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How Parenting Behaviors Influence Weight and Health Status of African American Adolescents

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Abstract

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

There has been an upward trend in obesity among African American (AA) adolescents over the last 2 decades. While parenting characteristics (e.g., styles and practices) are linked to adolescent eating habits and weight status, related research has focused on European American children from 2-parent middle-class households or economically disadvantaged AA children from single mother households. The purpose of this quantitative secondary data analysis was to investigate the relationship between parenting characteristics on the weight status of adolescents aged 12 to 17 years (n = 325) among a broader population of AA mothers and fathers residing both inside and outside of the home. The social cognitive theory, widely used in obesity intervention research, was the framework used to explore parental behaviors that contribute to adolescent weight status and health. The National Longitudinal Survey of Youth 1997 was used to examine the relationship between parenting characteristics on adolescent weight status, as measured by body mass index (BMI) percentile. Statistical analysis included the Kruskal-Wallis Test, Mann-Whitney U, Spearman rho correlation, and hierarchical multiple regression. Results indicated no significant relationships between parenting characteristics and adolescent BMI percentiles as determined by Kruskal-Wallis and multiple regression analysis when controlled for sociodemographic variables. Study findings indicate that variables beyond parenting practices, such as urban/rural residence, must be considered to explain BMI and weight status among AA adolescents. Largely, this study increased knowledge on AA parenting characteristics and promotes education and social awareness of the continued weight epidemic that plagues AA children in the United States.

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Dedication

This dissertation is dedicated to my parents, Oscar and Dorothy Arnold. It was through their sacrifices, great and small, that made this often daunting, yet worthwhile endeavor possible. It was a great comfort and stress relief to know that I could depend on the selfless support, patience, faith, prayers, guidance, encouragement, and unconditional love of them both during this grueling process. Thank you both and I love you!

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Chapter 1: Introduction to the Study

Introduction

Since the 1980s and 1990s, the prevalence of obesity has tripled among U.S. children and adolescents. Using National Health and Nutrition Examination Survey (NHANES) data from selected years (1988-1994, 2007-2008, 2011-2012), the Centers for Disease Control and Prevention (CDC) estimated that 17% of children and adolescents aged 2 to 19 years are obese. Among this subset, it is reported that 42.5% of African-American girls between 12 and 19 years are considered obese (Ogden & Carroll, 2010; Ogden, Carroll, Kit, & Flegal, 2014), with a body mass index (BMI) in or above the 95th age-and-sex specific percentile (Shah et al., 2011). According to Shah et al. (2011), Type 2 diabetes is a significant public health problem that is growing at rather alarming rates. Type 2 diabetes in children is considered a first consequence of obesity among this population (Shah et al., 2011).

Predominately African American communities have fewer supermarkets and recreational opportunities than do the communities of their European American counterparts. This limits residents of those communities in their access to fresh fruit and vegetables as well as safe areas to perform physical activity (Weiss et al., 2011), which promotes obesogenic behaviors that include overeating and inactivity (Lee, Carter, Owen, & Hall, 2012; Garrard, 2008). Researchers have also shown that African American adolescents are exposed to more food advertisements than their European American counterparts (Bauer, Neumark-Sztainer, Fulkerson, Hannan, & Story, 2011).

Parents play a crucial role in developing a healthy home environment (Lindsay, Sussner, Kim, & Gortmaker, 2006) as well as modeling healthy-behaviors (Birch & Anzman, 2010). Johannsen, Johannsen, and Specker (2006) investigated parent-child interactions during feedings in relation to parental control over their children's food intake. Study participants included (n = 211) parents and their children (n = 148). A significant association was found between fathers' feeding practices and daughters' weight status. Daughters with more controlling fathers had a higher percentage of body fat. Fathers found to be more controlling reported having greater concern about their daughters' weight. Furthermore, children whose mothers believed or perceived them to have risky eating behaviors were likely to be overweight (Johannsen et al., 2006). Berge, Wall, Bauer, and Neumark-Sztainer (2010a) discussed differences between mother and father parenting styles having an influence on adolescent weight gain and addressed a need for future research to focus on opposite sex parent/adolescent groups.

This research study represents an opportunity for positive social change by identifying parental involvement and influence within the African American community on adolescent weight status (as measured by BMI percentile). In this chapter, I provide background on obesity in African American adolescents and related parenting characteristics to support the problem statement and purpose of the study, list the research questions and hypotheses, discuss the theoretical framework and the nature of the study, define relevant terms, and discuss the assumptions, scope, delimitations, limitations, and the significance of the study.

Background

Adolescence is a transitional period from childhood to adulthood and is also the period when behavioral patterns are established (CDC, 2011). Healthy behaviors such as regular physical activity and good dietary habits are developed during childhood and adolescence and are shaped by family behaviors (Gruber & Haldeman, 2009). Overweight and obesity in adolescents are major health concerns in the United States, affecting an estimated 12.5 million children and teens (CDC, 2011). In particular, obesity among children and adolescents is epidemic in the United States with life-threatening consequences and unlike other health problems occurring in youth. Similar to obesity in adults, which is strongly associated with diabetes, hypertension, high cholesterol, stroke, and various cancers, obese youth are just as likely to experience these health risk associated with excessive weight (CDC, 2012). Freedman et al. (2007) reported that 70% of obese youth had a minimum of one risk factor present for cardiovascular disease, while 39% had at least two or more present. Moreover, obesity is an obvious and very difficult to treat health issue with long term psychological and physical effects. It is the most common nutritional disturbance of children and one of the most troubling present-day health problems at all ages.

Obesity in adolescence has been related to high cholesterol, high blood pressure, disorders of the respiratory system, orthopedic disorders, gallstones, some types of adult-onset cancer, and an increase in Type 2 diabetes mellitus (CDC, 2012). Miller (2011) noted that being obese as a child and as an adolescent is also a significant risk factor for adult obesity and a serious health condition. Ebbeling, Pawlak, and Ludwig (2002)

examined the association between adult obesity with increased mortality and morbidity from a variety of complications, both physical and psychological. The authors found that psychological complications of adolescent obesity, such as teasing and even rejection by family and friends, can be destructive (Ebbeling et al, 2002). Other researchers, such as Gunnarsdottir, Njardvik, Olafsdottir, Craighead, and Bjarnason (2012), found a relation between teasing and psychological disturbance higher in obese children. The authors suggested that public health knowledge should encompass psychosocial problems facing children and their families, such as weight-based victimization (Gunnarsdottir et al., 2012).

As stated earlier, according to the CDC (2012), childhood obesity has tripled in the United States over the last 30 years. Forty percent of all youth in the African American population are considered overweight, with the highest prevalence among African American adolescent girls 12 to 19 years. Obesity during childhood and adolescence is often an indicator of obesity problems in adulthood, which are characteristically more dangerous (CDC, 2012). In the United States, adult obesity is responsible for an estimated 112,000 deaths per year (Courtemanche & Carden, 2011; Flegal, Graubard, Williamson, & Gail, 2005).

Parents are the primary gatekeepers and role models of their children's food intake and dietary habits. Parental obesity is predictive of an early increase in a young child's BMI, and it more than doubles the chance that a young child will become an obese adult (Whitney & Rolfes, 2002). In addition, the incidence of obese children born to obese parents is significantly higher than the incidence of obese children born to

parents of normal weight (American Public Health Association, 2012). Researchers at Mississippi State University concluded that parents and children form similar dietary habits, and this helps explain the parent and child-obesity relationship (McBride, Collins, Bell, Quinn, & Worthy, 2008). Again, health behaviors and dietary habits formed in childhood are likely to carryover to adulthood (McBride et al., 2008).

Parents also play a fundamental role in their children's development of socialization skills (Baker, Fenning, & Crnic, 2011). Each culture has its own socially standardized food behaviors, which dictates what is or is not edible, how foods are prepared, the role of certain foods in the diet, how foods are eaten, health beliefs related to foods, and traditional food choices (Kahlor, Mackert, Junker, & Tyler, 2011). For example, soul food describes the traditional food choices of older African Americans. Traditional soul food tends to be higher in fat, cholesterol, and sodium. It is a mixture of cooking techniques that infuse both African and southern United States customs developed during slavery (Yang, Buys, Judd, Gower, & Locher, 2012). Sealy (2010) investigated culture, socioeconomic status (SES), and weight status among minority parents and children. Sealy found that African American parents influenced their children's eating behaviors by the types of food they ate during their own childhood, the manner in which they learned to prepare food and continue to do so, and which geographic location they were from. African American parents who were raised in the south were more likely to prepare their foods with high amounts of added sugar, sodium, and fat-based products. Understanding parental attitudes about eating habits and food preparation is essential to addressing obesity in children (Sealy, 2010).

Parenting styles and practices are important to this study, as I examined the ways in which culture beliefs and ethnicity, social class, and gender relate to parenting and weight outcomes among African American adolescents. In a seminal work, Baumrind (1966) identified three parenting styles (authoritative, authoritarian, and permissive). A fourth parenting style referred to as uninvolved or neglectful was later contributed by Maccoby and Martin (1993). Parenting styles can change the nature of the interactions between parents and their children (Baumrind, 1966). Researchers have suggested that parents who use an authoritative parenting style have more warm and supportive interactions with their children using a balanced degree of strictness and control, producing more positive outcomes in these children (Berge et al., 2010a). Parents using an authoritarian parenting style have a higher degree of strictness and control when interacting with their children, while using a lesser degree of warm and supportive interactions with their children, thus producing poorer overall outcomes (Berge, Wall, Loth, & Neumark-Sztainer, 2010b; Polfuss & Frenn, 2012b). Parents using a permissive parenting style have a higher degree of warmth and supportive interactions with their children using more leniency and less control. Parents using an uninvolved parenting style have less nurturing interactions with their children, while using a lesser degree of control (Hennessy, Hughes, Goldberg, Hyatt, & Economos, 2010; Pellerin, 2005).

This study is unique because to date, most studies on this topic have been ethnically limited and have focused on social development and academic achievement among preschool, school-aged, and preadolescent children from middle-class two-parent European American households. Very few researchers have examined African American

parenting characteristics in relation to weight health outcomes in adolescents. Of interest to my study is the African American home, physical and sociocultural environments, and residential (biological or stepparent) and nonresidential (biological) African American parents' weight status, health knowledge, and beliefs on opposite sex and association to adolescent health outcomes related to obesity. In this study, I investigated the relationship between parenting styles and parenting practices on the weight status (as measured by BMI percentile) of adolescent children, aged 12 to 17 years among a broader population of African American mothers and fathers residing both inside and outside of the home.

The impact of culture beliefs, perceptions, and ethnicity in this population and how these factors influence parenting dynamics in this population relative to child health and well-being is discussed. With this research, I hope to gain a better understanding of how group patterns of shared understanding among African Americans contribute to the increasing and alarming rates of overweight, obesity, and chronic illnesses among this population (Caprio et al., 2008). This study will fill an important gap in knowledge by examining a relationship between parenting characteristics of both African American mothers and fathers and their adolescent's dietary habits and weight status. The results of this study will be useful for understanding cultural and gender contexts of parenting characteristics among African American parents and recognizing unstable influences to lower rates of obesity within this population.

Problem Statement

The prevalence of obesity is significantly higher among minority children compared to other groups (CDC, 2011). Forty-two percent of African American children

between the ages of 6 and 19 years are overweight or obese compared to 33.2% of all children in the United States (National Institutes of Health, 2012). Prior research has linked parenting characteristics (e.g., parenting practices and styles) to adolescent eating habits and weight status (Berge et al., 2010a; Marshall, Golley, & Hendrie, 2011), but require further study. Bauer et al. (2011) claimed, "In particular understanding parents' perceptions and beliefs are essential for the successful development and implementation of family based obesity prevention interventions that aim to modify parental behavior and the home environment" (p. 2).

While parenting characteristics (styles and practices) have been studied within many frameworks, much of the childhood obesity research in relation to parenting style has focused predominately on European children from two-parent middle-class households or economically disadvantaged African American children from single mother households (Baumrind, 1972; Bluestone & Tamis-LeMonda, 1999; Darling & Steinberg, 1993; Domenech, Donovick, & Crowley, 2009; Querido et al., 2002). What continues to be missing from the literature is a specific discussion about the differences in parenting styles and practices between African American mothers and fathers (residing both inside and outside of the home), variations among family SES, educational backgrounds, parent-adolescent gender differences, and adolescents' reports on parenting styles in relation to weight status (as measured by BMI percentile; Berge et al., 2010a).

Purpose of the Study

The purpose of this quantitative study was to investigate the relationship between parenting styles and parenting practices of African American mothers and fathers

residing both inside and outside of the home on the weight status (as measured by BMI percentile) of their adolescent children, aged 12 to 17 years, through a secondary analysis of the National Longitudinal Survey of Youth 1997, a nationally representative dataset that was publicly available and sponsored by the Bureau of Labor Statistics. In this study, I considered the roles of both the physical and sociocultural environments as well as social and economic factors as potential causes or areas of influence on weight status contributing to obesity. The study results are useful in understanding the cultural and gender context of parenting behaviors among African American parents and identifying changeable factors to lower obesity rates in this population.

Research Questions and Hypotheses

1. Do parents' perceived parenting styles (authoritative, authoritarian, permissive, and uninvolved) influence the BMI percentile of African American adolescents from 12 to 17 years of age?

   $H_0$1: Parents' perceived parenting styles (authoritative, authoritarian, permissive, and uninvolved) do not influence the BMI percentile of African American adolescents from 12 to 17 years of age.

   $H_1$1: Parents' perceived parenting styles (authoritative, authoritarian, permissive, and uninvolved) influence the BMI percentile of African American adolescents from 12 to 17 years of age.

2. Do parents' perceived parenting practices (demandingness and responsiveness) influence the BMI percentile of African American adolescents from 12 to 17 years of age?

$H_0$2: Parents' perceived parenting practices (demandingness and responsiveness) do not influence the BMI percentile of African American adolescents from 12 to 17 years of age.

$H_1$2: Parents' perceived parenting practices (demandingness and responsiveness) influence the BMI percentile of African American adolescents from 12 to 17 years of age.

3. Is the relationship between parenting practices and BMI percentile influenced by sociodemographic variables (family structure, parents' education, parents' BMI, household income, parent and adolescent gender pairs and area of residence--urban/rural)?

   $H_0$3: The relationship between parenting practices and BMI percentile is not influenced by sociodemographic variables (family structure, parents' education, parents' BMI, household income, parent and adolescent gender pairs and area of residence--urban/rural).

   $H_1$3: The relationship between parenting practices and BMI percentile is influenced by sociodemographic variables (family structure, parents' education, parents' BMI, household income, parent and adolescent gender pairs and area of residence--urban/rural).

Theoretical Framework

Theoretical frameworks, epidemiological concepts, and health promotion have played an important role in public health practice, promotion, and disease prevention. With the increasing prevalence of chronic diseases and related cost associated with these chronic conditions, social scientists employ models like the social cognitive theory (SCT) to explain factors that influence health behaviors and assist in determining why a behavior or situation exists. Social scientists have used models like the SCT to guide research on health promotion or health behavior change and identify factors that affect an individual's readiness or motivate to make necessary changes to health behaviors (National Cancer Institute, 2005).

In this study, I used the SCT to look at parental involvement/behaviors that contribute to adolescent weight status (as measured by BMI percentile). Self-efficacy is the central concept of the SCT. Individuals with high self-efficacy are believed to have the ability to maintain behavioral change (Glanz et al., 2002). Bandura (1989) believed that individuals played an active role in their behaviors and the environment, in which they actively learn. This was evident by reciprocal determination, which says the social learning environment is altered by our behaviors and interactions with others (Glanz et al., 2002).

SCT is one of the most frequently used and robust health behavior theories. Because factors influencing adolescent obesity in African American adolescents are multidimensional, SCT provides the best theoretical framework for understanding, predicting, and changing human behaviors at both the individual and group levels

(Knowlden & Sharma, 2012). Based on the SCT model, parenting styles are believed to be the principal apparatuses that shape the outcomes of children's social behavior and problem solving (Domitrovich & Bierman, 2001). The theory emphasizes the importance of observational learning to children's development and explores the continuous reciprocal interactions between the individual's cognition, their environments, and the psychosocial determinants, such as those affecting weight status (as measured by BMI percentile), which again made it the best conceptual approach for this study.

Nature of Study

In this quantitative study, I used a secondary data analysis to investigate parenting styles as an influence on African-American adolescents' weight and health behaviors through the use of archival data from the National Longitudinal Survey Youth 1997 (NLSY97) cohort, questionnaires, and codebooks (Bureau of Labor Statistics [BLS], 2016). The investigation provided a secondary analysis of African American adolescents in the general population and the incidence of overweight and obesity in relation to parenting styles and behaviors with consideration for obesogenic behaviors, such as dietary and exercise habits and presence of chronic health conditions within the physical and sociocultural environments (Birch & Anzman, 2010). Data analysis was conducted using descriptive statistics for all variables and hierarchical multiple regression analyses.

Definitions

Adolescence: In the United States, adolescents range between ages 10 and 24 years. It is considered the transition period from childhood to adulthood and has three

substages: early (10 - 14 years), middle (15 - 19 years), and late (20 - 24 years; Sawyer et al., 2012).

African American: According to the U.S. Office of Management and Budgets, African Americans include all persons with origins from any Black racial group of Africa and Afro-Caribbean (U.S. Census Bureau, 2010).

Authoritarian parenting style: Parents are very controlling, strict disciplinarians and display very little warmth. Authoritarian parents commonly use phrases such as, "because I said." Authoritarian parents do not engage in discussions with their teen, and family rules and standards are not debated. Discipline is valued over independent behavior. Adolescents are expected to accept rules without question. Adolescents raised by authoritarian parents may become rebellious or dependent (Baumrind, 1966).

Authoritative parenting style: Parents are warm but firm. They encourage independence but set limits and maintain control. Authoritative parents are willing to listen and take into account the viewpoint of their teens although ultimately the final decision is theirs to make. Adolescents of authoritative parents have valued opinions, engage in discussions, and as a result show social responsibility, autonomy, and competence (Baumrind, 1966).

Body mass index (BMI): BMI is a number calculated from a person's weight and height. BMI provides a reliable indicator of body fatness for most people and is used to screen for weight categories that may lead to health problems (CDC, 2011).

Body mass index (BMI) percentile: Percentiles are the most commonly used indicator to assess the size and growth patterns of individual children in the United Sates.

It indicates the relative position of the child's BMI number among children of the same sex and age (CDC, 2015a).

Health behaviors: An action taken by a person to maintain, attain, or regain good health and to prevent illness. Health behavior reflects a person's health beliefs. Common health behaviors include regular exercise, eating a balanced diet, and obtaining necessary vaccinations (Teller County Public Health Department, 2013).

Healthy weight: Is defined as a BMI at or above the 5th percentile up to the 85th percentile (CDC, 2011).

Obesity: Is defined as a BMI at or above the 95th percentile for children of the same age and sex (CDC, 2012).

Obesogenic environment: Refers to an environment that promotes behaviors conducive to gaining weight and one that is not favorable to weight loss within the home or workplace environments (Birch & Anzman, 2010).

Overweight: Is defined as a BMI at or above the 85th percentile and lower than the 95th percentile for children of the same age and sex (CDC, 2012).

National Longitudinal Survey of Youth 1997 (NLSY97): The NLSY97 is a representative continuing cohort of individuals living in the United States. This annual survey began in 1997 from the cohort of 12 to 16-year-olds living in the United States in 1997. The initial sample contained 8,984 adolescents composed of a nationally representative cross-section of the population and an oversample of Blacks and Hispanics. Survey participants were asked a sequence of questions on family background, SES, as well as a variety of cognitive and noncognitive ability measures (BLS, 2016).

Parenting practices: Influence a child's specific behavior (e.g., dietary habits, exercise patterns, or sedentary behavior) through modeling, social support, parental control, involvement, and monitoring and limit-setting (De Lepeleere, DeSmet, Verloigne, Cardon, & Bourdeaudhuij, 2013).

Parenting styles: The general pattern of behaviors that a parent uses to raise his or her children (Baumrind, 1966).

Permissive parenting: Parenting styles of permissive parents are opposite of authoritarian parents. Permissive parents are easy-going and consider themselves as resources for their teens instead of rule setters. Adolescents are allowed to make important decisions without parental input. Permissive parents commonly use phrases such as, "sure" and "you don't have to if you don't feel like it." Adolescents of permissive parents have very few boundaries and rules and struggle with self-control and demonstrate egocentric behaviors that interfere with proper development of peer relationships (Baumrind, 1966).

Physical environment: Comprises the built and natural environment (Garrard, 2008; Sallis, 2009). Built environment is described by the National Institute of Health (as cited in University of Nevada Cooperative Extension, 2010) as all buildings and space created or modified by people that form the physical features of a community. It includes a wide variety of items, such as buildings, roads, means of transportation, homes, parks, recreational areas, green spaces, shops, and other business areas. Natural environments include places that allow for physical activity, such as open space, as well as aspects of

nature that could alter physical activity patterns, such as climate, weather, vegetation, and topography (Sallis, 2009).

Reciprocal determinism: Belief that an individual's behavior and his or her social learning environment continually influence one another (Glanz et al., 2002).

Self-efficacy: Perception that as agents of change, individuals are in control of their own destiny and goals (Glanz et al., 2002).

Sociocultural environment: Is defined in Rosenkranz's model of the home food environment as parental diet, parenting practices and rules, and family eating patterns (Rosenkranz, & Dzewaltowski, 2008; Wyse, Campbell, Nathan, & Wolfenden, 2011).

Underweight: Is defined as being below the 5th percentile (CDC, 2015a).

Uninvolved parenting style: Also referred to as *neglectful.* Uninvolved parents exercise minimum to no effort and are seen as unreliable and psychologically unavailable (Pellerin, 2005).

Scope and Delimitation

Scope

In this study, I explored the association between African American parenting styles and practices on the weight status (as measured by BMI percentile) of their adolescents aged 12 to 17 years, as measured by the NLSY97. Using a nationally representative sample, this study population was restricted to adolescents and their parents living in the United States who self-identify as African American and whose BMI was higher than 18.5. I also considered whether the parent-adolescent relationship

differed according to gender, SES, culture, and environment. Data for this study were collected in 1997, which was the first wave of data.

Delimitation

This study involved the use of baseline data collected nearly 2 decades ago from participants beginning at age 12 to age 29 as part of the NLSY97 cohort. As a result, the research inherits the confines of the original and ongoing data collection processes employed at the time data were assembled and for each subsequent follow-up. More specifically, Wave 1 was the only collection year to include the parental questionnaire. The NLSY97 study participants also received a small monetary incentive for their participation, in which case, the incentive could have had an influence on study participation. These were both delimitations identified for this study.

Assumptions and Limitations

Assumptions

This study and analysis was guided by the following assumptions. First, I assumed that sampling was truly representative, as the NLSY97 is a population-based study, in which the results are generalizable to adolescents and various racial and ethnic groups within the United States. Second, and more specific to the research questions, I assumed that differences in parenting styles and practices were a result of the parents' SES, ethnicity, culture, and educational background (Domenech et al., 2009; Ogden et al., 2014). Third, it was assumed that parenting styles and practices varied based on the ethnicity, age, and gender of the adolescent.

Fourth, I assumed that authoritative parenting was more common among families with higher SES (Berge et al., 2010b). Additionally, there were four assumptions made on authoritative parenting specific to the literature and of interest to this study.

1. Authoritative parenting practices that used responsiveness and demandingness were positively related to adolescent eating and weight status (Berge et al., 2010b; Ray, Kalland, Lehto, & Roos, 2013)
2. Parents served as role models for their children; therefore, decreased physical activity and parental obesity would influence physical activity and obesity in their children (Golan & Crow, 2004)
3. The adolescents' home and community environment influenced dietary habits and exercise patterns (Lindsay et al., 2006)
4. Obesity during adolescents would be a significant risk factor for adult obesity (Neef et al., 2013).

Limitations

This research study was limited to the use of archival data from the NLSY97 program, as reported in the first wave of data collected that included information on responding parents. Despite newer waves of NLSY97 data that have been released since, the NLSY-1997 cohort was the first and only wave of the national survey to include the parent questionnaire. Thus, this study is based on the 1997 dataset. Because secondary data are usually collected for a purpose different from its current use, there are inherent limitations. Lacking familiarity with the details and complexity of the data can be a serious disadvantage for the researcher (Frankfort-Nachmias & Nachmias, 2008). If

selectivity is not exercised, the researcher using the secondary data can easily become overwhelmed by the volume of data available (Cheng & Phillips, 2014). It may also be difficult for researchers to determine the quality of some of the data in question, which is why it is important for the researcher to evaluate and verify the source of the data to be used (Cheng & Phillips, 2014; Frankfort-Nachmias & Nachmias, 2008) Although dated, the NLSY97 dataset provided the most comprehensive, nationally representative sample. Availability of variables also presented a limitation to using secondary data, which is information that was collected for a different purpose than for the one it is currently being used (Bevan, Baumgartner, Johnson, & McCathy, 2013). The survey data collected from the NLSY97 study included demographics, parenting styles and practices, family processes, weight, height, health, and dietary behaviors and were based on self-reported data. Consequently, bias and cognitive problems were thought to be a threat to validity (Goldberg, Haydon, Herring, & Halpern, 2014; McDonald et al, 2013; Skinner, Steiner, & Perrin, 2012). For example, Powell (2009) conducted a study using self-reported height and weight data from the first four waves of the NLSY97 (1997- 2000) to investigate fast food prices on adolescent BMI. Although self-reported data is a frequently used measure of individual health status, Powell found that self-reported health data were exaggerated by reporting heterogeneity. The author discussed that failure to control for unobserved heterogeneity was a form of omitted variable bias (Powell, 2009). Powell concluded a statistically significant association of -0.6455 between fast-food prices and adolescent BMI in longitudinal estimates that controlled for individual level fixed effects (FE). He also determined that cross-sectional estimates

compared to longitudinal estimates overestimated the association by approximately 25%. Although less efficient than random effects (RE) estimates, FE estimates were more consistent. While FE estimates were inexact, they provided enough confirmation to identify large bias in RE estimates (Powell, 2009).

Lastly, the research questions used for this study have not been used for previous NLSY97 data analysis. This was both a limitation and benefit and was a basis for this assessment and used as a reference point for future studies. For example, an advantage of reexamining secondary data analysis is that it supports the development of new research questions. A limitation of using secondary data analysis was the need to adjust the newly created research questions to the strengths and weaknesses of the dataset (Smith et al., 2011). The primary goal of this quantitative analysis of data was to investigate the relationship between parenting styles and practices of African American mothers and fathers (residing both inside and outside of the home) on the weight status (as measured by BMI percentile) of their adolescent children, aged 12 to 17 years, thus gaining more. Nevertheless, when generalizing based on study findings, delimitations and limitations must be taken into account.

Significance

Adolescent obesity is socially isolating, expensive, and is linked with the onset of other chronic and diet-related diseases like diabetes, hypertension, stroke, and coronary heart disease (CDC, 2012; Sullivan, 2010). For many children, the transition into young adulthood will be plagued by obesity and become a permanent condition (Miller, 2011). Many factors contribute to the obesity epidemic. Examining parental influences or

characteristics (parenting styles and parenting practices) of African American caregivers' effect on obesity in their children is important to understanding the reasons for the disproportionate level of overweight and obesity among this population (Birch & Anzman; Caprio et al., 2008). There has been an upward trend in obesity among African American adolescents over the last2 decades (CDC, 2012). Research is needed that specifically examines differences in parenting characteristics between African American mothers and fathers, family environment, income, and the parent-adolescent relationship in relation to adolescent dietary habits, BMI percentile, and weight status.

This study builds on previous research efforts to identify parenting characteristics (styles and practices) that influence weight status (as measured by BMI percentile) in children. However, unlike earlier research, this study offers a unique perspective on the existing and growing public health concern of overweight and obesity in African American adolescents. To date, most parenting research has focused primarily on traditional groups such as European American, middle income families, with preschool or school-aged children (Bluestone & Tamis-LeMonda, 1999; Kimiecik & Horn, 2012; Patrick, Hennessy, McSpadden, & Oh, 2013; Spera, 2005). In this study, I investigated a relationship between African American parenting characteristics and adolescents' dietary habits and weight status addressing a gap in the literature and providing the potential for research findings to inform and enhance the literature and to promote future research initiatives in the prevention and treatment of overweight and obesity among this population.

Summary

The research suggests that adolescent obesity has a tendency to continue into adulthood, and successful relationships with diet and exercise begin with a positive sense of self, self-efficacy, cultural identity, gender roles, and family environment, which are all rooted in experiences during childhood and adolescence. Culture plays a major role in the types of food eaten and attitudes about diet and nutrition (Caprio et al., 2008; Kahlor et al., 2011). Food patterns and eating habits are often set during childhood and may be passed from one generation to the next. Parenting styles and practices can also affect a child's eating patterns (Salvo, Frediani, Ziegler, & Cole, 2012). A balanced healthy diet may be related to a person's finances. The lower a person's economic level, the less likely his or her diet will be nutritionally adequate. Low-income areas usually have fewer grocery stores, with fewer healthy selections, and families from lower SES may lack transportation to shop outside their neighborhoods (Salvo et al., 2012). Many African American families today are single mother households. Problems for single mother households include economic difficulties, conflicting demands, and time pressures, which are discussed in further detail in Chapter 2 (Kalinowski et al., 2012). Chapter 2 contains a review of related research concerning parenting characteristics (styles and practices) as an influence on weight status (as measured by BMI percentile) among African American adolescents.

Chapter 2: Literature Review

Introduction

In this literature review, I provide an overview of previous research conducted on the relationship between African American parenting characteristics (parenting styles and parental practices) on adolescent weight status (as measured by BMI percentile). The purpose of this study was to investigate the relationship between parenting styles and parenting practices of African American mothers and fathers residing both inside and outside of the home on the weight status (as measured by BMI percentile) of their adolescent children, aged 12 to 17 years. In this study, I considered social and economic factors as well as the physical and sociocultural environments as potential causes or influences on weight status (as measured by BMI percentile) associated with obesity. The study results are useful in understanding the cultural and gender contexts of parenting behaviors among African American parents and identifying changeable factors to lower obesity rates in this population.

In the United States, adolescent obesity has more than tripled over the past 30 years. One third of children and adolescents were overweight or obese in the year 2010, and obesity increased among adolescents aged 12 to 19 years from 5% in 1980 to 18% in 2010 (CDC, 2012). According to the 2013 Youth Risk Behavior Surveillance report, the prevalence of overweight among African American adolescent females was 22.8%, compared to the national average of 16.6% for all adolescent females (Kann et al., 2014). While the prevalence of obesity was higher overall in males (16.6%) than females (10.8%), the prevalence of obesity was higher among African American females (16.7%)

compared to the national average of (13.7%) for both males and females (Kann et al., 2014).

This chapter includes the relevant literature on African American parenting styles and parental behaviors (practices), on adolescent weight status (as measured by BMI percentile). I present the literature search strategy, review literature in terms of the key variables and concepts, and discuss the theoretical framework and its implication for this study.

Literature Search Strategy

The information investigated in this chapter was gathered using the Walden University Library system, scientific journals, text books, and internet sources. Databases used included PubMed, ProQuest, EBSCO Host, Google Scholar, Bureau of Labor Statistics, and the U.S. Department of Health and Human Services. The literature review covered a period from 1966 to 2015. Literature sources used were carefully selected for inclusion in this chapter based on themes and issues identified by reading other literature reviews in this area. The older articles used were seminal in nature, as they were original and influential, and were reviewed to gain an understanding on the topics development and effects on theory. They were accessed by entering key ideas that were included in this project's title and research questions into the results page of each search engine. The key search terms used were *adolescent, overweight, obesity, parenting styles, parenting practices,* and *African American*.

Theoretical Framework

The SCT, a health behavior model developed by Bandura to explain human behavior, deals with social and psychological determinates of behavior and looked at health-related behavior changes, like adolescent weight status (Murashima, Hoerr, Hughes, Kattelmann, & Philliphs, 2012). Bandura is considered the leading proponent for the cognitive-behavioral movement, although social learning theory or SCT originated from earlier works of behavioral theorists Skinner, Pavlov, and Watson (AbuSabha, & Achterberg, 1997). Bandura (as cited in MacKenzie, Mezo, & Francis, 2012) expanded behavioral thinking by calling attention to the importance of reasoning and understanding (i.e., cognition) in personality and the active role played by individuals in the social learning process.

Bandura (1989) believed that cognition was a key component of one's behavior. He proposed that learning was an active process, in which the relationship between people, their behaviors, and their environment were considered more give-and-take, or bidirectional, verses one-sided (Bandura, 1989). This concept was referred to as "triadic reciprocal determinism," which is based on the belief that behavior is learned through one's own personal behavior and through interactions with others all within the social environment, and these interactions are repeatedly influenced by one another (Bandura, 1989). According to Bandura (1994), SCT was based on the ideology that learning was the result of one's own actions, beliefs and expectations, as well as those modeled through observation and reinforced or punished by others through social transactions. The environment refers to tangible factors that are outside the adolescent that can affect their

behavior, that is, parents, family members, educators, and peers. Personal factors are those beliefs and expectations that may be relevant to the adolescent's abilities. Behavior is seen as a dynamic that depends on aspects of both the person and the environment. A change in one component has implications for the others.

For this study, adolescent weight status (as measured by BMI percentile) were examined in relationship to age and gender of the child and his or her environment. The environment of interest is the family. As such, environment is useful to determine how family characteristics affect weight status among this population, in particular, (a) parenting styles (e.g., authoritative, authoritarian, permissive, and uninvolved), (b) parenting practices (e.g., demandingness, and responsiveness), and (c) sociodemographics (e.g., family structure, parent's education, parent's BMI category, household income, parent and adolescent gender pairs, and area of residence (e.g., urban/rural neighborhood) as shown in Figure 1.

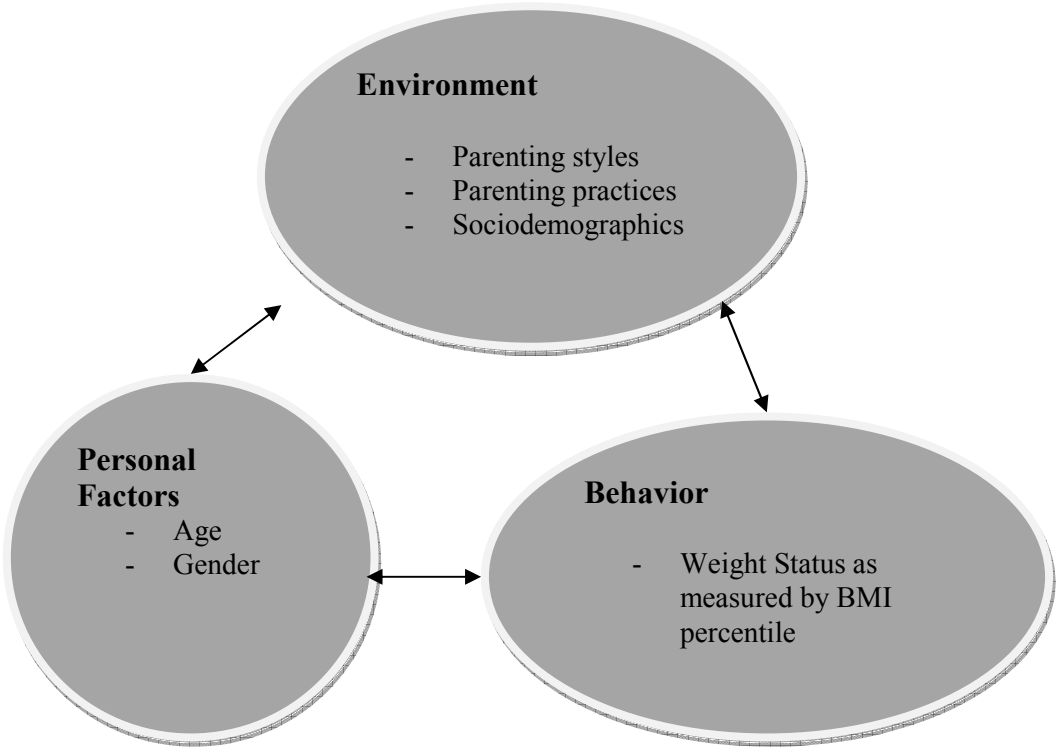

Figure 1: Triadic reciprocal determinism, based on Bandura's SCT (1989).

The SCT is important to behavioral based intervention programs (Thomas, 2006). Although often used in the capacity of an implicit guiding theory, it is one of the most widely used theories in obesity intervention research (Sharma, 2011; Thomas, 2006). For example, Pearson, Ball, and Crawford (2012) conducted a study using constructs from the SCT to investigate the relations between parenting behaviors (control and health perception) and adolescent dietary habits, using adolescent self-efficacy as a mediating variable. Study participants included 1,606, seventh and ninth grade adolescents and their parents. Pearson et al. revealed a significant association between parental controls in the following areas: feeding practices, perceived importance of their child's diet and health,

and barriers to fruit and vegetables on adolescent fruit consumption. In addition, they reported a positive association between adolescent self-efficacy for increasing fruit consumption ($\beta = 0.13$, 95% CI 0.11 -0.14, $p < 0.001$). Understanding the relationship between parenting behaviors and adolescent self-efficacy provides an opportunity for greater appreciation of parental influence on adolescent social cognition (Hennessy et al., 2010).

The rationale for using the SCT relates to the role parents play in the social development and weight outcomes in children that align with key constructs of the SCT, which include self-regulation, self-efficacy, observational learning through monitoring, reinforcements, and environment, all elements of reciprocal determinism.

Use of Social Cognitive Theory Constructs in Parenting Studies to Inform Obesity Intervention

Bandura's (1989, 1994) and Bandura and Walter's (1963) use of the SCT have contributed to the body of knowledge suggesting the strong role that parenting styles and practices have in shaping adolescent behavior. According to the concepts in which the SCT is based, children learn dietary behaviors both directly (encouragement) and indirectly (modeling) from their most significant models, that is, their parents (Hennessy, Hughes, Goldberg, Hyatt, & Economos, 2012). For example, Marshall et al. (2011) conducted a cross-sectional study examining parental influence on their children's dietary intake and weight status using constructs from the SCT. The authors explained direct (e.g., parental shaping) and indirect (e.g., modeling/observational learning) relationships between parenting, children's eating, and weight status (Marshall et al., 2011). The

sample included (n = 93) parent-child dyads. Children between 4 and 13 years old were included in the sample, with a mean age of 8.5 years. The mean age reported for parents/caregivers was 41.5 years. Findings suggested that parental weight status may explain a variance in the way parents provided for food and activity in their child's environment, which was attributed to direct observations of outcomes of prior behaviors (Marshall et al., 2011).

The SCT views human functioning as having a reciprocal relationship with behavior, cognitive, and personal factors and the environment (Bandura, 1989). SCT hypothesizes that children learn through observing the behaviors and attitudes of others, which can in turn shape their own behaviors (Larsen et al., 2015; Young, Fors, & Hayes, 2004). For example, Brown and Ogden (2004) investigated parental modeling and control and their impact on children's eating habits and behaviors. In accordance with Bandura's SCT (1989, 1994), researchers working in the area of eating behavior have emphasized the role of observational learning and modeling as being a significant contributor to the development of food preferences and eating practices in children. Brown and Ogden studied (n = 112) parent-child pairs. Child participants were between ages 9 and 13 years. The majority of parents described themselves as European American (82%) and of lower-middle SES (45.8%). They indicated that children model the eating patterns of their parents. Parents served as role models for their children's dietary behaviors and influenced their children's health behaviors and BMI percentile through parenting styles and feeding practices (Brown & Ogden, 2004). They also reported that such modeling occurred through observational learning, which highlighted the importance of the

parent's role as the overseers of their children's diets to exhibit healthy dietary habits of their own (Brown & Ogden, 2004).

In addition, Brown and Ogden (2004) examined the role of parental control on children's eating behaviors. The authors reported a significant correlation between children and their parents for the consumption of snack foods, such as chocolates, biscuits, and toast, which suggested that interventions targeting parents as influential role models and authority figures for healthy dietary habits were more effective than pursuing children alone (Brown & Ogden, 2004). Brown and Ogden also concluded that parent imposed feeding practices provided children with less opportunity to implement self-regulation. Strict parental controls were found to increase children's consumption of both healthy and unhealthy snack foods. A significant positive relationship between parents and their children's internal motivations for eating and body dissatisfaction was also reported (Brown & Ogden, 2004).

In another study, Kimiecik and Horn (2012) used concepts from the SCT to explore environment, parental support, self-efficacy, and barriers to exercise in a group of (n = 173) preadolescent children aged 9 to 12 years. The authors explored the relationship between the influences of parenting styles on their child's feelings of observed physical competence. The authors suggested that children who viewed their parents as high challenge/high support established significant fitness goal orientation and values (Kimiecik & Horn, 2012). Additionally, the authors discussed a link between high challenge/high support parents and high perceived physical competence and observed parent-child communication styles. Helping parents to assist their child's beliefs of

fitness is likely to be important. This might be accomplished by assisting parents in teaching their children common, age-appropriate physical skills and by helping parenting styles that influenced competence (Kimiecik & Horn, 2012). Dietary habits and weight status (as measured by BMI percentile), such as eating patterns are rooted in familiar practices and may become lifelong health habits formed during adolescents, which serves as a transitional bridge between childhood and adulthood (Bauer et al., 2011).

Parents play an important role in terms of influencing and modeling appropriate health behaviors. However, while research efforts targeted at parental inclusion have increased, limited research has been conducted to investigate African American mothers and fathers that includes residential and nonresidential (both biological and stepparent), from differing SES income levels and neighborhood environments. In this study, I examined African American adolescent weight status, as measured by BMI percentile, in terms of triadic reciprocal causation (gave-and-take) between the individual, behavior, and environmental factors (Bandura, 1989). For this study, I investigated the effect of African American parenting styles and practices on adolescent weight status (as measured by BMI percentile). There is much to be explored with regards to how parenting characteristics impact African American weight status and BMI outcomes (Berge, 2010a, 2010b; Crossman, Sullivan, & Benin, 2006; Fuemmeler, 2012; Golan, & Crow, 2004; Kimm et al., 2002; Rhee, Lumeng, Appugliese, Kaciroti, & Bradley, 2006; Sleddens, Gerards, Thijs, DeVries, & Kremers, 2011). Current literature on parenting style by African Americans is limited and plagued by several challenges or shortcomings. Existing studies in the area identify with Baurmind (1972) and Steinberg, Lamborn,

Darling, Mounts, and Dornbusch (1994) that African American parenting style is authoritarian, demanding, and strict. Authors of earlier studies (Polfuss, & Frenn, 2012a; Salvo et al., 2012; Wake, Nicholson, Hardy, & Smith, 2007) have used the preschool and school-age populations. However, obesity among African American adolescents often tracks into adulthood (Caprio et al., 2008; McBride et al., 2008; Miller, 2011), making it more compelling to study this population.

Introduction of Parenting Styles

Darling and Steinberg (1993) referred to parenting style in terms of a threefold context: (a) Parenting was the goal of socialization, (b) parenting practices were the tools used by parents to assist children in reaching their goals, and (c) parenting styles, along with what was famously coined *emotional climate*, was where socialization occurred. Originally three parenting styles (e.g.. authoritative, authoritarian, and permissive) were developed by psychologist Baumrind (as cited in Hennessy et al., 2010; Polfuss & Frenn, 2012a). Later, Maccoby and Martin (as cited in Spera, 2005) further classified Baumrind's parenting style model by combining the two dimensions that represented parenting behaviors, responsiveness and demandingness, thereby forming a fourth parenting style referred to as *uninvolved* or *neglectful*. Responsiveness and demandingness are two dimensions of parenting associated with authoritative parenting behaviors and have been used in obesity research to predict weight outcomes in children (Ray et al., 2013). The later of the two models has been more commonly used (Sleddens et al., 2011), as shown in Figure 2.

	High Control / Demandingness	**Low Control / Demandingness**
High Warmth / Responsiveness	Authoritative Parenting (Very Supportive and Strict)	Permissive Parenting (Very Supportive and Lenient)
Low Warmth / Responsiveness	Authoritarian Parenting (Not very or Somewhat Supportive and Strict)	Uninvolved (Neglectful) Parenting (Lenient and Not very or Somewhat Supportive)

Figure 2. Parenting styles typologies based on Maccoby and Martin (1983).

Authoritative Parenting Style

Authoritative parents combine some childrearing practices from both the authoritarian and permissive styles. They guide their children's behavior and attitudes by putting emphasis on the reason for rules and unsympathetically reinforcing nonconformities. They show respect for their children as individuals and allow them to voice their objections to family standards or regulations (Baumrind, 1966). Parental control is firm and consistent but tempered with encouragement, understanding, and security. Control is focused on the issue, not on removal of love or the fear of penalty (Berge et al., 2010b). These parents encourage an inner reliance, a mentality that regulates behavior based on feelings of guilt for misconduct, and not on fear of being caught or punished. Parental power is shared, and both parents provide leadership but

listens to what their child has to say (Pellerin, 2005). Baumrind (1966) discussed how, parents' with sensible standards and reasonable expectations produce children with high self-esteem who are resourceful, confident, inquisitive, content, and highly interactive with other children.

Authoritarian Parenting Style

Authoritarian parents try to control their children's behavior and attitudes through unquestioned commands. They establish principles and expectations, which they demand be followed firmly and without question (Baumrind, 1966). Authoritarian parents' value complete obedience and frequently provide instructions on how to behave (Pellerin, 2005). Parents using this approach to parenting, enforce rules by punishing any behavior that is contrary to parental standards (Hennessy et al., 2010).

Anderson, Gooze, Lemeshow, and Whitaker (2011) discussed that early interactions between parents and children determine their ability to form appropriate coping skills and respond well to stress. Parental authority is exercised with little explanation and little inclusion of the child in decision making. Children raised by authoritarian parents are normally shy, self-conscious, and submissive. The approach of this parenting style can be clearly stated as: "Because I said so" (Baumrind, 1966).

Permissive Parenting Style

Permissive parents exercise little or no control over their children's actions. These well-meaning parents sometimes confuse being flexible with emancipation (Berge et al., 2010a). According to Baumrind (1966) these parents avoid enforcing their own rules and instead allow their children to self-regulate or govern themselves when at all possible.

These parents consider themselves to be resources for the children, not role models. They employ lax, unreliable discipline, fail to set restrictions, and do not prevent the children from disturbing the routines of the household (Pellerin, 2005). These parents rarely punish their children because most behavior is considered acceptable. Consequently, the children, in effect, control the parents. Children of permissive parents are often disobedient, disrespectful, irresponsible, aggressive, and generally defiant of authority (Baumrind, 1966).

Uninvolved Parenting Style

Uninvolved or neglectful parents exercises minimum to no effort, are seen as unreliable, and psychologically unavailable (Hennessy et al., 2010; Pellerin, 2005). According to Pellerin (2005), children of uninvolved parents suffer the poorest consequences related to cognitive ability, school performance, social skills, mental health, and delinquency. Adolescents with uninvolved parents are at risk of not being able to self-regulate, which includes regulating their eating (Berge et al., 2010b).

Studies on Parenting Styles and Practices (Authoritative Relative to Authoritarian)

Researchers across disciplines have used parenting style typologies based on Baumrind's seminal works (1966, 1972) to investigate school climate, cognitive development, and academic achievement in children, as well as examine weight status and health outcomes relative to children. Researchers have indicated a strong link between authoritative parenting styles and practices having a positive association on cognitive and social developmental and weight outcomes in children, while on the contrary authoritarian parenting styles and practices were associated with promoting

negative overall developmental and weight gain in children (Hennessy et al., 2010). For instance, consistent with Baumrind's (1966, 1972) seminal works on parenting styles and later expanded upon by Maccoby and Martin, (1983), Darling and Steinberg (1993), and Pellerin (2005) discuss the authoritative approach being associated with multiple positive outcomes related to cognitive development, health, and wellness in children.

Pellerin (2005) conducted a study that applied parenting styles as socializing mediators to high schools. The findings of this study supported the application of parenting styles to schools. Schools that implemented the authoritative approach demonstrated the best overall outcomes, while uninvolved schools demonstrated the worst results, and authoritarian schools had the worst outcomes for student dropouts. Pellerin (2005) suggested that authoritative parents do not set rigid, arbitrary limits but maintain firm control, particularly in areas of parent-child disagreement. Acceptance is reinforced with a reasonable and consistent setting of limits, and a balance of warmth/responsiveness with control/demandingness, behaviors were believed to contribute to academic achievement.

Similar to research conducted in school-settings to investigate cognitive and social patterns of behavior in children that linked parenting style contexts, research with family based treatments in the area of childhood and adolescent overweight and obesity have suggested that family based treatments promote an authoritative parenting style and could be significant for prevention (Kalinowski et al., 2012). For example, Lohaus, Vierhaus, and Ball (2009) investigated whether an authoritative parenting style had a protective influence on the development of health related behaviors in children during

their transition from childhood to adolescence. The sample consisted of (n = 798) children recruited from 15 German elementary schools. Study participants were divided into two samples. Sample 1 consisted of 432 children in Grade 2 that had a mean age of 7.9 years; sample 2 consisted of 366 children in Grade 4 that had a mean age of 10.1 years. The study was longitudinal and conducted over 3 years.

The authors suggested that an authoritative parenting style could be responsible for increased positive health behaviors and decreased negative health behaviors during a child's transition from childhood to adolescence. Lohaus et al. (2009) reported that high levels of positive health behaviors decreased during adolescence, while negative health risk behaviors, believed to be formed during early childhood and preadolescence, stayed consistent as children grew older. These results provided further evidence of the important roles parents play in shaping their children's behaviors.

In another study, Rhee et al. (2006) investigated the relationship between parenting styles and weight status of children in Grade 1. The study used data from the National Institute of Child Health and Human Development study of early childcare and youth development. While Rhee et al. (2006) suggested the following cofounders were potentially responsible for childhood overweight status: parental BMI, parental education level, parental income/SES, race, physical presence of spouse in home, and childhood behavioral problems, only income needs ratio was significant to maternal expectations for self-control (p = .003) and child's overweight status 0.90 (0.82 – 0.90).

The authors examined four parenting styles: permissive (high sensitivity-low control), uninvolved (low sensitivity-low control), and authoritarian (low sensitivity-high

control), and authoritative (high sensitivity-high control), which were used as the independent variable in a final sample of (n = 872) families. Study participants included European Americans (82.8%) with male children (49%). Data were collected at 54 months of age and during Grade 1, for children's overweight/BMI status as the dependent variable (Rhee et al., 2006). A BMI of $\geq 95^{th}$ percentile for the child's age and gender was used to determine overweight status. Using multivariate logistic regression, findings revealed a significant difference when the four parenting styles were compared using the authoritative style as the reference once adjusted for race (European American and non-European American), and income/needs ratio. Children with authoritative mothers were 3.9% (n = 179) overweight, while 17.1% (n = 298) of children with authoritarian mothers were overweight. Children with authoritarian parents were five times more likely to be overweight in Grade 1, compared to children with authoritative parents (OR: 4.88; 95% CI: 2.15 – 11.10; $p < .001$). The findings from this study were consistent with other research (Birch & Anzman, 2010; Golan & Crow, 2004; Fuemmeler et al., 2012; Polfuss & Frenn, 2012 b) that has indicated weight status and outcomes in children are influenced by parenting style contexts.

Consistent with findings from Rhee et al. (2006), Polfuss and Frenn (2012b) reported continuous use of control remained significant in African American participants, which provided further support for earlier research findings by Baurmind (1972) and Steinberg et al. (1994) that African American parents used an authoritarian parenting style. Polfuss and Frenn (2012a) conducted a study with (N = 176) African Americans and European American study participants to investigate the relationship between

parenting styles, behaviors, and child's weight status. The study sample included 50.6% European American and 49.4% African American. The mean age for the parent-child dyads was (38.2, *SD* = 7), and (11.6) years. Likewise, to findings from Savage et al. (2007), Polfuss and Frenn (2012b) reported that parents in both ethnic groups, with overweight children demonstrated increase psychological control and firmness in an attempt to restrict the child's diet; yet, counterproductively these parents would place pressure on their children to eat more, as a response mechanism to their children's increase in weight.

Watkins-Lewis and Hamre (2012) investigated parenting characteristics in a sample of mostly low income African American mothers in relation to academic readiness of their children (n = 105) at Grade 1. Study participants were sampled from the National Institute of Child Health and Human Development study. The authors hypothesized that children with African American mothers reporting traditional authoritarian beliefs, along with maternal warmth and confidence would display higher levels of cognitive development and academic success upon entering school. Contrary to their hypotheses, the authors found a decrease in academic readiness associated with traditional authoritarian parenting beliefs; although, the authoritative practices of maternal warmth and confidence were predictive of cognitive development and academic achievement in children (Watkins-Lewis & Harme, 2012). Lower math scores were reported in children whose mothers scored higher on traditional *authoritarian* parenting values (β = -.432, p < .001), while educators reported higher academic performance

scores ($\beta = -.230$, $p < .05$) for children whose mothers had fewer traditional *authoritarian* parenting values.

While Watkins-Lewis and Harme (2012) reported authoritarian parenting was negatively related to cognitive development in children, they also showed, authoritative parenting practices such as maternal warmth and confidence were good predictors of higher academic performance in African American children. These findings were contrary to those reported previous by Steinberg, Lamborn, Dornbusch, and Darling (1992), and Darling and Steinberg (1993) who reported authoritative parenting styles were strongly associated with greater academic success in European American students, but correlated with lower academic achievement in African American children regardless of parents' educational level.

Although the above studies are seminal works, at least two other studies were found to contradict research findings that suggested African Americans used an authoritarian discipline style and that African American children benefit from authoritarian parenting. For instance, Bluestone and Tamis-LeMonda (1999) conducted the only predominately African American study on parenting styles that used a sample population of ($N = 114$) working and middle class parent-child dyads. The mothers mean age was 37.4 years ($SD = 6.42$), and the mean age of the children was 9.38 years ($SD = 2.02$).

The authors reported results that challenged previous research that suggested African American children fared better with authoritarian parenting styles. Results indicated that *reasoning*, an authoritative parenting characteristic was the disciplinary

method most often reported by study participants (Bluestone & Tamis-LeMonda, 1999). Study findings supported sociodemographic influences that highlighted the importance of including African American populations from high and low-SES, in an effort to improve understanding for the dynamics that contribute to ethnic parenting styles. The authors also noted that differences in study results could possibly be attributed to maternal depressive symptoms, which may have an important impact on parenting and disciplinary approaches in context with other risk factors, could be associated with harsh or negative forms of parenting. Bluestone and Tamis-LeMonda (1999) also suggested that positive or more democratic parenting approaches were more common in low risk, educated, middle and working-class populations, and perhaps depended upon the developmental stages of the children.

Similar to the study by Bluestone and Tamis-LeMonda (1999), Querido, Warner, and Eyberg (2002), conducted a study on working and middle-class African American families with mother's education, family income, and acculturation (*SD* = 33.13; results indicated the sample endorsed two cultural orientations) as the variables of interest. The study used a 53-item Parenting Styles and Dimensions (PSD) measure. The study sample consisted of (*n* = 108) African American female caregivers, from predominately single family homes, that had at least a high school education. Child participants were between the ages of 3 to 6 years. The purpose of the study was to test the hypothesis that the authoritative parenting style would be associated with less child behavior problems among study participants despite the significant consideration the authoritarian parenting style has received in studies about African American families and parenting dimensions.

Similar to findings in European American families and consistent with findings from the earlier study by Bluestone and Tamis-LeMonda (1999), the authoritative parenting style was associated with fewer behavior problems for African American families. Querido et al. (2002) also found that *reasoning* and *responsiveness*, which were both associated with authoritative parenting, were the disciplinary approaches most often reported by study participants. Disciplinary style is one of the most important parts of parenting. Baumrind (1966, 1983, 1991) reported that authoritative parenting style was the best approach to discipline. Baumrind (1966) noted that children with authoritative parents were better behaved, well adjusted, and more successful compared to children of parents that used other disciplinary styles. According to Querido et al. (2002), "together these results provided support for the cross-cultural validity of the authoritative parenting style and suggested that positive child outcomes associated with this parenting style are evident as early as 3 in African American families" (p. 275). As demonstrated by the above findings, consistent results across studies have not been found for African Americans as they have for European Americans.

Defining African American Parenting Styles and Practices

An overwhelming majority of studies conducted across various disciplines have concluded that African Americans exhibit authoritarian parenting style and practices. Polfuss and Frenn (2012a) reported results consistent with previous literature that showed African American parents' feeding practices demonstrated high-levels of physiological control and firmness and placed increased pressure on children to eat. Authoritarian parenting is described by high-levels of control or demandingness and low-levels of

warmth or responsiveness (Baurmind, 1972). According to Chao (1994) seminal work, authoritarian parenting may take on a different meaning in different cultures. Chao (1994) suggested that parenting typologies based on Baumrind's conceptual framework might not be culturally applicable or meaningful to Asians and Asian Americans because of the diverse meaning this population attributed to parental control and parental warmth.

Differences in parenting styles and practices are due in part to the parents' ethnicity, culture, SES, and educational background (Domenech et al., 2009). Based on the information discussed in the previous section above, various researchers have consistently found the authoritative model or approach predictive of successful health-related behaviors (Lohaus et al., 2009), academic performance, social competencies, psychological development, and the ability to stay out of trouble among children (Darling & Steinberg, 1993; Domenech et al., 2009; Steinberg et al., 1991). However, in all fairness, it is important to acknowledge the limitations found with much of the research in this area that has used Baumrind's groundbreaking seminal works on parenting typologies, which were established using participant pools of predominately well educated, middle-class status, two-parent European American families as the basis for the constructs or instruments most often used to study unlike populations, such as minorities that are socially disadvantaged (Bluestone & Tamis-LeMonda, 1999; Darling & Steinberg, 1993; Domenech et al., 2009; Querido et al., 2002), and as Baumrind (1972) stated in her probing study of the effects of socialization on African American children that African American families were being judged by European American norms, values and behaviors.

The roles of ethnicity, cultural history, perceptions, and sociodemographic variables can have a profound impact on parenting styles and practices in minority populations. Roche, Ensminger, and Cherlin (2007) investigated how variations in parenting impact outcomes in low-income Latino and African American adolescents that lived in urban areas. The authors reported that the relationship between parenting practices and adolescent behaviors were circumstantial as opposed to universal. Although study participants shared ethnic similarities, and SES status, differences related to the built and social environment, and gender and ethnicity of children were determined to have an influence on the relationship between parenting and problem behaviors in adolescents (Roche et al., 2007).

Other research has pointed to historical considerations affecting African American parenting. Coard, Wallace, Stevenson, and Brotman (2004) discussed the importance of researchers considering the role of culturally-based parenting practices (racial socialization in parenting interventions) specific to African Americans to reduce poor outcomes in African American children. African American parents reported feelings of frustration and a need to protect their children from the harsh realities of racism and discrimination they would be subjected to from society and within their own ethnic group (Coard et al., 2004). Fundamental issues were determined to influence African American parenting. These issues included financial means, a high percentage of single mothers, education level, role of extended family as primary caregivers, and the duty of racially socializing their children (Coard et al., 2004). Culturally-based parenting practices or racial socialization was defined as transmitted messages from parent to child on values,

behaviors, perceptions, ethnic pride, and preparation for bias. Racial socialization also promoted both physical and mental health through parenting (Coard et al., 2004). The authors reported that 80% of African American parents engaged in some form of racial socialization as they attempted to rear their children. The authors concluded that prevention and intervention efforts that proved effective for middle-class European American study participants were found less effective for participants from other ethnicities and SES (Coard et al., 2004). Such findings are important because they shed light on the ethnic–racial perspective on parenting practices of African American parents. When culture is defined by ethnicity, alternative styles of parenting that do not conform to that of middle-class European Americans could be revealed and explored (Steinberg et al., 1994).

African American parenting styles and practices are generally underexplored (Bluestone, 1999; Carpenter, & Mendez, 2013; Querido, 2002). To what degree African American parents identify with Baumrind (1966), parenting styles and those of European Americans, in which Baumrind (1966) parenting styles model was almost exclusively studied, is less well-known (Carpenter, & Mendez, 2013; Querido et al., 2002). While parenting commonalities, as well as differences have been established between African American and European American parents, parenting characteristics examined in African Americans should consider cultural beliefs rooted in African American history and heritage that promote cultural customs and traditions among their children.

Parental Influence in Adolescent Obesity

Parents have a critical role to play in the development of childhood weight status, and overweight and obesity prevention (Lindsay et al., 2006). According to Lindsay et al. (2006), obesity intervention in adolescents is most influenced by parental encouragement and role modelling of healthy eating and exercise behaviors. For example, Golan and Crow (2004) targeted parents as the primary agents for long-term outcomes in family-based childhood obesity interventions. The study sample consisted of (N = 50) children between age 14 -19 years and their parents that were randomly selected to participate in the 7-year longitudinal study. Height and weight measures were taken at year 1, 2, and 7.

The study participants were randomly assigned to one of two groups, the parent-only group or the child-only group. Participants selected for the parent-only group received 14 1-hour support and education group sessions that consisted of nutrition education, eating and activity behavior change, parental modeling, limit-setting, problem solving, cognitive reorganization, reduced stimulus exposure, and managing opposition. Participants selected for the child-only group received 30 1-hour group sessions, which consisted of nutrition education, eating behavior change, physical activity, managing stimulus, self-monitoring, problem solving, and cognitive reorganization (Golan & Crow, 2004). Golan and Crow (2004) reported a significant decrease in the percentage overweight in the parent-only group (14.6%), compared with the child-only group (8.43%). The results from this study highlighted the importance of family-based obesity interventions that targeted parents, as opposed to children alone. Parents served as role models.

In another study, Berge et al. (2010b) investigated the relationship between parenting styles and adolescent exercise and dietary behaviors. Data were analyzed from The Project EAT-1 survey and included a sample size of 4,764 adolescents. The study used regression analysis to measure: parenting characteristics, weight status, gender, age, ethnicity, and SES. Parenting styles varied based on ethnicity and age of the adolescent. Authoritative parenting was more common among families with higher SES and families with lower SES were neglectful (Berge et al., 2010b).

Paternal parenting style differed significantly based on adolescent gender. Fathers of girls were authoritarian (35.6%), while fathers of boys were authoritative (34.5%). Berge et al. (2010a) reported that fathers with authoritative parenting styles predicted regular physical activity in sons at their five-year follow-up compared to sons of neglectful fathers. Maternal authoritarian parenting style was associated with increased BMI for adolescent sons, compared to mothers with authoritative and neglectful parenting styles. Mother's with authoritarian parenting styles predicted higher BMI after five years of follow-up in boys, as did neglectful maternal parenting style in girls. A lack of consistency between opposite-sex parents parenting, and a lack of parental modeling were responsible for higher BMI in adolescents (Berge et al., 2010b).

Ray, Kalland, Lehto, and Roos (2013) reported that parental warmth and responsiveness, in part had a modifying effect on the relationship between parenting practices and health behaviors. The study was a cross-sectional and used linear regression. The study was part of the Halsoverkstaden project conducted in Finland. The sample size included (n = 806) matched parent-child pairs, with an even gender ratio of

boys to girls. Children were aged 10 to 11 years. According to Ray et al. (2013) parents responded to 3 statements on parenting practices and 6 parenting practices (Cronbach alpha = .52). Parental warmth and responsiveness was reported by the child using 4 separate statements to measure both parents (Cronbach alpha = .81).

Although no statistically significant gender differences were reported in relation to parenting practices and children's health behaviors, a strong association was noted when children perceived higher parental warmth and responsiveness between regular meal frequency, nutrient-dense food intake and longer sleep cycles (Ray et al., 2013). It was only when children perceived parental practices as being low warmth and responsiveness was an association reported between decrease in intake of energy-rich food and less screen time. The authors reported the average number of parenting practices was higher among boys. While the results showed conflicting associations, they further highlighted the importance of the parent-child relationship, adolescent perception of parenting behaviors, and their influence on children's health behaviors (Ray et al., 2013).

Parental involvement and support is beneficial to adolescents developing healthy lifestyles. Birch and Anzman (2010) discussed three learning patterns that influence eating behaviors of children: (a) familiarization learning, which is started during the prenatal period of development when the fetus is introduced to favors in their mothers' amniotic fluid and continues as repeated exposure during breastfeeding, (b) associative learning, which occurred when children developed conditional preferences for food. For instance, if a child had a bad experience with fresh melon that caused food poisoning or

nausea that caused them to associate all melon with making them sick, they were likely not to eat it again, and (c) lastly, children learn through observation. Observational learning, according to Bandura & Walters (1963) is learning that is observed and modeled by watching others along with the reinforcements received from those behaviors.

Overall parenting behaviors that incorporated a democratic discipline style of responsiveness and demandingness had positive effects on children's eating and weight status. As children grow older and become more involved in decisions regarding the types of foods they consume and whether they participate in physical activity, parental attitude and beliefs become even more important in modeling their children's health behaviors (Bowne, 2009). Similar to Bowne (2009), the present study will consider the social environments' influence on African American parents as role models for physical activity and dietary habits and BMI outcomes through parenting styles and practices.

Factors Contributing to Adolescent Health and Weigh-Related Behaviors

Cultural Norms and Beliefs

Members of Western society value thinness (Puhl, Neumark-Sztainer, Austin, Luedicke, & King, 2014). Western culture and societal practices contribute to promoting a fat stigma that implied being thin is required to find love, to be successful, and to be happy (Puhl & Heuer, 2010). Members of American society often equate overweight or obese with being weak, lazy, and unattractive (Puhl & Heuer, 2010). Messages that being thin is desirable are so overwhelming that they seemed to be an unquestioned truth; however, they are not. Not all people throughout time in western society considered thin

to be beautiful. For example, Saguy and Ward (2011) reported on the creation of the National Association to Advance Fat Acceptance (NAAFA) movement that was founded in 1969 by Bill Fabrey, an Adipose Activist. The NAAFA was established during the era of social change, the 1960s following the racial equality, feminist and gay pride movements (Saguy & Ward, 2011). Additionally, there are considerable differences among different ethnic groups in the United States today concerning ideal body weight, with Caucasians having stricter standards than most other groups (Barroso, Peters, Jones-Johnson, Kelder, & Jefferson, 2010).

African American women tend to have a greater propensity for obesity. Culturally African Americans are more accepting or tolerant of larger body frames and extra weight (Martin, May, & Frisco, 2010; Whaley, Smith, & Hancock, 2011). In many traditional African societies, full figured women's bodies are seen as symbols of health, prosperity, and fertility. For example, the Annang tribes of Nigeria encourage weight gain in women, by referring a bride-to-be to a ritual fattening room in which the primary purpose is weight gain (Shuttlesworth, & Zotter, 2011). American society, however, is unquestionably prejudiced against people who are overweight or obese, (Sullivan, 2010) as persons with excessive body weight are often viewed as lazy, undisciplined, or simply lacking willpower as opposed to having a legitimate disease or health condition requiring intervention (Puhl & Heuer, 2010), and for some, a cultural norm (Sullivan, 2010).

Authors of cultural norm studies have repeatedly indicated that the African American community is more accepting of larger body sizes, or heavier frames than their white counterparts (Agarwal, 2012; Barroso et al., 2010; Chen & Wang, 2012; Neumark-

Sztainer et al., 2002). For example, Chen and Wang (2012) explored cultural beliefs in relation to body image and weight status among (n=402) African American adolescents from low-income families that attended Chicago public schools. Findings suggested a statistically significant probability that African American adolescent girls that selected larger ideal body images (IBI) were at a higher risk of becoming obese (trend test: $p < 0.001$).

Likewise, Barroso et al. (2010) conducted a qualitative study with Latino and African American high school students ($n = 83$) between age 18 and 19 years to examine cultural beliefs and perceived norms regarding body image. The authors reported that the bulk of study participants from both ethnic groups believed that cultural norms established full-figured or heavy silhouettes as a healthy weight standard for their parents and grandparents. Barroso et al. (2010) also reported that African American female study participants believed cultural attraction was the primary reason for higher overweight and obesity statistics among this group, while males from both groups believed that overweight or obese females had better personalities, making them more preferred. Chen and Wang (2012) also reported that study participants with an increased BMI had higher food self-efficacy and reported plans to make better food selections ($p < 0.01$). The authors suggested that weight interventions aimed at African American youth must factor in cultural influences on food choices, level of physical activity, body size preference, and ability to accurately self-access weight status.

Family and cultural eating patterns, as well as psychological factors, play an important role in adolescent weight gain (Bauer et al., 2011). In the United States

childbirth, religion, health, and dietary practices are norms that vary among ethnic groups. Mass media also provides daily lessons on societal and cultural norms. Adolescents adopt culture, values, and beliefs during childhood and the extent to which they endorse those norms can affect health-related behaviors and outcomes.

Some cultures consider heaviness a sign of health and see obesity as an indication of well-being (Vivian, Becker, & Carrel 2012; Willows, Marshall, Raine, & Ridley 2009). In other cultures, obesity is a status symbol or an indication of affluence. It is not unusual for obese children to have families that place emphasis on eating large meals, or scold their children for leaving food on their plates (Polfuss & Frenn, 2012a). Parents may have an exaggerated concept of the amount of food children require, thereby expecting the child to eat more than is needed.

Family Structure/Household Environment

In some families and among many cultures, food is used as a symbol of love and concern. It is a fundamental part of social get-togethers and celebrations. In such cases, it may be difficult to change established eating patterns because they are linked to cultural and family values (Gabaccia & Gabaccia, 2000). Savage, Fisher, & Birch (2007) looked at the impact of caregivers and the influence of family environment during infancy and childhood had on youth food choices, overweight, and obesity status during adolescence (pg. 22-23). According to Savage et al. (2007) parents served as nutrition and health models and as primary caregivers were responsible for the types of food purchased for their households, size of food portions offered, controlling their children's eating situations, and modelling influential dietary intake to children. Results from the study

were consistent with to other studies that linked authoritative parenting characteristics to healthier eating habits in children.

The authoritative feeding style had a positive association to dairy and vegetable consumption, whereas the authoritarian feeding style had a negative association with vegetable intake (Savage et al., 2007). The authors concluded that the use of excessive feeding practices by parents that restricted or pressured adolescent eating and parental modeling of overeating behaviors worked to undermine adolescent eating self-regulation. Adolescents were encouraged to self-control/self-regulate their energy intake in supportive and responsive parenting environments (Savage et al., 2007).

Marshall, Golley and Hendrie (2011) discussed the parents' role in their adolescent's weight outcome. Hennessy et al. (2012) referred to parents as "nutritional gatekeepers" as parents have an important role in their children's eating habits and teaching nutrition, an essential component of influencing adolescent weight and health status that should not be underestimated. In turn, parents must be educated about healthy eating and nutrition to help their sons and daughters have the best chance at being healthy teens and adults (Marshall et al., 2011).

Household Income/Parental Education Level

Many factors contribute to adolescent weight gain and obesity status. Crossman et al. (2006) discussed the family home environment having long-term implications on adolescent weight status. Various factors can lead to energy imbalance and weight gain. They include heredity, dietary habits, physical environment and lifestyle, earnings, attitudes and emotions. According to authors of a study using The National Health and

Nutrition Examination Survey (NHANES) between 1999-2002, the prevalence of obesity in the United States between female African American adolescents of upper SES increased (38.0%) compared to female African American adolescents of lower SES (18.7% and 24.5%) (Wang & Beydoun, 2007).

Although European American children demonstrated a significant association between family income and lower obesity prevalence, Ogden, Lamb, Carroll, and Flegal (2010) found no significant or consistent development in obesity prevalence associated with income level among female, or male African American and Mexican American children using NHANES data from 2007 – 2008. The authors reported that (10.2%) male and (10.6%) female European American children with upper-SES were obese compared to (20.7%) male and (18.3%) female European American children with lower-SES status (Ogden et al., 2010).

Research findings from the National Longitudinal Study of Adolescent Health, indicated that activity and inactivity patterns differ by ethnicity and minority adolescents, (e.g. African Americans, Hispanics, and Filipinos), and these adolescents engage in less physical activity and more inactivity than do their Caucasian counterparts (Lee, 2005; Wang & Beydoun, 2007). According to the United States National Center for Health Statistics (2011) certain health behaviors like inactivity also tend to be more common among children with lower SES.

Single Mother Households on Adolescent Weight Status

Financial hardship is a major issue for single-mothers, many of whom are undereducated, may have never been married, and are unable to find adequate

employment (Kaili & Ryan, 2010). Schmeer (2012) reported that a significant number of single-parent households are headed by African American women, typically due to higher rates of being a never-married mother or divorced. While divorced mothers may initially experience a noticeable decline in income, those that are educated or employable stabilize more readily (Kaili & Ryan, 2010). According to the National Association for Sport and Physical Education & American Heart Association (NASPE & AHA), in 2011, 47.6% of all female-headed households in the United States lived in poverty (NASPE & AHA, 2012). Of these approximately 25.9% were female-headed African American families (NASPE & AHA, 2012).

Crossman et al. (2006) reported that risk factors for obesity are higher among children from single-mother families, which are commonly associated with lower SES. SES can affect health and weight outcomes in adolescents by serving as a mediating factor influencing parenting styles and feed practices in the home environment', for example Kalinowski et al. (2012) conducted a study that investigated mothers from SES and their perception of parenting and feeding practices in relation to childhood obesity. The sample included 91 mothers (32-Hispanic, 30-African American, and 29 European American) and their children, age 3 -5 years. Authors revealed 49% of mothers were obese (BMI $\geq$ 30), 26% overweight (BMI $\geq$ 25), and 26% were normal weight. Children were 48% male; 21% obese (BMI $\geq 95^{th}$ percentile), 26% overweight (BMI $\geq 85^{th}$ percentile), and 54% normal weight. According to Kalinowski et al. (2012), these mothers expressed resilient beliefs that childhood obesity was caused by uninvolved or

incompetent parenting but astoundingly could not relate the comparisons with their behaviors.

Father Involvement

Father involvement has been linked to positive cognitive, psychosocial, behavioral, and health outcomes in adolescents (Zhang & Fuller, 2012). Deardorff et al. (2011) conducted a study investigating the factors of early puberty in adolescent girls. The authors suggested that ethnicity, household income, BMI, and father's absence were associated with the onset of breast and pubic hair development among adolescent girls. Deardorff et al. (2011) noted that father involvement was reported highest among African American girls (44%) compared with their European American (6%) counterparts. The association between father's absence and pubic hair development was weakened by income for African American adolescents. Deardorff et al. (2011) hypothesized that father's absence would predict early onset of pubic hair and breast development; however, this was true instead for adolescents from high-income families, in which father's absence was predictive of early breast development (HR 4.6, 95% Cl_1.6 – 12.7).

Wake et al. (2007) showed the importance of the father's parenting role in governing a supportive environment conducive to positive health and weight consequences. The authors conducted a cross-sectional study to examine the relationship between child body mass index (BMI) and parenting styles and parenting practices. The sample consisted of 4,983 preschool-aged children and their parents. Authors showed a strong connection between paternal parenting styles and dimensions of parental influence on child BMI category. According to Wake et al. (2007) fathers classified as authoritative

had a paternal control score of ($p < .001$), decreasing the likelihood of their child being in a higher BMI category by 26%. In contrast, fathers classified as permissive increased the chance of their child being in a higher BMI category by 59%, and 35% for uninvolved, both equivalent to a paternal control score of ($p = .002$). In another study, Stewart, and Menning (2009) investigated the relationship between nonresidential fathers and adolescent dietary habits. The study used Wave 1 and Wave 2 data from the National Longitudinal Study of Adolescent Health (Add Health), which was collected during the years 1994-1996.

Stewart, and Menning (2009) surveyed 20,000 adolescents in grades 7-12 during Wave 1 and 14,738 during Wave 2 follow-up survey in 1996. Participants' ethnicity was 57% White, 17% African American, 12% Hispanic, 7% other, and 4% Asian, and 3% Native American (Stewart, & Menning, 2009). The mean age of the study participants was 16 with approximately an even male to female ratio. Stewart, and Menning (2009) defined father involvement by adolescent self-report based on three measures: closeness to father (not close at all to extremely close), how many times in the past year had adolescent stayed overnight at nonresidential fathers' home (not at all or once per week), and nine questions that included (time spent shopping, working on school projects, etc.). Wave 1 and Wave 2 findings showed that there was less consumption of foods that contained simple sugars per serving by adolescents living in single mother households compared to those living in two parent (biological or adoptive) households.

The frequency of which simple sugar consumption was measured was on a scale from 0 to 2, with 0 = didn't eat and 2 = ate twice or more during a typical week. During

these waves, researchers also reported that adolescents were 42% more likely to skip breakfast in mother-stepfather homes, 36% in single-mother homes, compared with those living in two-parent (biological or adoptive) households. Stewart, and Menning (2009) reported a positive association was found between paternal involvement and child-support on children's ability to eat; however, only paternal involvement had a positive relationship to what their child ate.

Nonresidential father involvement on eating vegetables was statistically significant during Wave 1; however, no relationship was found with consuming fast food and simple sugars. Father involvement was associated with a 5% increase in the incidence of eating breakfast and 2% increase in the incidence of eating lunch. The quality of the parent-adolescent relationship with the nonresidential father could conceivably lead to poor dietary habits and obesity (Stewart, & Menning, 2009).

Sen (2010) used data from the National Longitudinal Survey of Youth, 1997 (NLSY97) to investigate the correlation between frequency of family meals and problem behaviors in adolescents aged 12 – 16 years. He showed a relationship with fathers was more significant for adolescent sons compared to daughters; also, suggested that parental supervision was possibly increased by family meals or dinners (Sen, 2010). He also examined associations between paternal parenting influences on adolescent weight status (as measured by BMI percentile) similar to the investigation of maternal influences. The father's role in the development of adolescent weight gain and obesity becomes a focus in addition to the mothers, as researchers have shown that the paternal influence is undeniably an important one (Sen, 2010).

While fewer African American adolescents live with their fathers than with their mothers, many maintain contact with their fathers. Additionally, positive parent-child relationships are likely to have considerable significant influences on adolescent physical activity and these effects may be strongest in cases of father-child relationships (Amato, Meyers, & Emery, 2009). (Berge et al., 2010a) found that connection to father significantly predicted health behaviors in adolescents. Recognizing the paternal influence on adolescent BMI category and weight status, will provide needed support for community initiatives to support public health practitioners with evidence-based information required to educate families, and especially fathers to promote successful parenting and feeding practices (Wake et al, 2007).

In another study drawn from the NLSY97 dataset, Bronte-Tinkew, Moore, and Carrano (2006) found that fathers served as primary sources of socialization for their children; and, that paternal participation was influenced by their children's gender. The authors reported that children from two-parent family homes, fathers were more involved with their sons than with their daughters (Bronte-Tinkew et al., 2006). These results suggest that although father involvement may be beneficial for their children's overall well-being, looking at the relationship without considering gender may not provide a full and accurate view.

Blended Families

Blended-families consisted of children who lived with one birth parent and one non-birth parent, and sometimes include children of the non-birth parent (Kaili & Ryan, 2010). The blended-family can pose many challenges. Members of this type of family

structure are faced with the challenge of forming relationships with the new family member(s), while possibly maintaining connections and loyalties to their biological family member(s) who are not part of this new structure (Kaili & Ryan, 2010).

Blended families are significantly different from intact families and should not be expected to duplicate the emotions and relationships of an intact family. Schmeer (2012) suggested that healthy blended families were less cohesive and more adaptable than healthy intact families; they have a greater capacity to allow for individual differences and accept that biologically related family members will have emotionally closer relationships. Blended families gradually gained a sense of being a family as they built a history of shared daily experiences and major life events (Kaili & Ryan, 2010).

For example, Levin, Kirby, and Currie (2012) reported that establishing a morning breakfast routine is likely to take more effort in a blended or stepparent household if the relationship between stepparent and adolescent is strained. The strained relationship would have an impact on the family's meal frequency. The authors conducted a study using international survey data from the health behavior in school-aged children (HBSC) study to examine changes in daily breakfast consumption among adolescents in Scotland between 1994 and 2010. Also examined were family structure inequalities in breakfast consumption outside the traditional two-parent family household and the association between family structure and breakfast consumption over time (Levin et al., 2012). The sample included an equal number of male and female adolescent children between the ages of ll.5 and 15.5, sample size was (n = 26,626). Family structure was measured using four groups: (a) 70.6% of children lived with both parents, (b) 17.9%

lived in single parent homes, and (c) 10.4% lived in blended-family households (Levin et al., 2012). Participants completed anonymous questionnaires on family meal frequencies for daily breakfast consumption and adolescent family structure. Questionnaires were completed during school hours under teacher supervision, between the months of January and March. Analyses were performed using multilevel regressions with Markov chain Monte Carlo (MCMC estimation methods in statistical package MLwiN 2.02 (Levin et al., 2012).

Levin et al. (2012) found that family structure disparities in daily breakfast consumption increased between 1994 and 2010 with nearly and equal increase for adolescents living in either a traditional 2-biological parent or blended/reconstituted family household. A decrease in breakfast consumption was noted overtime in adolescents living in single parent families, predominantly amongst those living merely with their father. The authors also found that breakfast consumption was highest among adolescents under age 14.5 years and among the female gender (Levin et al., 2012).

In another study, Hernandez, Pressler, Dorius, and Mitchell (2014) conducted an investigation using data from the NLSY79 to determine the relationship between cumulative family structure transitions from birth to age 18 on BMI status in young adulthood. The authors used multivariate regression analysis. The final sample contained (n = 3,447) adolescents born between the years 1979 and 1990 (Hernandez et al., 2014). The authors suggested that children growing up during that cohort time were exposed to more household instability than children from earlier birth cohorts, as a result of their parents getting remarried or simply cohabiting. Authors indicated that a linear

relationship existed between young adult BMI and family structure transitions (repeated changes in living arrangements) during adolescents and, that this relationship increased the likelihood for female rather than male obesity during young adulthood (Henrnandez et al., 2014).

According to Hernandez et al. (2014), unpredictability of family environment during adolescents only affected overweight status of females born into married/cohabiting, or (blended families). The authors, also reported that a large percentage of young adults born to single-mothers were overweight as well. While the percentage of children in unconventional living arrangements continues to grow it is important to continue observing for disparities in parenting practices by family type (Levin et al., 2012).

The studies mentioned above underline the importance of further research in the area of family dynamics and how they might impact adolescent weight, as well as what they might mean to intervention programs targeted at reducing obesity in this population during young adulthood. According to Hernandez et al., (2014), it is important for practitioners working with parents and adolescent children in reconstituted families to understand that families have complex family structures, health, and emotional needs. It will be important for practitioners working with these children to address any possible stressors occurring as a result of their home environment, which after all is interconnected, i.e. family structure, family stability and early child wellbeing in order to lower the risk of being an overweight or obese during young adulthood.

Factors Influencing Physical Activity in African American Adolescents

According to the National Association for Sport and Physical Education's (NASPE) report (2012), obesity will cost the United States $344 billion annually by 2018. It was also reported that less than half of students in the United States received physical education (PE) during a regular school week. Although 74.5% of all states require PE in elementary and secondary schools, more than half, (28 out of 38 states) allow an exemption or waiver (NASPE, 2012). The NASPE Report (2012) also stated that only nine states required recess for elementary school students, while only six states required PE in grades K – 12, and thirty states (59%) allowed students to earn required PE credits through online course work. Results represented 51 states, due to the federal District of Columbia being counted as a state for the purpose of data analysis and reporting (NASPE, 2012). Based on the evidence provided by the NASPE, there is little doubt that physical activity has decreased in elementary and secondary schools in the United States.

Hennessy et al. (2010) suggested that most of an adolescent's physical activity must occur within the family or outside of school. Although adolescents spend a significant amount of time in their school environment, and promoting physical activity among children became a national initiative (Durant et al., 2009), physical education standards in the United States are insufficient and mandated by individual states (NASPE & AMA, 2012). As stated in the previous section, 74.5% of states mandated physical education in grade school and secondary school, but most failed to make attendance mandatory due to students being allowed exemptions, substitutions, or waivers (NASPE

& AMA, 2012). Schools are in a position to positively influence health and wellness in children through promotion of nutrition and health education, requiring physical activity without the offer of waivers, and providing healthy meal and snack options.

Decreased physical activity within the family is a powerful influence on children because children model their parents and other adults. Parental obesity and low levels of physical activity have been correlated with decreased physical activity in children. Davison & Birch (2001), concluded that both parent and child characteristics (e.g. weight status, physical activity and dietary intake) predicted changes in BMI, pointing to the association between family and contextual variables.

According to Kimm et al. (2002), the childhood to adolescence transitional years are marked by a dangerously high decline in physical activity (Kimm et al., 2002). The authors reported a 50% drop in physical activity levels among adolescents. Kimm et al. (2002) suggested that white female adolescents tend to be more active than do their black female adolescent counterparts although a decline in physical activity during this life stage is typically seen in both groups as early as age ten. According to the authors, the decline in physical activity among this population was believed to have been caused by an increased prevalence of overweight and obesity among Latino and African American adolescent girls (Kimm et al., 2002). For example, Wang and Beydoun (2007) noted that obesity disproportionately impacted minority and low-SES populations regardless of age. According to NHANES data, overweight and obesity prevalence was higher among Hispanic American (19.2%) and African American (20%) adolescents aged 12 – 19

years, compared to their European American (16.3%) counterparts (Wang & Beydoun, 2007).

Duke, Huhman, and Heitzler (2003), examined the built environment as a cause for the decline in physical activity among African American youth. Concerns regarding neighborhood safety and barriers to transportation were cited by 30.6% of African American parents surveyed compared to 13.4% of White parents as the primary causes for physical activity among adolescents. Powell, Slater, and Chaloupka (2004), also reported the built environment as the reason for the decline of physical activity among youth. According to the authors, African American communities are less likely to have accessibility to beaches, pools, parks, and green spaces (Powell et al., 2004).

However, a later study by Cohen et al. (2013) investigated 24 neighborhood parks and recreation centers (12 parks in high-poverty areas and 12 parks in low-poverty areas) that sampled approximately 36,000 park users, throughout North Carolina, Ohio, New Mexico, and Pennsylvania, found no association between neighborhood conditions and residential park use. The authors suggested that the decline in physical activity resulted from inefficient use of neighborhood parks and recreational facilities by local residents, rather than being due to substandard conditions, access to parks, undeveloped land, and other green spaces. The authors noted that park use was not impacted in high-poverty areas that had buildings in poor condition.

Cohen et al. (2013) suggested that access to supervised or organized programmed activities was the strongest possible link for park usage. For example, Cohen et al. (2013) reported that in parks with a minimum of one organized programmed activity, there were

79% more park users per day and energy output for these parks was reported as 192 metabolic equivalent of tasks (METs) per day higher compared to parks without organized programmed activity (Cohen et al., 2013). In addition, the home, school, and neighborhood all remain crucial environments for adolescents. The decreases in school physical activity have contributed to the considerable rise in adolescent weight trends over the years (NASPE, 2012). Also, while some adolescents had access to recreations centers and amenities in proximity to their homes, issues of neighborhood safety are key factors influencing decisions to participate in outdoor physical activities were prevented.

Parental Weight/BMI Status

According to researchers' there is strong evidence tying obesity in children to parental weight. Watowicz, Taylor, and Eneli (2013) reported that by age 10 children had a 48% risk of becoming overweight or obese if they had at least one overweight or obese parent. Burke, Beilin, and Dunbar (2001) suggested that parental BMI of the father, predicted the adolescent's BMI independent of smoking, physical fitness, alcohol intake, or the father's education level. Burke et al. (2001) reported that BMI was always higher when the father was overweight or obese. Obesity in the father was associated with four times the risk of the child becoming obese by age 18. The strongest predictor of high BMI rates among both sons and daughters was a lack of physical activity (Burke et al., 2001). Parental modeling and exercise patterns were determined to influence children's participation in physical activity during both childhood and adolescence, even after leaving home (Burke et al., 2001).

Payas, Budd, and Polansky (2010) explored the relationship among mothers' BMI, attitude, and behaviors, and child weight status. Payas et al. (2010) conducted a cross-sectional study using mother-child participants from both rural and urban elementary school environments. The average age of the mothers participating in the study was 36.5 years ($n = 46$). The sample included 49% White, 43% African American, 4% Hispanic, 2% Native American, and 2% others. Fifty-three percent of the total sample was married, 53% lived in rural areas, and over 50% were college educated. African American mothers were from urban areas, whereas their White counterparts were from rural areas (Payas et al., 2010).

According to Payas et al. (2010) the African American mothers had higher BMI's at 33.2% compared to White mothers at 28.3%. A significant relationship was found between maternal BMI and number of people living in the household ($p < .001$), as well as between maternal BMI and household income ($p < .05$). For example, high maternal BMI was significantly associated with low-income ($p < .05$). Payas et al. (2010) concluded that mothers in urban areas were more likely to be overweight or obese than were White rural mothers. However, the authors reported that mothers in urban areas exhibited more interest in their children's weight than White rural mothers; and, both urban and rural mothers' perception and beliefs about their children's weight was directly related to maternal BMI (Payas et al., 2010).

Payas et al. (2010) had a number of limitations that included a small sample size. Most critical to the application of this study was that the authors could not conclude the effect of maternal BMI on their children's BMI percentiles due to lack of information on

the children's weight. Another limitation arouse from the authors not being able to make an inference about how the mothers' perception of their children's weight agreed with their children's actual weight. Despite these limitations, the authors found that overweight and obesity is a problem in both urban and rural populations.

Neighborhood Influences (Physical and Social Environments)

In an effort to build upon existing research on health disparities associate with obesity, Nicholson and Browning (2012) investigated the strength and direction between neighborhood disadvantage and young adult obesity to determine the role of ethnicity and gender. Two theories were used, the social disorganization theory and the life course theory to test the hypotheses, (a) neighborhood disadvantage would have a negative impact on weight outcomes during the transition to adulthood, with minority females having an even greater disadvantage, (b) there would be a curvilinear relationship between neighborhood disadvantage and obesity that leveled off, and (c) ethnic disparities in obesity can be explained by neighborhood disadvantage (Nicholson & Browning, 2012). The total sample of participants included 5,759 adolescents.

A multilevel structure was used to analyze the data. The life course theory provided a multidisciplinary approach while the social disorganization theory was based on the belief that delinquency was not caused at the individual level, but was considered to be the normal response of normal individuals to abnormal social conditions such as those associations with neighborhood level variables and weight in relation to race and ethnicity. For example, African American adolescents considered their neighborhoods more threatening than adolescents of other ethnicities and as a normal response to their

social conditions that included fear and distrust, these adolescents limited their time spent outdoors (Nicholson & Browning, 2012). Weiss et al. (2011) purposed that research on neighborhood inequalities related to park use among minorities and lower-SES populations should include *social access* measures, such as safety concerns, to include being a victim of delinquent or criminal behavior around local park facilities, and similar to Nicholson and Browning (2012), Weiss et al. (2011) discussed how safety related concerns and fear of neighborhood crime deterred park use contributing to the decline in physical activity and increased in obesity among these populations.

Another aspect of the physical environment is food access. The community environment that adolescents live may encourage or discourage healthy dietary habits, along with regular physical activity behaviors (Walker, Keane, & Burke, 2010). The abundance of fast-food restaurants, frequency of eating out, and advanced meal processing and preparation technologies contribute to the overconsumption of calories (Walker et al., 2010). Fast food restaurants and convenient stores present an attractive alternative to eating at home for both parents and adolescents. Despite its unhealthy long-term effects, nutrient-dense fast food options offer fast, easy, low-cost food sources with high availability in neighborhood environments with less access to super-markets (Walker et al., 2010).

Many Americans live in environments that expose them to high-calorie, high-fat foods that are readily available, relatively inexpensive, heavily advertised, and very delectable (Bauer et al. 2011). Christiansen, Qureshi, Scaible, Park, and Gitterlsohn (2013) suggested that the types of food offered at the neighborhood level depended on

neighborhood location and SES of residents. Minority and lower-SES neighborhoods have less access to supermarkets, but higher concentrations of liquor stores, fast-food establishments, and experience higher exposure to toxic substance in their physical environment (Weiss et al., 2011). Thanks largely to fast food, food is available anywhere, anytime, and most alarming, at a supersized portion. Fast foods, included sugar sweetened beverages, which were major players in the development of obesity (Bauer et al., 2011). Fast food is often high in fat, and a high-fat diet promotes obesity. Also, a decrease in physical activity among adolescents is believed to be related to increased body fat and risk of obesity (Bauer et al., 2011).

It is important to recognize that many children from this ethnic group grow and develop normally and are successfully able to meet the challenges of adolescence and young adulthood. The disproportionate levels of health problems experienced by African Americans can be attributed, at least in part, to the effects of poverty and the lack of access to healthcare that is associated with being poor (Daniels et al., 2005). Resiliency among minority adolescents from disadvantaged backgrounds, including those who grow up in poverty often come from family or community environments that provide nurturing, supportive, and culturally enriched environments (Crosnoe, & Johnson, 2011).

Psychological Health

Children have experiences during infancy that they later learn to associate with comfort. Feeding is associated early on as a feeling of well-being or security and comfort for children. Eating is soon associated with the feeling of being loved. A connection between emotions and early eating behavior is formed. Many parents use food as a

positive reinforcement for desired behaviors (Neumark-Sztainer & Hannan, 2000). Too often, which we see with issues of overweight and obesity, this practice can become habit forming, and the child may continue to use food as a reward, a comfort, and a means to deal with feelings of depression or hostility.

Because many adolescents eat even when they are not hungry, or in response to emotional stress, boredom, and depression, it can make it difficult to determine when feel, which can eventually lead to weight problems (Neumark-Sztainer & Hannan, 2000). This can also lead to emotional eating rather than eating for nutrients in response to physical cues. Adolescents may overeat in response to traumatic or upsetting events, such as the death of a parent or sibling, separation from a parent, parental divorce, and school failure, physical, sexual, or emotional abuse. Anxiety and depression can cause increase appetite in some people (Neumark-Sztainer & Hannan, 2000).

Depression is common in overweight and obese children and is frequently caused by issues of low self-esteem related to negative body image (Sullivan, 2010). One's satisfaction with physical appearance is tied to self-esteem, which has the ability to impact one's perceived self-efficacy. Bandura (1989, 1994) suggested that disorders like depression and anxiety are triggered when an individual has an inability to exercise control caused by low self-efficacy. Sullivan (2010) reported higher rates of moderate to severe depression among girls that were morbidly obese, and of those girls, 35% self-reported experiencing high levels of anxiety.

Seminal work by McFarlane, Bellissimo, and Norman (1995) found a significant association among family functioning and adolescent depression involving the parenting

styles of both mothers and fathers. The researchers reported cross-gender effects that parenting styles had on adolescent mental health. Mothers' care was associated with lower depression scores in sons and fathers' care was associated with lower depression scores in daughters, which showed that parental interactions were strongly associated with adolescent depressive symptoms.

Consequently, the psychological concerns related to adolescents with BMI greater than the 95% percentile for age and gender are low self-esteem, depressed mood, having body image dissatisfaction, (Cortese et al., 2009; Neumark-Sztainer, & Hannan, 2000; Sullivan, 2010) being anxious, and being socially isolated (Rosen-Reynoso, Alegria, Chen, Laderman, & Roberts, 2011; Sullivan, 2010): these can all be direct and indirect triggers at the individual, behavioral, and environmental levels (Bandura, 1989, 1994).

Long-Term Effects of Adolescent Overweight and Obesity

Many African American adolescents have experienced predictable outcomes associated with living in environments where risk factors disproportionately outweigh protective factors. The Centers for Disease Control and Prevention (CDC, 2011) reported minority children and adolescents had higher percentages of learning, emotional, and or physical disabilities, higher school dropout rates, fewer opportunities for higher education, became parents at earlier ages, were incarcerated in youth detention facilities, or died as a result of homicide or unintentional injuries before reaching adulthood. The increase in health risk behaviors during adolescence, in combination with limited access to healthcare and effective preventive services, placed these adolescents at significantly higher risk for chronic illness, and emotional disturbances (Viner et al., 2012).

Obesity is unlike most health problems occurring in adolescence. Obesity is an obvious and very difficult to treat health issue with long term psychological and physical effects. Obesity in adolescence has been related to high blood cholesterol, hypertension, respiratory system disorders, orthopedic conditions, certain cancers, and an increase in Type 2 diabetes mellitus (CDC, 2012). The most prevalent complication of adolescent obesity is its persistence into adulthood, with remarkable resistance to treatment. Adults with long-standing obesity are at risk for medical complications that include hypertension, diabetes, coronary heart disease, stroke, and colorectal cancer (Neef et al., 2013).

In a study by Wang, Chyen, Lee, and Lowry (2008), the authors used data from the NLSY79 to investigate the relationship between adolescent BMI and obesity in adulthood. Wang et al. (2008) reported that baseline level BMI was recorded for sample participants between age 16 and 17 years and again at ages 37 and 38 years. The sample included 1309 adolescents and among those, (n = 366) were African American. The authors reported that adolescents with a BMI ≥ 85th percentile were at higher risk for obesity in adulthood, African American females and Hispanic American males had the highest likelihood of adult obesity and rapid onset of obesity followed by African American males (Wang et al., 2008). The authors also suggested that cultural norms and SES might have contributed to African American females' self-perception of body image and weight status (Wang et al., 2008).

Miller (2011) discussed that being obese as a child and adolescent is also a significant risk factor for adult obesity. For example, Gordon-Larson et al. 2004 (as cited

in (Nicholson & Browning, 2012) reported on the trend of overweight and obesity during the transition to young adulthood for adolescent participants that took part in The National Longitudinal Study of Adolescent Health (Add Health). At Wave II 11.7% of the adolescent sample transition from a healthy weight to obese status at Wave III, while another 10.4% of study participants transitioned from overweight status at Wave II to obese status at Wave III. Adult obesity has been linked to increased mortality and morbidity from a variety of complications, including physical and psychological conditions (Ebbeling, Pawlak, & Ludwig, 2002).

Literature Review of Methodology

NLSY97 data are used for this study because variables of interest to research questions are included. These data allow the researcher to make comparisons and contrasts between the different questions and/or to see if any of the consequences are associated. Previous studies using the NLSY97 data support the methods to be used in this study. For example, Powell, Wada, Krauss, and Wang (2012) conducted a secondary data analysis using data from the NLSY97 to examine the role of circumstantial factors such as household and economic characteristics on ethnic disparities in adolescent BMI percentile. Of interest to this researcher is the use of the parent-reported data that were only available at Wave 1 of the NLSY97 cohort. (Powell et al., 2012). The authors concluded that parental SES helped to explain BMI gaps between male Hispanic – European American (78%), male African American – European American (63%), female Hispanic – European American (62%), and female African American – European American (44%) (Powell, Wada, Krauss, & Wang, 2012). The present research study will

use the publicly accessible NLSY97 data files for the year 1997 to test each research hypothesis.

In another study, Fosse and Haas (2009) discussed the validity and reliability of self-reported health (SRH) status among adolescents using data from the NLSY97. The authors used waves 1 – 7 (1997 – 2003) of the nationally representative adolescent cohort, NLSY97 to conduct their study (Fosse & Haas, 2009). They revealed (a) a moderate weakening in stability of SRH over a seven-year time period, (b) agreement in SRH status between adolescents and their parents, except when adolescents reported unfavorable health conditions, and (c) stronger agreement was noted among same-gender (e.g. father-son and mother-daughter) parent/adolescent groups (Fosse & Haas, 2009). The NLSY provides a rich resource of panel data with repeated measures on sociodemographic variables, as well as valid self-reported height and weight for study participants (Weden & Miles, 2012).

Summary

In an effort to determine parenting styles using the parenting style typology model (Buarmind, 1966,) and measures for parenting dimensions (Maccoby & Martin 1983), I examined The National Longitudinal Survey of Youth 1997 (NLSY97) main and supplemental publicly accessible data files. Data was generated and analyzed for parenting style (authoritative, authoritarian, permissive, uninvolved), parenting practices (responsiveness, monitoring, limit-setting, demandingness), the home food environment, and on residential and nonresidential African American parent's weight status, health

knowledge, and beliefs on opposite sex and association to adolescent health outcomes related to obesity.

This study expanded on previous studies in which parenting styles were mediated by numerous contextual variables, many of which center around the inconsistencies in previous literature that has highlighted sociocultural and socioeconomic influences impacting adolescent development and weight outcomes. These findings could be used by public health professional, educators, and healthcare professions to help develop and implement culturally sensitive weight and dietary based interventions. Chapter 3 includes the methods that were used to analyze NLSY97 data from the proposed research questions for the purpose of identifying gaps in the literature.

Chapter 3: Research Method

Introduction

The purpose of this study was to investigate the relationship between parenting styles and parenting practices of African American mothers and fathers residing both inside and outside of the home on the weight status (as measured by BMI percentile) of their adolescent children, aged 12 to 17 years. I considered social and economic factors as well as the physical and sociocultural environments as potential causes or influences on weight status associated with obesity. The study results should be useful in understanding the cultural and gender contexts of parenting behaviors among African American parents and identifying changeable factors to lower obesity rates in this population.

Chapter 3 includes a review of the research methods and design appropriateness and a discussion of the population and sample. Four different variables are components of the research questions under study: parenting characteristics (styles and practices/behaviors), parent-adolescent weight status/BMI percentile, adolescent weight status, and the parent-adolescent relationship on adolescents' weight status (as measured by BMI percentile).

Research Design and Rationale

The research design provided the research plan or protocol for the study, which includes the study's structure, time frame, details regarding the study population, methods, procedures, ethical considerations, and threats to validity (World Health Organization, 2014). Quantitative research methods involve the organized collection of numeric information, usually under conditions of significant control and the analysis of

that information using statistical procedures (Creswell, 2009). Qualitative research methods involve the organized collection and analysis of more subjective resources, using measures in which there tends to be a minimum of researcher imposed control. In addition, quantitative researchers have a tendency to use logic, deductive reasoning, and measurable attributes of human experience (Creswell, 2009).

According to Creswell (2009), quantitative research investigates the association between variables through the testing of objective theories. This design is used as it allows for information collection without manipulating the environment (Creswell, 2009). Qualitative researchers tend to use dynamic, individual aspects of the human experience in a holistic approach that usually results in nonnumeric primary data. Both methods have their strengths and weaknesses and specific applications. I employed a quantitative research design using secondary data from the BLS, NLSY97. The research questions and null and alternative hypotheses that guided the study are as follows:

1. Do parents' perceived parenting styles (authoritative, authoritarian, permissive, and uninvolved) influence the BMI percentile of African American adolescents from 12 to 17 years of age?

   $H_0$1: Parents perceived parenting styles (authoritative, authoritarian, permissive, and uninvolved) do not influence the BMI percentile of African American adolescents from 12 to 17 years of age.

   $H_1$1: Parents perceived parenting styles (authoritative, authoritarian, permissive, and uninvolved) do influence the BMI percentile of African American adolescents from 12 to 17 years of age.

2. Do parents' perceived parenting practices (demandingness and responsiveness) influence the BMI percentile of African American adolescents from 12 to 17 years of age?

   $H_0$2: Parents perceived parenting practices (demandingness and responsiveness) do not influence the BMI percentile of African American adolescents from 12 to 17 years of age.

   $H_1$2: Parents perceived parenting practices (demandingness and responsiveness) do influence the BMI percentile of African American adolescents from 12 to 17 years of age.

3. Is the relationship between parenting practices and BMI percentile influenced by sociodemographic variables (family structure, parent's education, parent's BMI, household income, parent and adolescent gender pairs and area of residence - urban/rural)?

   $H_0$3: The relationship between parenting practices and BMI percentile is not influenced by sociodemographic variables (family structure, parent's education, household income, parent and adolescent gender pairs and area of residence - urban/rural).

   $H_1$3: The relationship between parenting practices and BMI percentile is influenced by sociodemographic variables (family structure, parent's education, household income, parent and adolescent gender pairs and area of residence - urban/rural).

Methodology

The methodology for this study was the statistical analysis of data to examine the association between significant variables at one specific survey point in time and weight status. Archival data (Wave 1) from the NLSY1997 directed by the BLS, an agency of the U.S. Department of Labor and conducted by Ohio State University were used. This represents the most recent dataset containing all of the independent and dependent variables of interest to the current study. Although the primary purpose of the NLSY97 was to collect data on adolescent labor force experiences to help researchers analyze students' in high school transition to adulthood and into the workforce, the NLSY97 surveys included data on family processes and health behaviors. Obesity related questions about adolescent weight, perception of their weight, and whether they had plans to change their weight status were asked starting in 2006 (Wave 7). Only in recent survey years was more detailed information on adolescent physical activity level and dietary habits included. Data recorded during later waves occurred after participants turned 25 years of age (BLS, 2016).

Use of secondary data analysis has a long-standing and well established history in the social sciences, including public health. Social scientists have found considerable value in having access to secondary data, such as survey data in their research (Cheng & Phillips, 2014; Frankfort-Nachmias & Nachmias, 2008). Incorporating secondary data into one's own research has its advantages. Secondary data analysis (a) is cost effective and time efficient, (b) offers high data quality, (c) can provide more time for data analysis and subgroup analysis, and (d) lends itself to comparisons within social groups and trend

analysis as an easy means of monitoring change over time (Cheng & Phillips, 2014; Frankfort-Nachmias & Nachmias, 2008).

The NLSY97 dataset was particularly appropriate for this study because it contained specific measures of parenting styles for mothers and fathers as well as statistics about parent-child demographic information, SES, and self-reported weights and heights used to generate adolescent BMI percentiles and parents BMI. Survey information for both parent and child was only collected during Wave (Round) 1, which was used to construct the family processes variables, including parenting styles, parent-child relationship, and family structure (BLS, 2016).

Population

The target population for the NLSY97cohort consisted of United States adolescents born in the years 1980 to 1984 and their parents. Data collection began in 1996 and is conducted annually. The target population of interest for this study was restricted to African American adolescents ages 12 to 17. This population was selected due to reported disproportionate health outcomes related to obesity. For example, between 2007 and 2010, African American girls were reported to have an 80% higher likelihood of becoming overweight than were European American girls (CDC, 2012). In 2011, the percentage of overweight African American girls in high school was 19.6% compared to 13.8% for European American girls, and 16.2% combined for African American girls and boys compared to 14.2% for their European American counterparts (CDC, 2012). Adolescent obesity has also been determined to be an indicator of adult obesity (Miller 2011; Neef et al., 2013).

Sampling and Sampling Procedures

As mentioned in the previous section, the NLSY97 is a nationally representative survey of adolescents born between 1980 and 1984 (BLS, 2016). As of December 31, 1996, when the survey started, children were between the ages of 12 to 16. The survey was comprised of two independent probability samples (90,000 addresses in 144 primary sampling units). The cohort for the NLSY97 consisted of a cross-sectional sample totaling 6,748 that comprised one of the two independent probability samples and a supplemental sample set of 2,236 that represented an oversampling of Blacks and Hispanic adolescents during Wave 1. The NLSY97 included in the larger sample, a supplemental sample of 100 cases for oversampling, out of the 144 addresses with higher densities of Hispanic and African American adolescents (BLS, 2016). The original sample size of 8,984 was oversampled for African Americans and Hispanic Americans and included 4,599 males and 4,385 females. The target population for this study was restricted to Africa American adolescents and their parents. Inclusion criteria were based on questions that assessed adolescents' family processes/relationships, asked only during Wave 1 of adolescents 12 to 14 years of age (BLS, 2016). This reduced the total extracted sample from 8,984 to 8,852 and of this total, 2,219 adolescents were African American (BLS, 2016).

According to Moore, Pedlow, Krishnamurry, and Wolter (2000), due to oversampling and nonresponse, unweighted estimates could produce misleading results. The chance of selection into the sample and nonresponse to individual survey rounds is corrected for by sampling weights. For researchers using only cross-sectional sample

cases, this eliminated the need to adjust for the presence of oversampling. Wave 1 sampling weights were appropriate for initial selection into the sample (Moore et al., 2000).

To avoid the probability of a Type II error (failing to reject a false null hypothesis), the issue of power was considered. There must be a sufficient number of study participants to accomplish the proposed statistical examination (Creswell, 2009). Katz (2006) suggested a minimum 10 to 1 ratio for each freely estimated parameter. According to Creswell (2009), a sample size that is too small will not produce the desired effect size and likely create a Type 1 error. A Type 1 error is the incorrect rejection of the null hypothesis (Creswell, 2009).

Using G*Power 3.1 statistical power analysis program, a power analysis was conducted to determine the appropriate sample size needed to evaluate the hypotheses using hierarchical multiple regression and one-way ANOVA. Using an effect size of 0.25, with a power of 0.95 and a significance level of 0.05, the minimum sample size required for multiple regression was $n = 80$ while the minimum sample size needed for one-way ANOVA was $n = 210$ (Faul, Erdfelder, Buchner, & Lang, 2009). Planning for possible inconsistencies and invalid and missing data issues, the final sample size was increased by 35% ($n = 325$).

Data Collection (NLSY97 Archival Data)

The National Opinion Research Center, which is associated with the University of Chicago and the Center for Human Resource Research at the Ohio State University, were contracted by the BLS to oversee management for the NLSY97 cohort and data

collection (BLS, 2016). Annual interviewing for the study began in 1996. The 1997 cohort included several sibling pairs. Access to geocode data on geographic locations for the supplemental data is restricted, although retrieval of public access data from the main sample has no restrictions (BLS, 2016). Interviews for Wave 1 were conducted starting in 1996. Data collection for Wave 2 and later waves were conducted fall through spring of each year and lasted approximately eight months. Interviews took place both in person and by phone. In person interviews included a self-administered portion and lasted approximately 60 minutes. Eighty-five percent of all interviews occurred face to face (BLS, 2016). Interviews were conducted in both English and Spanish. All original adolescent respondents were recollected unless deceased, imprisoned, institutionalized, or refused in a hostile manner (BLS, 2016).

The intended use for the NLSY97 is to collect data on gender, race, ethnicity, and cultural differences relative to educational experiences, employment, and earnings among youth, although due to the interest and funding of various other governmental agencies, the NLSY97 survey has adopted a broadly diverse focus (BLS, 2016). Data collection is conducted fall through spring of each year for about eight months. Rudimentary funding is provided by the United States BLS, although funding for special questions were provided by various other governmental agencies to include The Department of Defense and Labor, The National Institute of Child Health and Human Development, The National School-to-Work Office, and The Department of Justice, Office of Juvenile Justice and Delinquency. The behaviors of interest addressed by the NLSY97 fall into nine categories: (a) aptitude, achievement, and intelligence; (b) education; (c)

employment; (d) expectations, attitudes, behaviors, and time use; (e) family background and demographic characteristics; (f) health; (g) income, program participation, and assets; (h) marital history, childcare, and fertility; and (i) training.

Procedures for gaining access to the data set. Each wave of the public-use NLSY97 data files are freely available through the NLS Investigator website. Researchers are able to examine, analyze, save, and download data sets for their specific needs. The data are available in the following formats: (a) SPSS, (b) SAS, (c) Stata, and (d) Comma-delimited data file setups (BLS, 2016). For this study I used the SPSS files.

Instrumentation (NLSY97 Questionnaire)

The Center for Human Resource Research at Ohio State University is in charge of variable construction, documentation, and distribution of the data as well as user services for NLSY97 (BLS, 2016). A range of survey instruments were used to collect the data. The screener, household roster, and nonresident roster questionnaire identified eligible adolescents to participate in the survey, and demographic information on household residents and key nonresident relatives was collected during the first survey round. According to the BLS (2016), the adolescent questionnaire that was administered during each wave was designed to seek information about a number of topics, including employment, schooling, family background, attitudes, and behaviors. The parent questionnaire was used to interview one of the adolescent's parents in Wave 1 regarding the adolescent's past, current status, and significant characteristics of the parents' own life. School and transcript surveys were used to collect information regarding schools in the sample areas and academic records of the adolescent respondents (BLS, 2016). Three

types of variables are described in the next section. These variables include the dependent, independent, and confounding variables, some of which are multiple indicator variables. Details on these appendixes can be found online by accessing the NLSY97 Codebook Supplement Main File Round (Wave) 1 website: http://www.bls.gov/nls/quex/r1/y97r1cbk0.pdf .

Body mass index. All adolescents were asked during each wave to report their height and weight and to state their general health status (BLS, 2016). Adolescents were asked to further describe their weight and in the self-administered section as very underweight, slightly underweight, about the right weight, slightly overweight, or very overweight as well as their current weight strategy (lose weight, gain weight, stay the same weight, not doing anything about weight; BLS, 2016). For this study, BMI was computed using the CDC's BMI-for-age growth charts that defines overweight as BMI 25 or the 85th percentile and obesity defined as BMI > 30 or the 95th percentile (CDC, 2012), as shown in Table 2.

Parenting style variable. Four types of independent parenting style variables are discussed in this section: (a) authoritative, (b) authoritarian, (c) permissive, and (d) uninvolved. Categorical measures of parenting styles were used to examine Bamrind's (1966, 1972) seminal works on parenting typology that were later enhanced by Maccoby and Martin (1983). The parenting style indicators developed by Child Trends for the NLSY97 are aligned with Bamrind (1966,1972) and Maccoby and Martin (1983) groundbreaking works and were used in this study. Child Trends created parenting styles for each of the possible parenting figures: residential mother, residential father,

nonresidential mother, and nonresidential father (BLS, 2016). Adolescent respondents were initially surveyed by Child Trends to establish which one of the four categories of parenting styles, i.e. authoritative, authoritarian, permissive, or uninvolved their mother and/or father fit (BLS, 2016). Instead of having to work with a multi-scale item to classify parents into four groups, Child Trends was able to create a more viable two-level variable for large national studies (BLS, 2016).

The measure developed by Child Trends used two questions from the youth questionnaire to identified two cross-classifications of the parenting typologies into parenting dimensions, i.e. responsiveness (e.g. warmth and support) and demandingness (strictness and control). According to the BLS (2016), the responsiveness measure was measured on a 3-point scale and measured by a question that asked adolescent respondents, "When you think about how s/he acts towards you, in general, would you say that s/he is very supportive, somewhat supportive, or not very supportive?" The strictness measure was measured on a 2-point scale and measured by a question that asked adolescent respondents, "In general, would you say that s/he is permissive or strict about making sure you did what you were supposed to do?" (BLS, 2016).

Parenting practices. According to Darling and Steinberg (1993), an important association, as well as notable separation should always be made when working with parenting practices, i.e. although they are related to parenting styles, the key is to remember that they are not the same. The NLSY97 survey questionnaire included questions regarding interactions between parental responsiveness (i.e. how supportive the parent was to the children's needs) and demandingness (i.e. parental boundary setting for

adolescent behaviors) (Baumrind, 1966; Berge et al., 2010b; Hennessy et al., 2010; Maccoby, & Martin, 1983). Authoritative parenting was high in both responsiveness and demandingness. Authoritarian parenting was high in demandingness, while low in responsiveness. Permissive parents were responsive, but were not demanding whereas, uninvolved parents were neither demanding nor responsive (Baumrind, 1966, 1972; Berge et al., 2010b; Sterrett et al., 2013). In order to examine the parenting practices of responsiveness and demandingness, each model had dimensions that were measured to give a complete indication of each parenting style. The parent-youth relationship scale (i.e. measures parental warmth and attachment) parental monitoring scale, limit-setting index, and index of family routines (i.e. involvement) index were prepared for the U.S. Department of Labor by Child Trends, Inc. and the Center for Human Resource Research at Ohio State University. The measures for parent-child communication and strictness were single variables selected from the youth questionnaire (BLS, 2016).

Sociodemographic variables. Family structure, parent's education, parent's BMI, household income, parent and adolescent gender pairs variables were selected from the available data provided in the NLSY97 dataset. The household questionnaire provided data of the highest grade level completed for each residential mothers and fathers. This information was used to determine family SES-status. Two variables were used, income and education. According to Raffensperger et al. (2010) educational attainment and income are included in the SES indicators.

Weight status (Anthropometrics data). Adolescent and parent self-reported heights and weights were utilized to calculate BMI and BMI percentiles. In the present

study, children were grouped into weight status categories that included underweight (less than 5th percentile), healthy weight (5th-84th percentile), overweight (85th percentile or higher), and obese (95th percentile or greater) categories based on standard growth curves for age and sex (CDC, 2015a). Parents were grouped into adult BMI categories that included underweight (less than 18.5), normal weight (18.5 – 24.9), overweight (25 – 29.9), and obese (30 or greater) (CDC, 2015b), as shown in Table 1.

Table 1

Summary of Variables and Level of Measurement

Variable	Level of measurement
Gender	Female = 1 Male = 2
Parenting styles Uninvolved Permissive Authoritarian Authoritative	 1 = Lenient and not very or somewhat supportive 2 = Very supportive and lenient 3 = Not very or somewhat supportive and strict 4 = Very supportive and strict
Parenting practices Responsiveness	Parent-adolescent communication - Continuous variables involvement and affection 1 = Very supportive 2 = Somewhat supportive 3 = Not very supportive
Demandingness	Continuous variables limit-setting, monitoring and strictness 1 = Permissive 2 = Strict
Sociodemographic variables Family structure	 Dichotomous variable assessing living arrangement of adolescent 1 = Both biological parents 2 = Blended (remarried) 3 = Single-mother (divorced or never married) 4 = Anything else (Adoptive, Foster, Grandparent, other relatives)
Education of parent/guardian	1 = Less than high school 2 = High School/GED 3 = Some college/Technical school 4 = College graduate/Advanced professional degree
Total family income (Previous year)	Under $20,000 $20,000 - $40,000 $40,000 - $60,000 $60,000 - $80,000 Over $80,000
Residential area	0 = Rural 1 = Urban 2 = Unknown

(table continues)

Weight status BMI Percentile	1 = Underweight (Less than 5th percentile) 2 = Normal weight (5th percentile – 85th percentile) 3 = Overweight (85th – 95th percentile) 4 = Obese (95th percentile or greater)
Parental BMI	1 = Underweight (Less than 18.5) 2 = Normal weight (18.5 – 24.9) 3 = Overweight (25 to 29.9) 4 = Obesity (30 or greater)

Data Analysis

The NLSY97 data were initially cleaned and prepared in Microsoft Excel 2016 prior to being transferred to Statistical Package for Social Scientist (SPSS), statistical software, Student Version 21.0 and undergoing additional modifications for data analysis. Cleaning the data required checks for reliability and management of missing responses that are commonly done through SPSS (Pallant, 2010). Descriptive statistics was conducted to identify outliers, and box plots and histograms were graphed to check for normality.

The statistical tests used to explore the association of adolescent weight status as measured by BMI percentile with the independent variable (parenting styles and parenting practices) included univariate, bivariate and hierarchical multiple regression analysis. Descriptive statistics included the mean scores, as well as the frequency distributions for each demographic factor. Parametric assumptions of normality, linearity, and homoscedasticity were evaluated to determine if the data violated normality test assumptions. Histograms, bar charts, box and scatter plots were generated to identify the

degree of normality (Pallant, 2010). Data were determined to have non-normal distributions. As a result, nonparametric analysis of the hypothesis was conducted.

Kruskal-Wallis test were used to test the effect of the independent variables parenting styles (authoritative, authoritarian, permissive, uninvolved) and parenting practices (demandingness and responsiveness) on adolescent BMI percentile. Mann-Whitney U tests were used to compare means for parenting dimensions, responsiveness and demandingness. Multiple regression was performed in order to fully measure the influence of the demandingness and responsiveness (independent variable) on adolescent BMI percentile (the dependent variable) and confounding (sociodemographic) variables. Multiple regression is a powerful statistical method often used to analyze multivariate data (Stockburger, n.d.). Use of a hierarchical multiple regression allowed for the addition of multiple predictor variables to the regression model in stages. BMI percentile was entered as the criterion variable, while parenting practices (demandingness and responsiveness) were entered as predictor variables. In addition, all demographic variables including family structure, parent's education, parent's BMI, household income, parent-adolescent gender pairs and residence were included in Model 1 of the analyses prior to inclusion of predictors in Model 2.

Table 2

Summary of Data Analysis Plan for Research Questions

Research questions	Variables	Statistical test
Do parents' perceived parenting styles (authoritative, authoritarian, permissive, and uninvolved) influence the BMI percentile of African American adolescents from 12 to 17 years of age?	Dependent variable: BMI percentile Independent variable: parenting styles	Kruskal-Wallis Test (Nonparametric One-way ANOVA) was used to test if the interval dependent variable and categorical independent variable are associated.
Do parents' perceived parenting practices (demandingness and responsiveness) influence the BMI percentile of African American adolescents from 12 to 17 years of age?	Dependent variable: BMI percentile Independent variable: parenting practices	Kruskal-Wallis Test (Nonparametric One-way ANOVA) was used to test if the interval dependent variable and categorical independent variable are associated.
Is the relationship between parenting practices and BMI percentile influenced by sociodemographic variables (family structure, parent's education, parent's BMI, household income, parent and adolescent gender pairs and area of residence - urban/rural)?	Dependent variable: BMI percentile Independent variable: parenting practices Confounding variables: sociodemographic variables	Multiple regression was used to test if there is a relationship between parenting practices on BMI percentile and sociodemographic variables, if using the exact BMI calculation.

Threats to Validity

Validity and reliability are important factors in quantitative research. Validity is the capability of the testing instrument to measure what it was designed to measure. Reliability is the measure of how established, dependable, truthful, and consistent a test is in measuring the same thing each time (Laymon & Weiss, 2002-2003).

Validity may be threatened at any stage during the study including the selection of the study design, selection of subjects, data collection, data analysis, and explanation of

results (Runeson & Host, 2009). There are two main types of validity: external and internal. External validity refers to the degree to which the conclusion from the study can be generalized to diverse populations, other than those used in the study. As previously stated, the NLSY97 cohort is comprised of two independent probability samples, a cross-sectional sample and an oversample of African American and/or Hispanic American adolescents. The cohort was selected using these two samples to meet the survey design requirement to provide a sufficient number of minority adolescents for statistical analysis (BLS, 2016). The NLSY97 includes a probability sample of the target population that had a known probability of inclusion in the sample. This was required to generalize results for the participants selected to participate in the study, and to ensure that they were very representative of the population to which the results have been generalized (Lee, Lee, Guo, & Harris, 2011).

Conversely, internal validity refers to the accuracy of the results and is based on rational assessment that the results and conclusions are not likely to occur due to a chance, bias, confounding, or unsuitable methodology (Runeson & Host, 2009). Internal consistency as measured by Cronbach's alpha refers to how well the multiple measures on the same subject agree. The NLSY97 questionnaire design process for several of the variables used in the Wave 1 survey, measured internal reliability with Cronbach's alpha, which was considered a good method in terms of internal consistency/reliability (BLS, 2016).

I used data from the baseline year (1997), of NLSY97 cohort. The NLSY97 survey was the sixth and latest program in the series of NLS data conducted since 1986

(BLS, 2014). The reliability and validity of the data collected for this nationally representative random sample has been established empirically by various researchers, like the validity and reliability identification for the NLSY Kinship Links conducted by the National Institute of Health (NIH), which validates the appropriateness of its use (U.S. Department of Health and Human Services [HHS], 2013).

Ethical Procedures

The collection of NLSY97 data was approved by the Bureau of Labor Statistics (BLS), which is part of the U.S. Department of Labor (BLS, 2016). In addition to the Office of Management & Budget review, the collection of NLSY97 data were approved by an institutional review board (IRB) at the institutions that manage and conduct the surveys under contract with BLS. Those institutions are The Ohio State University and the National Opinion Research Center (NORC) at the University of Chicago. Although the BLS and OMB do not require these reviews, they are required under the policies of the universities (BLS, 2016). The demographic data on age and race of participants used in the present study were obtained as part of the home interview process. During the initial interview period, interviewers visited randomly selected households to identify all eligible adolescents for the NLSY97 cohort (BLS, 2016).

Two Federal laws govern policies and procedures for protecting adolescent respondents' confidentiality and obtaining informed consent in the NLSY97: the Privacy Act of 1974 and the Confidential Information Protection and Statistical Efficiency Act (CIPSEA) of 2002 (BLS, 2016). These two acts protect the confidentiality of participants by ensuring that individuals who provide information to BLS under a pledge of

confidentiality for statistical purposes will not have that information disclosed in identifiable form to anyone not authorized to have it. This law reinforces the ability of BLS to assure adolescents that, when they provide information to BLS, their information will be protected (BLS, 2016).

In addition, CIPSEA includes fines and penalties for any knowing and willful disclosure of specific information to unauthorized persons by any officer, employee, or agent of BLS (BLS, 2016). NLSY97 interviewers explain federal policies regarding confidentiality and consent to study participants by making them aware that public use data provided to researchers and policymakers is anonymous and will never contain names, addresses, phone numbers, social security numbers, or other information that could reveal personal identity on public file. However, a select few researchers are granted special access to data files called Geocode Data files, which contain some of the personal information listed above if authorized, once they have completed a thorough application process by the U.S. Bureau of Labor Statistics (BLS, 2016).

Data collected by the NLSY97 survey is available for use by academic instructors, students, research scientist and analyst, universities, and research centers both in the government and nonprofit sector throughout the United States. For this study, raw data files offered on the BLS website to the public were accessed. A full IRB application that outlined all ethical considerations for data collection and analysis for this study was submitted and approved by Walden Institution Review Board (IRB Approval #10-22-15-0048989). Although this study examined archival data, no data was analyzed prior to the study undergoing a full review by the IRB. Once IRB approval was granted for the

doctoral research, I began evaluation of the data collected in the public-use data files downloaded in comma-delimited format and analyzed using SPSS syntax.

Summary

In conclusion, Chapter 3 provided the major components involved in conducting this quantitative secondary analysis using NLSY97 (1997) data. Weight and BMI percentile were dependent variables and parenting styles and parenting practices were independent variables. Sociodemographic variables represented confounding variables. Kruskal-Wallis Test was used to evaluate if parenting styles and parenting practices were associated with adolescent BMI percentile. Hierarchical multiple regression was used to examine if there was an association between the dependent variables, BMI percentile, and independent variables before and after the adjustment for possible confounding variables. Chapter 4 included a description of the research findings for the research questions and hypotheses. Chapter 5 explained the results presented in Chapter 4 and any limitations of the data analysis, along with future recommendations.

Chapter 4: Results

Introduction

This study was a secondary quantitative analysis of a larger database, the NLSY97, using the SCT as a theoretical framework. The purpose of this study was to investigate the relationship between parenting styles and parenting practices of African American mothers and fathers residing both inside and outside of the home on the weight status (as measured by BMI percentile) of their adolescent children, aged 12 to 17 years. Social and economic factors as well as the built and natural environment as potential causes or influences on weight status (as measured by BMI percentile) were considered. The independent variables in this study are parenting styles and parenting practices, and the dependent variables are weight and BMI percentile.

Chapter 4 is organized by research questions (RQs), and relevant tables are provided to assist in understanding the data. The first section includes a description of the methods used to create the study dataset. In the next sections, I provide an overview of the descriptive statistics for the sample cases and findings from univariate and bivariate analysis. The following section includes results from multivariate analyses conducted to test hypotheses associated with each RQ. In the final section, I summarize answers to the RQs based on the statistical findings.

This study seeks to answer the following RQs and associated null hypotheses:

RQ1: Do parents' perceived parenting styles (authoritative, authoritarian,

permissive, and uninvolved) influence the BMI percentile of African American adolescents from 12 to 17 years of age?

$H_0$1: Parents' perceived parenting styles (authoritative, authoritarian, permissive, and uninvolved) do not influence the BMI percentile of African American adolescents from 12 to 17 years of age.

$H_1$1: Parents' perceived parenting styles (authoritative, authoritarian, permissive, and uninvolved) influence the BMI percentile of African American adolescents from 12 to 17 years of age.

RQ2: Do parents' perceived parenting practices (demandingness and responsiveness) influence the BMI percentile of African American adolescents from 12 to 17 years of age?

$H_0$2: Parents' perceived parenting practices (demandingness and responsiveness) do not influence the BMI percentile of African American adolescents from 12 to 17 years of age.

$H_1$2: Parents' perceived parenting practices (demandingness and responsiveness) influence the BMI percentile of African American adolescents from 12 to 17 years of age.

RQ3: Is the relationship between parenting practices and BMI percentile influenced by sociodemographic variables (family structure, parents' education, parents' BMI, household income, parent and adolescent gender pairs and area of residence--urban/rural)?

$H_0$3: The relationship between parenting practices and BMI percentile is not influenced by sociodemographic variables (family structure, parents' education, household income, parent and adolescent gender pairs and area of residence--urban/rural).

$H_1$3: The relationship between parenting practices and BMI percentile is influenced by sociodemographic variables (family structure, parents' education, household income, parent and adolescent gender pairs and area of residence--urban/rural).

Data Collection

The data for this study were retrieved from a nationally representative database, the NLSY97. As noted in Chapter 3, the data were publicly available via the NLS Investigator at NLSinfo.org. The public-use data files were downloaded in comma-delimited format and analyzed using SPSS syntax. Data collection began in December 2015, following Walden University IRB approval. Data collection, cleaning, and analysis took place from December 2015 to April 2016.

Data Preparation

After selection of the adolescent respondents based on exclusion criteria, but prior to analysis, the following modifications were made to the data within Excel: (a) Adolescents with missing height and weight values, unknown, or refused values were excluded from analysis, (b) any participant who was an outlier due to inaccurate coding was eliminated, (c) computed variables such as BMI and BMI percentile were created, (d) demographic variables were recoded, and (e) missing data were left as blank cells

within the dataset (Figure 3). According to the Institute for Digital Research and Education, (2016a), SPSS software is not as flexible as other statistical programs. It does not let the researcher pick which category he or she wants as the reference, rather it uses the last category as the reference; therefore, the data cleaning and recoding process also included recoding the African American ethnicity as 4 and the European American ethnicity as 1 (Institute for Digital Research and Education, 2016a). Approximately 5% of the records were deleted in the African American subset, leaving 2,213 in total (Figure 3). Changes were made in the data files containing all information and called Total_Data file. The African American information was then extracted from the main data file (Total_Data) file to create a separate (AfricanAmerican_Only_Data) file. In preparation for analysis, I conducted a thorough data exploration using both the Total Data file and African American Only Data file. This step included univariate, bivariate and residual analysis for assessing model validity. Final analysis of statistical data involved the African American Only data file, as discussed below in the Data Analysis and Modification section.

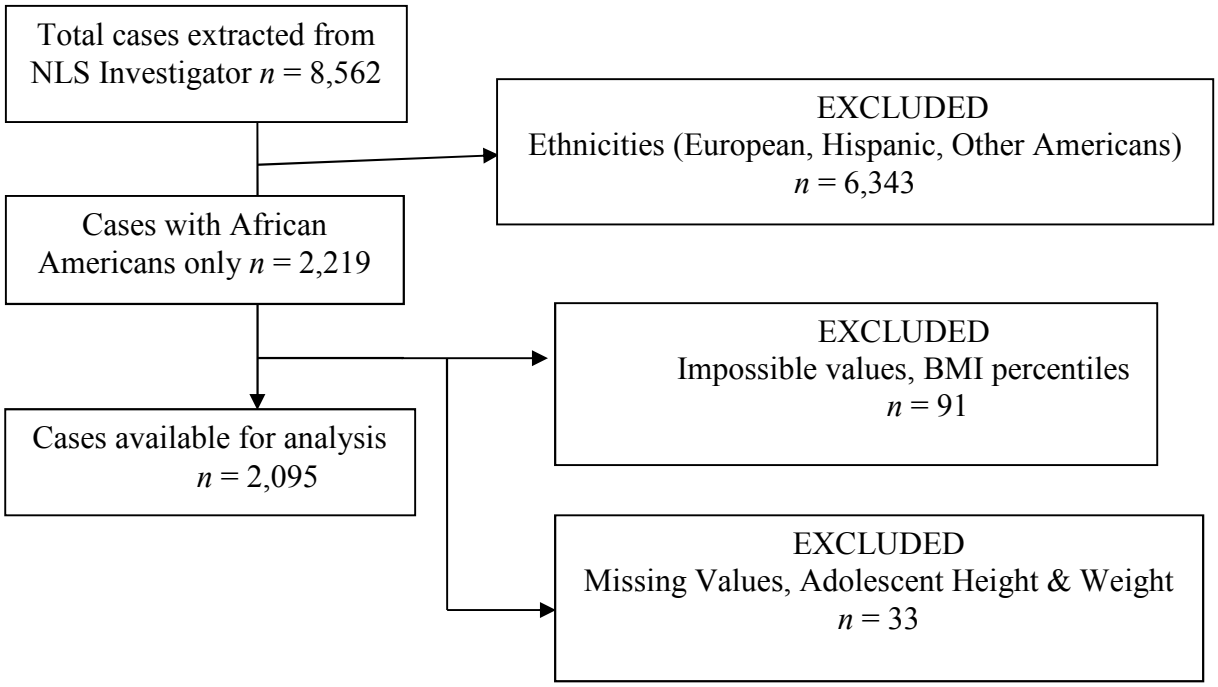

Figure 3. Cases available for analysis after exclusion criteria applied.

Data Analysis and Modification

Data were analyzed quantitatively using SPSS Statistics *v*21.0 for Windows. Consistent with the RQs, the data analysis in this study involved using descriptive statistics. Relative weights were applied while analyzing demographic characteristics of the sample, which included frequencies and percentages. As discussed in the previous section, data cleaning and recoding were undertaken prior to data analysis, along with testing of parametric assumptions. Prior to hypotheses testing, basic parametric assumptions were evaluated for normality, linearity, homoscedasticity, and an examination of model residuals, using univariate and bivariate analyses of all categorical and continuous variables, as detailed in Appendix A.

Nonnormality of the dependent variable BMI percentile made the use of one-way ANOVA and linear regression techniques problematic. To assess the validity of my models, I performed model diagnostics by considering the model residuals and looked for normality as gauged by the Q-Q plot. When the data being analyzed satisfies the normality assumption, the plotted residuals lie very close to the solid line on a Q-Q plot (Ghasemi & Zahediasl, 2012). The plot for this model was far from the desired fit; therefore, I concluded an ANOVA test in which the BMI percentile was the dependent variable and was not valid. Because the model was not valid, any inference I attempted to draw from it was questionable. Having already seen that the situation did not improve when common data transformations (log and square root) were employed, the final recourse was to run nonparametric tests (Ghasemi & Zahediasl, 2012). Bearing in mind violations to normality, nonparametric Kruskal-Wallis tests and Mann-Whitney U tests were used in addition to the Spearman's rho correlation and hierarchical multiple regression analysis. Nonparametric Kruskal-Walls tests and Mann-Whitney U tests were conducted to explore the significance of variations between and within groups and compare means for parenting styles and parenting practices (McKight, & Najab, 2010a, 2010b). Controlling for age, education level, household income, family structure, parent-adolescent gender pairs, and residence, hierarchical multiple regression was used to investigate this relationship. Spearman's rho and regression were used to further assess the relationship between parenting practices (responsiveness and demandingness) and adolescent weight status (as measured by BMI percentile).

Results

Descriptive Statistics

Sample information, parenting characteristics, socioeconomics, and residential environment for categorical variables with reported frequencies are presented in this section. The sample consisted of African American adolescents (n = 325) with females making up 51% (n = 165) of the sample and males making up 49% (n = 160). The majority of the households, 61.5% (n = 200), earned less than $20,000/year, while only 4.9% (n = 16) earned in excess of $80,000/year, as seen in Table 3. The majority of mothers (67.2%) and fathers (64.8%) had a minimum of a high school education, with only (13%) of fathers and (9.6%) of mothers holding a postsecondary degree. As seen in Table 3, single mothers 48.5% (n = 157) comprised the largest family structure type. Adolescents living with both biological parents represented 29% (n = 94) of the sample, while blended two parent households and any other type represented 10.5% and 12% of the sample, respectively. Adolescents for this study 79.4% (n = 258), were located in an urban residential environment.

Further examination of the descriptive statistics was done to identify parenting styles for mothers and fathers. Mother's parenting style represented 96.9% (n = 315) of the individuals studied. Among the adolescents for whom data were available, 9% had uninvolved mothers, 31% had permissive mothers, 12% had authoritarian mothers, and 48% had authoritative mothers. Residential fathers parenting style, represented 53% (n = 173) of the individuals studied, compared with that of nonresidential African American fathers, who represented only 18% (n = 57) of the individuals studied. Based on family

process variables that identified perceived parenting practices, that is, parental responsiveness and demandingness, on average, adolescent respondents indicated their mothers (79%) and fathers (63%) showed a balance of warmth/responsiveness with control/demandingness, as shown in Table 3. Variation in sample size by variable is due to the number of adolescents and their parent answering related questions. Due to the oversampling of certain subpopulations specified in the design of the NLSY97, weighted means were applied in the analysis.

Table 3

Descriptive Characteristics of the Sample

	n	%	*M*	*SD*	Range
Age			14.48	1.44	12 - 17
12	31	10			
13	64	20			
14	63	19			
15	72	22			
16	74	23			
17	21	7			
Gender (*n* =325)					
Male	160	49			
Female	165	51			
Weight status category (*n* = 325)			68.24	25.76	.0 – 99.8
BMI Less than 5th percentile (Underweight)	3	.9			
BMI 5th to 84th percentile (Healthy weight)	211	65			
BMI 85th to 94th percentile (Overweight)	53	16			
BMI 95th percentile or greater (Obese)	58	18			
Parental BMI category (*n* = 134)			27.00	4.85	18.24 – 44.93
Less than 18.5 (Underweight)	1	.3			
18.5 – 24.9 (Normal weight)	47	15			
25 -29.9 (Overweight)	59	18			
30 or greater (Obese)	27	8			
Education of mother (*n* = 293)					
Less than high school (0 - 8th grade)	7	2			
High school/GED (9th – 12th grade)	197	67			
Some college/Technical school (1st – 3rd year college)	61	21			
College graduate/Professional degree (4th – 8th year college)	28	10			
Education of father (*n* = 216)					
Less than high school (0 - 8th grade)	11	5			
High school/GED (9th – 12th grade)	140	65			
Some college/Technical school (1st – 3rd year college)	37	17			
College graduate/Professional degree (4th – 8th year college)	28	13			
Family structure (*n* = 324)			(table		
Both biological parents	94	29	continues)		
Two parents, Blended	34	11			
Single mother only	157	49			
Anything else	39	12			
Residential area (*n* = 325)					
Rural	50	15			
Urban	258	79			
Unknown	17	5			
Income (*n* = 325)					
Under $20,000	200	62			
$20,000 - $40,000	61	19			
$40,000 - $60,000	35	11			
$60,000 - $80,000	13	4			

Over $80,000	16	5
Mother parenting styles (*n* = 315)		
Uninvolved	27	9
Permissive	98	31
Authoritarian	38	12
Authoritative	152	48
Residential father parenting styles (*n* = 173)		
Uninvolved	24	14
Permissive	36	21
Authoritarian	40	23
Authoritative	73	42
Nonresidential father parenting styles (*n* = 57)		
Uninvolved	19	33
Permissive	14	25
Authoritarian	16	28
Authoritative	8	14
Mother parenting practices		
Responsiveness (*n* = 316)		
Very supportive	250	79
Somewhat supportive	60	19
Not very supportive	6	2
Demandingness (*n* = 315)		
Permissive	125	40
Strict	190	60
Father parenting practices		
Responsiveness (*n* = 173)		
Very supportive	109	63
Somewhat supportive	51	30
Not very supportive	13	8
Demandingness (*n* = 173)		
Permissive	60	35
Strict	113	65

Note. Custom sampling weights for NLSY97 adolescents in any survey year can be found http: //www.nlsinfo.org/web-investigator/custom_weights.php

Analysis of Research Questions and Hypotheses

RQ 1. A Kruskal-Wallis test, the nonparametric alternative to the one-way ANOVA used to determine if there are statistically significant differences between two or more groups was conducted to explore, do parents' perceived parenting styles (authoritative, authoritarian, permissive, and uninvolved) influence the BMI percentile of African American adolescents from 12 to 17 years of age. Table 4 displays the mean scores on the influence of perceived parenting styles on adolescent BMI percentiles and Kruskal-Wallis test results.

Table 4

Kruskal-Wallis Test Results: Mean Scores on Influence of Parents Perceived Parenting Styles on Adolescent BMI Percentiles

Parenting styles	*n*	M	x^2	*p*
Mother's Parenting Style	315	3.00	1.43	.697
Uninvolved	27			
Permissive	98			
Authoritarian	38			
Authoritative	152			
Father's Parenting Style	173	2.94	3.07	.381
Uninvolved	24			
Permissive	36			
Authoritarian	40			
Authoritative	73			
Nonresidential Father's Parenting Style	57	2.23	.323	.956
Uninvolved	19			
Permissive	14			
Authoritarian	16			
Authoritative	8			

A Kruskal-Wallis test revealed no statistically significant (p=.05) evidence that mother's parenting style had an effect on adolescent BMI percentile, $x^2(3) = 1.435$, p = 0.697. Similar to African American mother's parenting style, there was no evidence that either African American residential ($x^2(3) = 3.068$, p = 0.381) and nonresidential fathers' ($x^2(3) = 0.323$, p = 0.956) parenting styles had a significant effect on their child's BMI percentile (Table 4). As the analysis that the distribution of scores in the parenting style groups (mother, residential father, nonresidential father) were the same, the decision was fail to reject the null hypothesis. Table 5 shows the results of the hypothesis test summary for Hypothesis 1.

Table 5

Kruskal-Wallis Hypothesis Test Summary for Research Question 1: Adolescent BMI Percentile and Parenting Style

Null Hypothesis 1: Parents perceived parenting styles (authoritative, authoritarian, permissive, and uninvolved) do not influence the BMI percentile of African American adolescents from 12 to 17 years of age.			
	Test	Sig.	Decision
The distribution of Adolescent BMI Percentiles is the same across categories of Mother Parenting Style	Independent Samples Kruskal-Wallis Test	.697	Fail to reject the null hypothesis
The distribution of Adolescent BMI Percentiles is the same across categories of Father Parenting Style	Independent Samples Kruskal-Wallis Test	.381	Fail to reject the null hypothesis
The distribution of Adolescent BMI Percentiles is the same across categories of Nonresidential Father Parenting Style	Independent Samples Kruskal-Wallis Test	.956	Fail to reject the null hypothesis

Note. The significance level is $p. = .05$.

RQ 2. A Kruskal-Wallis test was conducted to explore, do parents' perceived parenting practices (demandingness and responsiveness) influence the BMI percentile of African American adolescents from 12 to 17 years of age. Table 6 displays the mean scores on the influence of perceived parenting practices on adolescent BMI percentiles and Kruskal-Wallis test results.

Table 6

Kruskal-Wallis Test Results: Mean Scores on Influence of Parents Perceived Parenting Practices (Responsiveness and Demandingness) on Adolescent BMI Percentiles

Parenting Practices	*n*	M	x^2	p
Mother's Responsiveness	316	1.23	.541	.763
Very Supportive	250			
Somewhat Supportive	60			
Not Very Supportive	6			
Mother's Demandingness	315	1.60	1.21	.272
Permissive	125			
Strict	190			
Father's Responsiveness	173	1.45	1.98	.372
Very Supportive	109			
Somewhat Supportive	51			
Not Very Supportive	13			
Father's Demandingness	173	1.65	1.17	.280
Permissive	60			
Strict	113			

No evidence was found that African American parenting practices had a significant effect on adolescent BMI percentile. The effect of mothers' parenting practices (responsiveness and demandingness), on adolescent BMI percentile was $x^2(2) = 0.541$, $p = 0.763$ and, $x^2(1) = 1.205$, $p = 0.272$. The effect of fathers' parenting practices

on BMI percentile was $x^2(2) = 1.978$, p = 0.372 for responsiveness and $x^2(1) = 1.166$, p = 0.280 for demandingness. To test the null hypothesis that parents perceived parenting practices (demandingness and responsiveness) do not influence the BMI percentile of African American adolescents from 12 to 17 year of age, I performed two Kruskal-Wallis test statistics for k samples followed by two Mann-Whitney U tests. In the case of parenting dimensions (demandingness and responsiveness), the Mann-Whitney U test was used to compare significant differences in parenting practices among mothers and fathers. The results are listed in Tables 7 and 8.

Table 7

Kruskal-Wallis Hypothesis Test Summary: BMI Percentile and Parenting Practices (Responsiveness)

Null Hypothesis 2: Parents perceived parenting practices (demandingness and responsiveness) do not influence the BMI percentile of African American adolescents from 12 to 17 years of age.	Test	Sig.	Decision
The distribution of Adolescent BMI Percentiles is the same across categories of Mother Responsiveness (warmth and support)	Independent Samples Kruskal-Wallis Test	.763	Fail to reject the null hypothesis
The distribution of Adolescent BMI Percentiles is the same across categories of Father Responsiveness (warmth and support)	Independent Samples Kruskal-Wallis Test	.372	Fail to reject the null hypothesis

Note. The significance level is p =.05.

Table 8

Mann-Whitney U Hypothesis Test Summary: BMI Percentile and Parenting Practices (Demandingness)

Null Hypothesis 2: Parents perceived parenting practices (demandingness and responsiveness) do not influence the BMI percentile of African American adolescents from 12 to 17 years of age.	Test	Sig.	Decision
The distribution of Adolescent BMI Percentiles is the same across categories of Mother Demandingness (strictness and control)	Independent Samples Mann-Whitney U Test	.272	Fail to reject the null hypothesis
The distribution of Adolescent BMI Percentiles is the same across categories of Father Demandingness (strictness and control)	Independent Samples Mann-Whitney U Test	.280	Fail to reject the null hypothesis

Note. The significance level is $p = .05$.

RQ 3

A Spearman's rho coefficient and hierarchical multiple regression analysis were both conducted to determine if the relationship between parenting practices and BMI percentile is influenced by sociodemographic variables (family structure, parent's education, parent's BMI, household income, parent and adolescent gender pairs and area of residence - urban/rural). There were no significant relationships between parenting characteristics and adolescent BMI percentiles as determined by regression analysis when controlled for demographic variables. However, there was a significant correlation between maternal and paternal parenting practices (responsiveness and demandingness) per Spearman's rho.

Spearman's correlation coefficient results

I used a Spearman's rho correlation to investigate the null hypothesis, the relationship between parenting practices and BMI percentile is not influenced by sociodemographic variables (family structure, parent's education, household income, parent and adolescent gender pairs and area of residence - urban/rural). A Spearman correlation coefficient revealed a weak inverse correlation between adolescent BMI percentiles and residence ($r = -.126$, $p < .024$), indicating a significant relationship between the two variables (see Table 9). It is worth nothing that all other variables were not significantly correlated with BMI percentile.

Table 9

Spearman's rho Correlation Coefficients between Demographic / Adolescent BMI percentile Variables and Parenting Practices

		Adolescent BMI Percentile	Residence
Adolescent BMI Percentile	Correlation Coefficient	1	-.126*
	Sig. (2-tailed)		.024
	N		325
Residence	Correlation Coefficient	-.126*	1
	Sig. (2-tailed)	.024	
	N	325	

Note. * Correlation is significant at the 0.05 level (2-tailed)

Multiple regression results

A hierarchical multiple regression analysis was also conducted to investigate null hypothesis 3. Adolescent BMI percentile was entered as the criterion variable. The covariates, family structure, parent's education, household income, parent and adolescent gender pairs and residence, were included in Model 1 of the analysis prior to inclusion of the predictor variable parenting practices, (demandingness and responsiveness) in Model 2. An analysis of variance in the regression models showed that the effect of the sociodemographic variables on the dependent variable BMI percentile was not significant as seen by F (6,70) = .373, p = .894. When the independent variable parenting practices was added to the sociodemographic variables as shown in Model 2, Table 10, the analysis of variance was also not a significant predictor of the dependent variable BMI percentile F (10,66) = .403, p = .940. The overall model was not significant. Only 6% of variance

was due to sociodemographic variables. Summary statistics for Model 1 were F (6,70) = .373, p < .898, R^2 = .031 and Model 2 – extroversion was ΔF (4,66) = .466, p = .760, ΔR^2 = .027. Neither Model 1 nor Model 2 were statistically significant predictors of outcome for African American adolescent BMI percentile. Table 10 summarizes the results of the hierarchical multiple regression.

Table 10

Model Summary for Multiple Regression Analysis

Source	*SS*	*df*	*MS*	*F*	*P*
Model 1					
Regression	1560.857	6	260.143	.373	.894[b]
Residual	48857.604	70	697.966		
Total	50418.461	76			
Model 2					
Regression	2904.024	10	266.426	.403	.940[c]
Residual	47514.437	66	627.080		
Total	50418.461	76			

Note. a. Dependent Variable: Adolescent BMI Percentiles
b. Predictors: (Constant), Parent BMI Categories, Residence, Mother Education Level, Gender, Family Structure, Household Income, Father Education
c. Predictors: (Constant), Parent BMI Category, Residence, Mother Education Level, Gender, Family Structure, Household Income, Father Education Level, Mother Parenting Practices (Responsiveness – Warmth/Support), Father Parenting Practices (Responsiveness – Warmth/Support), Father Parenting Practices (Demandingness – Strictness/Control), Mother Parenting Practices (Demandingness – Strictness/Control)

Summary

In the context of the research questions (RQs), non-normality of the dependent variable in the current research study made the use of ANOVA techniques problematic. Findings from this study failed to reject the null hypothesis for RQs 1, 2 and 3. It was hypothesized that parents perceived parenting styles (authoritative, authoritarian, permissive, and uninvolved) do not influence the BMI percentile of African American

adolescents from 12 to 17 years of age. It was also hypothesized that parents perceived parenting practices (demandingness and responsiveness) do not influence the BMI percentile of African American adolescents from 12 to 17 years of age. The Kruskal-Wallis test did not reveal statistically significant associations between parenting characteristics (styles and practices) and adolescent weight status: mothers' $x2(3) = 1.435$, $p = 0.697$; residential fathers', $x2(3) = 3.068$, $p = 0.381$; and, nonresidential fathers' $x2(3) = 0.323$, $p = 0.956$. A Mann-Whitney U analysis was conducted to compare significant differences in parenting practice (demandingness) among mothers and fathers. There were no statistically significant associations between demandingness and adolescent BMI percentile: mothers' $x2(1) = 1.205$, $p = 0.272$ and fathers' $x2(1) = 1.166$, $p = 0.280$.

A hierarchical multiple regression analysis was performed to analyze null hypothesis 3. I hypothesized that the relationship between parenting practices (demandingness and responsiveness) and BMI percentile was not influenced by sociodemographic variables (family structure, parent's education, parent's BMI, household income, parent and adolescent gender pairs and area of residence - urban/rural). To control for sociodemographic variables, the covariates were included in Model 1 of the analysis, before the independent variable, parenting practices (demandingness and responsiveness). Model 1 allowed me to analyze the effects involving each sociodemographic variable and the dependent variable, BMI percentile in the regression models. The addition of the independent variable, parenting practices (demandingness and responsiveness), did not improve the model's ability to predict

adolescent weight status (as measured by BMI percentile). Although a weak but statistically significant correlation was identified between BMI percentiles and adolescent residence, the regression model revealed no statistically significant associations. Chapter 5 provided a substantive interpretation and discussion of the findings reported in this chapter. Chapter 5 also included the study limitations, future recommendations, and implications for social change.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

In this quantitative research study, I investigated the relationship between parenting styles and parenting practices of African American mothers and fathers residing both inside and outside of the home on the weight status (as measured by BMI percentile) of their adolescent children, aged 12 to 17 years. Social and economic factors as well as the built and natural environment as potential causes or influences on weight status (as measured by BMI percentile) were also considered. I used a nationally representative sample of African American children who participated in the NLSY1997, a publicly available dataset that is sponsored by the BLS. I considered the roles of both the physical and sociocultural environments as well as social and economic factors as potential causes or areas of influence on weight status conducive to obesity. I accessed and collected data for the 1997 cohort online using the NLS Investigator website. Data were analyzed using IBM SPSS Statistics *v*. 21.0.

In RQ 1, I examined if parents' perceived parenting styles (authoritative, authoritarian, permissive, and uninvolved) influence the BMI percentile of African American adolescents from 12 to 17 years of age. Findings supported the hypothesis that parents' perceived parenting styles (authoritative, authoritarian, permissive, and uninvolved) do not influence the BMI percentile of African American adolescents from 12 to 17 years of age. In RQ2, I examined if parents' perceived parenting practices (demandingness and responsiveness) influence the BMI percentile of African American adolescents from 12 to 17 years of age. Findings supported the hypothesis that parents'

perceived parenting practices (demandingness and responsiveness) do not influence the BMI percentile of African American adolescents from 12 to 17 years of age. In RQ3, I examined the relationship between parenting practices and BMI percentile after controlling for sociodemographic variables (family structure, parents' education, parents' BMI, household income, parent and adolescent gender pairs. and area of residence--urban/rural). No factors significantly influenced the relationship between parental practices and BMI percentile. In Chapter 5, I discuss the results of the data analysis results presented in Chapter 4 and present my study findings in terms of the literature presented in Chapter 2. Study limitations are identified, recommendations are offered for future research, and implications for positive social change are also discussed.

Interpretation of the Findings

In this section, I discuss how the current literature ties into the study findings and addresses the impact of parental influences on adolescents' weight status as measured by BMI percentile. A Kruskal-Wallis Test was used to assess RQs 1 and 2, and in each case, findings failed to reject the null hypothesis. The parenting style types among the African American parents were 48% Authoritative (mothers), 42% Authoritative (residential fathers), and 33% Uninvolved (nonresidential fathers).

The findings of this study support those studies, some seminal, that came before (Bluestone & Tamis-LeMonda, 1999; Tamis-LeMonda, Briggs, McClowry, & Snow, 2008; Watkins-Lewis & Harme, 2012). The authors of these studies examined parenting characteristics of African American parents from diverse socioeconomic backgrounds and demonstrated higher numbers of authoritative parenting styles. This contradicts with

some seminal and more current studies that fall in-line with Baumrind's (1972) typologies that classify African American parents as authoritarian (Polfuss & Frenn, 2012a, 2012b; Rhee et al. 2006; Savage et al., 2007; Steinberg et al., 1994). Findings from this study showed that in African American families, authoritative parenting (by both mother and father) produced the lowest BMI percentiles among adolescents, while authoritarian parenting produced the highest BMI percentiles. In other words, some discipline (but not too much) works best.

For RQ2, as illustrated in Figure 2, based on previous research, I assumed that parents exhibiting lenient levels of demandingness and somewhat supportive levels of responsiveness over their children would create weak parent-child bonds, due to both low levels of warmth and low levels of control, and that the low levels of parent-child attachment would result in lower levels of social support and dietary controls. However, based on my analysis, there were no statistically significant relationship between African American parents perceived parenting practices and influence on their adolescents' BMI percentile. In agreement with seminal literature (Bluestone & Tamis-LeMonda, 1999; Querido et al., 2002), as reported by the parent-adolescent dyad, African American parenting practices demandingness were expected to be moderate to strict in behavioral control and responsiveness were expected to be supportive.

Overall parenting practices showed that African American parents (mothers and fathers) and adolescents reported moderate to high levels of parental supportiveness (warmth) and high levels of behavioral control (strictness or limit-setting). Unsupportive and permissive styles (e.g., parents reluctant to enforce rules) were low. Most African American adolescent-parent dyads reported positive parenting practices. Elmore and Gaylord-Harden (2013) found that supportive and warm parenting practices were associated with fewer dysfunctional behaviors among African American children. Study findings indicated that supportive parenting norms are important to adolescent cognitive development, behaviors, and can lead to overall positive outcomes.

Researchers suggested that African American mothers are the primary caregivers and socializing agents of their children (Elmore & Gaylord-Harden, 2013). However, most researchers exploring these relationships lacked any distinction among mothers and fathers or solely observed the mother's role in adolescent weight status and weight related behaviors. Elmore and Gaylord-Harden (2013) conducted a study on the differences in how African American mothers parent sons versus daughters. They concluded that there were distinct differences in how the different genders are parented. Mothers were more lenient on their adolescent sons than daughters. Little is still known about the role fathers play in adolescent weight status and weight related behaviors (Haines et al., 2016). Findings from this study suggest that there was less nonresidential African American father participation answering the original questionnaires and a high percentage of nonresidential African American fathers in the involved parenting style category. Still, the present study adds to the available literature for African American

father overall involvement with the majority of father's showing the appropriate balance of warmth, support, and strictness (e.g., authoritative parenting styles).

Lastly, for RQ3, the hierarchical multiple regression analysis and Spearman's rho correlation were performed to measure the relationship between adolescent BMI percentile and sociodemographic variables and African American perceived parenting practices. For sociodemographic variables, only residence was found to have a statistical significance although the correlation was weak. For parenting practice variables, father demandingness, father responsiveness, mother responsiveness, and mother demandingness were found to have statistical significance; only weak to moderate correlations were found. Hypothesis 3 was rejected with respect to a relationship between the parenting practice variables and failed to reject with respect to a relationship between parenting practices and BMI percentile not being influenced by sociodemographic variables.

Based on pervious findings by Kant and Graubard (2013) socioeconomic gaps in the prevalence of obesity among African American adolescents have increased. I expected that African American mothers would serve as the primary parent or caregiver in large part due to the high proportion of single parent homes among this community (Kalinowski et al., 2012). This was supported in that single mother households represented the largest of the family structure groups observed in this study, although living with both parents did not have a significant impact on adolescents BMI percentiles. Household income and parental education showed weak associations. These results contradict previous research. For instance, Kant and Graubard found that adolescents

from higher SES and educated parents were more likely to eat a balanced breakfast and consumed fewer calories including high-fat and high-sugar content products.

Previous studies have shown that African American parenting style is influenced by circumstantial factors such as education level and SES. According to Salas and Altamirano (2012), although underrepresented in the general population, African Americans remain overrepresented among the health statistics for life-threatening illness. Poverty, discrimination, social, and psychological barriers may explain why morbidity and mortality rates are higher for African Americans than for the rest of the general population. Obese adolescents are likely to be obese adults and are at a greater risk for developing chronic health conditions, including Type 2 diabetes, hypertension, heart disease, and decreased life expectancy (Pratt, McRitchie, Collier, Lutes, & Sumner, 2015). African American adolescent girls continue to have overall higher obesity rates than their European American counterparts. According to Pratt et al. (2015), while national adolescent obesity rates have declined or leveled off, rates among African American adolescent girls continues to increase with 24.8% being obese, with 17.6% for overall adolescent females and 14.7% European American adolescent females.

Limitations of the Study

This study has some limitations. The data for the NLSY97 were collected for a purpose different than used for the current research study. The NLSY97 was designed to document labor market experiences and educational investment as well as a broad range of other topics (Hering & McClain, 2003). Moreover, the study was limited by the data available from the NLSY97 for Wave 1 concerning measures of parenting, along with

parent and adolescent self-reported height and weight measurements, which I used to calculate parent BMI and adolescent BMI percentiles. The results include only associations, as the data used represent only one point in time; thus, causality cannot be established. Using data available only during Wave 1, I was limited in my ability to fully investigate the impact of all study variables related to adolescent dietary habits and weight status, which were introduced during later waves. For example, specific information regarding adolescent fruit and vegetable consumption habits was introduced only from Waves 12 to 14 at which point the respondents were between ages of 22 and 25 years.

The age of the data used was also a limitation. While it is important to note that the dataset itself is longitudinal and ongoing, the data obtained for this study was from the first wave. The issues of reliability and accuracy of the outcomes and their generalizability to today's African American parents and adolescents makes it less plausible that the outcomes of this study would reflect results found in a less dated sample. However, past social science researchers have used archival data of similar age (Haas & Fosse, 2008).

Recommendations

Inconsistent with the literature review in Chapter 2, no statistically significant relationships between parenting characteristics and adolescent BMI percentile were found in this study. If conducting this study again or for similar studies, several changes to the methodologies are recommended. The first recommendation for future research would be to use retrospective data from multiple waves. Although the NLSY97 is a longitudinal

dataset, this study was based on only one observation. Future research should include past and present waves of data, in which parenting measures are based on adolescent respondents' recall of their upbringing and relationship with parents. The second recommendation is to examine whether peer relationships during adolescence have more impact on African American adolescent BMI percentile compared to parenting characteristics. The final recommendation for future research is to replicate this study by adding a qualitative component to help identify and promote communication opportunities among African American parent-adolescent dyads for the prevention of overweight and obesity.

Implications

The study findings make some degree of contribution to the literature and add to the existing research on parenting measures and overweight/obesity in children. Due to the inconsistencies and lack of research in the area, I focused on the influence of African American parenting styles and parenting practices on adolescent BMI percentiles. Although the study's findings were not significant in relation to parenting characteristics and adolescent BMI percentile, they revealed new areas to expand future research that can help guide geographically-targeted adolescent weight control interventions in terms of family residence: urban/rural. My results suggest that relationships within the general family household, including parent education level and income and BMI category, may be important factors to address within interventions designed to support weight status of adolescents. However, more specifically, the relationship between the rural/urban residence of individual adolescents and BMI percentile was identified as a potential

factor for consideration when identifying locations that are at a high risk of overweight and obesity and the planning and promotion of intervention to promote healthy lifestyles. Largely, this study increased knowledge on African American parenting characteristics and promotes education and social awareness of the continued obesity epidemic that plagues African American children in the United States. My findings indicate a need for replicating this research through the collection of primary data that incorporates a qualitative component in future studies or by continuing with data from the NLSY97 and adding additional waves as well as including the geocode datasets to help guide geographically-targeted weight control interventions.

Conclusion

Although results from this study indicated that adolescent BMI percentile was not influenced by African American parenting characteristics (styles and practices), past researchers have suggested that parental involvement and support may benefit adolescents weight health interventions, which includes cultural and family values (Sato et al., 2010). According to Pratt et al. (2015), family based intervention is important in treating obesity in African American children because of the family's ability to shape the child's behaviors. Obesity remains a global health problem, which is of more concern among children. The high prevalence of overweight and obesity in children, with significantly higher rates among African American girls, still exists and calls for further analysis. Overall, the ways in which parents and adolescents interact can be an important predictor of eating habits and exercise (Sato et al., 2010; Savage et al., 2007) and also

may be critical to the development of adolescents' dietary behaviors and physical activity levels (Salvy, Haye, Bowker, & Hermans, 2012).

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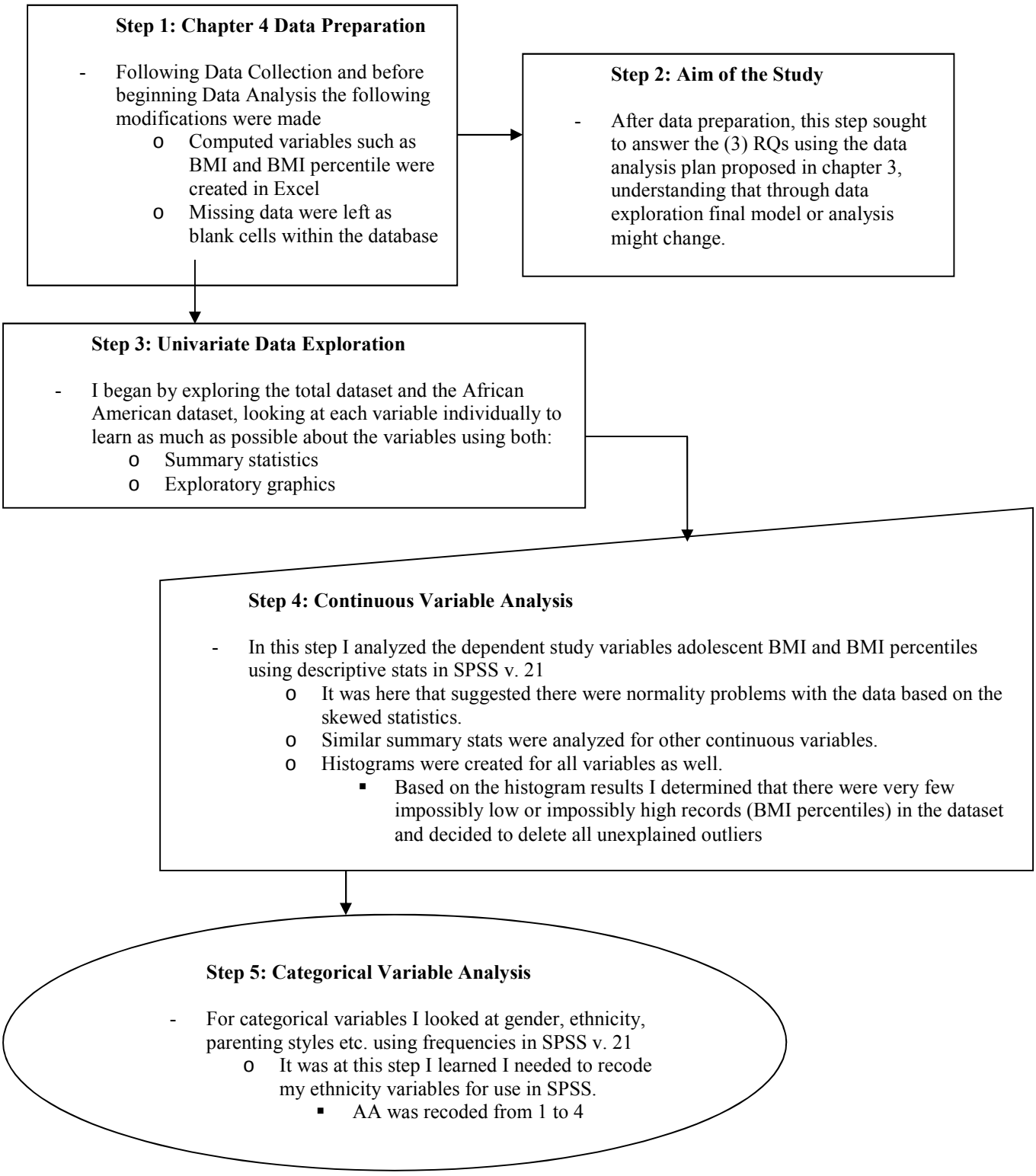
Appendix A: Logic Used to Draw Conclusion About the Methodology - Flowchart to Assess Validity of Data Analysis Models



Step 6: Categorical Variable Analysis con't

- Graphic presentation was created for all variables, (e.g. bar charts)

Step 7: Bivariate Screening

- Next step in the data exploration was looking at relationships between pairs of variables.
  - 1st relationship I looked at was between adolescent BMI percentile and dichotomous categorical variable gender, then for ethnicity and mother's parenting style:
    - Boxplot

Step 8: ANOVA test

- Based on the boxplot results for Mother parenting style using the total data sample, I ran the General Linear Models routine in SPSS *v*. 21.
  - I did not see a strong difference in where I expected the means to lie and at the time was using the full dataset; therefore, it wouldn't be obvious in the huge sample size. For this reason an ANOVA test was ran.
    - The null hypothesis was that the means are equal for all parenting styles.
    - The alternative was that at least one parenting style had a significantly different BMI percentile.

Step 9: General Linear Model =

Univariate

- Output:
  - Levene's Test of Quality of Error
  - Tests of Between Subjects Effects

Step 10: Assumption (Hypothesis) Testing

- Before concluding this exploratory section of my data analysis, I addressed RQ1 using only the African American dataset. The dependent variable used for this RQ was adolescent BMI percentile, which I noted earlier was problematic because it violated normality assumptions using the total dataset.
  - Histogram was created w/ superimposed normal curve
  - Next I tried two common transformations:
    - Log and square root, which looked worse
  - Boxplot, ANOVA
  - Residual Analysis for assessing model validity: (e.g. Q-Q plot
    - Residual analysis indicated that the ANOVA model was not valid for inference, implying use of a nonparametric model for RQ 1 & 2, (e.g. Kruskal-Wallis test)