operational Definitions

Obesity: A chronic disease whereby excess body fat tends to accumulate in the body of a person to the extent of having a negative effect on him or her, which leads to reduced life expectancy, increased health problems, and often death (Wiley, 2013).

Body mass index (BMI): A measurement of an individual's overweight or obese status. It is obtained by dividing the individual's weight by the square of his/her height.

Overweight is regarded as a BMI between 25 and 29.9 kg/m^2 and obesity as a BMI of 30 kg/m^2 or greater (CDC, 2007).

Family income: The total money or financial resources generated by the same household for its upkeep, payment of bills, and taking care of other responsibilities. This includes compensations from wages, social security, child support, food stamps (welfare), pensions, capital gains, and dividends (CDC, 2013).

Coding: A process by which materials are organized into chunks or segments of text so that a general meaning of the segments is developed (Creswell, 2009).

Phenomenological study or research: A qualitative study in which the researcher seeks to study and identifies human experiences (essence) concerning the phenomenon as real experiences described by the participants being interviewed in a defined study (Creswell, 2009).

Informed consent forms: Forms requesting participants to partake in a study. Participants sign this form to acknowledge that their rights have been explained to them, and that their rights will be protected during collection of data (Creswell, 2009), and the duration of the study.

Assumptions

The willingness of some participants to declare their true family income seemed a challenge. I assumed some participants exaggerated their incomes higher or lower than they earn annually. Unless medical records are verified (which was beyond the scope of this study), it is possible weights, heights, and other demographic information of some participants might have been guessed or incorrectly reported. I assumed participants may

not have revealed their true eating habits or what types of food establishments they patronized most, but tried to answer as honestly as they could. Because the selected participants were only a representation of the population, outcomes may not be a true generalization. Due to the sensitive nature of African Americans to obesity, responses to questions asked may not have received the accuracy expected. However, I assumed that most participants provided honest and true answers to questions asked.

Scope and Delimitation

This study addressed the relationship between obesity and family income. As a qualitative inquiry, it dealt with inductive rather than deductive inquiry. The boundary set was within Durham, NC, thus the outcome would be a generalization of what pertains to the target population of African Americans living in Durham, NC. Populations of other races and ethnicities were excluded from the study. The conceptual framework used focused on phenomenology.

Limitations

This study's findings were limited to interpretation (qualitative) rather than quantitative analysis. The lived experiences of the participants were the focus and not the quantity of participants in the target population. Participants for the study included only those who willingly agreed and signed the informed consent forms. Therefore, participatory bias might have affected the outcome of the study (Creswell, 2009). Selection bias (Creswell, 2009) could also play a major role in this study because as mentioned earlier, the interviewing of participants was based on people who were willing to participate in the study by virtue of providing or signing the consent forms. Those who

refused, and therefore, were excluded might have different opinions or answers to the questions asked. A potent way of addressing or minimizing biases in this study was to encourage maximum participation by educating the target population to understand the reasons for this study, the anonymity of responses to participants, and how its findings could create social change for them.

Significance

This study might reveal some importance or significance because on a national level, Berkman and Kawachi (2000) have demonstrated that Caucasians earn more income than African Americans and their SES is also higher, respectively. The obesity rate is inversely proportional to income (Berkman & Kawachi, 2000; Samani-Radia & McCarthy, 2011). The contributing factors that could make low-income families prone to obesity have been summarized by the North Carolina Behavior Risk Factor Surveillance System (2008):

1. Because of low income, families may excessively consume lower cost foods that have relatively higher levels of calories per dollar;
2. In order to have more food (quantity) low-income families' sacrifice quality food in order to meet their resources or stretch whatever they have; and
3. Many a mother or parent sacrifices their own food or nutritional needs to feed their children, but when food becomes available, they may eat voraciously to try to make up for what they had lost. (para 3)

The income earned by individuals or families determines what they eat, where they live, and what amenities are available to them that might motivate them to perform the required physical activity or engage in other activities that ultimately reduce their obesity (Berkman & Kawachi, 2000; Samani-Radia & McCarthy, 2011). Acheampong and Halderman (2013) have noted that one of the most notable barriers to consuming healthy diets by African Americans is the cost of healthy foods. They recommended that this variable must be addressed when obesity and poor dietary consumption among low-income minority groups are being addressed. Results from this study could be used to modify and create a positive social change that is geared towards reducing obesity and living a better lifestyle.

Summary

Obesity continues to be a chronic disease in the United States. The percentage of individuals who are obese continues to be a health issue to themselves and the nation in general (CDC, 2011). Obesity- related conditions such as heart disease, stroke, type 2 diabetes, and some types of cancers have great economic burden on the country. It is a concern to note that two-thirds of North Carolina adults are obese (North Carolina Behavior Risk Factor Surveillance System, 2008). In Chapter 1, I focused on the problem statement, significance, background, basic information about the target population of this research, the framework underlining this study, the research questions governing the study, and the nature of study involved in this research. In Chapter 2, I will focus on the literature review and how this study fits into a pattern that would impact a social change. In Chapter 2, I also discuss the literature strategy search used, history of obesity, income

and obesity, adult obesity in North Carolina, the theoretical framework, and the health belief model and its relationship to the proposed study.

Chapter 2: Literature Review

Introduction

The purpose of this qualitative study was to find the relationship between family income and obesity among African Americans residing in Durham, NC. Obesity is a chronic condition in the United States that has contributed to cardiovascular and other related diseases including heart attack (Schneider, 2011). The World Health Organization (WHO; 2008) reported that there were about 1.6 billion overweight adults aged 15 and above and at least over 400 million were obese worldwide in 2005. Low, Chin, and Deurenberg-Yap (2009) pointed out that obesity is a contributing factor of chronic diseases, which includes diabetes mellitus, stroke, cardiovascular disease, and some types of cancers. WHO (as cited by Low et al., 2009) also stated that obesity is quite a serious public health issue that is growing within countries with low or middle income.

According to Schneider (2011), Americans are getting fatter due to the ease of acquiring and eating unhealthy food and lack of adequate exercise. The inability to eat healthy foods has been attributed to factors such as lifestyle, attitudes, and low family income. The title of this research originated from a quest to have an in-depth understanding of how this relationship plays out. This study focuses on obesity and how the low family income earned by African Americans has contributed to it. It employs a qualitative approach, which seeks to find the relationship between the low family income earned by African Americans in Durham, NC and how it leads to obesity.

Many studies have been done in the past that considered obesity as a dependent variable and how it related to other independent variables. For instance, in their

descriptive study, Acheampong and Halderman (2012) studied obesity in relation to nutritional knowledge, attitudes, and beliefs associated with obesity among low-income Hispanic and African American women caretakers. The most common barrier to consuming a healthy diet found from their study was the cost of healthy foods (Acheampong & Halderman (2012). The authors recommended that this variable must be addressed when obesity and poor dietary consumption among low-income minority groups are being addressed (Acheampong & Halderman, 2012). It is envisioned that this research will help to bridge the gap in literature concerning how income affects obesity among African Americans and how it ultimately impacts society with a social change.

Literature Search Strategy

In this chapter, I review the literature on related topics that pertain to obesity and how it is affected by income. Journals, books, and articles from various database sources were reviewed. The key search strategy that I mostly used was the Thoreau multiple database search. Other notable databases that were searched to extract relevant sources for this literature review included PubMed, Medline, Google Scholar, and Academic Search Premier. The key words used for this search included: *obesity*, *income, African Americans, ethnography, phenomenology,* and *Body Mass Index (BMI).* These terms were searched individually and in various combinations to identify key articles for this literature review.

Background

The foundation of this research rests on the contrasting evidence of support that relates to how obesity is affected by income. The CDC (2013) among others, published

literature stating that among non-Hispanic African American and Mexican-American men, those who make higher incomes have a higher likelihood of becoming more obese than those who make low income. The report also stated that higher income women are less likely to be obese than those who earn low income. A sharp contrast to this statement was made by Berkman and Kawachi (2000), who asserted that African Americans earn lower family income, and therefore, are subject to higher obesity rates. It is these contrasting findings that set my research into motion to ascertain the actual or existing relationship between income and obesity.

History of Obesity

In tracking the global epidemic of obesity, Caballero (2007) recounted that obesity arose out of human race's struggle to overcome the scarcity of food, disease, and a hostile environment. According to Caballero, the need to increase the average body size became an important factor during the onset of the industrial revolution as a social and political factor by the great powers. Caballero noted that the economic and military powers of countries were essentially dependent on the physique and strength of their young generations, out of which they recruited their work force and soldiers. This fact translated into the idea that more food had to be consumed to maintain the required body mass and height. The distribution of the population's BMI was moved from that of underweight range towards a normal range. This gave a useful and important impact on a desired or expected survival rate and productivity that seemed to play a central role towards the economic development of industrialized societies (Caballero, 2007).

According to Caballero (2007), historical records from developing countries showed that the height and weight did increase progressively, especially during the 19th century. Populations from well to do countries began to approach their genetic potential for longitudinal growth during the 20th century as they began to acquire proportionally more weight than height, which resulted in the increase in average BMI (Caballero, 2007). The human race then reached a kind of historical landmark by the year 2000, during which for the first time in the evolution of man, the number of adults who had excess weight exceeded the number of those who were underweight (Caballero, 2007). Today, excess adipose tissue/body weight is widely known as one of the leading health issues or threats throughout most countries around the world and also considered a major risk factor for type 2 diabetes, cardiovascular disease, and hypertension (Caballero, 2007).

According to Wiley (2013), obesity is defined as weighing at least 20% more than what an adult should weigh or having a BMI of 30 or more, though not accurate for everyone. Being fat was regarded as a sign of wealth and health prior to the 1990s, in that it was an indication that people possessed the resources to obtain ample amounts of food (Wiley, 2013). However, in the 1990s and 2000s, obesity was considered more or less a pointer of current and future health problems (Wiley, 2013). Wiley also attributed the intensity of obesity in modern times to the fact that compared to previous centuries, relatively intense labor just for living everyday has reduced. According to Wiley, this is due to technology and resources and the ease for acquiring food has increased while the cooking of food from the scratch, walking to places, and things done by machines instead

of by hand have increased, leading to sedentary lifestyles. Wiley recounted that even in 1960, only about 13.3% of people living in America were considered obese, but the percentage of the population regarded as obese escalated drastically between 1980s and 2009. This author also stated that in the western portion of the southeastern United States, and up to the Midwestern states such as Oklahoma and Missouri, the highest rates of obesity were recorded in 2009. As to what caused the increased rates of obesity, Wiley attributed it to production of food in certain aspects of society in terms of increased portion sizes, such as increased sizes of hamburger growing from one ounce in 1957 to almost six ounces in 1997. The absence or lack of physical activity due to reduced physical education in schools to almost doing nothing but sitting in front of computers and other electronic gadgets all day have led to a decrease in the number of calories people extend currently, which in effect has increased rates of obesity (Wiley, 2013). Effects of these have been noted as Wiley implied that there has been a continual spike in obesity prevalence over the past 30 years, and by year 2000, approximately 65% of the adult population indicated a BMI (weight/height^2) above 25, and 30% had a BMI above 30. Wiley blamed the obesity syndrome on the fact that as history had indicated, human obesity was notably linked or associated with gluttony and lack of self-control at the table. In effect, treatment and preventive measures could be directed at attitudes and individual behavior.

Income and Obesity

Income plays a useful role in the concept of obesity because of its measure of SES position as it has a direct relation or association to the amount of material possessions an

individual or family has. The income a family makes determines what kind of health or health insurance they can afford because money has influence on these human requirements (Berkman & Kawachi, 2000). According to Berkman and Kawachi (2000), adequate amounts of money possessed by an individual or family has important implication due to the range of effects money has on health in terms of quality, type, opportunities for cultural, recreational, and physical activities, the availability or absence of influx of fast food restaurants, and supermarkets.

Employing data from the Health and Retirement Study, Smith and Flowers (2009) showed that African American and Hispanics' households possess less wealth at almost every income level. According to Smith and Flowers, on the average, African Americans earn 27 cents to a dollar of wealth compared to that of a middle-aged Caucasian's household. Even in the category of incomes for households that have income at the top quintile, African Americans are noted to have 56% less the net worth, while Hispanics households' was 67% less net worth than Caucasian households (Smith & Flowers, 2009).

The gap in literature leading to the importance of this research was how income is related to obesity among African Americans, with the target population residing in Durham, NC. Earlier ecological studies revealed an association between income, inequality, and poor health status (Subramanian & Kawachi, 2004). It is now widely known and accepted that lack of adequate income (poverty) poses a risk factor towards premature mortality and an increase in morbidity (Subramanian & Kawachi, 2004). Although there are several measures available for quantifying income inequality within

any society or community, the most frequently used is the Gini coefficient of income distribution at the U.S. state level (Subramanian & Kawachi, 2004). Subramanian and Kawachi noted that "Algebraically, the Gini coefficient is defined as half of the arithmetic average of the absolute differences between all pairs of incomes in a population, the total then being normalized on mean income" (Subramanian & Kawachi, 2004, p. 78). The explanation given is that assuming incomes in a population are completely and equally distributed, the Gini value will be 0, and if for instance, one person happens to have all the income (maximum inequality), the Gini will be 1.0 (Subramanian & Kawachi, 2004).

Lifestyle changes, such as increased sedentarism and the increasing consumption of fats and refined carbohydrates, have been noted to be fueling the epidemic of obesity (Mendez et al., 2004). In a cross-sectional population-based study in Jamaica, Mendez et al. (2004) found that income was strongly and positively associated with obesity in men. In women, they found that obesity levels were high even among the very poor, and the income gradient was noted to be more moderate. Their study used 847 men and 1249 women aged 25-74 years, who were recruited randomly from a periurban area in 1993-1998. Melendez et al. stated in their introductory preamble that in the past, studies that had been done in developing countries generally had shown higher levels of obesity among the upper SES groups, which suggested that such changes to lifestyles were mainly adopted and introduced in relatively economically richer groups. However, recent studies among several middle-income countries have reported notable increases in obesity in low-SES groups, reducing the effect of the SES-obesity association (Melendez

et al., 2004). The recommendation of Melendez et al. was that studies should be conducted in other middle-income countries to assess the extent of increasing obesity in low-income groups. The study by Melendez et al. showed some contrasts to findings by Berkman and Kawachi (2000), who mentioned that African Americans earn low incomes and are subject to higher obesity rates.

Wang and Beydoun (2007) noted that within the past 30 years, the United States has experienced a considerable rise in the prevalence of obesity, which has contributed to a public health crisis. According to Wang and Beydoun, there has been an increasing body of evidence that has reported tremendous disparities among population groups and the on-going changes that are associated with patterns that include the epidemic of obesity in the United States. In their quantitative meta-analytical study, they found that obesity was related to gender, age, socioeconomic, racial/ethnic, and geographical characteristics. They indicated that overall, the less educated persons (those who had less than high school education) had a prevalence of obesity that was higher than their counterparts, except African American women. African American women with less than a high school education were reported to have the lowest prevalence of obesity as compared to those who had seemingly higher educational attainments (Wang & Beydoun, 2007).

The study by Wang and Beydoun (2007) also found that obesity prevalence in the low SES group among White men decreased during 1988-1994 and 1999-2002, while within the same time frame, the prevalence of obesity, there was a considerable higher rate increase among low SES Black men in comparison with other SES groups. As far as

Black women were concerned, obesity was found to be rapidly in the higher-SES and medium-SES groups as compared with the low-SES groups between 1976-1980 and 1999-2002 (Wang & Beydoun, 2007). In their discussion and conclusion, Wang and Beydoun indicated that health study had shown that low income, lower-SES and minority population groups including Blacks had less access to facilities that provided physical activities, "which in turn was associated with decreased physical activity and increased overweight" (p. 24). Wang and Beydoun advocated for policy makers and public health workers to be mindful of racial/ethnic differences that could have effects on individual's health behaviors and status of body weight.

The CDC has reported that African Americans and Hispanics had a 51% and 21% greater prevalence of obesity, respectively, than Caucasians (Acheampong & Halderman, 2013). The US Census Bureau (2008) has noted that the two largest minority groups in the US are African Americans and Hispanics. They estimated that 40.8 million (13.1%) of the total populations are African Americans and 52 million (40.8%) are Hispanics (US Census Bureau, 2011). In their descriptive study on nutrition, knowledge, attitudes, beliefs, and self-efficacy among low-income African Americans and Hispanic women, Acheampong and Halderman (2013) found that low income, low SES plays a significant role among minorities and immigrants. Low SES was noted to correlate to poor health, which could possibly lead to cardiovascular diseases and other obesity-related illnesses among African Americans and Hispanics (Acheampong & Halderman, 2013). I found this study by Acheampong and Halderman playing a critical role in the literature review,

but what was not mentioned was what the authors regarded as a low income for minorities.

St. Rose and Wilson (2009) reported that persons living with chronic diseases in the United States were approximately 90 million, and this constitutes 70% of American deaths. The researchers noted that although these types of conditions affect all racial groups, African Americans are the ones who suffer most from these diseases. In a descriptive exploratory design study with 150 African American households from one city and one county in southeastern Virginia, St. Rose and Wilson noted that income was inversely correlated with diseases such as diabetes and obesity. They also found that education was inversely correlated with stroke and alcohol consumption, but positively correlated with physical activity, healthy insurance and routine checkup. St. Rose and Wilson's study was an indication that the prevalence of obesity among non-Hispanic black women aged 40-59 was higher (53%) compared to non-Hispanic White women (39%); among older women, 60 years and older, the prevailing percentages on non-Hispanic black women and non-Hispanic men known to be obese were 61% and 32% respectively (St. Rose & Wilson, 2009). The study also noted that in Virginia, in 2000, African Americans had a lower median household income ($36,885) than Whites ($59,494). Again in the same year, the median household income for African Americans in Southeastern Virginia was $35,629 as compared to $47,352 for Whites (US Census Bureau, 2003). In terms of education in Virginia, in 2000, close to 18.6% of African Americans had <12 years of education compared to 9.5% of white. It was estimated that

18% or 281,668 African Americans aged 25 years and more had <12 years of education as compared to 9.3% or 636,140 of Caucasians (US Census Bureau, 2003).

St. Rose and Wilson (2009) also mentioned that socio-economic status is an important factor as far as the development of chronic diseases is concerned. They mentioned the two leading indicators of socio-economic factors as income and education, but they did say, however, that these variables are not "uniformly correlated" (St. Rose & Wilson, 2009, p. 156). St Rose and Wilson indicated that researchers have studied the important role of income and education patterning to the development of chronic diseases such as obesity and found that there is a relationship that exists. Further research into the SES has provided evidence to the effect that low income and education are linked with poor diets, smoking, use of alcohol, and physical inability. St Rose and Wilson placed relevance to their study as well as clinical practice by noting that recognizing the various groups of people at risk for chronic diseases such as obesity, could help to alert health professionals when establishing and implementing community-based interventions geared towards the promotion of healthy diet and nutrition and consequently decreasing the number of people with hypertension and other chronic diseases.

Obesity continues to be a significant problem in the United States as reported by Gary, Gross, Browne, and LaVeist (2006). Gary et al. (2006) noted that national data pinpointed a 61% increase in the prevalence of obesity from 1991-2000, and this chronic disease, which has been identified as a precursor to several chronic diseases is "probably the strongest risk factor for type 2 diabetes" (p. 253). Comparing to white counterparts, Gary et al. reported that as a result of obesity, African Americans are disproportionately

affected by the burden of type 2 diabetes. In a cross-sectional study that used a population size of 406 young adults (primarily African American) graduating students from an urban historically Black university located in the mid-Atlantic region in the spring of 2003, Gary et al. (2006) did a wellness study of baseline correlates of overweight among African Americans. Correlates of overweight or obesity (BMI $\geq$ 25) were calculated with logistic regression models, stratified by gender in order to determine odds ratio for socio-demographic, weight-related, and health status variables with overweight/obesity. Among their findings, Gary et al. reported that there was an apparent trend that showed that those in higher SES groups had lower overweight compared to the group with lower SES (p. 262). Gary et al. implied that those with higher family income had lower overweight/obesity status. The finding also showed that participants whose fathers were college graduates were less likely to be overweight than those whose fathers did not graduate from college (OR = 0.38, $p < 0.05$). The study also reported that females who had indicated that their family had experienced family economic hardships when they were growing up were more likely to be overweight (OR = 2.19, $p < 0.01$) than those who did not experience such family hardship. In their discussion, the researchers noted that those who were married, had children and classified as belonging to lower SES groups seemed to be more overweight. This also supported the argument that family income had an effect on overweight/obesity. Arfken (1996) agreed that obesity has a high prevalence among African Americans and low-income families, but he said very little was known about the perception of overweight among African Americans living in inner cities.

Schneider (2011) emphasized that the intake of fruits and vegetables was hardly patronized by people of lower income, especially African Americans. In spite of a growing body of literature that has revealed the benefits of diets high in fruits and vegetables, it has been noted that most African Americans eat lesser than the recommended amount of such foods. Lucan, Barg, Karasz, Palmer, and Long (2012) also reported that diseases such as obesity, high cholesterol, and hypertension, which had their origin from bad eating habits affect African Americans disproportionately, especially, those with low income. According to Lucan et al. (2012), part of the issue could be diets that were low in fruits and vegetables but high in refined carbohydrates. In support of this notion Robinson (2008) mentioned that those who are the least likely to meet the guidelines established by USDA in terms of daily servings of vegetables and fruits are non-Hispanic Blacks and people with lower incomes. According to Robinson descriptive studies, dietary behaviors among African Americans could be traced to a complex array of personal, cultural, and environmental factors. As one of the five levels of influence categorized by the socio-ecological model, Robinson asserted that such useful framework for achieving a better understanding of the multiple factors and also barriers that have effect on dietary behaviors can be useful when creating strategies and guidance for developing the appropriate cultural interventions for African Americans.

The effect of lower income on the prevalence of obesity has also been studied and was related to the presence of fast food restaurants (FFR) in close proximity to African American consumers. In a longitudinal cohort study in Houston, Texas that was published in the American Journal of Public Health, Reitzel et al. (2013) reported that

FFR density in the distances of 0.5, 1, and 2 miles was positively associated with increased BMI among subjects who had lower incomes ($p \leq 0.025$) and their results supported the fact that African Americans living in that proximity with lower income had their BMI affected. Reitzel et al. were really concerned with the growing rate of obesity in the United States by stating that health care cost for Americans who are growing in waistlines is quite substantial and is expected to hit $860 billion by 2030. Also of particularly concern noted by these researchers was the fact that compared to other racial/ethnic groups, African Americans are showing the highest prevalence of obesity. The rationale behind the FFR syndrome is that the increasing availability of low-cost, calorie-dense consumables obtained from FFR is one of the major factors that were attributed to the nation's upward trend of BMI (Reitzel et al., 2013). A few studies have reported that African Americans are liable to consume fast food if it is available, and this tends to be possible because these FFR are clustered in the neighborhoods of African Americans, no wonder high quantities of fast food consumed has been associated with higher BMI/obesity (Reitzel et al., 2013). However, Reitzel et al. did mention that several studies that examined the associations between the clustering of fast food and BMI revealed findings of the association of FFR with BMI or obesity status as being mixed. Thus some studies supported a positive association while others cited null results (Reitzel et al., 2013). Future or additional studies with more diverse African Americans are expected along this line to bridge the gap in earlier reported results from literature.

An additional research that sought to examine the effect of social contexts of neighborhood suggested that low SES status could likely contribute to low levels of

physical activity, which correlated with obesity, but such an association was inconclusive (Dulin-Keita, Thind, Affuso, & Baskin, 2013). As argued by Dulin-Keita et al. (2013), some studies had indicated that neighborhood level economic status was inversely associated with obesity while others did not find any significant associations. The findings by Dulin-Keita et al. show that more research is required to bridge the gap that exist between income level and obesity. As far as the features of neighborhood are concerned, Dulin-Keita et al. implied that the features of a neighborhood could contribute to the decrease in physical activity and therefore obesity among African Americans rises to higher levels. The researchers further stated that African Americans are more likely to dwell in low-income urban areas that showcase more built environment barriers like poor housing stock, sidewalks, street design and a greater traffic density within the neighborhoods. Their findings were based on a cross-sectional study that examined the social and cultural factors that influence African American parents and adolescent's participation in physical activity from the Birmingham, Alabama metropolitan area with a predominant African American population (73.4%). This location indicated 32.7% of families had incomes below the poverty level (Dulin-Keita et al., 2013). The researchers proposed that community-based interventions to decrease obesity among African Americans should focus on devoting attention to both neighborhood perceptions and physical activity, which have some association with income levels.

Economic considerations were reviewed in terms of what individuals or family members were purchasing for consumption due to their income and its contribution towards obesity. In a qualitative research that interviewed 33 African American

participants ranging from 18 to 81 years from Philadelphia, Pennsylvania. Lucan et al. (2012) found that some participants (nine) considered fresh fruits and vegetables as being too expensive. Some participants also reported that the places that offered free food to overcome financial barriers only gave out canned foods (not fresh produce). There were only four women who mentioned that food produce could be affordable if people knew how to shop around or well for the best deal. Thirteen of the participants remarked that with fast foods they could get more for their money. Others regarded better meal as an illusion; fast foods would eat up your money. Ten participants admitted to buying and eating fast foods based on their cravings and considered themselves as being "junk foodaholics" (Lucan et al., 2012, p. 700). The underlining factor for this study is the fact that the constraints on income or financial status compelled some African Americans to move towards less expensive and unhealthy foods instead of shopping for healthier foods such as vegetables and fruits, which could be equally less expensive. In the aforementioned study, in which Lucan et al. published "*Perceived Influences on Diet Among Urban, Low Income African Americans,*" it was noted that economic influences played a major role on what African Americans purchase and consume. The study was consistent with other studies with similar findings as noted by the researchers. The researchers noted that financial assistance programs mentioned by the participants helped to encourage fruit and vegetable consumption. According to the researchers, their limitation was the fact that their method allowed them to only examine participants who reported spontaneously on certain influences and not those who would endorse such influences if they were prompted. Lucan et al. concluded that, "diet-related diseases such

as obesity, diabetes, hypertension, and high cholesterol disproportionately affect African Americans, particularly those having low income" (p. 700). The recommendations given by the researchers from this study align with most studies and that is a suggestion for potential strategies that would improve diet among urban, low-income African Americans.

Bartholomew, Miller, Ciccolo, Atwood, and Gottlieb (2008) performed a quasi-experimental study to buttress the findings by Lucan et al. (2012). In their study that sought to "evaluate the Walk Texas! Clinical Counseling Guide for Nutrition," Bartholomew et al. (2008, p. 297) found that eating five to nine servings of fruits and vegetables daily could lead to reduction of the risk of cancer, obesity and cardiovascular diseases. A total of 433 women were recruited for this study. The study employed a method of using a pre-test post-test quasi-experimental design with intervention as well as comparison clinics that were matched for ethnicity and size by the researchers. The study revealed that SES seems to be a strong predictor of fruits and vegetable consumption, as well as morbidity and mortality. They reported that participants in low income groups did not meet the recommended national servings of five servings per day (Bartholomew et al., 2008).

Commenting on the results of their quantitative study on race, obesity, and the puzzle of gender specificity, Burke and Heiland (2008) argued that there have been notable black-white gaps in the mean female BMI and obesity risk after education and incomes measures have been incorporated to the model of analysis. However, the researchers did say that the estimated gaps seem to narrow somewhat when such controls

are included. In agreement with their predictions, Burke and Heiland noted that estimates showed that women who had postsecondary education have lower BMI and a lower prevalence of obesity than women who did not finish high school. The study also indicated that across the data sets and models, women who were in households that garnered high income (incomes that was 3.5 times the poverty level) had a significantly lower BMI and a correspondingly lower likelihood of becoming obese as compared to their counterparts from a family with lowest-income (Burke & Heiland, 2008). They concluded that the differences in educational level and household income between black women and white women do contribute, but did not fully account for the differences in BMI and obesity between the groups. With regards to results for men, Burke and Heiland noted that in the baseline specifications; age, age-squared, and race, there were no significant differences in either mean BMI or the risk of obesity among white men and black men. This contrasts other studies that show differences between these groups as far as income and obesity is concerned. As a recommendation, Burke and Heiland proposed that initiatives of new policies should override racial tensions that are related to ideals of beauty and rather seek to focus on health. They also mentioned that seeking to improve black women's status, and especially promoting more equality in the expectations of domestic responsibilities could lead to a better self-care and advancement among black women (Burke & Heiland, 2008).

Social and Economic Well-Being of North Carolinians

The Office of Minority Health and Health Disparities and State Center for Health Statistics, North Carolina Department of Health and Human Services has a useful tool

called *Racial and Ethnic Health Disparities in North Carolina*. This tool gives its report card showing the leading health indicators for broad racial and ethnic population groups for North Carolina (Office of Minority Health and Health Disparities and State Center for Health Statistics, 2010). It supports data for health indicators and assigns a grade (letter) that ranks the health status of those groups under consideration. One of the functions of this report card is to measure and help monitor the State's progress towards the elimination of health status gaps between racial and ethnic minorities and the white population (North Carolina Division of Public Health, State Center for Health Statistics, 2008). The source stated that according to America's Health Rankings, North Carolina ranked 37th in the United States in 2009. Some of the indicators have been included in the following summary:

In 2004, the percentage of adult African American families, who were living below the federal poverty level in North Carolina, was 25.2% and 7.5% for Caucasians. When these were updated in 2008, the rates were 31.3% and 6.7% for African Americans and Caucasians respectively (U.S. Census Bureau, 2004; 2008). The percentage of single parents for African Americans and Caucasians in 2004 was 54.8% and 17.2 % respectively. In 2008, the updated percentages were 52.8% and 17.8% in the same order (U.S. Census Bureau, 2004; 2008).

In 2004, the median family income for African Americans was $30,463 and $52,991 for Caucasians. When updated in 2008, the median family income for African Americans in 2008 was $37,897 and that of Caucasians was $64,879 (U.S. Census

Bureau, 2004; 2008). All indicators used showed that African Americans were trailing Caucasians in economic incentives and well-being.

Using the percentage of families not owning their own home, in 2004, it was noted that the percent of Africans not owning a home was 46.1% and that of Caucasians was 24.2%. In 2008, the percentage was 50.7% and 24.2% for African Americans and Caucasians respectively (U.S. Census Bureau, 2004; 2008).

In terms of dropouts that affect the educational attainment and eventually the income made by individuals and families, it was reported that in 2005-2006, the dropout rates for African Americans was 5.6% and 4.4% for Caucasians. In 2007-2008, the dropout rate was 6.0% and 4.3% for African Americans and Caucasians respectively (North Carolina State Board of Education, 2008). In 2002 and 2003, the percentage of adult African Americans who did not eat five or more fruits and vegetables a day was 81.1% and that for Caucasians was 74.5%. In 2005 and 2007, the rates were 82.2% and 77.9% for African Americans and Caucasians respectively (U.S. Census Bureau, 2008). In 2003-2005, the percentage of African Americans adults 18 and older who were overweight or obese (BMI > 25kg/m^2) was 73.8% and 59.8% for Caucasians. In 2006-2008, the percentages were 74.9% and 62.3% for African Americans and Caucasians repetitively (U.S. Census Bureau, 2008). In regards to meeting the Healthy People 2010's goal of at most 20% of no leisure physical activity, the report mentioned that in 2003-2005, the percentage of adult African Americans was 31.5% and 21.7% for Caucasians. In 2006-2008, the percentages were 29.4% and 21.3 % for African Americans and Caucasians respectively (U.S. Census Bureau, 2008).

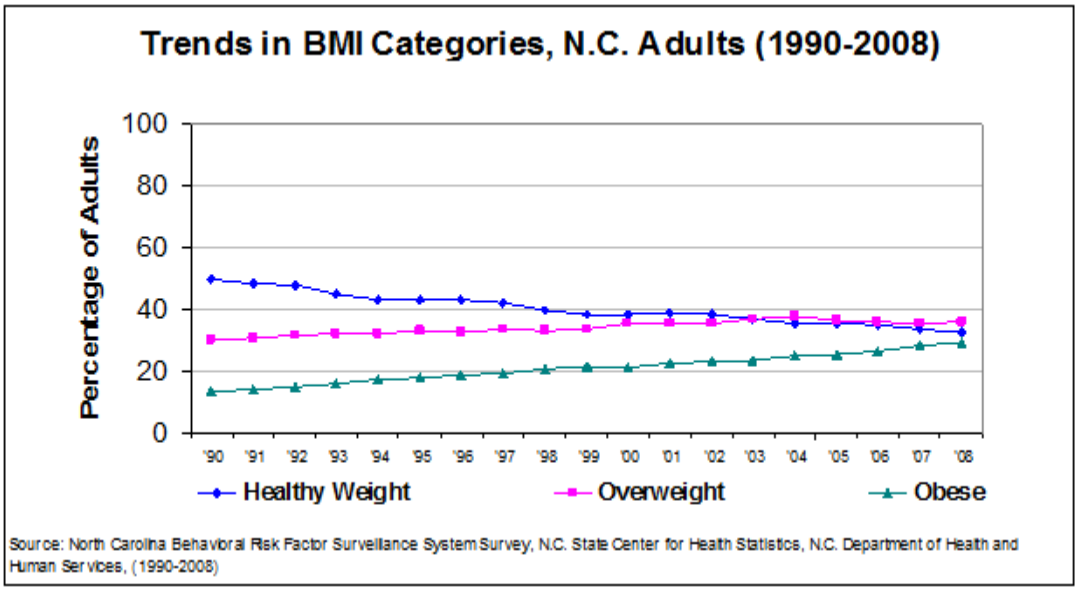

Figure 1. BMI trends of North Carolina adults (1990-2008). Reproduced from www.schs.state.nc/SCHS/brfss. Copyright 2008 by State Center of Health Statistics, NC: Department of Health and Human Services.

Adult Obesity in North Carolina

It has been estimated that over 65.7% of North Carolinians are overweight or obese. As reported by the North Carolina Behavioral Risk Factor Surveillance System (NC-BRFSS), State Center for Health Statistics (2008), over 56% failed to meet the recommendation for engaging in physical activity: national recommendation has been set as moderate physical activity for 30 or more minutes per day, 5 or more days per week or vigorous physical activity for 20 or more minutes per day, 3 or more days per week (NC-BRFSS, 2008).

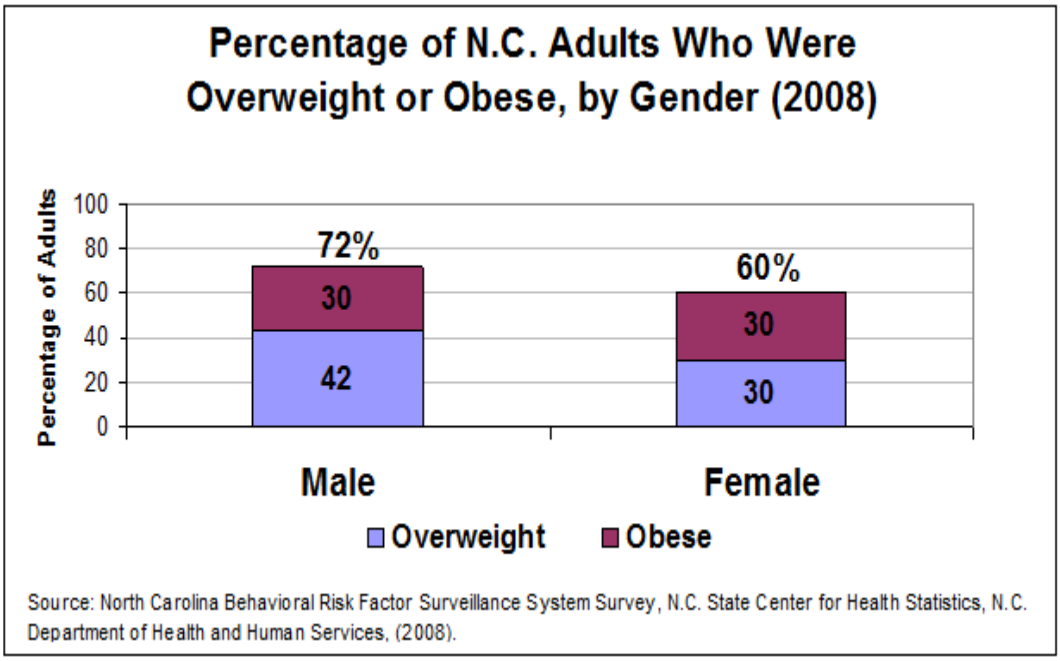

Figure 2. Percentage of adults and overweight/obesity. Reproduced from www.schs.state.nc/SCHS/brfss. Copyright 2008 by State Center of Health Statistics, NC: Department of Health and Human Services.

It was also noted that more than 78% of adults in NC did not meet the recommended servings of five fruits or vegetables per day. There was an increase in the percentage of obese adults in NC as the percentage doubled from almost 13% in 1990 to 28% of the population as at 2007, and consistently remaining a little higher than that of the national average (North Carolina Department of Health and Human Services, 2007). The factors that have contributed to the epidemic of obesity in NC include the absence of adequate physical activity and poor eating habits. The combination of these two factors has been noted as the second leading preventable cause of mortality in the state. These two factors have also been known to lead to or an increase in risk of heart disease, some

types of cancer, diabetes, high blood pressure, stroke, and obesity (North Carolina State Center for Health Statistics, 2002).

The NC-BRFSS (2008) reported that during 1990 and 2008, there was a decline in adult's healthy weight by about 17.1% and during the same time period, adult North Carolinians rose by about 5.5% with the percentage of population increasing by 15.9%. The source also mentioned that the percentage of the adults healthy weight somewhat declined by just 14.2% between 1990 and 2000. The reported average annual decline was 1.5% and there was little to no decline during the late 1990s. However, this has declined by almost 19.2% from 2000 to 2004, with 5.2% as annual average decline rate. The NC-BRFSS also reported that almost two-thirds of adults in NC (65.7%) showed obese status based on their 2008 BMI results.

NC-BRFSS also reported that in 2008, overweight and obesity among men were higher than that of women in 2008. The report indicated a percentage of 72% for men and 60% for women. In terms of age group, 73% of adults between 55 and 64 years of age were overweight or obese as compared to 51% of those in the age bracket of 18-24 years. 67% of those in age group 65-74 were overweight or obese while those of age group 75 and older accounted for only 56%.

In terms of income and obesity, the NC-BRFSS (2008) reported that adults with the highest income had the highest percentage of persons at a healthy weight, and on the other hand, those who were in the lowest income bracket had the highest percentage of people who were obese. For instance the percentage of those who were overweight and obese and whose household income was less than $15,000 in 2008 was 70%. Using the

same comparison, 63% of people whose household income was more than $75,000 were noted to be overweight or obese (NC-BRFSS, 2008).

An interesting finding about income, educational status, and environment showed other health disparities play a larger role in obesity. For example, according to Gordon-Larsen et al. (2003), additional studies showed that SES impacts have led to other health disparities playing a larger and clearer role. He mentioned that a 2003 study found that when adolescents were kept within the same environments but changes or improvements were made only on family income and parental education, there was only a limited effect observed on the disparities in obesity prevalence. Gordon-Larsen et al. (2003) noted that an automatic assumption cannot be made that to the effect that the benefits of increased SES, which was found among Caucasian adults, will in a way transfer to other gender-age-ethnic groups. The conclusion these researchers made was that such findings suggested that policies and efforts meant to reduce obesity disparities that exist among ethnic groups should look extensively broader than income and education and consider some other factors that includes environmental, biological, contextual, and socio-cultural factors.

Theoretical Framework

The HBM was chosen because of its ability to explain various health behaviors (Mckenzie, Neiger, & Thackeray, 2009). The HBM is recorded as one of the most frequently utilized theory in the application of health behaviors. It is a value-expectancy theory that was developed during the 1950s by psychologists in attempt to explain the reason why people would use or not use available health services (Mckenzie et al., 2009).

According to Mckenzie et al. (2009), the HBM stands on three pillars of hypotheses, which are:

1. The existence of sufficient motivation (health concern) to make health issues salient or relevant;
2. The belief that one is susceptible (vulnerable) to a serious health problem or to the sequelae of that illness or condition. This is often termed perceived threat, and:
3. The belief that following a particular health recommendation would be beneficial in reducing the perceived threat, and at a subjectively acceptable cost. (p.171)

On the subject of HBM, Schneider (2011) added that the HBM is a model that helps to explain how people's behavior is affected by their own beliefs. Schneider pointed out that for individuals to change their behavior towards something there must be a belief in personal threat. This means the individual must be susceptible to some condition or threat. Schneider also implied that for people to overcome a behavior, they should have a belief in response efficacy, meaning that there is something they can do to alleviate or eliminate the source of threat.

By linking the concepts provided by Mckenzie et al. (2009) and that of Schneider (2011), this research identified behavioral sources in response to the research questions that underline this study. The key factors that contribute to low family income among African Americans in Durham, NC (target population), and how the low income contributes to obesity might be explained by the HBM. The HBM helped to explain the

threat posed to the target population, how the target population might be threatened by this, and the efficacy they could display to counteract this situation.

Health Belief Model and Obesity

The HBM is considered one of the oldest social cognition models (Ozden, 2011). According to Ozden (2011), one of the astute goals of the HBM is to predict if individuals will choose to be engaged in an action that will serve to reduce their perceived threat in order to reduce the chances of long term effect or death. The HBM thus addresses how health is affected by beliefs, and how decision processes lead to behavioral changes (Ozden, 2011). Ozden mentioned that there are two main types of beliefs that influence people towards taking preventive actions. These are: (a) Beliefs that are related to people's readiness to take action, and (b) beliefs that are related to modifying factors that either facilitate or inhibit an individual's action (p. 533). Ozden's study showed the development of a scale based on the HBM, which provided a positive valid and reliable evaluation of obese people's beliefs and attitudes as far as obesity was concerned. This is an indication that when it comes to obesity, an individual's beliefs and attitude play a major role.

Daddario (2007) also emphasized that the HBM is one of the appropriate models that helps individuals with beliefs and behavior change. She intimated that obesity is one of America's most serious epidemics. She mentioned that behavior change models, such as HBM are very important for prevention of weight gain and ultimately a goal for living healthier lives. Daddario indicated that the HBM expatiates and seeks to address the effects of the beliefs that focus on health and decisions made by people that eventually

lead to behavioral changes. This can be extrapolated to the decisions that individuals or families make on how their eating habits and the income they make can ultimately affect how obese they become.

Sapp and Weng (2007) evaluated a number of psychosocial models or theories involved in behavior change in regards to nutrition and obesity. They concluded that concluded that among models such as the theory of planned behavior and transtheoretical model, the HBM is the most appropriate model because it has received very considerable attention and support in research since its development. Moreover, the HBM gives interpretation more with proactive behavior change approach rather than the avoidance of disease prevention (Sapp & Weng, 2007).

Relationship to the Proposed Study

Obesity poses a major threat to public health (Daddario, 2007). Although obesity and overweight were once considered as only a problem among countries with high income, they are now higher among low-and middle-income countries, especially those in the urban areas (Ozden, 2011). The fact that obesity is a precursor to diabetes and cardiovascular disease; it makes the disease a national issue. The effects of the obesity among African Americans are quite an alarming one (Daddario, 2007).

In a study that focused on literacy, knowledge, health beliefs about obesity and low income African American women with the HBM as the framework, Wilson et al. (2008) showed that low-income is a contributing factor to obesity among African American women and this is also consistent with the attributes of the HBM. Their study showed a semblance to previous studies that indicate that the HBM seeks to explain and

also predicts health behaviors with a highlight on attitudes and beliefs of the consumers. Wilson et al.'s study proved that the ability and readiness of consumers to take action about their life's situation are governed by factors such as knowledge of perceived susceptibility threat, perceived benefit of the strategies needed to improve their situation or to promote their health, and any cues that eventually motivate them to take action. These factors as depicted in the study by Wilson et al. find their origin in the HBM. Thus, the aim of using the HBM is that knowledge will bring the needed change (Schiavo, 2007) so that the target population will be empowered with knowledge of attaining higher levels of education, which would ensure better employment, obtaining higher income, changing their eating habits, and ultimately decreasing the prevalence of obesity. The figure below demonstrates the HBM in relation to perceived threat and individuals' beliefs and behavior.

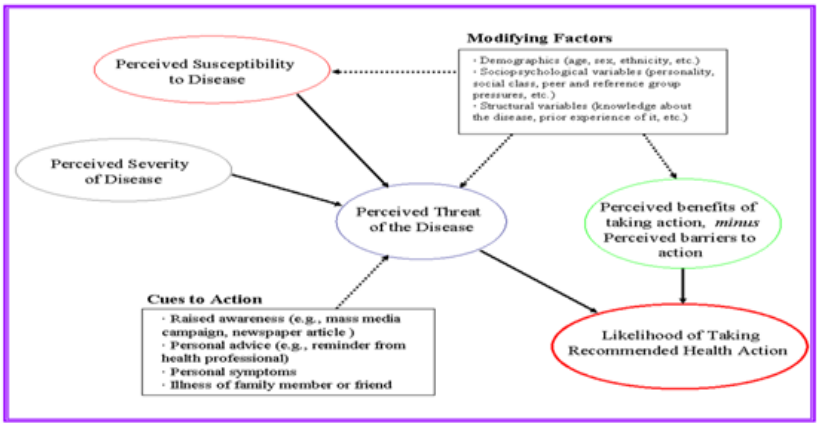

Figure 3. Diagram of the Health Belief Model. Retrieved from http://www.med.uottawa.ca/sim/data/BehaviorChange_e.htm. Copyright 2009 by L' Universite canadienne, Canada's University.

Methodological Approach

The methodological approach for this study was based on phenomenology. According to Moustakas (as cited by Creswell, 2009), there has been elaborate discussion on philosophical tenets and the procedures of the phenomenological method in qualitative research (p. 13). Creswell's study provides a clear insight on phenomenology.

Phenomenology

Creswell (2009) defines phenomenological research as "a strategy of inquiry in which the researcher identifies the essence of human experiences about phenomenon as described by participants" (p. 13). According to Creswell, the ability to understand the lived experiences of participants or a group of people is a mark of phenomenology as an attribute of philosophy as well as a method. Such procedures, according to Creswell, involve a study of some aspects of the subjects or participants through prolonged and extensive engagement with a goal to develop a pattern and relationship of meaningful relevance. Creswell affirmed that in such a phenomenon and method, the researcher places his/her own experiences aside in order to be objective and to, understand the views of participants of any study.

Phenomenology has also been defined as, "a low-hovering, in-dwelling, meditative philosophy that glories in the concreteness of person-world relations and accords lived experience, with all its indeterminacy and ambiguity, primacy over the known (Gee, Loewenthal, & Cayne, 2013, p. 2). By this definition, Gee et al. (2013) implied that the consciousness of a person is most often geared towards some object in or about the world and somehow conscious of something within the life world. Gee et al.

implied that consciousness was intentional and the implication was that perceptions have meaning . One of the important attributes of phenomenology as Gee et al. analyzed their case on phenomenology and reverie is reduction, and the first of this reductions is bracketing, which is placing aside our judgments, assumptions, and theories and thereby giving the participants the opportunity to give their own experiences while the researcher gains knowledge from that without his or her opinion (Gee et al., 2013). The use of phenomenology as a methodological approach is important to my research because as I interviewed participants for this study, every effort was made to incorporate and, desist from including my own opinion or influencing participants to report anything but their own experiences. Delgado (2013) did state that the final interpretation of such meaning can be well executed with phenomenological approach or tactics whether it is descriptive or interpretative.

With regards to qualitative research and application of phenomenology, Delgado (2013) mentioned that usually qualitative methods are used in the "context of psychological science for classification tasks, for discovery, and for the study of the individual interpretation of meaning" (p. 228). Therefore, phenomenology played a useful part in this study. Phenomenology is derived from philosophy and has been known to provide a framework as a research method (Roberts, 2013).

According to Roberts (2013), phenomenology has its basis in humanistic research paradigm and takes a qualitative approach. Denscombe (as cited by Roberts, 2013) stated that the focus and goal of phenomenological enquiry is to describe the lived experiences of people, mentioning that only those who have actually experienced phenomena can

relate them to the outside world. Roberts (2013) pointed out that as a philosophical method of inquiry; phenomenology was originated by German philosopher Edmund Husserl (1859-1938), who is regarded as the founder of phenomenological movement. Phenomenology plays a vital role in research because it is a rigorous science that finds truth in lived experience and serves to provide insights from the perspective of those who have actually lived the experience and can detail such experiences in a particular time of their lives (Roberts, 2013). Because phenomenology describes first person accounts of described experiences through interviews, which then becomes transcribed for analyzing its themes and meanings and therefore enabling such experiences to be well understood (Roberts, 2013). A phenomenological approach was very useful in incorporating into this qualitative study. Roberts mentioned that other notable personalities who have made phenomenology prominent were Gabriel Marcel (1889-1973), Jean Paul Sartre (1905-1980), and Maurice Merleau-Ponty (1908-1961). In similitude to Gee et al. (2013), Roberts also noted bracketing as an attribute of phenomenology, which seeks to suspend the researcher's own influence, ideas, beliefs, preconceived notions, and any prejudices that could influence the respondents' experiences and thereby skew any interpretation.

In a research approach, Roberts (2013) pointed out that the use of small sample size is appropriate as this allows for focusing on the individuals' experiences, while a large size could overwhelm the research with a burden of data. In terms of data collection, Roberts advised that the type of interviews that would favor this kind of research is the semi-structured, which was Robert's main method of collecting data. Roberts concluded that interpretative phenomenological analysis is a potent research tool

that provides participants' perspective experiences through subjective exploration, and this provides in-depth and richer understanding of an event or phenomenon. The inclusion of this methodology added substance to this study on the relationship between family income and obesity among African Americans within this target population.

Summary

This chapter recognized the gap that this study sought to fill. The literature review looked at the background of obesity as it relates to income. My search covered multiple search terms and databases including PubMed, Medline, and Google Scholar. The chapter also gave some insight into the history of obesity, how income plays a role in obesity, and the theoretical framework governing the study. With regards to the theoretical framework, Chapter 2 provided studies that used the HBM as a framework or model and how this model fits into this research study. The chapter also discussed phenomenology as the methodology appropriate for this study. The review of literature in Chapter 2 provided the essential tool needed for the research method, which includes the research questions and the design needed for this study. This is the focus of the Chapter 3 of this dissertation. Chapter 3 will also discuss how participants were recruited, collection of data, instrumentation, ethical procedures, and threats to validity.

Chapter 3: Research Method

Introduction

The focus of this qualitative research was to explore the relationship between family income and obesity among African Americans in Durham, NC. Using the phenomenological approach, I explored the effects of earned family income on my target population as far as obesity is concerned. A number of studies have demonstrated that family income plays a role in the kind of foods people consume, the communities they live in, and the type of physical activity they engage in, which ultimately affect their health in terms of obesity. For example, Berkman and Kawachi (2000) reported that because African Americans earn a low income, they are subject to higher obesity rates than Caucasians. The CDC (2013) has also reported that among non-Hispanic African American and Mexican-American men, those who earn higher incomes are more likely to be obese than those who make lower incomes. The CDC also reported that higher income women are less likely to be obese than low-income women. The gap noted in these studies prompted my research on this topic. This chapter will discuss the research design and rationale, the role of the researcher, proposed methodology, credibility, and issues of trustworthiness for the proposed study.

Research Design and Rationale

The research design is the strategy a researcher chooses for answering research questions in any study, and the research questions serve to direct the type of design that is chosen (Crosby, DiClemente, & Salazar, 2006). As stated in the introduction above, a qualitative research was conducted to explore the relationship between family income

and obesity among African Americans in Durham, NC. Empiricism, which is a committed way of acquiring or obtaining knowledge through a means based on experience (Rudestam & Newton, 2007), was used in this study. This is in contrast to rationalism, which is derived from a sense of thought and reason (Rudestam & Newton, 2007). Because the perceptions and experiences of the participants were the sole observation of this study and not any prejudices of the researcher, empiricism rather than rationalism was the prime emphasis.

A qualitative approach was chosen because this type of inquiry or method focuses on understanding participants' experiences from a practical point of view as they live it (Rudestam & Newton, 2007). The goal of this study was to report the findings as obtained and not subject them to any manipulation of variables as expected in quantitative studies. The rich experience of interviewing participants one-on-one in the field that can be accomplished in a qualitative manner, for example using an open-ended questions instead of closed-ended ones (Creswell, 2009) was also one of the reasons for choosing a qualitative over a quantitative approach. Moreover, the ability to analyze data obtained from the field inductively rather than deductively contributed to my choice of a qualitative approach.

Role of the Researcher

As the researcher, my role was the individual primarily responsible for gathering the participants, engaging in interviews, and collecting other forms of data and documents to obtain all the necessary information needed for analysis. As the primary researcher, it was my role to gain entry into the research site, and so all ethical concerns

that needed to be addressed were taken into consideration. It was my responsibility to provide statements about any past experiences that could provide background data (Creswell, 2009) through which my participants could well understand the title of my research and how I would interpret the phenomenon being experienced by the them. It was also my role as the researcher to provide confidentiality for my participants and assure them that the information they provided would be kept in safe hands. It was also my responsibility as researcher to make the participants aware of the necessary steps that were taken to obtain permission from the IRB in order to protect the human rights of the participants (Creswell, 2009). In this study, I served as an observer as well as an interviewer. To avoid bias in collection of data, I used locations that were inhabited by African Americans of low income, middle class income earners, and high class income earners. The definitions of these income levels were based on the categories made by the U. S. Census Bureau (2012). According to this category, lower income earners make an annual income of $23,050 for a family of four. Middle class income is considered as annual income between $32,500 and $60,000, while the higher income group is regarded as an annual income of $100,000 or more. It was my prerogative that there was no relationship between the participants and the researcher. This prevented any bias, personal, or ethical issues (Creswell, 2009). The criteria were based on zip codes that have the reputation of classifying the kind of people with well-known SES. This was facilitated by the use of census maps.

Research Questions

As previously stated in Chapter 1, the research questions for this study are:

Research Question 1: What are the key factors that contribute to low family income among African Americans in Durham, NC?

Research Question 2: How do these key factors contribute to obesity among African Americans in Durham, NC?

It was envisaged that responses to these questions will help to find a relationship that exists between family income and obesity among the African Americans in the target community. According to Creswell (2009), inquirers tend to state their research questions and not objectives during a qualitative study. The research questions, according to Creswell, often take on two forms, which are the central and associated subquestions. In terms of phenomenology, research questions may be broadly stated without giving specific reference to the existing literature (Creswell, 2009). Moustakas (as cited by Creswell, 2009) suggested that it is in order for researchers to ask participants what they experienced and the contextual nature in which participants experience any phenomenon within the study. The advice recommended by Creswell was employed in this research study to obtain the maximum data for analysis.

Methodology

The methodological approach for this study was that of phenomenology. As indicated in Chapter 2, phenomenological studies have the ability to understand the lived experiences of participants or a group of people. This feature about phenomenology is an attribute of philosophy as well as a method (Creswell, 2009).

Participant Selection Logic

The target population for this study was African Americans living in Durham, NC. The target sample size was $n = 30$ adults ranging in age from 18 years and above. Mason (2010) argued that qualitative studies tend to be smaller in number than quantitative studies. Mason stated that a point of diminishing return sets in with qualitative sampling when more data or participants interviewed do not necessarily mean more information. Therefore, the samples should be large enough to ensure that all the perceptions needed for analysis are covered, but at the same time not too large to be repetitive and superfluous (Mason, 2010). Although I expected to attain saturation for obtaining data/interview responses, I decided to interview the entire 30 participants, a size that was not too small, nor too overwhelming. This enabled me to obtain a sample size representative of the perception of participants. Sample size was of the essence because according to Smith, Flowers, and Larkin (2009), a smaller size is used in qualitative studies to focus on individual experiences, while a larger size can overwhelm the researcher. Participants were sampled to cover income brackets of low income, middle class income, and high class income earners. Various zip codes notable for these differences were visited as the sites for the study. Ten participants from each of these income classes were interviewed. This range also prevented sampling bias (Creswell, 2009). Because phenomenology was involved in this study, identifying and locating participants who had actually experienced this phenomenon (Rudestam & Newton, 2007), how income affects obesity, were of paramount importance. According to Rudestam and Newton (2007), “phenomenological study usually uses sampling, which is

idiographic and focuses on the individual or case study in order to understand the full complexity of the individual's experience" (p. 106).

Procedures for Recruitment and Participation

Upon approval by IRB, I visited the designated target location and notified the potential participants of the intention of this study. The sampling consisted of participants 18 years and above who were gainfully employed either part time, full time, or receive some form of financial compensation. The recruitment was conducted over a 2-month period. The target sites comprised of community subdivisions and apartments likely to consist of the three classes of income levels stated earlier. I gave the participants a briefing on the criteria of selection and inclusion of this study and notified them they were under no obligation to start or continue this study if they did not wish to do so. The recruitment included both genders and a good representation of age groups with stable employment status or reliable source of compensation.

The criteria for selection of participants were based on:

1. Participant must be 18 years or above.
2. Participant must sign the informed consent form.
3. Participant must be living in Durham, NC during the study period.
4. Participant must be willing to declare his/her family income.

Informed Consent and Data Collection

As the primary researcher, I provided participants with a consent form, which indicated or had a proof of approval for this study. A formal introduction was made to participants to include my IRB approval number (03-09-15-0157453) and the ethical

issues governing the study. Those who indicated their willingness to participate in the study were noted upon receiving their consent forms. These were the participants whom I provided the various data collection methods for the study. The IRB informed consent form included my contact information for any questioning by participants during the data collection period. The participants were notified that it might be necessary to audio-tape /record certain conversations of data collection for effective analysis.

Upon receipt of acknowledgement and approval of consent forms, I provided the participants with interview questions designed to collect demographic data, which included, but was not limited to age, race, gender, marital status, educational attainment, employment status (part time or full time), income earned bracket, height, and weight (for calculation of BMI).

Instrumentation

The data collection instrument and source included observation, interviews, and audio-taping. The interview questions served as guide that enabled me to obtain responses that helped answer the research questions of this study. These questions were based on common questions asked by previous researchers on similar topics. The observational aspect of this form of data collection entailed taking field notes about the behavior and activities of the participants (Creswell, 2009). With this approach, personal observations were made about participants and notes were recorded without participating in any formal active process.

I used a face-to-face approach to interview my participants. I employed a telephone conversation in a few instances where some pertinent information was needed

to clarify a previously interviewed participant's responses. The interview method used open-ended questions, which warranted participants' own responses and thereby, limited researcher influenced responses. Other forms of gathering information such as video-taping or photographing were avoided. Data from consented participants were collected for analysis in this study.

Exiting the Study

I informed participants that they could exit the study anytime they wanted without any adverse consequences. With the provision of my contact information, I assured participants to contact me for any questioning or summary of the findings. There was no need for any debriefing in this study.

Data Analysis Plan

Gregg (2008) has noted that the first strategy that leads to a successful analysis is to proceed with an analytical strategy ahead of time. A well-planned and careful execution of analysis is very essential for a field investigation (Gregg, 2008). Based on my line of study, I used the NVivo 10 software and Microsoft Word to analyze the collected data. My strategy for data analysis followed the steps provided by Creswell (2009), which included obtaining raw data, organizing and preparing the data for analysis, reading through all the data, coding the data either through hand or computer, setting the themes and description, interrelating the themes with my theoretical perspective (for this study, HBM), interpreting the meaning of the descriptions, and validating the accuracy of the information obtained (p. 178).

Creswell (2009) stated that it is a good practice to perform data collection and the analysis simultaneously in qualitative research. According to Creswell, the objective of this analysis is to identify and describe any pattern and themes from the participants' perspective, and thereafter, make an attempt to understand and give explanations to such observed patterns and themes. The approach I took was to have a field notebook for recording interviews and have a tape recorder for audio recording as permitted by participants. The data collected were linked to the research questions to help answer the relationship that existed between family income and obesity among the target population. The data were then organized categorically in chronological manner for review and coding. Any taped recording session was transcribed verbatim and along with field notes were reviewed and analyzed. All paper data collected have been kept anonymous and confidential and will be destroyed after 5 years. All electronic data will also be deleted from all computers used for this study after the same time frame.

Threats to Validity

Crosby et al. (2006) defined validity as the "the degree to which a survey item and its response alternatives measures the phenomenon they are supposed to measure" (p. 261). In other words it is the ability or extent to which selected variables in any study measure the constructs that are intended to be measured. For example my study desires to find out if family income has any relationship with obesity. The ability to measure that was a reflection of the validity of the study. Creswell (2009) commented that qualitative validity implies that a researcher checks and takes careful note of the accuracy of the findings by employing the needed procedures.

Internal validity relates the ability or extent to which a researcher is able to obtain clear, causal conclusions from his or her study (Crosby et al., 2006). According to Crosby et al. (2006), a basic requirement of internal validity is its consistency in implementing the study protocols involved in the study, such as the sampling procedures that will be used, assignment of participants, and where and when the assessments will occur. Crosby et al. noted that there are seven common threats to validity, which are: history, maturation, testing, instrumentation, statistical regression, selection bias, and mortality (p. 89).

The appropriate measures needed to combat threats to internal validity included the use of triangulation (Creswell, 2009). The way I achieved that for my study was to triangulate the different data sources of information I collected and examined the evidence from them to create a coherent justification of the underlying themes. Another strategy to establish credibility or internal validity was to conduct a member checking; to determine the accuracy of what I gathered by going back to the participants and ensuring that what I recorded and what they meant agreed. Another strategy I used to ensure credibility of my study was to clarify any bias that could be brought to the study (Creswell, 2009). It was imperative that I commented on how the interpretation of my findings was based on my gender, race, history, culture, or my socioeconomic background (Creswell, 2009).

Another strategy used to establish credibility (internal validity) was the use of peer review and external auditor (Creswell, 2009). Because an external auditor was not involved or familiar with my study, he provided objective view of my project and

assessment. The need to have such a person review how accurate the transcriptions are made, the framing of questions, and the analysis of data went a long way to provide credibility to my study. In addition, having prolonged and appropriate contact with participants in the form of prolonged time in the field for interviewing created an environment of in-depth understanding about the phenomenon within which the study was built, and this enhanced knowledge about the participants and thereby enhanced credibility.

External validity refers to the extent in which a researcher is able to generalize the findings of a study to the population of individuals who exhibit similar characteristics that are represented in the research sample (Crosby et al., 2006). One of the most important and critical determinants of external validity is the sampling procedure used (Crosby et al., 2006). Transferability can be established in this study by a careful selection of participants. Therefore my choice of 30 participants for this qualitative study was based on obtaining a range of responses that will enable me answer the research questions for the study and thereby find a correlation or relationship that exists between family income and obesity among the African Americans in Durham, NC.

Whereas validity checks for the accuracy of a research findings, reliability functions to show that the researcher is consistent with having the same answer, or the responses are consistent across the constructs whenever the measure is used (Creswell, 2009; Crosby et al., 2006). To ensure reliability in my study, I implemented a consistent approach in gathering or collecting my data for analysis. My goal in this study was to have measures that are valid and also reliable.

Ethical Procedures

Protecting the participants in this study was paramount in order to prevent the identity and harm to them. Crosby et al. (2006) noted that ethical conduct ought to be intrinsic to any health promotion research. It therefore incumbent upon me to conduct this study in a manner that would not jeopardize the identity, integrity, and privacy of the participants involved. The core ethical principles involved in research; respect for persons, beneficence, and justice (Crosby et al., 2006) were applied to this study. Although this study was not funded by federal funds, federal regulations, 45 CFR 46, which incorporates special protection for vulnerable populations was applied and adhered to.

The participants for this study, who were required to be 18 years and above, were informed that they were not under any obligation to start or continue with the study, but were free to decline or exit at any time. There was no harm suffered by any participant. The participants had been informed earlier via consent form that should there be any of such nature, they would be referred to the nearest local service for counseling and provided with any form of assistance.

Access to Participants

Approved IRB documents from Walden University were made known to the participants, who I asked to complete a consent form that was protected. A copy of IRB's approval letter has been provided as Appendix C. Research responses such as files, audiotapes, transcripts, and any pertinent patient records used were coded so that data is de-identified. This ensured privacy of participants. I transcribed the individual interview

responses and coded them. These coded responses were known only to me as the investigator. This was kept under lock file. Information that clearly identified participants were removed from the transcripts before the validation was completed. Copies of consent form and confidentiality statement are included in Appendix C.

Treatment of Participants

The following procedures were followed to inform participants prior to collection, analyzing, and validation of data:

- Residents in the target population were contacted and briefed about the study and sought their permission to include them in my study.
- Letters were given to participants to request their inclusion in the study (Appendix A).
- I scheduled meeting with interested participants and provided them with information on IRB approval and letter indicating the nature of the study.
- During the first meeting, participants were enlightened on the nature of study, and asked to sign consent form if they were willing. This first meeting also involved participants' answering some questions- background and ended with a scheduling of the formal interview session.
- Documentation of responses (field notes) and transcription of audiotapes were done verbatim as noted by participants.
- A second meeting was scheduled and this was used to review all responses documented and provided by participants and to ensure validation of participants' agreement to what they responded to (their experiences).

- Participants who agreed to complete the study were given a $5 gift card at the end of the review of all responses for accuracy.

Justification for Incentives

As a reward to participants who completed this study, they were given an incentive of a $5 gift card for enduring interview/meetings as scheduled. It is believed that this amount is not too much as to be coercive to induce the participant into the project (Creswell, 2009). This was not an alternative for paying them for their responses, but a form of appreciation for their time and willingness to partake of a study that would eventually provide a social change for them and generations of offspring to come.

Summary

Chapter 3 of this proposal explored the strategies and steps that were used to develop and write the qualitative procedure for obtaining data for analysis. The chapter also discussed essential elements of the study which included: introduction of the chapter, the research design, role of the researcher, research questions, and methodology. Chapter 3 also discussed participants' logic, procedure for recruitment and participation, informed consent, instrumentation, how participants exited the study, data analysis plan, threats to validity, ethical procedures, access to the participants, treatment of participants, and justification for use of incentives.

Chapter 4: Results

Introduction

The income earned by individuals and families could have a direct or indirect effect on their health. One of the areas of health under consideration is that of how income plays a role in contributing to obesity among African Americans. In recent years, an increase in minimum wage has been a topic of debate as well as a quest to advance such a national plea. This chapter garners all the responses I received from interviews conducted with the study's 30 participants. NVivo 10 software was used to organize their responses into themes that were coded for analysis. The interview guide questions (Appendix B) were carefully posed to glean the responses that helped answer the research questions of this study.

As stated in Chapters 1and 3, the research questions that guided this study were:

Research Question 1: What are the key factors that contribute to low family income among African Americans in Durham, NC?

Research Question 2: How do these key factors contribute to obesity among African Americans in Durham, NC?

The purpose of these questions were to find out the determining factors that played a key role in determining why African Americans earn a low family income and how these factors interact to contribute to obesity among them.

Recruitment

After receiving approval from Walden IRB, I proceeded to recruit my participants. Ten participants were chosen and interviewed from each of the three zip

codes denoting different income levels for a total of 30 participants. Only those who met the criteria of being 18 years and above and also either gainfully employed or receiving some form of income from the federal government were included in the study. All participants were given the opportunity to select a location that was suitable for interviews to be conducted. Some of them opted to be interviewed in their living room and others were comfortable with private spaces in front of their homes. In all of the settings for the interviews, I ensured that their privacy was not violated and that they were comfortable in such locations to provide responses to the best of their knowledge.

I approached the participants with a door-to-door approach, whereby I knocked on doors of potential participants and requested their permission and approval to recruit them for my study. I approached other participants in the public spaces of their apartment buildings or subdivisions. After introducing myself and purpose of my study, I gave all participants a copy of my "Letter to Participants" (Appendix A) for them to review and express their willingness or otherwise not participate in the study. Some of them agreed to participate after reading the sample letter and then I gave them the "Informed Consent Form" (Appendix C) for them to sign after which I began the interview. Others needed time to read over the sample letter and gave me a specific day and time to come back for their consent and interviews. All these were consonant with my proposal prior to IRB approval. The demographic information of all participants was coded using NVivo 10 software.

Participant Profile

The participants consisted of 17 females and 13 males. I had a few potential participants who declined to participate because they thought their information would be made public. In the end, I had 30 participants who were willing and agreed to be interviewed. I assured them that their responses will be kept confidential and their identity would not be known because of their responses. With that assurance they agreed to participate. Below is a profile summary and a short biography of each of the participants:

Participant Number 1 is a 36-year-old female, who is single, has a household income of $70,000-100,000, lives in the 27703 zip code, and has a master's degree as the highest education obtained.

Participant Number 2 is a 28-year-old female, who is single, has a household income of $120,000, lives in the 27713 zip code, and is currently in medical school as the highest education obtained.

Participant Number 3 is a 56-year-old male, who is married, has a household income of $40,000-50,000, lives in the 27713 zip code, and has a bachelor's degree as the highest education obtained.

Participant Number 4 is a 32-year-old female, who is married, has a household income of $80,000 lives in the 27713 zip code, and has a bachelor's degree as the highest education obtained.

Participant Number 5 is a 49-year-old female, who is married, has a household income of $180,000-190,000, lives in the 27703 zip code, and has an associate's degree as the highest education obtained.

Participant Number 6 is a 26-year-old male, who is single, has a household income of $10,000, lives in the 27704 zip code, and has a GED as the highest education obtained.

Participant Number 7 is a 44-year-old male, who is married, has a household income of $150,000-160,000, lives in the 27713 zip code, and has a bachelor's degree as the highest education obtained.

Participant Number 8 is a 39-year-old male, who is married, has a household income of $40,000-50,000, lives in the 27713 zip code, and has a bachelor's degree as the highest education obtained.

Participant Number 9 is a 49-year-old female, who is married, has a household income of $14,000, lives in the 27704 zip code, and has a 2-year college degree as the highest education obtained.

Participant Number 10 is a 53-year-old female, who is single, has a household income of less than $10,000, lives in the 27704 zip code, and has a master's degree as the highest education obtained.

Participant Number 11 is a 70-year-old female, who is single, has a household income of $8,400, lives in the 27704 zip code, and has a GED and 1year Bible college degree as the highest education obtained.

Participant Number 12 is a 35-year-old female, who is married, has a household income of more than $50,000, lives in the 27713 zip code, and has a pharmacy doctorate's degree as the highest education obtained.

Participant Number 13 is a 48-year-old female, who is single, has a household income of $9,600, lives at the 27704 zip code, and has a GED as highest education obtained.

Participant Number 14 is a 35-year-old female, who is single, has a household income of less than $10,000, lives in the 27704 zip code, and 11th grade of high school was the highest education obtained.

Participant Number 15 is a 32-year-old female, who is married, has a household income of $10,000, lives in the 27704 zip code, and ninth grade was the highest education obtained.

Participant Number 16 is a 50-year-old female, who is married, has a household income of $20,000, lives in the 27704 zip code, and 12th grade was the highest education obtained.

Participant Number 17 is a 23-year-old male, who is currently engaged, has a household income of $170,000, lives in the 27703 zip code, and has a bachelor's degree as the highest education obtained.

Participant Number 18 is a 27-year-old female, who is single, has a household income of $90,000, lives in the 27713 zip code, and has a college degree as the highest education obtained.

Participant Number 19 is a 66-year-old male, who is married, has a household income of $90,000-100,000, lives in the 27703 zip code, and has a master's degree as the highest education obtained.

Participant Number 20 is a 31-year-old female, who is married, has a household income of $30,000-40,000, lives in the 27704 zip code, and has college degree and certificate in broadcasting as the highest education obtained.

Participant Number 21 is a 37-year-old male, who is engaged, has a household income of $10,000-20,000, lives in the 27704 zip code, and has a high school/GED diploma as the highest education obtained.

Participant Number 22 is a 35-year-old female, who is married, has a household income of $50,000-60,000, lives in the 27703 zip code, and has a nursing bachelor's degree as the highest education obtained.

Participant Number 23 is a 36-year-old male, who is married, has a household income of $110,000, lives in the 27703 zip code, and has a bachelor's degree in biology as the highest education obtained.

Participant Number 24 is a 41-year-old male, who is married, has a household income of $120,000-150,000, lives in the 27703 zip code, and has a bachelor's degree as the highest education obtained.

Participant Number 25 is a 26-year-old male, who is single, has a household income of more than $30,000, lives in the 27703 zip code, and has a bachelor's degree as the highest education obtained.

Participant Number 26 is a 49-year-old male, who is married, has a household income of more than $60,000, lives in the 27713 zip code, and has a bachelor's and associate degrees as the highest education obtained.

Participant Number 27 is a 50-year-old male, who is married, has a household income of more than $50,000, lives in the 27703 zip code, and has a bachelor's degree and other professional courses in nursing as the highest education obtained.

Participant Number 28 is a 26-year-old male, who is single (cohabitation), has a household income of $30,000-50,000, lives in the 27713 zip code, and has a master's degree as the highest education obtained.

Participant Number 29 is a 46-year-old female, who is single, has a household income of $30,000-40,000, lives in the 27713 zip code, and has a bachelor's degree as the highest education obtained.

Participant Number 30 is a 43-year-old female, who is married, has a household income of $170,000-180,000, lives in the 27703 zip code, and has two bachelor's degrees as the highest education obtained.

Data Collection

My goal for data collection was to interview 30 participants. A few potential participants declined to participate for fear of having their identity revealed. Most of them preferred to be interviewed in their home. A few preferred the process taking place in front of their houses. I interviewed each of the participants with 31 open-ended questions (Appendix B), which I designed to serve as an interview guide. These questions were

designed to help answer the research questions of this study. The questions were also formulated to glean the lived experiences of the participants. The questions also helped to obtain core themes, which were coded into nodes for analysis.

I interviewed my first participant on March 12, 2015, and the last one was interviewed on April 23, 2015. The guiding questions for the interview were quite short and did not require elaborate or lengthy responses. Coupled with some participants not being comfortable with recording the process, I interviewed most of them by writing their responses verbatim and asking for repeated responses when part of their responses were not captured. For those who did not mind the use of recorders, I recorded their responses as well as noting down whatever they said. I noted the date on which each participant was interviewed. Interview time for each participant was between 30 minutes and 1 hour. Apart from the verbal responses given by participants, I also observed their facial expression as well as body language. Each participant was assigned a number to conceal their actual identity. I went over the answers of each participant and used member checking process to validate their responses. During the validation of their responses, each was then given $5 gift card for their time. All transcripts and tools used for interviews were stored and locked in a safe in my home office.

Data Analysis

My data analysis began with the initial task of transcribing all the audio recordings and typing all responses from participants into organized data in Microsoft Word. I read through the data carefully, paying attention to responses that had the health belief model as the background. Using the NVivo 10 software, I coded the responses into

nodes and then did a classification of all the nodes. Interview responses from all 30 participants were imported into the software for analysis. The coding process led to formulation of 15 themes that would enable me answer the research questions of this study. I applied Moustakas's (1994) method of phenomenological approach, which makes use of significant responses, statements, generating meanings, and what Moustakas refers to as, essence description (as noted by Creswell, 2009). Using Creswell's (2009) approach of data transcription, I transcribed the raw materials (audio and field notes), organized and prepared the data for analysis, read through all data, coded the data into themes, compiled interrelated the themes, and interpreted the meanings of the themes and descriptions. The themes were made of responses from the guiding questions that had direct relation to answering the two research questions that govern this research. The NVivo 10 software enabled me do all these in addition to grouping responses that were similar or different. The details of interviews with the 30 participants were all noted verbatim for thematic analysis.

Evidence of Trustworthiness

Validity is one of the major strengths of qualitative research (Creswell, 2009). According to Creswell (2009), validity hinges on finding out whether the findings from a study are accurate from the viewpoint of the researcher, participant, or the readers. This leads to trustworthiness or credibility of a research. To ensure credibility of this study, I incorporated validity strategies. Some of the strategies were to ensure the participants provided accurate responses as best as they could. After the transcription of the interviews, I reviewed the responses with the participants to ensure I captured exactly

what they meant. I used member checking to verify the accuracy of my findings. Another strategy I used to ensure credibility of my study was to clarify any bias that could be brought to the study. Because this study is subject to internal and external threats, the study cannot be generalized outside the three zip codes covered. However, due to the characteristics noted from the findings, the study could be extrapolated to similar target populations and expect similar results to be obtained.

Transferability was established in this study by a careful selection of participants. My choice of 30 participants for this qualitative study was based on obtaining a range of responses that will enable me to address the research questions for the study and thereby find a correlation or relationship that exists between family income and obesity among the African Americans in Durham, NC. The sample size chosen was not too small to incur bias, neither was it too large to produce any overwhelming effect. The study could be extended to a larger population by future researchers.

Dependability is a measure of how stable or consistent a study's inquiry processes can be (Crosby et al., 2006). To ensure dependability, I made sure I did not do anything careless or make any mistake while conceptualizing my study, collecting data, interpreting the findings, and reporting the results. The logic of recruiting and interviewing participants were clearly presented and consistent among the participants.

The confirmability of my study was made possible by having a sample size that supported the findings. By having an external auditor to review the findings and interpretation of the results, an adequate audit trail was maintained and confirmability

ensured. The results obtained support confirmability and consistent with finding of some previous research.

Demographic Information

Table 1 represents selected demographic information of the participants. This depicts their ages, gender, height, and weight. These parameters were included because they have a direct bearing on the imputation of BMI, which is an essential figure for the expression of obesity as related to this study. The youngest age (years) was 26, characterized by Participants 6 and 28. The oldest participant was 70 (Participant 11). There were 17 females and 13 males who volunteered for this study. The females outnumbered the males because most females were open to respond to interviews than were most men. The heights of the participants ranged from 60 inches (5 ft.) to 74 inches (6 ft. 2 in). These were Participants 1 and 17 respectively. The weights also ranged from 119 pounds (Participant 1) through 332 pounds (Participant 13). The measurements were all self-reported by participants. It was not the intent of this study to measure the participants of their height, weight, or other parameters, but for them to provide as part of their lived experiences and as much honest as possible. The participants therefore provided responses as best as they could recall. Only a few participants had to pause and remember the figures that appeared on their scale as they weighed themselves or when they visited their provider. When it came to sensitive questions, such as asking about age and the income families earned, I observed by facial expressions that a few were skeptical to give their exact ages. On the whole most participants provided responses to the best of their abilities. Some of the strategies I used were to keep the interviewing

process simple and as less cumbersome as possible and also explain every single question as clearly as could be understood by any of the participants regardless of their educational background.

Table 1

Selected Demographic Characteristics of 30 African American Study Participants

Participants	Age (years)	Gender	Height (inches)	Weight (pounds)
Participant # 1	36	Female	60	119
Participant # 2	28	Female	64	160
Participant # 3	56	Male	68	200
Participant # 4	32	Female	62	150
Participant # 5	49	Female	68	190
Participant # 6	26	Male	68	260
Participant # 7	44	Male	66	192
Participant # 8	39	Male	69	215
Participant # 9	49	Female	62	257
Participant # 10	53	Female	67	198
Participant # 11	70	Female	63	171
Participant # 12	35	Female	62	160
Participant # 13	48	Female	61	332
Participant # 14	35	Female	62	215
Participant # 15	32	Female	71	288
Participant # 16	50	Female	63	185
Participant # 17	23	Male	74	240
Participant # 18	27	Female	62	190
Participant # 19	66	Male	74	262
Participant # 20	31	Female	67	263
Participant # 21	37	Male	71	201
Participant # 22	35	Female	61	180
Participant # 23	36	Male	67	240
Participant # 24	41	Male	70	240
Participant # 25	26	Male	73	217
Participant # 26	49	Male	66	180
Participant # 27	50	Male	71	204
Participant # 28	26	Male	66	140
Participant # 29	46	Female	62	138
Participant # 30	43	Female	65	155

Table 2 is a summary of other selected demographic data on the 30 participants interviewed.

Table 2

Selected Demographic Features of 30 African American Study Participants

Participants	BMI	Zip code	Marital status	Income ($)
Participant # 1	23	27703	Single	70,000-80,000
Participant # 2	28	27713	Single	120,000
Participant # 3	30	27713	Married	40,000-50,000
Participant # 4	27	27713	Married	80,000
Participant # 5	29	27703	Married	180,000-190,000
Participant # 6	40	27704	Single	10,000
Participant # 7	31	27713	Married	150,000-160,000
Participant # 8	32	27713	Married	40,000-50,000
Participant # 9	47	27704	Single	14,000
Participant # 10	31	27704	Single	<10,000
Participant # 11	30	27704	Single	<10,000
Participant # 12	29	27713	Married	50,000-60,000
Participant # 13	63	27704	Single	<10,000
Participant # 14	39	27704	Single	<10,000
Participant # 15	40	27704	Single	10,000
Participant # 16	33	27704	Married	20,000
Participant # 17	31	27703	Engaged	170,000
Participant # 18	35	27713	Single	90,000
Participant # 19	34	27703	Married	90,000-100,000
Participant # 20	41	27704	Married	30,000-40,000
Participant # 21	28	27704	Engaged	10,000-20,000
Participant # 22	34	27703	Married	50,000-60,000
Participant # 23	38	27703	Married	110,000
Participant # 24	34	27703	Married	120,000-150,000
Participant # 25	29	27703	Single	30,000-40,000
Participant # 26	29	27713	Married	60,000-70,000
Participant # 27	28	27703	Married	50,000-60,000
Participant # 28	23	27713	Single	30,000-40,000
Participant # 29	25	27713	Single	30,000-40,000
Participant # 30	26	27703	Married	170,000-180,000

The parameters indicated on Table 2 are BMI, zip code of where participants reside, their marital status, and the income each family makes annually. BMI is a measure of an individual's body fat and is based on height and weight (U.S. Department of Human Services, 2015). The BMI was computed using a calculation that used the participants' height and weight. The formula for computing BMI in adults (recommended by CDC, 2013) is: weight (lb) / [height (in)] ^{2} x 703. For example, for a person who weighs 170 pounds and is 65 inches tall, the formula is [170 ÷ (65)2] x 703 = 28.2863. This is then rounded to a whole number as a BMI of 28. Using the computation formula described above, the BMI for Participant 1 was 23 (the lowest) and that of participant 13 was 63 (the highest). Table 2 also depicts the zip code of the participants interviewed. There were three zip codes from which the participants were recruited and interviewed from. These are: 27703, 27704, and 27713. Each of these zip codes is postulated to house participants categorized or estimated to have varying income earned annually. Ten participants were interviewed from each of the zip codes. Table 2 also shows the marital status of the participants. They were married, single, or engaged to be married soon. The marital status was important to this study because income levels were different among singles and that of those who were engaged or married. Income levels of these participants were also included in Table 2. A few of them knew precisely how much income ($) their family made (example is Participant 2), while others gave a range of income, such as between $30,000 and 40,000. Example is Participant numbers 20, 25, 28, and 29.

Table 3 provides data on the participants and their BMI results that indicate whether each of them falls within the definition of overweight, obesity, or normal.

Table 3

Participants BMI, Overweight, and Obesity status

Participants	BMI	Overweight	Obese	Normal
Participant # 1	23	No	No	Yes
Participant # 2	28	Yes	No	No
Participant # 3	30	Yes	Yes	No
Participant # 4	27	Yes	No	No
Participant # 5	29	Yes	No	No
Participant # 6	40	Yes	Yes	No
Participant # 7	31	Yes	Yes	No
Participant # 8	32	Yes	Yes	No
Participant # 9	47	Yes	Yes	No
Participant # 10	31	Yes	Yes	No
Participant # 11	30	Yes	Yes	No
Participant # 12	29	Yes	No	No
Participant # 13	63	Yes	Yes	No
Participant # 14	39	Yes	Yes	No
Participant # 15	40	Yes	Yes	No
Participant # 16	33	Yes	Yes	No
Participant # 17	31	Yes	Yes	No
Participant # 18	35	Yes	Yes	No
Participant # 19	34	Yes	Yes	No
Participant # 20	41	Yes	Yes	No
Participant # 21	28	Yes	No	No
Participant # 22	34	Yes	Yes	No
Participant # 23	38	Yes	Yes	No
Participant # 24	34	Yes	Yes	No
Participant # 25	29	Yes	No	No
Participant # 26	29	Yes	No	No
Participant # 27	28	Yes	No	No
Participant # 28	23	No	No	Yes
Participant # 29	25	Yes	No	No
Participant # 30	26	Yes	No	No

Remington, Brownson, and Wegner (2010) have classified obesity into three classes: Class 1- BMI 30.0- 34.9; Class 2- BMI 35.0-39.9; and Class 3 (referred to as extreme obesity) - BMI greater than or equal to 40 (p. 269). From Table 3, only two participants (6.7%) can be categorized as normal by BMI standards (Participants 1 and 28). The rest are all either overweight or obese. Twenty eight of the 30 participants (93.3%) were within the overweight status. Eighteen of the 30 participants (60%) were noted to be obese. This is more than half of the total participants interviewed. With reference to BMI values and obesity, it can be observed from Table 3 that Participants 3, 6 through 11, 13 through 20, and 22 through 24 were all in the obesity bracket.

Results of Themes Identified

The purpose of this study was to find out relationship between family income and obesity. The research questions sought to answer the factors that lead to low family income and how these key factors contribute to obesity among African Americans. There were 15 major themes that stood out after conducting the interviews and analyzed by NVivo 10 software. I categorized these themes into two groups to answer the two research questions. The first group sought to respond to or provide answers to the key factors that contribute to earning low family income among African Americans. The thematic categories 1 through 4 gleaned from the participants were notable for answering Research Question 1 of this study. The rest of the themes play significant role in answering Research Question 2 of this research. This second group relates to how these key factors contribute to obesity among the target group. The themes are represented in the following results /findings.

Thematic Category 1: *Reasons for not earning enough income*

Table 2 shows the family income earned by each of the participants interviewed. The range of income is from less than $10,000 to $190,000 per year. The lowest income earned in the group shows an amount of less than $10,000 a year. This is characterized by Participants 10, 11, 13, and 14.

The first thematic category was to find the reasons for participants not earning enough family income. Participant 1 mentioned that she makes quite an okay income, thus was not applicable to her. Participant 2 stated that, "Well, I need to graduate and then I can make more." Participant 3 stated that the reason why he was not making enough money was because "Time is the issue. Not enough time." Participant 4 and 5 answered that it did not pertain to them. Participant 6 responded that, "I am not working now. I am looking for a job. It is hard getting a job. I could make more money with better education." Participant 7 noted that, "I do not have enough time to work more or make more money." Participant 8 remarked that, "Because employers do not want to pay more. I need advancement in life." Participant 9 also mentioned that, "I am partly disabled, but I am a Certified Nurse Assistant (CNA)." Participant 10 noted that, "I lost my job. I am now taking care of kids. Although I have a master's degree, I don't have a job now. I am looking for a job." Other reasons given by participants not making enough money included being retired and not finding a job; asking for a pay cut to reduce working hours; being disabled, health reasons and as such could not work enough hours. Participant 15 mentioned that she did not have a high school diploma and that limited how much she could earn by way of income. Participant 16 and 17 noted that they are yet

to graduate from college. Participant 21 mentioned that, “I don’t have any training or education. I don’t have the right diploma.” Participant 26 mentioned that, “My income is driven by the market forces. I work in the clientele business. The higher the demand of my services, the more income I make. I need some certification in logistics.”

Thematic Category 2: *Highest grade of education attained*

The second thematic category I focused on was to find out how participants’ level of education contributed to their earning of low family income. Participant 1 has a masters’ degree and gainfully employed by the federal government. She believes her level of education has landed her a good job. Participant 2 is in medical school and hopes to get a good paying job after graduation. Participant 3 said, “I have a bachelor’s in Nursing.” She is using her nursing degree to work as a nurse. Participant 4 has a bachelor’s degree and Participant 5 mentioned that, “Associate degree for myself. My husband is an attorney.” This family made the highest income among those interviewed. Participant 6 had a GED. Participants 7 and 8 had bachelor’s degrees. Participant 9 had a 2-year college degree. Participant 10 has a master’s degree while participant 11 has a grade 12 and 1 year bible college. Participant 13 has a doctorate degree and participant 14 only finished grade 11. Participants 15 and 16 finished grades 9 and 12 respectively. Participant 17 mentioned that, “I have a bachelor’s degree (3 and half years).” Participants 18 and 19 have college degree and master’s degree respectively. Participant 20 mentioned having some college and a certificate in broadcasting. Participant 21 has a high school diploma while participant 22 has a college degree in nursing. Participant 23 has a bachelor’s degree in biology and participant 24 said he has a college degree and his

wife has a master's degree. Participant 25 has a college degree while participant 26 has bachelor's degree and an associate degree. Participant 27 said that, "I am a graduate with a bachelor's degree and some professional courses in nursing." Participant 28 also mentioned that, "I will graduate with a master's degree next week." Participant 29 noted that, "I have a bachelor's in nursing" and participant 30 mentioned that she has 2 bachelor's degrees.

Thematic Category 3: *Satisfaction about income earned by family*

The third category of themes focused on whether the participants were satisfied with the income they earn yearly or if there were any barriers that prevented them from making more money. This category sought to find out if participants were happy with the income they earn or if they desire to make more. Responding to this thematic category on the barriers for making more money, the following comments were noted. Ten of 30 participants (33.3%) responded that they were okay with the income their family makes a year. These were Participants 1, 2, 3, 4, 5, 19, 24, 25, 29, and 30. Although Participants 1, 3, and 25 mentioned that they were happy with how much they earned, they did also state that they would want to make more money. The rest of the participants responded that they were not happy with how much their family earned a year. For example, Participant 23 indicated that he was not satisfied with how much he makes and the barrier is that, "… my income is driven by the market forces." Participant 27 also mentioned that, "No. I want to go to the next level. I am not satisfied by what I make now."

Thematic Category 4: *Current enrollment in any academic program*

The fourth thematic category was based on whether the participants were in any

academic program that will ultimately give them better opportunities for earning more income sooner or later. The academic program under consideration is whether participants are undergoing any vocational training or any academic curricula that has the potential of increasing income for the participants' family upon graduation. In responding to whether they were enrolled in any type of academic program, 19 participants (63.3%) said "No" indicating that they were not enrolled in any academic or vocational programs. These were Participants 1, 3, 4, 5, 6, 7, 8, 11, 12, 13, 18, 19, 20, 21, 23, 24, 26, 29, and 30. Eleven of the participants (36.7%) said "yes" implying they were enrolled in some academic program. This is characterized by Participants 2, 9, 10, 14, 15, 16, 17, 22, 25, 27, and 28. The comments and responses made by participants enrolled in some academic program were:

"Yes. I am taking nursing class at Duke University."

"Yes. I am taking nursing classes."

"I am currently pursuing my GED. It is in progress."

"Yes I am taking some CNA courses on line."

"Yes I am in medical school now."

"I am currently in medical school."

"Yes. I am ready to graduate Medical Surgical School."

"Yes, I am a full time student."

"I am now in school, taking nursing– related courses."

"Yes finishing my master's."

"I am currently taking a health care class."

Thematic Category 5: *Popular foods consumed at home.*

Thematic Category 5 as depicted in Table 4 focused on asking the participants about the popular foods they consumed on regular basis. All the participants have various food they mentioned as being the most popular they consume at home. They range from flavored water to fried potatoes. Participant 1 mentioned that most of the food she consumes is "salad, chicken, salmon, baked fish, potatoes, rice, banana and cereal." Participant 2 indicated that her family consumes chicken, rice, sandwiches, and salad. Participant 3 responded that "rice, pounded yam, beans, fried potatoes, fish, beef, chicken, and bread" was the popular food that his family ate quite often. Participant 4 noted that most of the food they ate was chicken, pizza, and pasta. Participant 5 said the type of foods her family enjoyed was "African food, meat, fish, rice, carrots, apple okra, and spinach." Participant 6 had this to say: "fruits, vegetables, and organic chicken" is what his family eats most often. Participant 7 noted that, "fruits, vegetables, and organic chicken." Participant 8 and 9 said "home cooked meal, fish, and spinach, yam, and pasta" and "chicken, meat, starch, and vegetables respectively." Participant 10 indicated that "fruits, chicken, fish, pasta, rice, and potatoes" was their main foods. Participant 11 responded that the food often eaten in her household is mainly "chicken, hot dogs, hamburger, cake, green vegetables, and milk." Participant 12 responded that rice, beans, pasta, veggies, and eggs while Participant 13 said her family enjoys stake, crab legs, chicken, broccoli, collards and green beans.

Table 4

Types of popular food eaten by participants

Participants	Types of popular food eaten by family
Participant # 1	Salad, chicken, salmon, baked fish, potatoes, rice, banana , and cereal
Participant # 2	Chicken, rice, sandwiches, and salad.
Participant # 3	Rice, pounded yam, beans, fried potatoes, fish, beef, chicken, and bread.
Participant # 4	Chicken, pizza, and pasta.
Participant # 5	African food, meat, fish, rice, carrots, apple okra, and spinach.
Participant # 6	Fruits, vegetables, and organic chicken.
Participant # 7	We eat rice, fish, vegetables, and chicken.
Participant # 8	Home cooked meal, fish, spinach, yam, and pasta.
Participant # 9	Chicken, meat, starch, and vegetables.
Participant # 10	Fruits, chicken, fish, pasta, rice, and potatoes.
Participant # 11	Chicken, hot dogs, hamburger, cake, green vegetables, and milk.
Participant # 12	Rice, beans, pasta, veggies, and eggs.
Participant # 13	Stake, crab legs, chicken, broccoli, collards and green beans.
Participant # 14	Fried chicken, macaroni, gravy, and broccoli.
Participant # 15	I am on diet now. We eat junk and unhealthy food and some baked fish.
Participant # 16	Chicken, fries.
Participant # 17	Mostly organic food and rarely any meat.
Participant # 18	Pasta, fish, juice.
Participant # 19	Rice, plantain, beans, and vegetables.
Participant # 20	Fries, potatoes, chicken, fish, pork, beef, and vegetables.
Participant # 21	Fried food, (a lot), chicken, pork chops, fish, spaghetti and Hamburger.
Participant # 22	Pizza, rice, chicken, and Jamaican food.
Participant # 23	Fish, chicken, whole wheat, water, fruit, and juice.
Participant # 24	Chicken, cereal, oatmeal, salad.
Participant # 25	Vegetables, water, flavor in water.
Participant # 26	Vegetables.
Participant # 27	Mostly African foods, for example rice, yams, and fufu. We eat American foods if we can't get any African food.
Participant # 28	Junk food, chicken, and chocolate cake.
Participant # 29	Cashew nuts, chicken breast. I don't eat that much. Sometimes all I eat is cashew and go to sleep.
Participant # 30	Rice, stew, chicken, fish, oatmeal, and cereal.

Participant 14 mentioned that the majority of food eaten in her household is fried chicken, macaroni, gravy, and broccoli. Participant 15 indicated that "I am on diet now. We eat junk and unhealthy food and some baked fish." The responses from other participants have been recorded in Table 4. Most of the foods reported by participants have similar trend and few differences. For instance, Participant 25 mentioned vegetables, water, and flavor in water as the main food often eaten. Participant 26 also mentioned vegetables as the main food his family enjoys.

Thematic Category 6: *Preference of eating in fast food restaurants (FFR) or choosing to cook at home*

The sixth thematic category that I focused on was to find out if the participants preferred eating at fast food restaurants or chose to cook meals at home. Of the 30 participants interviewed, only 1(3.3%) indicated that she prefers eating at the FFR because she hates to clean after cooking (Participant 18). The rest of the participants (96.7%) responded that they prefer cooking at home than eating at FFR joints. Participants 2, 9, and 28 noted that although they preferred cooking at home, they often patronized FFR (responses are recorded as shown in Table 4). Some of the responses given by the participants were:

Participant 1: "I prefer cooking." Participant 2 indicated that, "I prefer cooking. I am often lazy so might patronize FFR." Asked if he preferred cooking at home versus eating at a FFR, Participant 3 also responded that, "No. I prefer cooking." Participant 26 expressed vehemently that, "I prefer to cook at home. That way you know what goes inside the food."

Some of the contrasting responses to this question came from Participant 18, who mentioned that, “I prefer eating outside because I hate cleaning after cooking.” Participant 28 also noted that, “I prefer eating out in restaurants. My fiancée likes to cook at home.” Few of the participants preferred both cooking at home and often eating at FFRs. For instance Participant 2 stated that although she prefers cooking her own meals, because of laziness, she sometimes visits the FFR. Participant 21 also had this to say: “It depends. Sometimes we cook and other times we eat out.” Participant 27 also expressed that, “I like cooking unless when we are unable.”

Thematic Category 7: *Living near FFR*

The seventh thematic category sought to find out if living near a FFR influenced how much the participants patronized the food there instead of cooking at home. Responding to the question of if they lived near a FFR, 5 of 30 participants (16.7%) answered that they did not live near a FFR. These were participants 18, 23, 25, 27, and 30. The remaining 25 participants (83.3%) indicated that they lived near FFRs. Participant 1 was very precise and mentioned that she lived 20 minutes from a FFR. Participant 2 also mentioned that, “Yes, a walking distance.”

Thematic Category 8: *Dependence of choice of food on income*

The thematic category centered on how the participants shopped and ate particular types of food based on the income they earn. When participants were asked : “Is your choice of food and how you shop for food related to the amount of money you earn,” 11 participants (36.7%) responded “No” indicating that how much they earn did not directly

affect what foods they shopped for or ate. These were Participants 1, 2, 3, 7, 8, 19, 20, 22 23, 27, and 29. Some of the responses are:

Participant 1 stated, "No. My spending is based on my budget." Participants 2, 3, 7, 8, 19, 20, 22, and 23 only mentioned "no" without much explanation. Participant 27 noted that:

> No. This is because whether I make more money or not, we will still like African food or the food we love to eat. I do believe that income has effect on lifestyle or what people buy because those who make less struggle and end up overeating due to stress. Some work two jobs to make ends meet or meet the cost of living. This ends in buying and eating junk food and no time to exercise too. I think more money and more time lead to better lifestyle.

Participant 29 also mentioned that, "No. It does not matter to me. I will eat the same way regardless." Contrary to the preceding comments, 19 participants (63.3%) answered "Yes" indicating that the income they earn has effect on how they shop for food. These are represented by participants 4, 5, 6, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 21, 24, 25, 26, 28, and 30. Some of the responses are:

Participant 6 mentioned that, "Yes, it does because it determines what we can afford and what we cannot." Participant 10 indicated that, "Yes. Our income or how much we get determines what we can afford." Participant 11 responded in this manner: "Yes it is. Because we ultimately can afford only what we have. Our budget is fixed." Participant 14 responded that, "Yes very much so. I believe how much people make affect or can contribute to obesity." Participant 15 also noted that, "Yes it does. The more

I can make the better choices I can make." Participant 16 responded that, "Yes it is very much related." Participants 17 and 18 both indicated that, "Yes it does." Participant 21 responded that, "Yes. The more one makes, the better the lifestyle." Participant 26 responded that:

> Yes. If you make more, you eat better. You are limited by the income you make. Most affordable things are not healthy. What is healthy is expensive. If I can't afford it, I will only eat Burger King. When you have the means, you eat to satisfy and nourish your body. Many people eat quantity and not quality.

Participant 28 also had this to say:

> Yes it does. We are on a budget, so we can only afford what our income allows. It is necessary to eat better if you can afford it. Sometimes I go to the groceries and there is something I wish to buy, but I ask myself if I can afford it. So income affects what you buy and can play a role in obesity.

Participant 30 concluded with the response on the theme by saying that, "Yes because you can buy more fruits and vegetables if you make more money."

Thematic Category 9: *Number of servings of salads per day*

The 9th category focused on how many servings of salad participants made part of their daily meals. Thus finding out how much servings of salad my participants consumed was the next thematic category to be considered. As shown in Table 5, almost all the participants mentioned that their family made serving of salads part of their daily meal. The least consumption was once a week as mentioned by Participants 11 and 21.

The most consumed by any family among the participants was 7 or 8 a day as indicated by participant 17. Participant 1 indicated having one serving of salad a day.

Table 5

Number of Servings of Salad per day

Participants	Number of servings of salad per week
Participant # 1	1 serving a day.
Participant # 2	2 to 3 times a day
Participant # 3	Apple, banana, and this is like once in a while.
Participant # 4	1 a day.
Participant # 5	Mostly apples, banana, papaya, baby spring, and organic baby Lettuce.
Participant # 6	2 to 3 a day.
Participant # 7	2 to 3 times a day.
Participant # 8	I am personally cautious of my health so I eat salad servings about 3 times a week.
Participant # 9	3 times a week.
Participant # 10	2 servings a day.
Participant # 11	Once a week.
Participant # 12	0-1 a day.
Participant # 13	Once a day.
Participant # 14	Once a day.
Participant # 15	Every day, about 2 times a day.
Participant # 16	3 times a day.
Participant # 17	7 or 8 a day.
Participant # 18	Once a day.
Participant # 19	2 times a day.
Participant # 20	I have a minimum of 1 per day.
Participant # 21	Once a week.
Participant # 22	Every day. We eat fruits and salad once or twice a day.
Participant # 23	3 to 4 a day.
Participant # 24	Twice a day.
Participant # 25	2 to 3 a day.
Participant # 26	3 times a day.
Participant # 27	2 to 3 times daily.
Participant # 28	0 to 2 times a day.
Participant # 29	Once a week.
Participant # 30	1 serving a day.

Participant 2 indicated 2 to 3 times a day while Participant 3 observed that, "Apple, banana, and this is like once in a while." Asked about the details of what each family eats or consumes on daily basis, Participant 5 also noted that, "Mostly apples, banana, papaya, baby spring, and organic baby lettuce. Participant 8 related her health to consumption of fruits and salads and said that, "I am personally cautious of my health so I eat salad servings about 3 times a week. Other responses made by participants in reference to the Thematic Category 9 can be found in Table 5.

Thematic Category 10: *Feelings of overweight or obese*

The 10th category centered on how the participants felt in relation to being overweight or obese. Quite a number of the participants interviewed were not sure of their BMI values. A number of them did not have regular medical checkups and so could not easily mention their BMI results. The goal of Thematic Category 10 was to find out if the participants felt overweight or obese. Therefore, by expressing their opinions about how they felt, the participants might have an idea if they needed to do something about their BMI values.

From the responses to the question as to whether the participants felt overweight or obese, 12 (40%) responded that they did not feel overweight or obese. These were Participants 1, 4, 5, 8, 11, 16, 17, 21, 25, 26, 28 and 30. Participant 11 indicated that she had lost about ten pounds. The other 60% responded that they felt overweight or obese. For example, Participant 2 responded that she felt a little overweight. Participant 3 indicated that going by the BMI scale, he was overweight. Participant 6 responded, "Yes, I feel overweight." Participant 7 stated, "Yes, I do feel overweight." Participants 9, 10,

12, 13, 14, 15, and 18 were all included in participants who indicated that they felt obese. Participant 12 noted that she was not obese but overweight, and Participant 24 mentioned that though he felt he was obese, he had more muscles by indicating that, "Yes I do, though I have more muscles."

Thematic Category 11: *Number of times exercised in a week*

The 11th Thematic Category sought to find out the frequency and duration of physical activity performed by the participants. As shown in Table 6, three participants (10%); 10, 13, and 28 responded that they did not engage in any physical activity. The rest (90%) responded that they were involved in some of physical activity. This varies from performances such as once a week through seven days a week (every day) as noted by Participants 2, 19, and 29. Participant 22 indicated she engages in physical activity for 30 minutes, but she did not indicate how many times she does that weekly. Participant 1 noted that she exercises five times a week, while Participant 3 mentioned 3 to 4 times a week. Participant 4 indicated she exercises four times a week. Participants 7 and 8 both indicated that they did some form of physical activity three times a week. Participant 11 noted that, "Not that much, I only walk a few times a week." Participant 16 showed me her muscles and bragged that she exercises five days a week. Participant 21 considered playing with kids once a week as his form of exercise. Participant 27 indicated that due to the nature of his work, he walks once or twice every day. Table 6 shows the responses made by participants on this theme.

Table 6

Number of times exercised in a week

Participants	Number of times exercised in a week
Participant # 1	I exercise 5 days a week.
Participant # 2	Every day.
Participant # 3	About 3 to 4 times a week.
Participant # 4	Once a week.
Participant # 5	Sometimes 2 to 3 times a week.
Participant # 6	I exercise once a day.
Participant # 7	3 times a week.
Participant # 8	3 times a week.
Participant # 9	Once a week.
Participant # 10	None. I don't exercise.
Participant # 11	Not much. I only walk a few times a week.
Participant # 12	I exercise 3 times a week.
Participant # 13	None.
Participant # 14	4 times a week.
Participant # 15	Once a week.
Participant # 16	5 days a week (shows her muscles).
Participant # 17	2 to 4 times.
Participant # 18	3 times a week.
Participant # 19	Every day.
Participant # 20	Once a week.
Participant # 21	Once or twice a week playing with kids.
Participant # 22	30 minutes.
Participant # 23	2 to 3 times.
Participant # 24	5 times.
Participant # 25	5 days a week.
Participant # 26	Every day. I walk several times on my job.
Participant # 27	Sometimes twice or once due to my work schedule.
Participant # 28	I will say zero. Except I do a little walking each day or sometimes.
Participant # 29	I exercise every day.
Participant # 30	1 or 2 times.

Table 7 represents the length of time participants engaged in any form of physical activity. This includes activities such as walking, jogging, swimming, biking, and other

activities that participants thought would keep them fit. Participants 10 and 13, who responded to not engaging in any physical activity, did not have any duration of activity to report. The rest of the participants reported duration of some activity close to the national recommendation of performing physical activity of at least 30 minutes in any session per day. For instance, Participants 3, 9, 15, 17, 20, 21, 24, 25, 26, and 27 all mentioned that they did exercise for 60 minutes or more during their workout session. A few participants also stated that they exercised for less than 30 minutes. Participant 29 indicated that by the nature of his work, it took him seven minutes to drive to work and same time back, but during his working time, he walks all day in delivering and picking up products for his clients. Participant 11 noted that because of her age (70 years), she could only walk for three minutes a day.

Thematic Category 12: *Availability of equipment or ability to exercise*

Thematic Category 12 focused on finding out from the participants whether they had any form of equipment that motivate them to engage in any form or exercise or the availability of walking trails. As shown on Table 8, 16 participants (53.3%) responded that they did not have any equipment in their neighborhood that enabled them to engage in any form of physical activity. On the other hand, 14 participants (46.7%) responded that they have some form of equipment that enabled them to engage in some form of physical activity. The responses of the 14 participants who indicated they had some form of equipment for engaging in physical activities are as follows: Participant 1 indicated that she has some form of equipment in her house. Participant 3 noted that he has a Treadmill and some dumb bells. Participants 4 also mentioned that she has a treadmill.

Table 7

Duration of exercise in any session

Participants	Duration of exercise in any session
Participant # 1	I exercise 30- 40 minutes per session.
Participant # 2	30 minutes.
Participant # 3	60 minutes.
Participant # 4	I do exercise for 30 minutes.
Participant # 5	About 30 minutes or less, sometimes 20 minutes.
Participant # 6	About 30 minutes.
Participant # 7	30 minutes.
Participant # 8	A minimum of 30-45 minutes.
Participant # 9	60 minutes.
Participant # 10	None.
Participant # 11	About 3 minutes.
Participant # 12	About 20 to 30 minutes.
Participant # 13	None.
Participant # 14	I exercise for 30 minutes.
Participant # 15	60 minutes.
Participant # 16	30 minutes.
Participant # 17	90 minutes.
Participant # 18	30 minutes.
Participant # 19	30 minutes.
Participant # 20	I exercise for 2 hours. I go to the gym.
Participant # 21	About 60 minutes.
Participant # 22	30 minutes.
Participant # 23	60-120 minutes.
Participant # 24	30-60 minutes.
Participant # 25	60 minutes.
Participant # 26	60 minutes.
Participant # 27	Usually 45 to 60 minutes.
Participant # 28	I walk for about 10 to 12 minutes-once a week.
Participant # 29	I walk all day. It takes me seven minutes to drive to work and seven to get home. But in between I walk all day at work.
Participant # 30	30 minutes.

Participant 5 responded in this manner, “Yes. I have treadmill, abdominal exercise

equipment and shaking dumbbells." Participant 12 responded thus, "Yes. We have a tennis court and a pool." Participant 24 noted that, "I have a gym close by." Participant 27 also had this to say: "Yes I have a few equipments in my house, but not the subdivision." Participant 28 stated that, "Yes I do have jump rope and resistance band," while Participant 30 indicated that, "Yes. There is a gym in my neighborhood." Other participants' responses are represented on Table 8.

Thematic Category 13: *Regularity/frequency of seeing provider for routine or as needed check-up*

Thematic Category 13 was critical because participants responded to the frequency or otherwise of visiting their providers, having routine check-up to include testing for their cholesterol levels, and therefore knowing what to do to control the effects of unhealthy results. Almost all participants, except Participant 6 had some form of regular visits to their providers. As indicated on Table 9, Participant 9 mentioned that, "I don't have any doctor appointments. I don't have any doctor now." Unlike Participant 6, the rest of the participants have a somewhat regular or routine check-up with their providers. It can also be noted that a few of the participants have a monthly schedule of appointments. For instance, participants 1 and 14 have monthly visits with their providers. Participant 5 indicated that she saw her provider as and needed; probably annually. Her last visit was in September 2014. A majority of the participants have a yearly schedule of visits to their providers. Participants 2, 3, 4, 7, 8, 12, 15, 16, 22, 23, 24, 26, 27, 29, and 30 all mentioned having a yearly schedule.

Table 8

Availability of equipment or ability to exercise

Participants	Availability or ability to engage in physical activity
Participant # 1	Yes, in my house.
Participant # 2	No.
Participant # 3	Yes. Treadmill and dumbbells.
Participant # 4	Yes, I have a treadmill.
Participant # 5	Yes. I have treadmill, abdominal exercises equipment, and shaking dumbbells.
Participant # 6	No. There is nothing in this apartment complex.
Participant # 7	Yes.
Participant # 8	No.
Participant # 9	No.
Participant # 10	No.
Participant # 11	No.
Participant # 12	Yes. We have a tennis court and a pool.
Participant # 13	No, none in this complex.
Participant # 14	No, we don't have any in this apartment complex.
Participant # 15	No, not here.
Participant # 16	No.
Participant # 17	Yes.
Participant # 18	Yes, I have some equipment at home.
Participant # 19	Yes.
Participant # 20	No.
Participant # 21	No.
Participant # 22	No.
Participant # 23	Yes.
Participant # 24	I have a Gym close by.
Participant # 25	No.
Participant # 26	No.
Participant # 27	Yes I have a few equipments in my house, but not the subdivision.
Participant # 28	Yes I do have jump rope and resistance band.
Participant # 29	No.
Participant # 30	Yes. There is a gym in my neighborhood.

Table 9

Regularity/frequency of seeing provider for routine or as needed check-up

Participants	Regularity/frequency of having routine/needed check-up
Participant # 1	At least once a month
Participant # 2	Annually.
Participant # 3	Annually.
Participant # 4	Annually.
Participant # 5	As when needed; probably annually. My last was in September 2014.
Participant # 6	I don't have any doctor appointments. I don't have any doctor now.
Participant # 7	Annually or when needed.
Participant # 8	I see my provider annually and for blood work.
Participant # 9	Annually. I have a hip replacement.
Participant # 10	I have not done that in 2 years.
Participant # 11	I do that every 2 to 3 months.
Participant # 12	Annually.
Participant # 13	A lot, twice a month.
Participant # 14	Once a month.
Participant # 15	Once a year.
Participant # 16	I do annually.
Participant # 17	2 times a year.
Participant # 18	Twice a year.
Participant # 19	Every 3 months.
Participant # 20	Every 2 months.
Participant # 21	Twice a year.
Participant # 22	Once a year.
Participant # 23	Once a year.
Participant # 24	Annually.
Participant # 25	Twice annually.
Participant # 26	Annually or when needed.
Participant # 27	I do annually.
Participant # 28	Hmm, I don't. My last checkup was about 2 years ago.
Participant # 29	Annually.
Participant # 30	I do annually.

Thematic Category 14: *Last time participants checked their cholesterol*

The underlying theme in Category 13 has a direct relation with that of 14.

Category 14 sought to find out from the participants the last time they had cholesterol check or if they knew their cholesterol results. This is recorded on table 10.

Table 10

Last time participants checked their cholesterol

Participants	Last time participants checked their cholesterol results
Participant # 1	January 2015.
Participant # 2	About 6 months ago.
Participant # 3	I don't remember.
Participant # 4	October 2014.
Participant # 5	Last year. My last was in September 2014.
Participant # 6	About 3 years ago.
Participant # 7	Last year.
Participant # 8	About a week and a half to 2 weeks ago.
Participant # 9	Last year.
Participant # 10	That was 2 years ago.
Participant # 11	2 months ago.
Participant # 12	Hmm, about 2 years ago.
Participant # 13	Two months ago.
Participant # 14	3 months ago.
Participant # 15	I had one 2 years ago.
Participant # 16	About 3 weeks ago.
Participant # 17	Not yet.
Participant # 18	Er… that was January 2015.
Participant # 19	3 weeks ago.
Participant # 20	2 months ago.
Participant # 21	Never. I have not had one.
Participant # 22	Last year.
Participant # 23	2 years ago.
Participant # 24	Last year.
Participant # 25	Never.
Participant # 26	Last year. I take it whenever I go for my physical.
Participant # 27	Within the last 3 months.
Participant # 28	A year ago.
Participant # 29	My last check was last year…in June 2014.
Participant # 30	About a week ago for my annual physicals.

As noted on Table 10, four participants (13.3%) responded to indicate that they have not had any cholesterol check or did not remember when they had one. These are Participants 3, 17, 21, and 25. They responded in this manner respectively: "I don't remember." "Not yet." "Never. I have not had one yet," and "never." The other 86.7% had a fair idea of when they did their last cholesterol check. Participant 1 indicated that she had just done one in January 2015. Participant 2 also noted having done her last one about six months ago. The latest cholesterol checks were recorded by participants 8 and 30, who acknowledged that they had done theirs "about a week and a half to 2 weeks ago," and "about a week ago for my annual physicals." The maximum interval of cholesterol checks was noted by Participant 6 who said her last check was "about 3 years ago." Table 10 represents all the responses made by the 30 participants on this theme.

Thematic Category 15: *Information from participants' provider on being overweight or obese*

Thematic Category 15 focused on asking participants if their providers mentioned to them about their being overweight or obese. Responses to this question showed that 11 of the 30 participants (36.7%) indicated that they have not been told of being overweight or obese. These were participants 1, 2, 4, 11, 15, 16, 17, 21, 26, 28, 29. However, the other 19 participants (63.3%) mentioned that they have been informed by their providers of either being overweight or obese. Participant 3 indicated that based on the BMI value, his provider informed him that he was overweight and obese. In regards to being told of being overweight or obese, Participant 5 responded that her provider alerted her to lose 10 pounds. Participant 8 also indicated that he was told three years ago. Participant 12

mentioned that she had been told of being overweight. Participant 23 and 25 indicated they had been told of being overweight, while Participant 30 responded that, "yes a little overweight."

Table 11

Participants' notification of being overweight or obese

Participants	Notified by Provider about being overweight or obese
Participant # 1	No.
Participant # 2	No.
Participant # 3	Yes based on my BMI.
Participant # 4	No.
Participant # 5	Yes. I was told to lose 10 pounds.
Participant # 6	Yes.
Participant # 7	Yes.
Participant # 8	Yes, about 3 years ago.
Participant # 9	Yes.
Participant # 10	Yes.
Participant # 11	No.
Participant # 12	I was told of overweight.
Participant # 13	Yes.
Participant # 14	Yes.
Participant # 15	No.
Participant # 16	No.
Participant # 17	No.
Participant # 18	Yes I have been told that.
Participant # 19	Yes, overweight.
Participant # 20	Yes, obese.
Participant # 21	No.
Participant # 22	Yes.
Participant # 23	Yes overweight.
Participant # 24	Yes.
Participant # 25	That I am overweight.
Participant # 26	No.
Participant # 27	Yes.
Participant # 28	No.
Participant # 29	No.
Participant # 30	Yes a little overweight.

The respective responses by participants on Thematic Category 15 are shown on Table 11. Table 11 depicts responses on notification from participants' providers whether they are obese or overweight.

Summary of Notable Results/Findings

Responses given by all 30 participants interviewed have some variances or similarities on the themes of the guiding interview questions. The first few themes focused on questions that fed into answering the first research question. The remaining themes contributed to answering the second research question of this study.

The responses indicated that the lowest income earned by any family ranged from less than $10,000 to the family who earned the highest between $180,000 and $190,000. The ages of the participants span from 23, the youngest through 70, the oldest. There were 17 females and 13 males.

The reasons why some participants were not making enough income; with some participants making less than $10,000 (participants 10, 11, 13, and 14) are due to various reasons. Some were cited as not having a good paying job or only receiving subsidies or Welfare checks from the U.S. government. The lowest education attained by the participants was recorded as grade nine. Most of the participants with low education were also noted in particular zip codes such as those interviewed from 27704. The highest education recorded was a doctorate as well as few in medical school. As far as being satisfied with the income each family earned, a third of participants indicated that they were satisfied or okay with how much they earned. The remaining fraction expressed that

they were not content with what they earn, and as such would like to upgrade their lives to earn more.

Enrolment in any academic program is an investment that could eventually help participants to earn more income by obtaining better employment or engaging in lucrative business. Asked if these participants are enrolled in some academic program, 19 responded that they were not enrolled in any program. However, 11 indicated that they were enrolled in some kind of program that will ultimately improve their working life to lead them to earning more income.

The popular or most common foods consumed by participants showed a variety of sources. A few indicated they did eat a lot of junk food, mostly unhealthy foods purchased from FFR. Most of the responses alluded to the fact that healthy foods were being consumed in other homes. Most of the participants indicated the desire to eat a lot of vegetables.

The preference of eating in FFR was one of the thematic category that had responses skewed to one side. Of the 30 participants, only one indicated that she prefers eating in a FFR because she just hates to clean up after cooking. The remaining participants responded without reservation that they preferred cooking at home. However, of those who preferred cooking their own meals, Participants 2, 9, 28, quipped that every now and then, they preferred eating out at FFRs.

The preference of eating quite often at a FFR may be influenced by how close participants live near a FFR. 5 of the 30 participants (16.7%) responded that they did not

live near a FFR. 83.3% of the participants confirmed that they lived near a FFR. Some mentioned they lived just a walking distance away.

As far as dependence of food consumed on the income earned, 11of the participants noted that what they purchased for consumption did not depend on how much they earned. For instance Participant 1 indicated that her spending was not influenced by her income, but rather it depended on her budget. Participant 29 noted that it did not matter because "... I will eat the same way regardless." However, 19 participants (63.3%) agreed that the income they earned played a role on how they shopped for food or what they consumed. For instance Participant 6 mentioned that "Yes, it does because it determines what we can afford and what we cannot."

In regards to number of servings of salads per day, almost all participants responded that salad was an important aspect of their meals. Participant 17 indicated that his family consumed about seven to eight servings of salad each day. The least consumption of salads and vegetables was once a week as mentioned by Participants 11 and 21.

When asked whether they felt overweight or obese, 10 participants (33.3%) responded that they did not feel overweight or obese. Contrary, the other 20 participants (66.7%) indicated that they either felt overweight or obese. For example, Participant 3 indicated that going by the BMI scale, he was overweight.

The availability of equipment and other resources such as walking trails can have great effect on how individuals or families exercise. This is also related to how long they exercise in each session. Three participants (10, 13, and 28) indicated that they were not

involved in any form of exercise. The 27 other participants mentioned they were involved in some form of exercise. With regards to availability of presence of some equipment or resources to exercise, 16 participants (53.3%) responded that they did not have any equipment in their neighborhood that enabled them to engage in any form of physical activity. However, 14 participants (46.7%) responded that they have some form of equipment that enabled them to engage in some form of physical activity.

The regularity of visiting clinicians or providers for routine checkup or as needed treatment is a good way for patients to have their cholesterol levels and other health parameters known to avert any impending health issues. With the exception of Participant 6, all other participants had some form of regular or routine doctor visits. On the issue of when they had their last cholesterol checks, three participants (10%) notably Participants 3, 27, and 21mentioned that they have not had any cholesterol checks or do not remember. Contrary, the remaining 90% had some idea of when they last had the levels checked.

Being notified by a provider that one is overweight or obese based on objective or quite often subjective information could go a long way to help individuals stay healthy. When asked about whether they have been cautioned by their providers about being more than the recommended BMI as indication of obesity, was met with several results. 11 of the 30 participants (36.7%) indicated that they have not been told of being overweight or obese. On the other hand, 19 participants responded that they have been informed by their providers about being overweight or obese.

Summary

The purpose of this qualitative study was to find relationship between family income and obesity. The approval of the study by Walden IRB enabled me recruit 30 participants for this phenomenological study. This chapter outlined the participants' profile and the data collection method. All participants were interviewed after signing the consent form and copies were given to them to keep.

I performed my data analysis using the NVivo 10 software. I identified the various themes based on nodes and classification, which were made feasible with the use of the NVivo software. Figure 4 depicts summary of NVivo's themes on obesity.

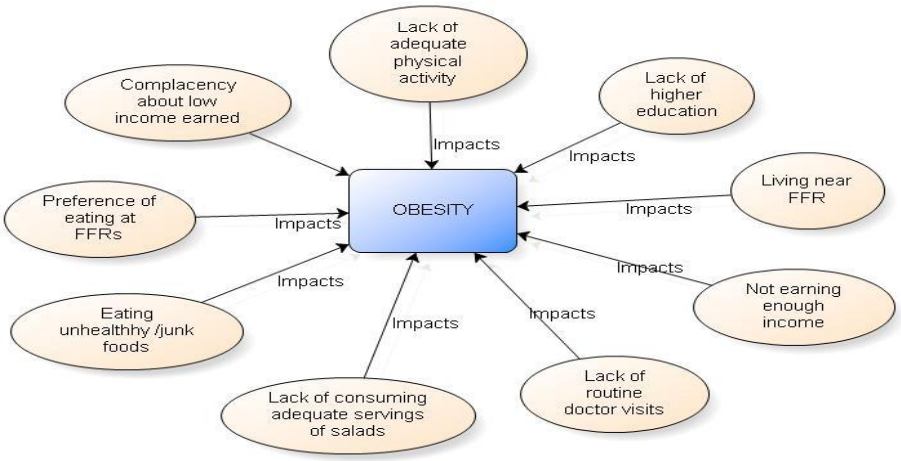

Figure 4. NVivo's thematic diagram of factors contributing to obesity

The chapter also outlined the demographic features of the participants by using participant numbers that prevented disclosure of their identity. The chapter identified the income participants' family earn, what they eat, where they live, how often they exercise, and how all these might be related to obesity. The results of the various themes were

analyzed and this will progress into Chapter 5 for discussion of the findings and results recorded in Chapter 4.

The research questions for this study were: (1) what are the key factors that contribute to low family income among African Americans in Durham, NC and (2) how do these key factors contribute to obesity among African Americans in Durham, NC? The themes analyzed in Chapter 4 showed that Thematic Categories 1 through 4 answered Research Question 1. Thematic Categories 5 through 15 also fit into answering Research Question 2 (as discussed in Summary of Notable Results/Findings). Chapter 5 will address how the themes identified relate to the health belief model. In addition, Chapter 5 will discuss the interpretation of results, implication for social change, provide recommendations for future studies, and conclusion.

Chapter 5: Discussion, Recommendations, and Conclusions

Introduction

The purpose of this research was to provide qualitative insight into the relationship that might exist between income earned by African American families in Durham, NC and how this contributes to obesity. A number of quantitative studies have been conducted to assess obesity as an independent variable, but few delve into the life experiences of individuals and families in the context of income. Although some qualitative studies have been done with respect to obesity and other factors (Mendez et al., 2004), a focus on Durham, NC appeared to lack detailed qualitative studies. Therefore, this study sought to study the factors that lead to low income earned by African Americans and how these in turn lead to obesity among the chosen target population.

A study on the changes in family income status and the development of overweight and obesity from 2 to 15-year olds has provided evidence that remaining in low-income and moving into low-income increases risk for adolescent overweight and obesity (Demment, Haas, & Olson, 2014). The relationship between childhood and adolescent obesity has been expressed by Schneider (2011), who indicated that children and adolescents who are overweight or obese could likely become overweight or obese adults. These findings show that the income earned by families has great effect and impact in contributing to obesity. This has caused many a political aspirants and some government officials to request an increase in the minimum hourly wage. It is the relationship between family income and obesity that this study sought to achieve.

The target population for this study was African Americans living in three separate zip codes characterized by different levels of income earned by the families. Thirty participants were interviewed over a 2-month period. The responses gathered from the interviews have been represented in tables and described in Chapter 4. The results indicated that the income earned by families of varied income has an effect on where they can afford to live, what they can afford to eat, and how often they can engage in any physical activity, all of which could potentially lead to obesity. Chapter 5 discusses the interpretation of the results recorded in the preceding chapter; how the themes identified relate to the theoretical model, HBM; implications for social change; recommendations for future studies; and the conclusions.

This study employed a phenomenological approach to understand the lived experiences of the participants. This method was chosen for this qualitative research because of its ability to give participants the opportunity to relate their first-hand lived experiences. The methodology was aligned to the HBM in ways that could help participants, and African Americans in general, find ways to achieve more with little income earned.

The findings from the interviews indicated that the annual family income earned by participants varies across the three different zip codes. Those within the same zip code had annual incomes that had small differences between them, while the difference between different zip codes representing different levels (low, middle, and higher) had disparities. The difference in income levels also contributed to where participants in each income level chose to live, and this also had a reflection on how they were affected by

obesity. Whereas some participants' income affected their household spending and, for that matter, what food they could eat often, a few were not bothered or influenced by how much they earned because they wanted to eat what they desired to eat irrespective of their earning. The themes identified from the responses to the interviews showed some factors that contributed to low family income among the participants and how these factors contributed to obesity.

Interpretations

The intent of this study was to determine if a relationship might exist between family income earned and obesity. The research problem, the purpose of the study, the significance, and literature review were discussed in previous chapters. This study found that a lack of education was one of the factors that led to low family income. This has an effect on which zip codes participants chose to live, the kind of food they ate, the availability of or the means to engage in physical exercise, and how this ultimately affected their health status as far as obesity is concerned. The employment status and locations of where participants lived were of significant consideration in interpreting the findings of this study.

Lack of Earning Enough Family Income

The study showed that family income from most of the participants living in the apartments in zip code 27704 was very low. A few of them were not gainfully employed and only lived on government subsidy or support. Most of them earned less than $10,000 a year (Participants 10, 11, 13, and 14). The only housing they could afford was the area tagged as the "projects." This contributed to the type of food they ate most of the time

and the inability to engage in the recommended physical activity. This was also reflected in their BMI results being more than the normal and leaning on the obese side. According to literature, the median household income for Durham, the city governing the target population was $46,972 as of 2006 - 2010 and has grown by 14.12% since 2000 (NC-BRFSS, 2008).

The State Center for Health Statistics and Office of Minority Health and Health Disparities (2010) noted that the percentage of African Americans families in NC who live below the federal poverty level ($21,834 annual income for a family of four) in 2008 was 21.3%, compared to 6.7% for Caucasians. These findings from previous studies agree with the findings in my study about the low income earned by some African Americans. Most of the participants that earned a higher family income lived in better neighborhoods, in the 27713 and 27703 zip codes. Their educational level was high and they did understand the relevance of living a holistic life that incorporates a better lifestyle for better health. The highest income gleaned from this study was in the range of $180,000-190,000 (Participant 5). The ability to earn higher income and the ability to engage in adequate physical activity contributed to the noted BMI. This is consistent with some literature that stated that those who make a higher income have reduced obesity (Berkman & Kawachi, 2000). It must be pointed out that a few participants (7, 19, and 24) lived in very good neighborhoods with very good family income, but had a seemingly high BMI. This could be attributed to certain factors, such as genetic predisposition and other factors beyond the scope of this study. It is also of interest to know that increasing family income without substantial difference to change the environment or residential

location did not improve or narrow the disparity. Other factors that should be considered are contextual, biological, environmental, and socio-economic factors (Gordon-Larsen et al., 2003). Interestingly, increased family income helps to control some of these factors and could lead to decreased obesity (Gordon-Larsen et al., 2003).

Highest Grade of Education Attained

The highest level of educational attainment was provided by participants as a factor that contributed to low income among African Americans. Few participants had reached the doctoral level, while others barely completed the sixth grade. The findings indicated that having a lower education played a role in what type of employment the participants were engaged in. This also affected the type of living conditions they could afford. Participants living in low income zones were noted to have the lowest income. There were no equipment to use for physical activity in such neighborhoods and quite a large portion of the participants in this group had a high BMI. On the average, participants with higher education had higher income and were found living in good neighborhoods, and most of them had access to means or equipment needed to engage in physical activities. The BMI values for educated participants were on the average lower than those with lower educational status. The lack of attaining a higher education was a factor to earning low income, and this gave support to my first research question as one of the key factors that contribute to low family income.

Satisfaction About Income Earned by Family

Earning a low income and not desiring to strive for better opportunities to make more could be regarded as complacency. This theme was of importance because a

participant's lack of striving to better his or her life or just being complacent with a low income could be a reason for earning low income or not making enough to change his/her status quo. This study had some responses that led to findings that helped to answer this question.

The findings from this study portrayed that 10 of the 30 (33.3%) participants responded that they were okay with the income their family makes a year. Participants 1, 2, 3, 4, 5, 19, 24, 25, 29, and 30 alluded to this fact. The rest of the participants responded that they were not happy with how much their family earned a year. Although Participants 1, 3, and 25 mentioned that they were happy with how much they earned, they did also state that they would want to make more money. Over 65% of participants were not satisfied with how much they earn a year and would want to make more. This in essence could increase their earning potential and provide a better lifestyle. This also indicated that a lack of passion to advance oneself in life, and being complacent with a low income could contribute to an eventual lifestyle that could contribute to obesity. This theme is one of the factors that helped to answer Research Question 1.

Current Enrollment in Any Academic Program

The fourth Thematic Category focused on whether the participants were enrolled in any academic program that had the potential of ultimately giving them better opportunities for earning more income sooner or later. The academic program under consideration for this category was whether participants are undergoing any vocational training or any academic curricula that had the potential of increasing income for the

participants' family upon graduation. The responses provided by participants played a critical role in answering whether participants were enrolled in any academic programs.

The responses from the participants indicated that 19 of 30 (63.3%) said, "no," indicating that they were not enrolled in any academic or vocational programs. These were Participants 1, 3, 4, 5, 6, 7, 8, 11, 12, 13, 18, 19, 20, 21, 23, 24, 26, 29, and 30. 11 of the participants (36.7%) said, "yes," implying they were enrolled in some academic program. This is characterized by Participants 2, 9, 10, 14, 15, 16, 17, 22, 25, 27, and 28. A few of the participants were enrolled in programs that had the potential of earning more income, such as medical school, nursing school, and masters in other health care professions. Going by the predictive pattern of low educational level that offers low paying jobs and also low status quo (Berkman & Kawachi, 2000), this theme posed a problem that could lead to obesity, and therefore, helped to answer Research Question 1. The other themes that ran through the responses by the participants are geared towards answering the second research question of this study.

Popular Foods Consumed at Home

The types of food mostly consumed by a family could be a result of how much the family earns. The popular foods reported by all participants were similar in category such as flavored water, broccoli, rice, fried potatoes, and steak. For instance, Participant 1 mentioned that most of the food she consumed was "salad, chicken, salmon, baked fish, potatoes, rice, bananas, and cereal." Observing Participant 1's weight (119 pounds) and height (60 inches) and that she was making an annual income of $70,000- 80,000, it can

be deduced that what she eats has not led her to be obese. Although she mentioned that her spending is based on her budget, she watches what she consumes on daily basis.

Participant 2 indicated that her family consumed chicken, rice, sandwiches, and salad. Participant 3 mentioned that "rice, pounded yam, beans, fried potatoes, fish, beef, chicken, and bread" were the most popular foods that his family ate quite often. Participant 4 noted that most of the food they ate were chicken, pizza, and pasta. Participant 15 indicated that "I am on diet now. We eat junk and unhealthy food and some baked fish." Analysis of the foods consumed by participants show that most of them were carbohydrates and high calorie intake foods. With income being a factor in the choice of food purchased and consumed, participants living in zip codes and who earned low income focused more on quantity than quality. This finding agreed with Berkman and Kawachi (2000), who emphasized that the income people earn can have a direct effect on their lifestyle and how they eat.

The theme of the most popular foods consumed by participants is one of the key factors that answers Research Question 2. The key factors that contribute to low family income (Research Question 1) ultimately have a contributing effect on obesity among the target population. In effect, Research Question 1 had a contributing effect on Research Question 2.

Preference of Eating in Fast Food Restaurants (FFR) or Choosing to Cook at Home

The sixth thematic category that I focused on was to find out if the participants preferred eating at fast food restaurants or chose to cook meals at home. This is an important factor because eating in fast foods instead of cooking homemade meals is a

contributing factor to obesity (Schneider, 2011). Of the 30 participants interviewed, only 1(3.3%) indicated that she preferred eating at the FFR because she hates to clean after cooking (Participant 18). The rest of the participants (96.7%) responded that they preferred cooking at home than eating at FFR joints. Participants 2, 9, and 28 noted that although they preferred cooking at home, they often patronized FFR (as illustrated in Table 4).

By observing the body language and responses of the participants, those who lived in the zip codes of 27704 and 27713 referred to fast foods such as McDonald's and Burger King. Living close to such restaurants where a meal may not cost so much, but is unhealthy in nature are mostly consumed by people of low income status. Participants who live in zip codes known to be a richer neighborhood hardly have the aforementioned restaurants around them. Interestingly enough, because these participants can afford to pay higher, they do patronize other seemingly expensive restaurants and end up consuming food that may be healthy or unhealthy for them. As noted by Sobal and Stunkard (2007), some studies have also reported that those who make higher income have higher rates of obesity. Asked about the preference of cooking at home or consuming fast foods, most of the participants preferred cooking at home. However, there is still the likelihood of patronizing fast foods, which in some cases may be more than in moderation and therefore an obesity contributing factor.

Dependence of Choice of Food on Income

There was a diverse response from all participants when it came to the question whether the food they chose to shop for and consume depended on how much income

they make annually. Eleven participants (36.7%) responded in the negative implying that how much they earn did not directly affect what foods they shopped for or ate. These were Participants 1, 2, 3, 7, 8, 19, 20, 22 23, 27, and 29. Some of the responses given were:

Participant 1 stated, "No. My spending is based on my budget." Participants 2, 3, 7, 8, 19, 20, 22, and 23 only mentioned "no" without much explanation. Participant 27 noted that his family's choice of food did not depend on the income they earn. According to him, it was because whether he makes more money or not, his family will still like African food or the food we love to eat. He emphasized that "I do believe that income has effect on lifestyle or what people buy because those who make less struggle and end up overeating due to stress." He added that some work two jobs to make ends meet or meet the cost of living. "This ends in buying and eating junk food and no time to exercise too. I think more money and more time lead to better lifestyle," he noted. Participant 29 also mentioned that it did not matter to her because she will shop the same way regardless of her income.

Contrary to the preceding comments, 19 participants (63.3%) answered "Yes" indicating that the income they earn has effect on how they shop for food. These are represented by Participants 4, 5, 6, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 21, 24, 25, 26, 28, and 30. Some of the responses are:

Participant 6 mentioned that, "Yes, it does because it determines what we can afford and what we cannot." Participant 10 indicated that, "Yes. Our income or how much we get determines what we can afford." Participant 11 responded in this manner:

"Yes it is, because we ultimately can afford only what we have. Our budget is fixed." Participant 14 responded that, "Yes very much so." She believes that how much people make affect or can contribute to obesity." Participant 15 also affirmed these responses by saying that, "Yes it does. The more I can make the better choices I can make." Participants 16, 17, and 18 all agreed in a similar vein by indicating that the two were related because how much a family earns determines how they shop for the foods they consume. Participant 21 responded that, "Yes. The more one makes, the better the lifestyle." Participant 26 elaborated further by saying that:

> Yes. If you make more, you eat better. You are limited by the income you make. Most affordable things are not healthy. What is healthy is expensive. If I can't afford it, I will only eat Burger King. When you have the means, you eat to satisfy and nourish your body. Many people eat quantity and not quality."

Participant 28 also had this to say:

> Yes it does. We are on a budget, so we can only afford what our income allows. It is necessary to eat better if you can afford it. Sometimes I go to the groceries and there is something I wish to buy, but I ask myself if I can afford it. So income affects what you buy and can play a role in obesity.

Participant 30's response summed up all the "yes" responses on the theme by concluding that, "Yes because you can buy more fruits and vegetables if you make more money." The responses of the participants who indicated that income affected how their family shopped and consumed food outweighed those who indicated that their choice of food was not depended on how much thy earn. The ratio was 63.3%:36.7%. It suggests that the

income a family makes has an influence on what types of food they "are forced" to buy due to lack of the available funds. This is supported by Berkman and Kawachi (2000), who reported that the income people earn can have a direct effect on their lifetime and how they eat. Therefore this factor helped to answer the second research question.

Number of Servings of Salads Per Day

Acheampong and Halderman (2012) studied obesity in relation to nutritional knowledge, attitudes, and beliefs associated with obesity among low-income Hispanic and African American women caretakers. The most common barrier found from their study was that consuming a healthy diet was the cost of healthy foods. The cost of foods has driven many a family to sacrifice quality for quantity. The issue of serving salads as part of the daily chores is not consistent among families. This was noted while gathering responses from my participants in terms of the number of servings of salad each family consumes on daily or weekly basis. This is an important factor because research has shown that consuming meals greater in proportion of carbohydrates without vegetables or salads is one of the contributing factors to obesity.

When asked about how many servings of salads participants consume per day, almost all the participants mentioned that their family made serving of salads part of their daily meal. This is an area of limitation where it is possible for participants to exaggerate on their responses. The least consumption was once a week as mentioned by Participants 11 and 21. The most consumed by any family among the participants was seven or eight a day as indicated by Participant 17. Participant 1 indicated having one serving of salad a day. Participant 2 indicated two to three times a day while Participant 3 observed that,

"Apple, banana, and this is like once in a while." With regards to this guiding question, Participant 5 also noted that, "Mostly apples, banana, papaya, baby spring, and organic baby lettuce."

Responses provided on the dependence of what choice of food to purchase on income earned does not correlate with the responses provided by most of the participants who responded that salads and vegetables were a significant aspect of their meals. With Participant 30 mentioning that the more one makes, the more he or she can afford to buy vegetables and salads, it stands to reason that not many people actually consume as much vegetables and salads as they claim to do. This confirms what Schneider (2011) observed, by saying that salads play a nutritional role in curbing obesity. Schneider noted that the intake of fruits and vegetables were hardly patronized by people of lower income, especially African Americans. Schneider emphasized that in spite of a growing body of literature that has revealed the benefits of diets high in fruits and vegetables, it has been noted that most African Americans eat lesser than the recommended amount of such foods.

Although Schneider (2011) has affirmed that eating well and in right constituents is controlled by income, this study did not isolate what literature says because almost all the obese among the participants claim they consume salads and vegetables. It might be assumed that people who feel obese or conscious of their condition are now taking a better approach of eating well, which includes having salads and vegetables as part of their meals. Therefore if one feels obese or he or she has been notified by a provider/physician to do something about their situation that can prompt a strategy to

improve lifestyle by eating the recommended amount of food and including vegetables that are likely to be helpful.

Number of Times Exercised in a Week

The number of times as well as the duration of engaging in physical activities has been noted to help eliminate or control obesity. The Framingham study (Schneider, 2011) reported that the likelihood of dying from cardiovascular disease was highest for those who exercised the least or less physically active. Schneider indicated that those who are engaged in vigorous activities spanning three or more hours per week are less likely to die early. Schneider further mentioned that a major cause of obesity is unhealthy eating habits in combination with lack of adequate physical activity (p. 267). The advice Schneider offered was that the most effective way of losing weight or staying healthy is to combine dieting and physical activity.

From Table 6, three (10%) participants; 10, 13, and 28 responded that they did not engage in any physical activity. The rest (90%) responded that they were involved in some physical activity. This varies from performances such as once a week through seven days a week (every day) as noted by Participants 2, 19, and 29.

Table 7 represents the length of time participants engaged in any form of physical activity. This includes activities such as walking, jogging, swimming, biking, and other activities that participants thought would keep them fit. Participants 10 and 13, who responded to not engaging in any physical activity, did not have any duration of activity to report. The demographics of these two participants are indicators of obesity. For instance, both of them live in the 27704 zip code (which covers the area where this target

population of an apartment community is located) that has families making very low income. Participant 10 has a BMI of 31; she makes an annual income of less than $10,000, and weighs 198 pounds. Participant 13 has a BMI of 63, makes an annual income of less than $10,000 annually, and weighs 332 pounds. The rest of the participants reported some duration of some activity close to the national recommendation of performing physical activity of at least 30 minutes in any session per day.

These observations agree with previous studies that those who make less income tend to live in areas that are deprived of amenities that promote healthy living such as gymnasia, walking trails, swimming pools, and other provisions that enhance physical activities. Because some participants were not engaged in any physical activity or performing below the recommended duration, it can be deduced that lack of physical activity or not meeting the recommended duration of routine exercise is a contributing factor to obesity.

Availability of Equipment or Ability to Exercise

Lack of engaging in physical activity can be traced to factors such as the unavailability of equipment to be used or lack of attitude to exercise. Lack of physical activity is known to contribute to chronic diseases including obesity (Schneider, 2011). The presence or availability of equipment to exercise or the ability to exercise in certain forms has a direct effect on the health of individuals. For instance the recommendation and endorsement in the U.S surgeon general's report concerning physical activity and health showed that a minimum standard of 150 kilocalories of energy per day of light to a

moderate activity is encouraged (Schneider, 2011). The report indicated that this can be achieved by walking briskly for about 30 minutes or by running about 10 minutes every mile for 15 minutes, or by performing other activities that lead to burning of calories (Schneider, 2011).

Using the availability of equipment or ability to exercise in some form as a theme and a factor of obesity, Table 8 showed that 16 participants (53.3%) responded that they did not have any equipment in their neighborhood that enabled them to engage in any form of physical activity. However, 14 participants (46.7%) responded that they have some form of equipment that enabled them to engage in some form of physical activity. Therefore those who had a means to engage in any physical activity were less than those had none. The responses of the 14 participants who indicated they had some form of equipment for engaging in physical activities are hereafter discussed.

Participant 1 indicated that she has some form of equipment in her house that she exercises with. Participant 3 noted that he has a treadmill and dumbbells. Participants 4 also mentioned that she has a treadmill. Participant 5 responded she has a treadmill and abdominal exercise equipment, and shaking dumbbells." Participant 12 responded thus, "Yes. We have a tennis court and a pool." Participant 24 noted that, "I have a Gym close by." Participant 27 also had this to say: "Yes I have a few equipments in my house, but not the subdivision." Participant 28 stated that, "Yes I do have jump rope and resistance band," while Participant 30 indicated that, "Yes. There is a gym in my neighborhood."

Ironically, residents of the 27704 zip code had no form of equipment to exercise. They had no trails for walking and were not motivated to engage in much walking

exercise except a few. Their income level also supposedly did not allow them to register at commercial gymnasia to go work out. It implies that communities that had residences with affluent people or very pricy communities made certain amenities available to encourage engaging in some form of physical activity. Therefore the availability of exercising equipment or some form of walking trails, and swimming pools are factors that motivate physical activity. The lack thereof of the aforementioned could be contributing factors for obesity.

Regularity/Frequency of Seeing Provider for Routine or as Needed Check-Up

The ability to see one's health care provider on routine basis as noted in Thematic Category 13 was critical to this study because it is a parameter to measure how often participants go for medical check-up and for that matter whether they knew what was going on in their bodies. Prevention plays a very significant way of avoiding some diseases (Aschengrau, 2009). Thus the ability of a person to know his or her laboratory results can go a long way to help adopt some measures that ensure a healthy life style.

Participants were asked to respond to the frequency or otherwise of visiting their providers, having routine check-up to include testing for their cholesterol levels, and therefore knowing what to do to control the effects of unhealthy results. The results showed that almost all participants, except Participant 6 had some form of regular visits to their providers. As indicated on Table 9, Participant 9 stated that, "I don't have any doctor appointments. I don't have any doctor now." She implied that she does not go for any routine check-up. Unlike Participant 6, the rest of the participants have a somewhat regular or routine check-up with their providers. It can also be noted that a few of the

participants have a monthly schedule of appointments. For instance, participants 1 and 14 have monthly visits with their providers. Participant 5 indicated that she saw her provider as and needed; probably annually. Her last visit was in September 2014. Quite a number of the participants have a yearly schedule of visits to their providers. Participants 2, 3, 4, 7, 8, 12, 15, 16, 22, 23, 24, 26, 27, 29, and 30 all mentioned having a yearly schedule.

The responses to this question shows that having a regular visit to one's physician or having regular check-ups such as cholesterol, weight, and glucose levels are very vital for preventing chronic disease. Most of the participants mentioned this theme as an important factor. My observations as far as relating family income and where participants reside are that living on low income has a debilitating effect on the type of healthcare received. Most of the low income earners live on government subsidy as well as healthcare system, where it is likely that the quality of healthcare is less compared to those who make more money and can easily choose their healthcare providers. It can be deduced that regularity of seeing one's health provider is a critical element that helps to diagnose eminent diseases early at the onset and also help to prevent subsequent ones. Lack of this initiative is a factor that may contribute to obesity.

Last Time Participants Checked Their Cholesterol

The ability to check one's cholesterol level and deciding to tailor meals consumed to it is a healthy lifestyle that can help to reduce obesity among many an African American. This is because the ability to visit one's provider on a regular basis would help to have a yearly cholesterol check, which could help in detecting any abnormalities of results. According to Remington et al. (2010), multiple longitudinal studies have

demonstrated elevated cholesterol in serum is a major risk factor that causes atherosclerosis and coronary heart disease (p. 363). The participants were asked the last time each had gone for a cholesterol check. Some could easily mention without guessing, while others scratched their hairs to remember when that happened.

Table 10 shows that four participants (13.3%) responded to indicate that they have not had any cholesterol check or did not remember when they had one. These are Participants 3, 17, 21, and 25. They responded in this manner respectively: "I don't remember." "Not yet." "Never. I have not had one yet," and "never." The other 86.7% had a fair idea of when they did their last cholesterol check. Participant 1 indicated that she had just done one in January 2015. Participant 2 also noted having done her last one about 6 months ago. The latest cholesterol checks were recorded by Participants 8 and 30, who acknowledged that they had done theirs "about a week and a half to 2 weeks ago," and "about a week ago for my annual physicals" respectively. The maximum interval of cholesterol checks was noted by Participant 6 who said her last check was "about 3 years ago."

The responses of participants who seem to be regular on checking their cholesterol levels (86.7%) was more than those who had no idea when they did it or have not had one in years. It stands to reason that most of the participants regarded the cholesterol check-up an important factor in planning what they need to eat in terms of affordability. It is an assumption that though some of the participants know their cholesterol levels as being high yet, have no way of controlling it due to the fact that they might not have the ability to consume healthy food as a result of low income. It could

also be that irrespective of the income some participants make, for instance, Participant 27 indicated the same food or choice of food would be consumed because that is what his family enjoys eating. The issue then becomes one of attitude and lifestyle, much of which could be explained by the HBM. Therefore knowing your cholesterol level is a factor that could help to make informed decisions about cutting down on some fatty foods or engaging more in physical activities that promote good health.

Information from Participants' Provider on Being Overweight or Obese

The final theme for consideration in this study was to find out if the participants had been notified by their healthcare providers whether they were "normal," overweight or obese. According to CDC (2013), BMI has a direct relationship with obesity in that the higher the BMI, the most likely an individual could be categorized as obese. The BMI ranges also categorize individuals in being obese or overweight. The BMI categories have been defined by CDC (2013) as underweight (< 18.5), normal weight (18.5-24.9), overweight (25-29.9), and obesity (30 or greater). It is a fact that not being aware of one's health status could have some negative impact on an individual. Because this study focused on income and obesity, the main focus for analysis was solely on the data on obesity.

Thematic Category 15 focused on asking participants if their health providers had ever discussed or mentioned to them about their being overweight or obese. The responses to this question showed that 11 of the 30 participants (36.7%) indicated that they have not been told of being overweight or obese. These were Participants 1, 2, 4, 11, 15, 16, 17, 21, 26, 28, and 29. However, the other 19 participants (63.3%) mentioned that

they have been informed by their providers of either being overweight or obese. Participant 3 indicated that based on the BMI value, his provider had informed him that he was overweight and obese. Participant 5 also responded that her provider had alerted her to lose 10 pounds. Participant 8 also indicated that he was told three years ago. Participant 12 mentioned that she had been told of being overweight. Participant 23 and 25 indicated they had been told of being overweight, while Participant 30 responded that, "yes a little overweight." The responses affirmed that regular "doctor" visits have the tendency of alerting patients any inherent medical problems or issues that need elective or immediate attention (Schneider, 2011). From these responses, a physicians' intervention or advice could go a long way to help patients manage their lifestyle. From this statement, it holds water to say that participants who know their obese status might be reliably informed by their providers to initiate the process of adopting strategies that would help them curb their health situation. To have 36.7% indicate that they have not been informed by their providers about being overweight or obese could mean that they are in the normal weight range, they do not have regular check-ups, or their providers have not had a counseling session with them.

The perceptions that an individual have about his/herself or from others concerning obesity could be a factor that drives him/her to desire a change for better healthy living. This agrees with the statement by Remington et al. (2010) that obesity affects how a person feels about himself or herself, and more so, how others perceive them and this can ultimately lead to low self-esteem in association with obesity. Therefore being notified by a health provider that one is obese is the beginning of the

process of "healing." Those who never visit their providers to be informed stand the chance of missing out on important information that alerts patients of any inherent medical problems or issues that need elective or immediate attention (Schneider, 2011). It could be implied that a physicians' intervention or advice could go a long way to help patients manage their lifestyle. Lack of this provider-to-patient communication pathway is one of the reasons that could spur obesity if one is prone to it.

Comparison of Research Findings to Literature Review

The findings from this studied were weighed and compared with literature reviewed in Chapter 2. Some of the findings confirmed that inability to eat healthy foods has been attributed to factors such as lifestyle, attitudes, and low family income (Schneider, 2011). Some responses from participants indicated that due to low income the families make, they did not have too much choice and could only afford cheaper foods which were not healthy. This is also confirmed by literature as reported by Acheampong and Halderman (2012), who mentioned that the most common barrier found among low income earners was the fact that consuming a healthy diet was the cost of healthy foods.

As far as the relationship between income and obesity is concerned, the CDC (2013) among others, published literature stating that among non-Hispanic African American and Mexican-American men, those who make higher incomes have a higher likelihood in becoming more obese than those who make low income. Findings from my study showed that both a few of the participants who live the zip code known to be more affluent exhibited such results. This is because some of the participants who live in the 27703 zip codes (high income families) showed results of obesity. For instance

Participants 23 and 24 live in this zip code. They make family incomes of $110,000 and over $120,000 respectively. They also have a BMI of 38 and 34 respectively. This agreed with the CDC (2013)'s report. However, it could be inferred that those who make lower family incomes showed increased obesity, and this was consistent with Berkman and Kawachi's (2000) statement that African Americans who make lower income are subject to higher obesity rates.

In terms of lack of physical activity, which contributes to obesity, Wiley (2013) indicated that the absence or lack of physical activity due to reduced physical education in schools to almost doing nothing but rather sitting in front of computers and other electronic gadgets all day have led to decrease in the number of calories people extend currently, which in effect have increased rates of obesity. In the light of the study by Wiley, my study found that participants living in low income areas did not have adequate means to resources such as gymnasium, swimming pool, and safe walking trails that promote engaging in the recommended physical activity. Wang and Beydoun (2007) also indicated that health study had shown that low income, lower-SES and minority population groups African Americans had less access to facilities that provided physical activities, "which in turn was associated with decreased physical activity and increased overweight" (p. 24). Therefore, my study confirms results obtained from literature. Moreover, Smith and Flowers (2009) showed that African Americans and Hispanics' households possess less wealth at almost every income level. According to Smith and Flowers, on the average, African Americans earn 27 cents to a dollar of wealth compared to that of a middle-aged Caucasians household. Even in the category of incomes for

households that have income at the top quintile, African Americans are noted to have 56% less the net worth, while Hispanics households' was 67% less net worth than white households (Smith & Flowers, 2009).

In terms of attainment of higher education or the lack thereof in affecting obesity, Wang and Beydoun (2007) noted that within the past 30 years, the United States has experienced a considerable rise in the prevalence of obesity, which has contributed to a public health crisis. According to Wang and Beydoun, there has been an increasing body of evidence that has reported tremendous disparities among population groups and the on-going changes that are associated with patterns that include the epidemic of obesity in the United States. They indicated that overall, the less educated persons (those who had less than high school education) had a prevalence of obesity that was higher than their counterparts, except African American women. African American women with less than high school education were reported to have lowest prevalence of obesity as compared to those who had seemingly higher educational attainments (Wang & Beydoun, 2007). This information from literature confirms my findings because most of the participants in the low income group lack higher education- most did not get any higher than the 12th grade.

In their descriptive study on nutrition, knowledge, attitudes, beliefs, and self-efficacy among low-income African Americans and Hispanic women, Acheampong and Halderman (2013) found that low income, low SES plays a significant role among minorities and immigrants. Low SES was noted to correlate to poor health, which could possibly lead to cardiovascular diseases and other obesity-related illnesses among African Americans and Hispanics (Acheampong & Halderman, 2013). This report agrees with my

findings in that the participants with the highest BMI were from the zip code with lowest family income. Participants 9 and 13 recorded the highest BMI of 47 and 63 respectively.

In terms of the consumption of fruits and vegetables, Schneider (2011) emphasized that the intake of fruits and vegetables was hardly patronized by people of lower income, especially African Americans. In spite of a growing body of literature that has revealed the benefits of diets high in fruits and vegetables, it has been noted that most African Americans eat lesser than the recommended amount of such foods. Most of the participants interviewed indicated that eating fruits and vegetables was part of their eating habits. Participants 17 indicated that his family consumed about seven to eight servings a day. This this finding did not confirm literature as noted by Schneider (2011).

As far as consumption of fast foods and the distances lived in proximity to FFR, Reitzel et al. (2013) reported that FFR density in the distances of half a mile, one mile, and two miles was positively associated with increased BMI among subjects who had lower incomes ($p \leq 0.025$) and their results supported the fact that African Americans living in that proximity with lower income had their BMI affected. Twenty-five participants indicated that they lived in close proximity to FFR. One participant, who lived in the low income zip code, remarked that she lived only a few minutes' walk from a FFR. It is a possibility that living near a FFR may influence or increase obesity among the consumers.

Theoretical Considerations

As provided in Chapter 2, the theoretical model that was chosen for this study was the HBM. This was chosen because of its ability to explain various health behaviors

(Mckenzie, Neiger, & Thackeray, 2009). The HBM is recorded as one of the most frequently used theory in the application of health behaviors. It is a value-expectancy theory that was developed during the 1950s by psychologists in attempt to explain the reason why people would use or not use available health services (Mckenzie et al., 2009).

According to Mckenzie et al. (2009), the HBM stands on three pillars of hypotheses, which are:

1. The existence of sufficient motivation (health concern) to make health issues salient or relevant;
2. The belief that one is susceptible (vulnerable) to a serious health problem or to the sequelae of that illness or condition. This is often termed perceived threat, and:
3. The belief that following a particular health recommendation would be beneficial in reducing the perceived threat and at a subjectively acceptable cost (p.171).

With reference to the HBM, Schneider (2011) also mentioned that it is a model that helps to explain how people's behavior is affected by their own beliefs. Schneider pointed out that for individuals to change their behavior towards something there must be a belief in personal threat. This means the individual must be susceptible to some condition or threat, which is low income and obesity. Schneider also implied that for people to overcome a behavior, they should have a belief in response efficacy, meaning that there is something they can do to alleviate or eliminate the source of threat. Reflecting on this research and the responses recorded, participants and for that matter

African Americans must be aware that embarking on certain life changes such as attaining a higher education, obtaining a better job, making more income, eating the right balanced diet and engaging in the recommended amount of physical activity would help to curb or eliminate obesity.

By linking the concepts provided by Mckenzie et al. (2009) and that of Schneider (2011), this research identified behavioral sources in response to the research questions that underline this study. In my study, I found that some African Americans have low academic attainment. Some do not have a high school diploma. Although they can earn more money, circumstances and excuses might have limited them in obtaining better jobs due to low education. It was also found that some are complacent with what they earn and have no motivation to seek better opportunities although several abound in this country. Responses to other questions used as guide showed that some of the participants feel threatened or vulnerable to the situation they face such that their health status could lead to a severe chronic disease. However, there is the belief that following a particular health recommendation would be beneficial in reducing the perceived threat and at a subjectively acceptable cost that they can handle. Thus the key factors that contribute to low family income among African Americans in Durham, NC (target population), and how the low income contributes to obesity were explained by the HBM. The HBM helped to explain the threat posed to the target population, how the target population might be threatened by this, and the efficacy or solution they could adopt and display to counteract this situation.

Health Belief Model and Obesity

Ozden (2011) wrote that the HBM is considered one of the oldest social cognition models (Ozden, 2011). Ozden postulated that one of the astute goals of the HBM is to predict if individuals will choose to be engaged in an action that will serve to reduce their perceived threat in order to reduce the chances of long term effect or death. The HBM has been known to address how health is affected by beliefs, and how decision processes lead to behavioral changes (Ozden, 2011). For instance if a participant feels overweight or obese, that feeling jeopardize him/her to have inferiority complex and shun away from other people. The individual could conclude that there is nothing that could salvage his/her condition. That complex could either make the individual decide to stay in that state or might be motivated to find strategies to overcome this belief. This may include adopting a regime of physical activities, eating right, and visiting a healthcare provider for help.

Ozden (2011) mentioned that there are two main types of beliefs that influence people towards taking preventive actions. These are: (a) Beliefs that are related to people's readiness to take action, and (b) beliefs that are related to modifying factors that either facilitate or inhibit an individual's action (p. 533). Beliefs such as "African Americans always make low income, do not obtain good employment, destined to make low income, do not live in good neighborhoods, or they cannot lose weight" (Ozden, 2011, p. 533) could be overcome by the right attitude and practically acting to change one's lifestyle. This is consistent with Ozden's study that showed the development of a scale based on the HBM, which provided a positive valid and reliable evaluation of obese

people's beliefs and attitudes as far as obesity was concerned. It therefore stands to reason that when it comes to obesity, an individual's beliefs and attitude play a major role.

In support of Ozden's (2011) study, Daddario (2007) also noted that the HBM is one of the appropriate models that helps individuals with beliefs and behavior change. She intimated that obesity is one of America's most serious epidemics. She mentioned that behavior change models, such as HBM are very important for prevention of weight gain and ultimately a goal for living healthier lives. The themes analyzed from this study indicate that the HBM expatiates and seeks to address the effects of the beliefs that focus on health and decisions made by people that eventually lead to behavioral changes. This can be extrapolated to the decisions that individuals or families make on how their eating habits, lifestyle, and the income they make can ultimately affect how obese they become.

Relationship to the Proposed Study

The results obtained from this study agree with reviewed literature that obesity poses a major threat to public health (Daddario, 2007). Obesity and being overweight, which were once considered as only a problem among countries with high income, are now higher among low-and middle-income countries, especially those in the urban areas (Ozden, 2011). The fact that obesity is a precursor to diabetes and cardiovascular disease makes the disease a national issue. The effects of the obesity among African Americans are quite an alarming one (Daddario, 2007).

The aim of using the HBM is that knowledge will bring the needed change (Schiavo, 2007) so that the target population will be empowered with knowledge of

attaining higher levels of education, which would ensure better employment, obtaining higher income, changing their eating habits, and ultimately decreasing the prevalence of obesity. These are rooted in Wilson et al.'s (2008) study that proved that the ability and readiness of consumers to take action about their life's situation are governed by factors such as knowledge of perceived susceptibility threat, perceived benefit of the strategies needed to improve their situation or to promote their health, and any cues that eventually motivate them to take action.

Limitation of the Study

This study was limited to 30 African Americans who were recruited from three zip codes in Durham, NC. The minimum age for qualification to participate in the study was 18 years. Therefore the results obtained cannot be generalized to all African Americans in the United States or to other races. The study was also limited to a qualitative type of design and phenomenology was the approach used to complete this study. A face-to-face approach of interviewing the participants was used to obtain responses of their lived experiences. The integrity of the responses could only be measured by the honesty of the participants. No assumptions were taken into consideration as far as the responses provided by the participants. The validity of responses and data collected were all based on the code of ethics and honesty. With the size of the participants used, the study was limited by such number and it is likely responses from other people not interviewed could have led to different results. Because the participants responded to some questions relying on memory, recollection bias to

providing accurate family income earned annually and other demographics might have occurred.

Recommendations

My recommendations based on the findings from my study come in the form of a clarion call to action. Based on the income that most African Americans make, it is recommended policy makers will consider raising the national minimum wage across the board. This has been a debate that has come up before Congress, but effective measures are yet to be implemented.

It is also my recommendation that healthcare practitioners, health educators, public officers, researchers, and those involved in providing quality healthcare to the populace should consider using the interpretation and findings of this study to craft better programs that would benefit the target population and the nation as a whole. The findings from my study showed that families that earn low income often cannot afford to live in neighborhoods or localities that have adequate amenities that encourage physical activities such as gymnasia, safe walking trails, swimming pools, and other resources that promote healthy lifestyle. Such neighborhoods are often built without consideration for recreational amenities and provision for equipment and walking trails for residents to use. It is therefore a recommendation that future building codes should include provision of areas designed for residents to use for physical activities. Future research could also expand on whether the presence of amenities and resources available in any locality enhances physical activities that help to reduce obesity among African Americans.

The findings from my study also showed that majority of participants are not enrolled in any academic program. Some have only high school diploma, while others lack that. Thus the creation of vocational courses and programs that can enhance the skills of these group of people will go a long way to change their lifestyle by enabling them earn more income upon graduation. The notion that African Americans do not attain higher education or do not obtain employment should be erased from the minds of African Americans.

It is also my recommendation that African Americans would desist from consuming too much fast foods. The fact that one lives near a FFR does not imply eating from there every day. It is mostly rooted in discipline and an attitude to do right. Literature reviewed on this study reveal that increasing the serving sizes of salads can be helpful and healthy for the body. It is recommended that healthcare providers will help their patients make this a daily habit. Healthcare providers should also stress the need for African Americans to be engaged in the recommended amount of physical exercise. Walking for three minutes as one participant mentioned is not enough to uproot obesity. The ability to see family healthcare provider is also a habit that African Americans must do more. This has the ability to detect any signs of a possible "threat" before they become unmanageable. It is recommended that any unusual body weight, changes in the body from unforeseen causes must be reported to a healthcare provider immediately. It is also recommended that African Americans act on any counseling or advice given by their healthcare providers, especially as pertains to obesity. When people learn to take care of little problems, the bigger ones will take care of themselves. The scope of this study was

limited to three zip codes. Future researchers can expand the target population and find out how other zip codes play a role in determining the outcome. Future researchers may also embark on studying the disparity between Caucasians and African Americans living in the same selected zip codes.

Implication of Social Change

The goal of social change is to produce a transformation that leads to a positive outcome or change in lifestyle. This can be in the form of individual, family, community, or the nation as a whole. The social change implication of my study is that the findings will lead to a positive social change among African Americans and all ethnicities as a whole. The core of this social change is that participants, whose responses led to these findings, would be able to apply the principles and the theoretical model to make their lives better. It is envisaged that African Americans who are prone to making low income because of low education would be motivated to seek educational opportunities that will enable them obtain good paying jobs. Because good and higher education has been known to foster good paying jobs, African Americans who pursue this goal will ultimately be making enough money to live in places with better amenities that includes recreational activities and a means to be actively involved in physical activities. The presence of exercising equipment will be a motivating factor for families to exercise frequently and for longer duration.

Social change is also geared at arming African Americans with knowledge that would remind them about the need to eat healthy food that entails a preference to eating home-cooked meals rather than the food from fast food restaurants. This knowledge will

also transcend African Americans horizon of knowing that although choice of what to shop for and consume depends on family income, skillful decisions can made to the effect that salads and vegetables can be cheaper than other unhealthy foods if shopped correctly.

The social change arising from this study is that policy makers would be mindful of the fact that since the minimum wage is detrimental to the survival of families in that bracket, some negotiations can be reached to increase such minimum wage to help families live better. It is envisaged that health providers would make it a matter of concern and urgency to educate their patients about the need to regularly partake in medical check-ups and physical examinations. These regular events have the ability to detect early signs of obesity that lead to chronic diseases. For instance, yearly check-ups would enable laboratorians and physicians know when a patient's cholesterol result begins to rise, or when increased body weights become a problem.

The findings from this study have shown that obesity is affected by the income families make. Some previous studies have proven that people who make higher income have greater propensity of having higher obesity rates, whereas other studies have also demonstrated that those who make lower income, for example African American have higher obesity rates. My study found a consistency with previous studies indicating that African Americans make low income and that contributes to their higher obesity rates. Therefore the use of the HBM can benefit families by their knowledge of the possible threat that might stand before them and the strategy they have to adopt to defeat such a

threat. With knowledge producing good attitudes, the target population will be empowered to make changes to their lifestyle.

Conclusion

Obesity is a chronic disease that is caused by a number of factors such as diet, genetics, physical inactivity, and poor dietary habits. This qualitative research focused on how income affects obesity among a target population in the African American community in Durham, NC. The sample size for this study was 30. The gap in literature that prompted this study stemmed from two important previous research findings. The CDC (2011) reported that those who make higher income have higher rates of obesity. Berkman and Kawachi (2000) did mention that African Americans earn very low income and thus subject to higher rates of obesity. Other studies of concern to obesity included the study by Wang and Beydoun (2007) ,who found that obesity prevalence in the low SES group among Caucasian men decreased during 1988-1994 and 1999-2002, while within the same time frame, the prevalence of obesity showed a considerable higher rate increase among low SES African American men in comparison with other SES groups.

The theoretical framework for this study was the health belief model and phenomenology as the methodology that helped to capture the lived experiences of the participants. The responses from the participants were coded and analyzed as themes, which became the pillars that helped to answer the two research questions of this study. The findings from this study agreed with majority of previous studies that indicate that African American families make low income and this affects them disproportionately as far as where to live, what to eat, and the kind of job opportunities opened to them. This

study found that some African Americans live only on government subsidies such as housing and welfare checks for subsistence living. Most of the areas they live do not boast of equipment for engaging in physical activities or safe walking trails. These have contributed to an ethnic population that is overweight or experiencing obesity. The study also revealed how the BMI values might be related to the participants' annual income and the zip codes in which they live. The results were also a reflection of how the income earned and the zip codes these participants live contribute to obesity and subsequently their health.

Some of the recommendations that if acted upon could bring a positive social change include policy and law makers advocating for an increase in the national minimum income wage to help African Americans make a better living. Healthcare providers could intensify their counseling to their affected patients of overweight or obesity to engage in rigorous health consciousness that involves eating the right balanced diet, exercise more based on national recommendation, and for individuals and families to strive to increase their academic attainment by enrolling in other academic programs that would give them vocational and skills to earn better employment opportunities.

This study was limited to 30 participants in one city of a state and so findings are but a mirror image of what might exist on larger scale, but not entirely representative of the entire country. However, the application of the recommendations could be applied throughout the United States to bring about a positive social change. This means that the study can be extrapolated beyond the target population by future researchers.

Obesity has been a public health problem and certainly an epidemic worldwide (Chan & Woo, 2010). There is a plethora of studies that have shown that obesity and overweight are major causes of co-morbidities such as type II diabetes, cardiovascular diseases, various cancers, and other health related problems that have led to morbidity and mortality (Chan and Woo, 2010). The WHO (2009) reported that there would be over 700 million obese people worldwide in 2015. This comes with a relative health care cost. Therefore a positive social change recommended through the findings of my research will save individuals, families, and the government huge amounts of healthcare cost. A positive social change in the lives of African Americans would enable them to take good care of themselves in the form of engaging in the recommended amount of physical activity. As African Americans get empowered through educational attainments and obtaining better paying jobs, they would be in a position to create better living conditions for themselves. Therefore a positive social change will challenge African Americans to increase their efforts in engaging in regular physical activity, make informed decisions on consumption of high dietary intake of fiber instead of high intake of energy-dense foods, and endeavor to live in homes and school environments that promote healthy choices of food for the entire family.

There have been numerous epidemiological studies that have demonstrated the relationship between obesity and the range of chronic diseases associated. Using a public health approach to create population-based strategies for the prevention of excessive overweight and obesity would go a long way to save lives that are lost through obesity related diseases. These strategies should target changes in personal lifestyles,

environmental, and socioeconomic factors. A strategic implementation of these policies will help in producing a positive social change among African Americans, and the nation as a whole. Prevention and measures of reducing overweight and obesity seem to depend to a large extent on the lifestyle of individuals and the changes that could be made. Thus future research should focus on motivational factors that lead to encouraging and empowering individuals to work towards behavioral changes.

The social change implication for public health epidemiology associated with behavioral and policy changes would among many include a dramatic reduction of overweight and obesity rates, decreased health care cost. Moreover, chronic diseases caused by obesity would be reduced or controlled, individuals who are subject to low self-esteem due to obesity would regain their confidence and live fulfilling lives, and the millions of dollars spent on obesity related diseases could be appropriated for other beneficial ventures.

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Appendix A: Sample Letter to Participant

Date:

Dear (Participant),

My name is Charles Boison. I am a doctoral student at Walden University, and currently involved in a dissertation research addressing the relationship between family income and obesity among African Americans. This study is being performed as a partial fulfillment of the requirements for my Ph.D. degree in Public Health at Walden University under the supervision of Dr. Raymond Panas.

Your assistance in contributing to this study will provide useful information on this topic. I am seeking individuals who are 18 years of age or above and of African American descent. If you agree to participate, you will be involved in one (1) interview to answer questions on the topic and a follow-up to review your responses, each of which will take approximately 30 minutes. You will also be asked to complete a background questionnaire on some demographics such as height, weight, age, and annual family income.

I have included my contact phone number in this letter. I would welcome any phone call from you to discuss any questions that may be of concern to you or needs clarification in this study. You may also reach me via email at XXXXXXXXXX.

Sincerely,

Charles Boison

Doctoral Candidate

Walden University

XXXXXXXXX

Appendix B: Format of Interview

Date: _____

Place: _____

Interviewer: _____

Interviewee: _____

1. Are you 18 years and older?
2. What is your age?
3. What is your gender?
4. What is your height and weight?
5. What is your zip code?
6. How many people are in this household?
7. Are you married or single?
8. Are you currently employed?
9. How many people in your household earn income?
10. What is the range of your family income, example, <10,000; 10,000-20,000
11. Do you rent or own your home?
12. What foods do you eat most of the time?
13. Do you live near a Fast Food Restaurant (FFR)?
14. Do you prefer eating in a FFR than cooking your own meal?
15. Is your choice of food and how you shop for food related to the amount of money you earn?

16. How many servings of salad or fresh produce do you eat a day?
17. Are you satisfied with the income you make annually?
18. If not, what are the reasons why you do not make as much as you would like?
19. What is your highest grade of school education?
20. Are you currently attending some academic program to better your life or income?
21. Do you feel overweight or obese?
22. How many times a week do you exercise?
23. How long do you exercise in one session?
24. What forms of exercise do you engage in?
25. Do you have any form of equipment or resources for exercising in your residential area?
26. How often do you visit your doctor for checkup?
27. When was the last time you had a cholesterol check?
28. What was your last cholesterol result?
39. Has your doctor ever told you that you have high cholesterol?
30. Has your doctor ever mentioned to you that you are overweight or obese?
31. Has your doctor told you that you have high blood pressure or any chronic disease?

Appendix C: Consent Form

Informed Consent Form to Participate in Research
Relationship between Family Income and Obesity among African Americans
Walden University

You are being invited to participate in a research that seeks to evaluate the relationship between family income and obesity among African Americans in Durham, NC. You are qualified to be a participant in this study because of the fact that you are an African American and you live in the area designated for this study. Please take some time to read this letter and if you have any questions, you may ask before proceeding to act on this invitation to participate in the study. The study is being conducted by Charles Boison, Doctoral Candidate at Walden University.

Background Information:

This study is being conducted to find out whether the income earned by African American families contributes to obesity. Your personal experiences as far as how much income your family earns, where you live, and the resources available to you will be helpful to this study.

Procedures:

If you are willing to participate in this study, you will be involved in one interview and one follow up to review responses in a location that is convenient, private, and safe for you. Interviews will last about 30 minutes for each session. In order not to miss any or misrepresent your responses, the interview may be audio recorded.
Participation in this study is strictly voluntary. You are free to exit the study at any time if you choose not to continue. Although your contribution to this study will greatly lead to a positive social change, you are not obligated to continue should you feel the need to withdraw.

Risks and Benefits of Being in the Study:

This study has the potential of providing a social change in how income and lived experiences may be related to obesity. It is anticipated that there will be minimal or no risks associated with participating in this study. You may seek clarification on any question that is not clear before answering it. Please contact your primary care physician, or you may contact the Durham, NC hotline if you have additional questions or concerns.

Compensation:
No form of coercion is involved in this study. There will be a $5 gift card for your time and willingness to participate in this study.

Confidentiality:

All records pertaining to this study will be locked and kept private. No report in this study will identify participants involved in the study and all information will be kept confidential. All data will be used only for the purpose of this study. Research records will be filed and kept in a securely locked cabinet. Access will be made possible only to the researcher. Data obtained for study will be safely locked and analyzed. It will be kept for minimum of 5 years and thereafter destroyed. Audio recordings will be transcribed for the study and maintained for 5 years after which they will be destroyed. Audio recordings will be destroyed upon completion of dissertation or graduation.

Contacts and Questions:

The research is being conducted by Charles Boison. The researcher's Chairperson or advisor is Dr. Raymond Panas of Walden University. If you have questions later, you may contact Charles Boison at (XXX) XXX XXXX. The Research Participant Advocate at Walden University is Dr. Leilani Endicott. You may contact her at 1-800-925-3368 ext. 3121210 or email at irb@waldenu.edu should you have questions about this study or your participation. Walden University's approval number for this study is 03-09-15-0157453 and it expires March 8, 2016. The researcher will send you a copy of this form.

Statement of Consent:

I have read and understand the above information. All questions have been explained to me. I consent to participate in the study.

Printed Name of Participant

_____

Signature Date

_____ _____

Signature of Investigator Date

_____ _____