

ASSOCIATIONS AMONG AFRICAN AMERICAN PARENT EDUCATION,
PERCEPTIONS, BEHAVIORS, AND CHILD WEIGHT STATUS:
A CROSS-SECTIONAL DATA ANALYSIS

by

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After reading the title of my dissertation, it appears that this work was completed “By” Tracey Marie Barnett. However, it was only “By” the grace of God my Lord and Savior Jesus Christ that I completed this dissertation.

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“For I know the plans I have for you, declares the Lord, plans to prosper you and not harm you, plans to give you hope and a future” (Jerimiah 29:11).

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Abstract

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PERCEPTIONS, BEHAVIORS, AND CHILD WEIGHT STATUS:

A CROSS-SECTIONAL DATA ANALYSIS

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Purpose: Obesity in children and adolescents is a worldwide epidemic that is anticipated to worsen over time (Budd & Volpe, 2006; Chatterjee, Blakely, & Barton, 2005; Hossain, Kavar, & El Nahas, 2007). Within the past 30 years, the prevalence of childhood obesity in the United States has more than doubled among children and quadrupled in adolescents (Ogden, Carroll, Kit, & Flegal, 2014). People often have inaccurate perceptions of their body size and weight status and this may play a key role in the prevalence of obesity especially for ethnic minorities (Gillard, Lackland, Mountford, & Egan, 2007; Hendley, et al., 2011). In order to combat child obesity, it is imperative for future research to explore the phenomenon of parent education, behaviors, perceptions and the impact on child weight status within a strong theoretical conceptual model. The purpose of this dissertation is to build a theoretical conceptual model and testable model to understand the associations among African American parent education,

behaviors, and perceptions of their child's body size and the impact on their child's weight status.

Methods: The School Physical Activity and Nutrition survey (SPAN) was developed using a repeated cross-sectional study design to estimate changes in body mass index (BMI) by three major racial/ethnic groups (African Americans, Hispanics, and whites/others) in Texas public school children (Hoelscher, Day, Lee, Frankowski, Kelder, Ward & Scheurer, 2003). For this study, only African American 4th grade students (n=372) and their parents (n=372) will be used. Data analyses included descriptive statistics, multiple regression, moderation, and mediation analysis.

Results: Findings suggest that a parent's level of education had a direct impact on health knowledge and discrimination. Parent perceptions of their child's body size was directly associated with child weight status, but parent weight status moderated this relation. The number of children living in the home had a direct impact socioeconomic status (SES), SES had a direct impact on stress, and stress had a direct impact on parenting rules and discipline. The more physical activity parents did with their children, the lower their child's weight status, however, parent weight status mediated this relation. Lastly, as the consumption of more healthy foods increased, so did the child's weight status.

Implications: The findings of this study offer a comprehensive picture of how parent education, perceptions and behaviors impact child weight status.

These results highlight suggested areas that may be used by social work practitioners, researchers, and policy makers when working African American parents and their children. This study also suggests a final robust theoretical conceptual model of theory and evidence-based literature to guide future research.

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Chapter 1

Introduction

This dissertation will be organized into five chapters. Chapter one will discuss the nature of the problem, along with key terms that are defined in the appendix, and the importance to social work. Throughout the dissertation, body mass index (BMI) and weight status, along with body image and body size will be used interchangeably. Chapter two begins with an overview of the study's theoretical framework, literature review, and concludes with the conceptual and testable model that was developed to guide investigation into the research questions. Chapter three describes variables in the study's testable model, methodology, and data analysis strategies used to answer the research questions. Chapter 4 will provide a detailed discussion of the study's results. The last chapter includes a discussion of the findings, possible implications, conclusions, and a final comprehensive conceptual model to aid future research in understanding how African American parents' education, behaviors, and perceptions are associated with child weight status.

Obesity in children and adolescents is a worldwide epidemic that is anticipated to worsen over time (Budd & Volpe, 2006; Chatterjee, Blakely, & Barton, 2005; Hossain, Kavar, & El Nahas, 2007). Within the past 30 years, the prevalence of childhood obesity in the United States has more than doubled among children and quadrupled in adolescents (Ogden, Carroll, Kit, & Flegal,

2014). Child obesity is not clearly understood due to several unique factors: parental perceptions of weight status and body size and family, behavioral, and environmental circumstances that actively play a role in children's eating and physical activity behaviors (Kumanyika & Grier, 2006; Wing & Gorin, 2003). Including families in child obesity prevention efforts has shown to be effective (Sacher et al., 2010; Wofford, 2008) and examining parental perceptions of weight status and body size is another area to be explored that may further increase obesity prevention effectiveness (West, Raczynski, Phillips, Bursac, Gauss, & Montgomery, 2008).

Minority children and those who come from a low socioeconomic status (SES) background, experience overweight and obesity at disproportionate rates when compared to their higher SES counterparts (Crawford, Story, Wang, Ritchie, & Sabry, 2001; Kumanyika, 2008). In terms of health education and prevention, from 2007-2010, doctors informed 51% of Non-Hispanic African American and 41.3% of Non-Hispanic Caucasian children of their overweight status (Agency for Healthcare Research and Quality, [AHRQ], 2013). For years, childhood obesity disparities among ethnic minority children, especially African American (AA) girls, have been explored among public health professionals (Ogden, Lamb, Carroll, & Flegal, 2010; Taveras, Gillman, Kleinman, Rich-Edwards, & Rifas-Shiman, 2010) at the national rather than local and regional levels. However no state has met the specific objective set by Healthy People

2020 for obesity reduction (Centers for Disease Control and Prevention [CDC], 2011a).

A Healthy People 2020 goal for children and adolescents is to reduce the number of those who are obese through appropriate screening and interventions (Robert Wood Johnson Foundation [RWJF], 2012). In an effort to meet this goal and in response to statewide policies, initiatives such as the School Physical Activity and Nutrition (SPAN) survey have been launched to combat child obesity. SPAN, a population-based surveillance, was developed to examine regional changes in obesity prevalence among children in grades 4, 8, and 11 in the “Texas Health Services Regions (HSRs) between 2000–2002 and 2004–2005, and in nine selected counties in 2004–2005” (Hoelscher et al., 2010, p.2). Using a regional population-based sample, SPAN is the first study in the United States to document reduction in the prevalence of obesity in elementary school children from 2000-2002 to 2004-2005 (Hoelscher et al., 2010). While these findings are significant, child obesity still remains greater than the targeted goal of 5% in all HSRs areas (United States Department of Health and Human Services, [USDHHS] 2000). The question of interest for this study is if a parent’s education, behaviors, and perceptions of their child’s body size are associated with a child’s weight status.

Perception of one’s body size or image differs for all racial/ethnic groups (Ard, Greene, Malpede & Jefferson, 2007; Gillen & Lefkowitz, 2012; Muenning,

Jia, Lee, & Lubetkin, 2008). People often have inaccurate perceptions of their body size and weight status and this may play a key role in the prevalence of obesity especially for ethnic minorities (Gillard, Lackland, Mountford, & Egan, 2007; Hendley, et al., 2011). Burke and Heiland (2007, 2010) found that as perceived normal weight increased, so did obesity prevalence. Therefore it is important to be mindful of such differences in perceptions, especially when creating prevention programs. An example of this can be seen in African American women who have historically found more satisfaction with their bodies than Caucasian women (Harris, 1994). The literature also indicates that in most cases, African American women prefer larger and overweight body types and do not desire to be a normal weight based on BMI (Dutton, Martin, Rhode, & Brantley, 2004; Mama, Quill, Fernandez-Esquer, Reese-Smith, Banda, & Lee, 2011). Based on these cultural preferences in the African American community, parents of overweight and/or obese children are less likely to report their child's weight status as such (Doolen, Alpert, & Miller, 2009; Goodell, Pierce, Bravo, & Ferris, 2008; Towns & D'Auria, 2009; Young-Hyman, Herman, Scott, & Schlundt, 2000). Children of African American women are likely to adopt their parent's perceptions as their own and carry similar viewpoints throughout their life course trajectory.

A parent's ability to accurately recognize their own weight status and the weight status of their child is known as a parental perception (Eckstein, Mikhail,

Ariza,, Thomson, Millard, & Binns 2006). Parental perceptions of their own body weight, BMI (weight status) and body image (body size) are highly correlated with a child's BMI (weight status) (Beatty, 2009). When most studies investigated parental perceptions of their child's weight status, findings revealed that parents do not perceive their child's overweight status and are likely to underestimate their child's weight status (Baughcum, Chamberlin, Deeks, Powers, & Whitaker, 2000; Carnell, Edwards, Croket, Boniface, & Ward, 2005; Etelson, Brand, Patrick, & Shirali, 2003; Jain, Sherman, Chamberlin, & Carter, 2001; Wake, Salmon, Waters, Wright, & Hesketh, 2002). In order to combat child obesity, it is imperative for future research to explore the phenomenon of parent perceptions and the impact on child weight status within a strong theoretical conceptual model. However, when examining the current literature on parent perceptions of their child's weight status, very few studies utilize theory to guide their research, the majority of studies focus on preschool and not school-age children (Baughcum, Chamberlin, Deeks, Powers, & Whitaker, 2000; Garrett-Wright, 2011; Kourlaba, Kondaki, Grammatikaki, Roma-Giannikou, & Manios, 2009; Opusunju, 2013; Taylor, 2012), few studies examine African American parent perceptions as a predictor of child weight status, and no studies were found that sampled only African American boys.

Understanding parent perceptions of weight status may be a key factor in successful obesity prevention and treatment efforts (West et al., 2008). It is

imperative for social work researchers and social work practitioners to understand the thought process behind African American parental perceptions of weight status before they can help parents fully grasp the importance of implementing healthy changes in nutrition and physical activity. Through parenting styles, decisions, and behaviors, authority figures play a key role in influencing child BMI; however, they are less often utilized in community and school based prevention efforts (Franzini et al., 2009; Rahman, Cushing, & Jackson, 2011; Slusser, Prelip, Kinsler, Erausquin, Thai, & Neumann, 2011).

When children are young, parents have the greatest chance of exerting and modeling key behaviors to make a positive impact on all areas of their child's life (Dixon, Adair & O'Connor, 1996). One key strategy to preventing child obesity is first to understand possible mediating and moderating factors that impact the association between parent perceptions of their own weight status and body image (body size) and their child's weight status. Another approach is to collaborate with parents to adjust and transform parent behaviors, attitudes, and decisions in terms of healthy eating and increased physical activity. However, the key to doing this is to get a glimpse of how parents perceive their child's weight status. If parents do not perceive a problem, they are less likely to actively engage in behaviors that will rectify the situation (Stolley & Fitzgibbon, 1997). To address the knowledge gap on the association between African American parent

perceptions and child weight status, this dissertation will have three specific objectives:

1. Build a theoretical conceptual model and testable model to understand the associations among African American parent education, behaviors, and perceptions of their child's body size and the impact on their child's weight status.

2. Explore direct relations as well as mediating and moderating variables that influence the association among African American parent education, behaviors, and perceptions of their child's body size and the impact on their child's weight status

3. Based on findings from the conceptual and testable model and after exploring direct relations along with mediating and moderating variables, develop a final model to guide future research.

These objectives will be accomplished through the analysis of the School Physical Activity and Nutrition (SPAN) survey (2009-2011). A robust theoretical conceptual model and testable model of theory and evidence-based literature will be developed to guide the research questions.

Importance to Social Work

Social workers are trained in an array of human behavior in the social environment theories with applicability at micro, mezzo, and macro levels that can aid in formulation of methods to reduce child obesity. As childhood obesity increases, so does the need for social workers to conduct cross-sectional and

longitudinal studies and evidence based multilevel interventions within the context of a strong theoretical framework. These efforts will assess parental perceptions of weight status, body image, and factors that mediate and moderate the association between parent perceptions and a child's weight status. Most parents have their own definition or idea of what is an ideal weight for their child and seldom refer to growth charts (Etelson et al., 2003). Therefore, it is important to understand parental perceptions of their own weight status and their child's weight status because this will determine how accurately parents interpret health information regarding nutrition and physical activity.

In terms of parental perception of child body size and the impact on child weight status, only a few studies sampled only African American children and their families. Parental perception of child weight status in the general population is not a neglected topic in the research literature; however these studies include the following limitations: 1) few employ a theoretical framework to guide their study and interpretation of findings as they relate to factors that influence child BMI; 2) most studies focus solely on preschool children and not school-age children; 3) and those that do include African Americans in their sample often lack separate analysis of findings for African Americans and boys. To get a better understanding of how African American parent perceptions impact their children's perceptions and behaviors and ultimately how these factors influence a

child's weight status, it was clear that a robust theoretical framework was first needed to address this multifaceted social problem.

In social work practice, theories act as the conceptual tools that are used in the assessment of clients and their environments. Theories also guide social workers in the development of intervention programs and play an important role in directing research (Robbins, Chatterjee & Canda, 2012). It is imperative for the social work profession to utilize and understand multicultural approaches to prevent childhood obesity in order to guide culturally competent interventions in juxtaposition with public health and public policy.

Social workers practice with diverse ethnic groups in various agencies such as child welfare and mental health, and the role of culture, norms and values must always be considered when implementing interventions. Obesity is such a huge challenge that it must be addressed from the micro, mezzo, and macro levels, and social workers are among the best professionals to help tackle this issue (Donaldson & Daugherty, 2011; Kaiser, 2011). The social work profession holds a unique position to address obesity from individual, family, group, organization, community, and policy perspectives (Delgado, 2013). Social workers and the profession as a whole should seek to become more actively engaged in advocacy research, and scholarship on obesity.

Chapter 2

Theoretical Framework and Literature Review

This section of the dissertation provides theoretical frameworks to explain how African American (AA) parent education, behaviors, and perceptions of their child's weight status, (body mass index [BMI]), and body image (body size), can influence a child's weight status. For purposes of this dissertation, a child's BMI will be referred to as weight status or underweight, normal weight, overweight, obese, and extremely obese. Also, body image will be stated as body size.

Three theories were used in developing the conceptual model for this dissertation: the Health Belief Model (HBM), Afrocentric Perspective, and Ecological Systems Theory. The use of multiple theories and evidence guides the approach to answering the research questions. Next, the literature review will summarize the extant research on AA parental perceptions that influence a child's weight status. Lastly, the chapter will close with the purpose of the study and an explanation of the conceptual model.

Theoretical Framework

Health Belief Model

The Health Belief Model (HBM) was developed in the 1950s by social psychologists as a method to explain why the free medical screening programs (mainly for Tuberculosis) offered by the U.S. Public Health Service were not successful (Hochbaum, 1952). Researchers (Glanz, Rimer & Viswamath, 2008;

National Cancer Institute [NCI], 2003) have cited the HBM as the most commonly used theory of health belief, education and health promotion in public health. Hochbaum's (1958) first version of the HBM was built on the premise that health behavior is determined by personal beliefs or perceptions about an illness and the strategies available to reduce its occurrence. The HBM is a value-expectancy theory; meaning that an individual's first belief is that in order to avoid illness, one must value wellness. Value expectancy also describes how an individual evaluates their susceptibility and potential for illness severity (Becker, 1984; Kirchhoff, Sylwestrak, Chenelly, & McLane, 1988). Next, the individual must believe that a particular action will avert or mitigate the expected illness.

The four original constructs of the HBM were perceived susceptibility (Am I susceptible to disease____?); perceived seriousness or severity (Are the consequences of disease_____ severe?); perceived benefits (Will I benefit from this health behavior change?); perceived barriers (Are the behavior change barriers impossible?) (Becker, 1984). More recently, three additional constructs have been added: cues to action (prompts that initiate one's action in preventing a disease), modifying factors (age, ethnicity, socioeconomic status), and self-efficacy (stemming from the social learning theory; believing in one's own ability to take action) (McCormick-Brown, 1999). Each of these constructs, individually, or collectively can be used to explain health behavior. The HBM is an individual theory and cannot be applied to environmental or social issues. Disparities in

overweight and obesity exist among African Americans, and knowledge about their health behaviors vary and require further exploration.

Perceived Susceptibility

One of the most powerful behaviors in prompting an individual to actual behavior change is the construct of personal risk or susceptibility. This refers to an individual's perception that a disease diagnosis is accurate or that the health problem is personally relevant to him/her. The likelihood of engaging in behaviors to decrease the risk comes with greater awareness of the perceived risk. Nsiah-Kumi, Ariza, Mikhail, Feinglass, and Binns (2009) aimed to explore factors related to parental perceptions of health risks in their overweight children. Nsiah-Kumi and colleagues found that parents who had an overweight child displayed a greater level of awareness of weight related diseases as possible risk factors for cardiovascular disease and diabetes due to their family history. However the AA parents in this sample who had a family history of cardiovascular disease were less likely to view child obesity as a risk factor for weight-related diseases. If an individual does not feel threatened or if there is no incentive to implement behavior change, it is less likely that change will occur. In terms of promoting a healthy weight, social workers can implement health education that personalizes the individual's susceptibility by explaining statistics that portray weight-based

diseases such as diabetes, high blood pressure, and high cholesterol that disproportionately affect the person's ethnic group.

Perceived Seriousness or Severity

This construct of the HBM speaks to the individual's perceived seriousness or severity about his/her disease/illness. In most situations, knowledge and/or medical information are main sources that alert a person's perception of seriousness. Doctors can play a key role in educating parents about weight-related diseases and whether a parent accurately estimates or underestimates the weight status of their child. In 2007, only 7.9% of physician counseling visits included education about the importance of exercise (Healthy People, 2020). Social workers and health educators can stress the severity of weight related health consequences that can arise by not taking action, and reinforce that obesity can lead to congestive heart failure, heart attacks, and coronary artery disease. But no matter how much information a parent receives from a medical professional, it is still left up to him or her as to whether or not they perceive the medical advice as their reality. A parent could have a child that is overweight or obese, based on BMI and still not perceive the child as being overweight or obese. Therefore the parent is less likely to engage in health preventive measures to decrease weight-related diseases. One could assume that knowing the seriousness and severity of

these facts would prompt an individual to behavior change; however this is the least powerful predictor of a behavior change outcome.

Perceived benefits

The third construct of the HBM refers to the person's belief that a given action or treatment will help prevent the illness or at least cure it (Hochbaum, Rosenstock, & Kegels, 1952). Perceived benefits are the belief in positive outcomes of the advised action that can occur from behavior change. Benefits from increased physical activity would include decreases in development of cardiovascular disease risk factors, such as having a stroke, diabetes, and high blood pressure, lowered risk factors for various types of cancers (Haskell et al., 2007) and improved memory and brain functioning. If parents understand the seriousness of their child's weight and the weight-related diseases that can occur, and if parents are able to correctly identify their child's overweight or obese status, they are more likely to engage in health promoting behaviors. However, in order for this thought process to occur, parents must first perceive excess weight as potentially harmful to their health and their child's health before such perceived benefits can be realized as needing a cure.

Perceived Barriers to Change

The most significant construct in determining behavior change is perceived barriers to change. Here, the person analyzes the potential roadblocks,

such as the pros and cons to implementing the behavior change (Janz & Becker, 1984). When AA women were asked to list the barriers they encounter to being physically active, the following obstacles were discussed: time management (Cox, Zunker, Wingo, Jefferson, & Ard, 2011); financial challenges (Cox et al., 2011); personal safety (Nies, Vollman, & Cook, 1999); child care (Nies et al., 1999) and daylight and climate conditions (Nies, et al., 1999). Perceived barriers can be overcome when a person believes the benefits of a new behavior outweigh the consequences of continuing the old behavior (CDC, 2004). For example, a mother may foresee a negative drawback from her spouse and/or children when she attempts to make healthier meals instead of their usual unhealthy meals. However, because she understands and perceives the benefits that healthier meals will have on the overall cardiovascular health of her family, she will likely view surmounting these barriers as stepping stones to a greater reward.

Modifying Factors

The four previously mentioned perceptions are modified by other variables such as motivation, past experiences, and culture. Modifying factors within the HBM model include demographic variables, cultural, and structural variables (Becker, 1974) that ultimately can affect an individual's decision to change. Demographic variables include factors such as age, sex, race and ethnicity. Structural variables include factors such as the individual's knowledge

about the disease and prior contact with the disease. Wang and Zhang (2006) found that when looking at the association between socioeconomic status (SES) and obesity among AA girls' ages 10-18 years old, those with a higher SES were twice as likely to be obese when compared to their middle class counterparts. It is unknown if certain parental characteristics modify the accurateness of a parent's perception of their child's weight, however the literature reports the following as key parental characteristics: low education, poverty, ethnicity, age of the child, and parent's weight status (Collins, 1991).

Cues to Action

Behavior is also influenced by cues to action, which is a factor or event that serves as a cue or trigger for the necessary and appropriate health action needed to avoid acquiring the disease (Becker, 1974). Cues to action would be considered as people, things, or events that suggest to a person that he or she should change their behavior. Examples of this could be seen on product warning labels, advice from others (Ali, 2002), or illness of a family member (Graham, Liggons & Hipolite, 2001). Knowing fellow church members who are diagnosed with diabetes, high blood pressure, high cholesterol, and perceiving their weight status as overweight, obese or morbidly obese are significant cues to action for AA parents to take in promoting a healthy weight in their child (McCormick-Brown, 1999).

Self-efficacy

In 1988, Rosenstock, Strecher, and Becker added the construct of self-efficacy to the original four beliefs of the HBM. Self-efficacy is the belief in one's own ability to do something (Bandura, 1977) which is also a key construct in Bandura's Social Cognitive Theory. In most situations, a person will not attempt something new unless they perceive their abilities to accomplish their goal; and they avoid challenges they perceive that arise above their abilities (Robbins, Chatterje & Canda, 2012). An individual may have high self-efficacy in parental disciplining techniques, but low self-efficacy in physical activity and sports. If a person believes that a new behavior is advantageous (perceived benefit), but does not think they can accomplish the task (perceived barrier) more than likely the new behavior will not be attempted. A pilot study by Adkins, Sherwood, Story, and Davis (2004) was created to focus on physical activity and healthy eating among preadolescent AA girls and their families. Findings from this study revealed that as the parent's self-efficacy to do physical activity with their child increased, so did the child's level of physical activity. Each of these constructs, individually or collectively, can be used to explain and understand parent perceptions of weight status, body size, and how these can influence a child's weight status.

Afrocentric Perspective

Historically, African Americans have been known to have deep ties to their cultural heritage, including religious traditions and ideologies handed down from prior generations. The Afrocentric Perspective (Asante, 1988, 1990, 1998) is grounded in recognizing the culture, history, spirituality, and unique experiences of people who are of African descent. By acknowledging an individual's worldview and permeating their lived experiences to promote mental, physical, social, and spiritual well-being, this helps empower the person by allowing them to regain a sense of agency (Asante, 1988, 1990, 1998). The tenets of the Afrocentric model were summarized by Schiele (1990): "human beings are conceived collectively; human beings are spiritual; human beings are good; the affective approach to knowledge is epistemologically valid; much of human behavior is non-rational; and the highest value (or axiology) lies in interpersonal relations" (pp.146-147). Therefore, when helping African Americans combat weight-related disparities, it is essential to identify the best manner in which to appeal to the belief systems of African Americans. This dissertation will focus on the collective identity aspect of the Afrocentric Perspective.

The idea that an individual does not exist independently from his/her family and community is a concept of collective identity. Collective identity has the potential to impact one's weight, weight status and body size because the mindset about one's overall physical and mental health is shaped by the

perceptions that are inherited and influenced from the individual's cultural environment. This is also referred to as reference group pressure which is the tendency of a person to compare themselves for self-appraisal to a group they admire most (Bearden & Etzel, 1982). For example, individuals will usually compare themselves to others with whom they have daily contact. For children, this would be their parents and peers. If children are surrounded with family members and classmates who are overweight or obese, this becomes the norm, so there is no incentive to change (Brown, Evans, Mirchandani, Kelder, & Hoelscher, 2010). In terms of collective identity, parents are usually the first people with which their children identify. Children will measure themselves and their future selves based on the blue print laid by their parents. Regarding weight status, cross-sectional and longitudinal studies have found that if both parents are obese, there is an 80% chance that the child will be obese and obese children have a 70% chance of being overweight or obese in their adulthood years (Gibson et al., 2007; Schaefer-Graf et al., 2005; U.S. Surgeon General, 2001; Wang, Patterson, & Hills, 2002). When tackling childhood obesity, it is imperative to include, educate, and understand parental perspectives on weight status as children will closely identify more with the actions implemented by their parents.

The Multidimensional Inventory of Black Identity (MIBI)

Another theory to underscore African American perspectives and behaviors is the Multidimensional Inventory of Black Identity (MIBI) which is

commonly used for measuring racial identity among African Americans (AA) (Sellers, Shelton, Cooke, Chavous, Rowley, & Smith, 1998). According to Sellers et al. (1998), at least four ideologies elucidate AA views on what it means to be black. These ideologies include: (a) a nationalist ideology, which stresses the distinctiveness of being of African descent; (b) an oppressed minority ideology, which stresses the parallels between other marginalized groups and African Americans; (c) an assimilationist ideology, which stresses the likenesses between African Americans and American mainstream society; and (d) a humanist ideology, which stresses the camaraderie of all humans.

Prior studies have suggested that at least 60 percent of African American adults usually encounter racial discrimination in their lives (Kessler, Mickelson, & Williams, 1999; Sanders-Thompson, 1996; Williams, Yu, Jackson, & Anderson, 1997). Also, studies (Brondolo, Rieppi, Kelly & Gerin, 2003; Williams, Neighbors, & Jackson, 2003) have revealed an association between perceived discrimination and poor health outcomes. Specific poor health outcomes have been seen in increased hypertension risk and heightened cardiovascular responses which can eventually lead to mortality (Brondolo, Rieppi, Kelly, & Gerin, 2003; Clark, 2006; Merritt, Bennett, Williams, Edwards & Sollers, 2006; Williams et al, 2003). Sellers and Shelton (2003) hypothesized that perceived racial discrimination and having a nationalist ideology would yield a positive relationship. Results from their study indicated that those who

acknowledged more of a nationalist ideology reported additional racial discrimination within the past year. According to Sellers et al. (1998), the nationalist ideology encompasses three key features:

First, a nationalist ideology emphasizes the uniqueness of the Black Experience. While nationalists are able to see similarities between African Americans and other groups, they tend to focus on the experiences that are idiosyncratic to being black. The second characteristic of a nationalist ideology flows from this emphasis. A nationalist ideology posits that African Americans should be in control of their own destiny with minimal input from other groups. This characteristic may manifest itself in distrust for the sincerity of other groups that want to help African Americans. Similarly they may believe that self-help is necessary for self-determination. The third characteristic of a nationalist ideology is the belief that blacks should work and or socialize together in order to promote the advancement of the race. In other words, nationalists tend to believe that the destinies of all Black people are intertwined (p. 285).

Therefore, when working with parents who are of African descent, one should be mindful that this person could have a Nationalist Ideological perspective. When receiving medical advice, physicians are often viewed as authority figures in the lives of their patients. In a recent report regarding childhood obesity (Thompson, 2014), a pediatrician, Dr. Amanda Staiano, made a

comment stating, “Pediatricians will be key to breaking the cycle” (para. 6). Here, she is referring to the cycle of childhood obesity. Although this is a logical assumption, the reality is that it may not be true especially for AA who have a nationalist ideology. Take pediatricians, who with good health promotion intentions, try to educate African American parents on weight related diseases. The doctor explains to the parent that his/her child is either overweight or obese or maybe the doctor tells the parent that his/her child is gaining weight too fast (Nsiah-Kumi et al., 2009). An AA that has a nationalist ideology would believe that self-help is necessary for self-determination (Sellers et al., 1998). This AA parent may think the doctor is not culturally in-tune and that a child’s overweight/obese status is actually healthy for him or her. The African American parents may not accept a physician’s diagnosis of their child’s weight status, therefore unknowingly placing their child’s health in danger.

Lastly, a nationalist ideology also posits that the futures of all Black people are an amalgamation (Sellers et al., 1998). For instance, this construct would predict that if a Caucasian doctor informs an AA mom that her son is “too big” for his age, she will most likely view this as a negative comment coming from someone who “doesn’t even know her family.” When attempting to understand the obesity disparity that is present in AA, it is best to first understand how AA identify themselves and how their identity and past life experiences will

impact how they interact with others outside their ethnic group, as well as how they accept medical advice.

Ecological Systems Theory

The social institution that is primarily influential in child behaviors is the family. The family niche of Bronfenbrenner's Ecological Systems Theory (EST) (1979, 1994, & 2005) and Davison and Birch's (2001) contextual model of EST were used as a guide to understand parenting styles and family characteristics as predictors of child weight status. EST considers a person as the center of five nested structures: micro system, meso system, macro system, exo system and chrono system. When change occurs at one level of the ecological system, this can possibly affect the other levels and could influence one's developmental outcomes indirectly or directly through multiple contextual changes (Bronfenbrenner, 1979, 1994). For a child, an ecological environment can include the community, family and school, which are embedded in the society at large (Davison & Birch, 2001); all of which can negatively or positively influence a child's weight status.

An ecological model has been used in prior studies related to childhood obesity to guide interventions for African Americans (Eisenmann et al., 2008; Jeor, Perumean-Chaney, Sigman-Grant, Williams, & Foreyt, 2002; Niederer et al., 2009) and to use secondary data analysis guided by EST to study early childhood overweight/obesity in multiple ecological contexts concurrently (Boonpleng,

Park, Gallo, Corte, McCreary, & Bergren, 2013). Lifestyle behaviors for children include physical or sedentary activity, nutrition intake and screen time which can be a function of the family and school environment. A parent's perception of their child's weight status may influence the amount of television their child watches, consumption of healthy versus unhealthy snacks, and physical activity. For this dissertation, the family niche is studied.

Parenting Styles and Family Characteristics

The family niche, which is also considered as the microsystem (parents and peers) can tailor a child's level of physical activity and nutrition habits (Byrd-Williams, Kelly, Davis, Spruijt-Metz, & Goran, 2007; Kean & Prividera, 2007). Research has revealed that a tolerance and preference for obesity can develop simply by associating oneself with an obese person or group of people (Christakis & Fowler, 2007; Greenberg & LaPorte, 1996). African-Americans and Latinos are more likely to prefer fuller bodies over thinness (Greenberg & LaPorte, 1996). Parents serve as role models for their children, especially in terms of food preference (Birch & Marlin, 1982). In a microsystem such as this, when African American children adopt the same or similar attitudes (parent perceptions) of their parents or adult figures, and then imitate their behaviors and food preferences, they are learning practices that could place them at risk for obesity.

Parents influence their child's nutritional practices via their nutritional knowledge, modeling of eating and physical activity behaviors, and by making

certain foods available to their children. A parents' concern for their child's health and knowledge of nutrition can influence a child's eating behaviors which ultimately will impact the child's weight status. Rolls, Engell, and Birch (2000) found that increased food intake is associated with servings of larger portion sizes. Because parents play a huge part in role modeling behaviors for their children, it is likely that children, through repeated exposure, will want to eat (Birch & Marlin, 1982) or engage in activity that aligns with that of their parents. The perpetual family cycle of overweight and obesity is highly likely as overweight parents may adopt certain nutrition and physical activity practices that place their child at risk for being overweight or obese (Davidson & Birch, 2001). As previously stated, there is no doubt that parents play an influential role in shaping their children's behaviors through their own behaviors and practices.

Literature Review

The purpose of the literature review is to explore the current state of the literature regarding African American parent behaviors and perceptions of weight status, body size and how these behaviors and perceptions can influence a child's weight status.

Only a few studies have been conducted to assess parental perceptions of child weight status in school-age African American children, and even fewer provide separate analysis for AA. The large majority of studies in this area sampled preschool children (Baughcum, Chamberlin, Deeks, Powers, &

Whitaker, 2000; Garrett-Wright, 2011; Kourlaba, Kondaki, Grammatikaki, Roma-Giannikou, & Manios, 2009; Opusunju, 2013; Taylor, 2012). Amongst the studies that did assess the relation between parental perceptions of child weight and body size and the impact on child weight status, very few assessed possible mediating and/or moderating variables that could influence the relation. Also, very few studies in this literature review were guided by a theoretical framework and there is no conceptual model to guide theory and research to understand parent perceptions of weight status and body size and how this impacts a child's weight status. However for this review, those that did incorporate theory utilized the following: social influence theory (Beatty, 2009); family influence model (Nichols-English, Lemmon, Litaker, Cartee, Yin, Gutin, & Barbeau 2006); ecological systems theory (Polfuss & Frenn, 2012); and The Transtheoretical Model (Sealy & Farmer, 2011).

Out of all the gaps in the literature on this topic, the most debatable were the possible explanations as to why AA parents underestimate their child's weight status. Most studies take a quantitative approach to understanding this ethnically heterogeneous population. In order to make sure we are not overlaying a standardized measure (BMI/weight status), researchers must take heed in approaches to educating AA about weight, body size, and weight status. A first step in doing this is by first assessing the parent's health knowledge. We do not want this ethnic group to reject messages of health just because the current

method of education or standard of assessing body fat (BMI) did not fit their worldview. That is why it is important to understand theories that specifically relate to AA and possible mediating and moderating variables that could help explain the phenomenon. Perceptions of weight status, body size, and what it is to be healthy must first be measured in the terms of AA before we can label their perceptions as skewed.

Perceptions of body size and weight status

When compared to other ethnic groups, AA women with higher weight status usually report lower rates of body dissatisfaction when compared to their white counterparts (Caldwell et al., 1997; Fitzgibbon et al., 2000; Flynn & Fitzgibbon, 1998) because a larger body figure is often viewed as more attractive within this ethnic group (Kumanyika, Wilson, & Gilford-Davenport, 1993; Powell & Kahn, 1995). More often than whites, AAs have fewer weight concerns (Kemper, Sargent, Drane, Valois, & Hussey, 1994; Neumark-Sztainer, Croll, Story, Hannan, French, & Perry, 2002) and perceive themselves to weigh and be of a normal weight status compared to their actual weight (Bhuiyan, Gustat, Srinivasan, & Berenson, 2003; Desmond, Price, Hallinan, & Smith, 1989; Paeratakul, White, Williamson, Ryan, & Bray, 2002; Rand & Kuldau, 1990). However, Polfuss and Frenn (2012) found a large positive relation between AA and white parents' perceptions of their weight status and their actual weight status ($r=.67, p=.000$; $r=.57, p=.000$). Also, regarding their child's weight status and

their child's BMI z score, there was a large positive relation for white parents ($r=.59$, $p=.000$) and a medium positive relationship for AA parents ($r=.40$, $p=.000$).

Guided by the social influence theory, child feeding questionnaire (CFQ), figure rating scale, and utilizing a cross-sectional research design of 130 mothers and 130 children, Beatty (2009) sought to understand if AA mothers' perceptions of their body weight and body size had an impact on the body weight and body size of their children. Children were between the ages of 8 and 11 and were in the third through sixth grade. One flaw in utilizing the CFQ for this study is that although the scale has been validated, no study has been found to validate the scale in a sample of AA parents (Beatty, 2009). In addition to this limitation, all mothers and their children were asked to self-report their weight; however, they were measured for their height. Many studies have reported numerous inaccuracies of self-reported heights and weights (Kuczmarski, Kuczmarski, & Najjar, 2001; Nawaz, Chan, Abdulrahman, Larson, & Katz, 2001).

A similar study sought to understand the association between black mothers' and daughters' weight status. Nichols-English et al., (2006) used the Family Influence Model (Kimiecik, Horn, & Shurin, 1996) which was established based on the concept of reciprocal determinism in Bandura's Social Cognitive Theory. Nichols-English et al., (2006) used a cross-sectional study of 133 Black girls (8–12 years of age) and their mothers (24–66 years of age) to assess the

association between “mothers’ and daughters’ body fatness, physical activity (PA) beliefs and levels of PA, and daughters’ PA behavior” (p. 172). Also, this study sought to explore if factors such as “family socio-demographics had an influence on these relationships” (p. 172). Findings indicated there was a positive relation between mothers’ and daughters’ weight status ($p < .0001$), and when mom was married, the weight status association between mothers and daughters was more pronounced ($p < .01$). When more individuals resided in the home, the daughters’ weight status was significantly lower and she had more intentions to be physically active ($P < .05$).

Vivian, Becker, and Carrel (2012) sampled parents and children with ethnicities including 35% Latino Americans, 33% African Americans, 10% Asians, 2% American Indians and/or Alaskan Natives, and 20% whites. AA children were less likely to report being overweight than other children (33% vs. 80%, $p = 0.01$). Also, AA children were more likely to disagree that they were worried about becoming overweight ($p = 0.039$) or that their weight was not good for their health. Similarly, when compared to other parents, AA parents were significantly less likely to report being concerned that their child would one day be overweight (27% vs. 81%, $p = 0.006$). Also, a child’s weight was less likely to be viewed as unhealthy with African-American parents than other parents (46% vs. 77%, $p = 0.069$). Findings from these studies suggest further importance of the need to understand AA parents and their children’s perception of weight status.

Although their weight status indicated they are overweight, these parents and children were less likely to view themselves as such.

Outcomes from the first study in this section (Beatty, 2009) revealed a significant relation between the child's weight status, body weight and the three weight-related factors of the seven factors in the CFQ: perceived mother overweight, perceived child overweight, and concern over child being overweight and pressure to eat. Also, Beatty (2009) sought to explore if these same weight-related perceptions were in overweight and obese mothers. Results indicated the same significant findings. However only two weight-related perceptions; perceptions of perceived mother overweight and perceived child overweight in the subgroup analysis of overweight and obese moms, were found to predict a child's body weight. Although this study found four of the seven CFQ factors to be significantly related to a child's weight status and weight, it is still unknown as to what other variables could possibly mediate and/or moderate these significant findings. Also, the mothers in this sample overwhelmingly pressured their children to eat when they were not hungry. One-third of the mothers believed that children should eat all food on their plate. Using theories tailored specifically for AA could have helped to understand why AA mothers pressure their children to eat even when they are not hungry. When interviewing African American Adolescents (Barroso, Peters, Johnson, Kelder, & Jefferson, 2010) similar findings were noted. The AA adolescents in this sample commented that because

their parents, grandparents and elders grew up in food insecure environments, being underweight or skinny was viewed as malnourishment or as a sign that one has human immunodeficiency virus (HIV). An implication of this study was that future work should examine parental perceptions of their child's body size and its influence on healthy eating and physical activity (Barroso et al., 2010).

In addition to understanding perceptions of weight and weight status, Beatty (2009) explored perception of body size by assessing the agreement between current body size and the figure selected as the desired body size on the figure rating scale. If there was a difference between the two figures, this was labeled as dissatisfaction. There was a significant association between a mother's perception of her body size and her child's perception of his or her own body size. Results from this study found that a child's weight status, body size, and body weight were predicted by mothers' perceptions. It is important for AA mothers to know that how they perceive their own weight status, body size and weight can have a tremendous impact on their children's weight status, body weight and body size.

Underestimation of weight and weight status

To understand maternal perception of weight and weight status in their children, previous studies (Baughcum, Chamberlin, Deeks, Powers, & Whitaker, 2000; Etelson, Brand, Patrick & Shirali, 2003; Maynard, Galuska, Blanck, & Serdula, 2003; Moore et al., 2008) have not used sketches to solicit parental

opinions which can be helpful in ascertaining differences or similarities in actual weight status and perceptions of body size. In a study that included White, Hispanic, and AA children and their parents, Nsiah-Kumi et al. (2009) found that of the parents, 33 % misinterpreted their child's weight status as very low, 62% of parents of overweight and obese children underestimated their child's weight status, and 18% of parents whose child was of a healthy weight status misperceived their weight as well. In this study, parents who had a family history of cardiovascular disease, diabetes, and an overweight child displayed a greater awareness of these potential risk factors. However, perceptions of childhood obesity by AA parents in this sample were less often viewed as a risk factor for diabetes.

In a cross-sectional study to explore maternal estimation of their AA child's weight status, Moore and colleagues asked mothers if they felt their child was underweight, normal weight, a little overweight, or overweight (2008). In the category for girls who were overweight, their mothers significantly underestimated their weight status ($p < .001$). A similar study (Skelton, Busey & Havens, 2006) explored the perceptions of African American parents' weight status, their child's weight status, and the impact of weight status on health. The

height and weight (weight status) of the child was taken and compared with the parent or the child's perception of their own or their child's weight status.

Although this sample included 52 overweight children (95% CI; 52, 79), 77 percent of the children perceived their weight to be healthy and 67% perceived themselves as having a normal weight. Also, 68% of parents who had children who were overweight, perceived their child's weight status to be normal, and 80 percent thought their weight was healthy. Also, West, Raczynski, Phillips, Bursac, Gauss, and Montgomery (2008) sampled 1,551 parents at baseline (81% white and 15% AA) and during one year follow-up (2,508, (82% white and 15% AA). The majority of parents with overweight children (60%) underestimated their child's weight as healthy or underweight. When compared to white parents, AA underrated their child's weight status (70% inaccurate vs. 57%, respectively, $P = 0.08$). Although parent weight status was controlled for, black parents were still twice as likely to underestimate the weight status of their overweight child when compared to white parents (odds ratio (OR) = 2.09, 95% confidence interval (CI) (1.22, 3.55), $P = 0.007$). Also when compared to white parents, black parents were more likely to underestimate overweight status of their child (OR = 2.07, 95% CI (1.18, 3.64), $P = 0.005$). At the one year follow-up and having received child health reports, AA parents compared to whites improved the most in terms

of interpreting actual weight status and parental perception of weight status ($P < 0.0001$).

Due to the cross-sectional nature of both (Moore et al., 2008; Skelton, et al., 2006) study designs, and the multi-stage stratified design (West et al., 2008) it is unknown as to why parents underestimated their child's weight status. Moore et al. (2008) stated that if we are to lessen the obesity crisis, it is imperative that we gather input from those most affected. Using theories tailored specifically for AA could help in understanding why AA mothers pressure their children to eat even when they are not hungry.

Skelton also found that overweight children and parents of overweight children in this sample were significantly less likely than normal weight children and parents of normal weight children to identify themselves as having a normal weight or a healthy weight ($p < 0.05$). Over half of the children (64%) indicated that being overweight was "bad for your health" and 28% of parents indicated that being heavy was good for your health (p.291). Also, findings indicated that significantly more overweight than normal weight children viewed being overweight as "bad for your health" ($p < 0.05$).

All studies could have been strengthened by understanding the parents' view of underweight, normal weight, a little overweight, and overweight by showing them culturally and ethnically tailored figure sketches and comparing these with their responses. Moore and colleagues (2008) found that mothers were

significantly more likely to underestimate the weight status of their daughters when a doctor had not informed them that their child was overweight ($p=.046$). However the question still remains; even if mothers had been told by their doctor that their child was a little overweight, overweight, or obese, who is to say that these moms would have accepted this diagnosis as their reality? Do mothers fully perceive the seriousness or severity that weight-related diseases could possibly have on the overall cardiovascular health of their children? Maybe they know the seriousness, but instead have taken other measures such as incorporating daily physical activity and eating nutritious meals that will counter negative health consequences of an overweight or obese weight status. More importantly, do AA mothers know that black people in general tend to have less fat around their organs and more muscle mass (Atkinson, n.d)?

Although the doctor could have informed her, it was mom's perception that was the deciding factor in which response to select in the survey. A parents' perception of a situation could possibly override a physician's diagnosis.

Although a physician's diagnosis in Moore's study was associated with mom accurately classifying her daughter as overweight, as the MIBI suggests (Sellers, et al., 1998) not all parents will accept this advice as their reality.

Similar thinking could be exemplified by looking at the situation through the lens of the Health Belief Model. The perceived seriousness or severity construct of the HBM addresses an individual's beliefs about their disease/illness.

In most situations, knowledge and/or medical information are main sources that alert a person's perception of seriousness. Doctors play a key role in educating parents about weight-related diseases and whether a parent accurately estimates or underestimates the weight status of their child. However research has shown that weight status (BMI) is not a culturally sensitive tool. Other measures of body fat exist such as skin fold calipers, waist to hip ratios, and bioelectric impedance, but BMI still remains as the measure most used by clinicians and scholars due to its practicality, reliability, and ease of measurement (Blomquist & Bergstrom, 2007). Between 1988-1994, parents correctly perceived the overweight or obese status of their child 51% of the time, but this dropped to 44% of the time when parents were asked between 2005-2010 (Thompson, 2014). Perceptions may also come from the belief that the person has about the disease in general, or about complications that may arise from such a disease/illness (McCormick-Brown, 1999).

To view findings from Skelton and colleagues (2006) from a quantitative lens, one could assume that many of the AA children and parents in this sample underestimated their weight status and their child's weight status and are placing their child's health in danger. However, the main gap here is that we must first measure perceptions in the terms of AAs before we can say their perceptions are skewed. An AA's version of an ideal weight, what it means to be healthy, and their weight status is different from what Belgium Statistician Adolphe Quetelet

coined in 1835. Body Mass Index (BMI) was created in 1835 by this scholar who aimed to define body measurements of the average person. BMI or weight status is used to measure the proportion of body fat that an individual has based on their weight and height.

However, from a qualitative perspective, one would first begin to question, what does a normal weight look like for AA parents and their children? Skelton states a potential solution to combat obesity and related health consequences:

Health care providers should consider inquiring whether parents of heavier children have contemplated the potential health risks of being overweight for their child and whether they identify any potential need for change.

This identification of what a family perceives as a “healthy weight” is an important component of preventive health care, as many might not appreciate the adverse effects of a childhood overweight status until they are suffering the complications of it (as children or adults) (p. 292).

While this is true to a certain extent, it is also important for physicians to educate AA parents that although AAs may have a higher weight status, they also have little to no negatively associated health risks. Currently, BMI is the easiest measure to utilize. Parallel AA with whites who have the same BMI and weight, AAs usually have a decrease in visceral fat (fat around their organs) and more muscle mass (Atkinson, n.d). This means that an AA who is overweight might

have a very similar health status to a white person who is normal weight. It is very important that we move beyond BMI and more towards weight size and waist-to-height ratio (Atkinson, n.d) or more importantly, focus on being healthy at every size (HAES) (Bacon, Stern, Van Loan, & Keim, 2005).

Child Weight Status and parent's reported self-efficacy for doing physical activity with child

Adkins, Sherwood, Story, and Davis' (2004) cross sectional study measured various associations with AA girls' (8-10 y/o) level of physical activity. The associations of interest to this study include: the links with the girls' weight status, parents' reported self-efficacy, and support for helping daughters be active. Results indicated that girls with a higher weight status were less likely to be physically active ($r=-0.35$, $p=0.01$). Due to the cross-sectional nature of the study's design, it is unknown as to why these AA girls with higher weight status were less likely to be active. Adkins et al. (2004) could have tested parent feeding behaviors (Beatty, 2009; Davidson & Birch, 2001; Sealy & Farmer, 2011), parenting style (Polfus et al., 2012) or maternal distress (Zeller, Reiter-Purtill, Modi, Gutzwiller, Vannatta, & Davies, 2007) as possible mediating and/or moderating variables to have a better understanding of this association.

One could assume that the neighborhood environment or a lack of facilities act as the culprits in this situation. However, consistent with prior findings (Sallis, Alcaraz, McKenzie, & Hovell, 1999) with AA and Caucasian

fourth graders and their parents indicated that access to facilities, neighborhood safety, and family environment were not associated with the girls' activity levels (Adkins et al., 2004). Adkins et al. (2004) also found a significant correlation between the girls' activity level ($r=0.45$, $p=0.001$) and the scale indicating "parent self-efficacy to do physical activity with daughter" (p.40). To assess parents' self-efficacy, the survey asked mothers how hard it would be to: get their daughter to be active rather than watch TV, get their daughter to go for a walk with them, engage in physical activity each week with their daughter, take their daughter to the park, and go for a walk with their daughter. This cross-sectional study can only indicate that a relation exists, but the question still remains; Why is there a correlation with a girl's level of physical activity and her mother's self-efficacy to do physical activity with her daughter?" Future studies should test various parental characteristics to gain a better understanding of similar associations. Also, most studies surrounding this phenomena focused on mothers and daughter, but not sons. Future studies should include boys and stratified analysis of ethnic minority boys.

Parenting style and child feeding behaviors

Authoritative parenting style and child feeding behaviors are likely to influence a child's weight status. One aspect of Polfuss and Frenn's (2012) study was to explore parenting and feeding behaviors used when a child was overweight. Bronfenbrenner's Ecological System's Theory was used to guide this

cross-sectional study design that sampled 176 parent child dyads, 89 Caucasian (50.6%) and 87 African American (49.4%). Children in this sample were between the ages of 9 and 15. When the child was overweight, statistically significant parenting behaviors included increased psychological control vs. psychological autonomy (“tells child off of the things I have done for him or her”) and firmness vs. laxness (“is very strict with my child”) along with the feeding behavior of pressuring the child to eat (Polfus & Frenn, 2012, p. 198). Further, when this model was divided into Caucasian and African American parenting behaviors, the model was not significant for the Caucasian sample. However the model did explain 21% of the variance for the AA sample. The act of firm parenting vs. laxness was only significant ($p=.04$) in the African American sample. However the question still remains. Why did parents choose to implement such parenting styles when they had an overweight child?

Sealy and Farmer’s (2011) study of African American and Caribbean parents assessed if they were ready to engage in health promoting and weight loss activities. Parents of overweight children showed a higher stage of change (SOC) for monitoring food portions ($p<0.05$) and dietary fats intake ($p<0.05$). Examples of the nine item food portions domain include: “I limit how much my child eats so they don’t eat more calories than he/she needs” and “I make sure that my child resists eating everything on his/her plate if he/she is no longer hungry” (Sealy et al., 2011, p. 279). Examples of the 10 item dietary fat domain include: “I make

sure that my child avoids deep fried food such as fried chicken and French fries” and “I make sure that my child avoids fast foods such as burgers and fries or tacos” (Sealy et al., 2011, p. 279).

In a similar study, Beatty (2009) found that the behavior of pressuring a child to eat was only significantly related to a child’s body weight and not his/her weight status. However, pressure to eat was not significant in the sub-group of overweight and obese moms, but a trend toward significance was seen ($p=0.06$). In some cases, when children were not hungry, mothers still pressured their children to eat. Mothers believe their children should clean their plates even when children express that they are no longer hungry (Beatty, 2009). A parenting psychological characteristic found by Zeller et al. (2007) was in the presence of a higher level of psychological distress ($p<0.01$) in mothers of obese youth. This is an indication that the odds of a child being obese increase with the level of maternal distress. These findings are consistent with Epstein, Wisniewski, and Weng (1994) who found that maternal distress was linked to a decrease in child weight loss in an efficacy treatment trial.

Additional research (Birch & Fisher 2000; Birch, Fisher, Grimm-Thomas, Markey, Sawyer, & Johnson, 2001) also suggest that parent feeding practices are possible determinants of a child’s body weight and weight status. Caucasian mother-daughter dyads have been the most studied population in this area (Faith, Scanlon, Birch, Francis, & Sherry, 2004). While the sex of the child can

somewhat influence parental feeding patterns, ethnicity has a stronger influence. As seen in previously mentioned studies (Polfuss & Frenn, 2012), AA mothers have reported more concern for their child's weight, pressure to eat (Beatty, 2009) and restriction.

As previously mentioned, Sealy and Farmer used the Transtheoretical Model to hypothesize that a greater SOC will be positively associated with the parent's perceived weight of the child and the child's weight status. Parents' SOC for food portions and dietary fats were associated with perceived weight of the child and the child's weight status. Unfortunately, observations for this were not seen in the fruits and vegetables or physical activity domains. Usually, such incorporations do not occur until after other changes have been made and this is consistent with prior findings (Hilderbrand & Betts, 2009; Pearson, Briddle, & Gorely, 2009).

To examine the influence of the five popular domains of child-feeding practices on child body fat in AA children and Caucasian children, Spruijt-Metz, Li, Cohen, Birch, and Goran (2006) surveyed 74 white children (49 girls, 25 boys) and 47 African American children (25 girls, 22 boys; mean age at baseline, 11.0 years) and their mothers. Results indicated that parenting behaviors, pressure to eat and concern for the child's weight (white participants) and restriction and concern for the child's weight (African American participants) were significantly related to total fat mass at baseline. There was a negative association in concern

for the child's weight in terms of total fat mass in the White parent sample. With the AA sample, there were no longitudinal effects of child feeding practices on the change of total fat mass (Spruijt-Metz, Li, Cohen, Birch, & Goran, 2006). In order to better understand child weight status, we should elicit the responses of those most affected.

Summary of Theoretical Framework and Literature Review

After reviewing the school age literature regarding African American parents' perceptions of their child's weight status, it was clear that very few studies sampled only AA children and their families and no studies were found that sampled only African American boys. Parental perception of child weight status is not a neglected topic in the research literature, however these studies include the following limitations: 1) few employ a theoretical framework to guide their study and interpretation of findings as they relate to factors that influence child weight status; 2) most studies focus solely on preschool children and not school-age children; 3) and those that do include AAs in their sample fail to provide separate analysis of findings for AAs and focus on girls rather than boys. Studies that did not include some aspect of a child's weight status were excluded. To get a better understanding of how AA parent perceptions, education, and

behaviors impact their children's weight status, it was clear that a robust theoretical framework was needed to address this multifaceted social problem.

The integration of the Health Belief Model, Afrocentric Perspective, Ecological Systems Theory, and systematic literature findings provide a comprehensive conceptual model to aid in understanding how AA parents' education, perceptions, and behaviors influence child weight status. Each theory used for this conceptual framework strengthens the researcher's approach to answering the overarching research question: What are the associations among African American parent education, perceptions, and child weight status and what factors mediate and/or moderate these associations See Figure 2-1.

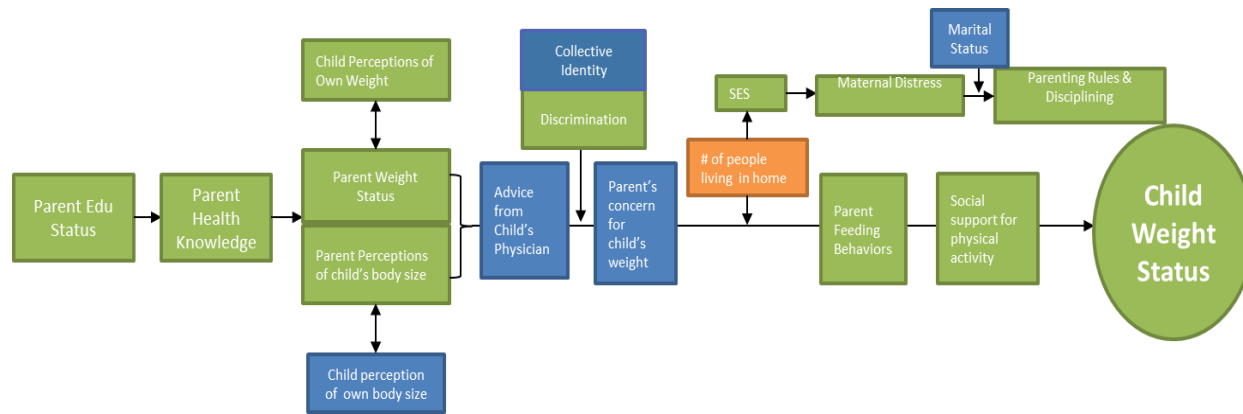


Figure 2-1 Theoretical Model Linking Parent Education, Perceptions, and Behaviors and the Influence on Child Weight Status GREEN= testable variables; BLUE= non-testable variables; ORANGE= slight change of variable wording

Summary of Theoretical Conceptual Model

A direct causal relationship is assumed between parent education status and parent health knowledge. A spurious relationship is when “two variables are related because they share a common cause, but not because either causes the other” (Jaccard & Jaccoby, 2010, p. 143). Parent weight status and parent perception of their child’s body size are related because both share the common cause of influencing a child’s weight status, but they do not cause each other. When two variables are conceptualized as influencing each other, this is referred to as a bidirectional or reciprocal relationship (Jaccard & Jaccoby, 2010). It is assumed that a bi-directional relationship will occur among parent’s weight status and the child’s perception of their own weight. Also, a bidirectional relationship will likely occur among parent’s perceptions of their child’s body size and the child’s perception of their own body size.

Experiencing discrimination (Afrocentric Perspective) within the past year and possessing a collective identity (Afrocentric Perspective) with one’s family and environment (Ecological Model) will moderate whether or not an African American parent, who comes with his/her own perceptions of what is an ideal body weight/weight status and size, accepts advice from a physician; especially if that physician is of a different ethnic race. Advice from a doctor will mediate the relationship between parent perception of their child’s body size and their child’s weight status. If the parent decides to take the physician’s advice, the reality of

the situation (child is overweight or obese) could cause the caregiver concern (HBM: Perceived seriousness and susceptibility); which would also mediate the physician's advice and the child's weight status.

The number of people living in the home will influence a child's weight status as well as directly impact the family's socioeconomic status (SES). An indirect relationship is one in which a variable influences another variable indirectly through its impact on an intermediary variable. SES will have a direct impact on maternal stress (Ecological Model) and an indirect impact on parenting rules/style and child disciplining (Ecological Model). Parent marital status (Ecological Model), will moderate the direct relationship between maternal distress and parenting rules/style and child disciplining (Ecological Model). Lastly, the ecological model of predictors of child overweight would suggest the inclusion of parent support for physical activity (HBM) and parent feeding practices (HBM) as parenting styles and family characteristics that could influence a child's weight status.

Purpose of the Study and Model

The primary purpose of this study is to fill a gap in the research literature in understanding African American parental education, perceptions and behaviors that influence child weight status through evidence based literature, health, culture, and ecological specific theoretical frameworks. This study marks the first known attempt to use multiple theories, along with mediating and moderating

variables to explain the relation among African American parent education, perceptions, and behaviors and the association with child weight status.

Research Questions

Four variables (blue boxes) in the conceptual model cannot be tested for this study. Also, the number of people living in the home cannot be tested (orange box); however the number of children living in the home can be tested. Derived from the conceptual model is the testable model that helped to guide the research questions for this dissertation. See Figure 2-2. The following research questions will be answered by this study.

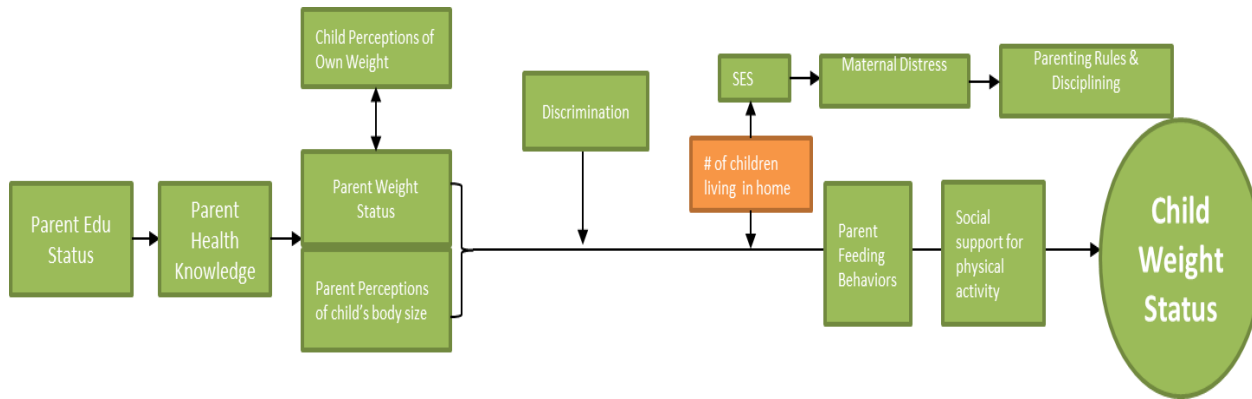


Figure 2-2 Testable Model Linking Parent Education, Perceptions, and Behaviors, and the Influence on Child Weight Status

Research Questions

1. What are the associations between parent education and child weight status and are they mediated by parent health knowledge?
2. What are the associations between parent's weight status and child's perceptions of their own weight and are they moderated by parent age, SES, education, weight status, discrimination, stress and number of children in the home?
3. What are the associations between parent perception of child body size and child weight status and are they moderated by parent age, SES, education, weight status, discrimination, stress and number of children in the home?
4. What are the associations between parenting behaviors (parenting rules/discipline, parent physical activity support, and parent feeding) and child weight status and are they mediated by parent age, weight status, SES, and education?

Chapter 3

Methodology

Informed Consent and Confidentiality

Data for this study were obtained from the School Physical Activity and Nutrition (SPAN) monitoring study in Texas, conducted from 2009 to 2011.

Therefore, no data were collected by the researcher for the current study and all personally identifiable information was removed before the researcher received the data. The current study did not fall under the domain of human subjects research, therefore the Institutional Review Board (IRB) at the University of Texas at Arlington declared the project as not qualifying as human subjects research and did not require review of the IRB.

Background: The Primary Study

SPAN Overview

SPAN was developed using a repeated cross-sectional study design to estimate changes in body mass index (BMI) by three major racial/ethnic groups (African Americans, Hispanics, and whites/others) in Texas public school children (Hoelscher, Day, Lee, Frankowski, Kelder, Ward & Scheurer, 2003). To capture school-age children in elementary, middle and high school, SPAN targeted a single grade to represent each developmental level of school children: 4th grade for elementary, 8th grade for middle and 11th grade for high school. The most recent version of SPAN (2009-2011) includes parents of 4th grade students

for the first time as the second target population. These parents represent only those parents/guardians of 4th grade students who accepted to participate in this study and are not meant to be representative. The sampling frame for SPAN is limited to these three grades, along with the parents of the fourth graders.

Population. The target population consisted of fourth grade, eighth grade, and eleventh grade students in the state of Texas, excluding students who attended private schools, and special education or alternative schools. Additionally, the most recent version of this datum (2009-2011) included the parents of the selected fourth grade students. The total number of students in the population was 11,751 of which 5,035 were fourth graders and 6, 716 were made up of grades eight and eleven.

Procedure and Sample. SPAN has been administered in Texas during the following three time periods using a cross-sectional survey (years 2000-2002; 2004-2005; 2009-2011). By utilizing Texas Education Agency data from 2008-2009, the 2009-2011 sampling frame consisted of 4,327 schools covering 869 school-aged children in elementary, middle, and high schools. School districts in Texas were grouped into three public health regions. Within each Health Service Region (HSR), school districts were grouped into three categories, urban center, urban/suburban, and rural. These three categories were based on population size designations (Texas Education Agency, 2000). Urban center school districts are the largest school districts, having over 650,000 residents. Urban/suburban school

districts are those with between 25,000 and 650,000 residents. The rural school districts included school districts with less than 25,000 people.

Based on BMI data from previous survey analysis, the SPAN team assumed a 90% student assent rate and 67% parent participation rate, and determined that the required sample size for fourth grade students was 9,045. From the border regions, the required sample sizes were 1,950 and from the non-border regions were 7,300 for fourth graders. These calculations assume a type 1 error level of 0.05 (Perez, Hoelscher, Springer, Brown, Kelder, Barroso, & Castrucci, 2011). Within each Health Service Region, 5 elementary schools, 5 middle schools, and 5 high schools were randomly selected and targeted for recruitment. A total of 608 schools were randomly selected to participate. A total of 11,751 student surveys from 280 schools for grades 4, 8, and 11 as well as 3,738 parent surveys were collected.

Survey Instrument. As part of the School-Based Nutrition Monitoring project (Hoelscher, Day, Kelder, & Ward, 2003) protocols and questionnaires were developed for SPAN. Questionnaires were created for three objectives: 1) to assess demographic information; nutrition behaviors, attitudes, and knowledge, 2) to assess physical activity behaviors and knowledge; and 3) to measure student and parent weight and height. Two questionnaires were developed on computer-scanned forms: the first to assess elementary school students (fourth grade students) and the second to assess the parents of the elementary school students.

The parents received a survey through a packet that went home through school. Parents of 4th grade children completed the surveys and sent them back to school. Because the parent sample is not a probability-based sample, researchers did not weight the parent sample.

Measurement of Height and Weight. According to Hoelscher et al (2003) students were measured for height and weight with a standard protocol by trained and certified project staff. “Height was measured to the nearest 0.1 centimeter with a portable stadiometer (Perspective Enterprises Portable Adult Measuring Unit PE-AIM-101, Portage, Mich). Weight was measured to the nearest 0.1 kg with a portable digital scale with remote display (SECA 770 or Tanita BWB-800S, Arlington Heights, Ill) calibrated to 200 lb before each series of measurements” (Hoelscher et al., 2003, p 1003). Both measurements were written directly on the student questionnaire. As a quality control measure, 5% of the sample were re-measured in the field.

BMI/Weight Status. BMI, which will be referred to as weight status in this study, is the dependent variable that was calculated from the measured heights and weights of students with a standard equation (National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, 2002). According to the National Center for Health Statistics (2002) a BMI of greater than or equal to the 95th percentile for age and gender is considered obese, and a BMI greater than or equal to the 85th percentile but less

than the 95th percentile for age and gender is considered overweight. The CDC’s growth charts uses a child’s exact age and gender to classify them as normal, overweight, and obese. An additional six months were added to the reported age to calculate a midpoint for child age (e.g., 10 years was assigned as 10 years and 6 months) for classification purposes since children reported their age, but not birthdate on the survey. Flegal (2000) reported this method as having very little effect on prevalence estimates, but as an effective way to calculate BMI when a child’s birthdate is unknown (Flegal, 2000). After calculating the BMI percentile, students were classified by weight status using the CDC definitions. Weight status in the data set is based on 3, 4, and 5 categories as follows (Perez et al., 2011).

See Table 3-1.

Table 3-1 BMI/Weight Status 2009-2011

BMI Percentile	BMI Class 3	BMI Class 4	BMI Class 5
<5%	Healthy Weight	Underweight	Underweight
<85%		Healthy weight	Healthy Weight
<95%	Overweight	Overweight	Overweight
<99%	Obese	Obese	Obese
≥99%			Extremely Obese

Data Quality Control. The rate of missing or ambiguous responses for the elementary and secondary level surveys was less than 1%. Data were examined for outliers in height, weight, and age, as well as for missing gender information. Acceptable age ranges were 8–12 years of age for fourth grade students. Twelve questionnaires were eliminated because of missing gender, 12 because of extreme

height or weight, and 21 because of age outside of the range, resulting in a final sample of 3004 fourth-grade students, 2165 eighth-grade students, and 1461 11th-grade students.

The Dissertation Study

Dissertation Sample

The most recent version of SPAN (2009-2011) includes parents of 4th grade students for the first time as the second target population. These parents represent only those parents/guardians of 4th grade students who accepted to participate in this study and are not meant to be representative. For this study, only African American 4th grade students (n=372) and their parents (n=372) will be included.

Procedure and Sample

As previously mentioned, SPAN has been administered in Texas during three time periods using a cross-sectional survey. Cross-sectional research designs have three distinct features: no time dimension, it has a reliance on existing differences rather than change following an intervention, and selection of groups based on existing differences rather than random selection (Hall, 2008). As the research questions in this study seek to assess the impact of independent, mediator, and moderator variables on the dependent variable, a quantitative research design is best-suited to answer these questions in a statistically

significant manner. The time period utilized for this study is 2009-2011, which consisted of 11,751 student surveys representing the total 4th, 8th, and 11th grade student population (N=869,880). Fourth grade African Americans children and their parents will be used for this study. Additionally, the outcome, predictor, mediator and moderator variables used in this study will be described.

Data Analysis

SPSS Version 22.0, Armonk, NY statistical software will be used to analyze the data. Data analysis will be conducted in three phases. The first phase was the data preparation phase. In this phase, the data were checked for missing values and new variables are computed. Specifically, mean composite variables or scales were created for parent health knowledge, socioeconomic status, discrimination, parent feeding behaviors, parenting rules and discipline, and maternal stress. All the variables associated with each of these constructs were used to compute a new mean composite variable. A mean score was computed by summing all of the questions within the construct and then dividing by the number of questions in the constructs.

The second phase was the preliminary analysis phase. This phase consisted of the generation of descriptive statistics for the demographic variables such as gender, ethnicity, and weight status scores. Additionally, reliability analyses were performed on the groups of variables used to create the mean composite variables, in addition to a correlation analysis between the composite

variables and their component questions. Preliminary data analysis also included the testing of assumptions for the multiple regression analyses, such as multicollinearity, normality, linearity, and homoscedasticity, to ensure the composite variable was correlated with all that go into the composite (Fields, 2012; Hair et al, 2010; Tabachnick & Fidell, 2012).

In the third and final phase, primary analyses were conducted using multiple regression equations to answer the research questions. Three forms of multiple regression will be conducted: a standard multiple regression analysis with independent variables (parent education status, parent health knowledge, parent perceptions of child body size, child's perception of weight) and dependent variable (child weight status); a regression analysis testing the moderating variables (discrimination, number of children living in the home, SES, maternal distress, and parenting rules and disciplining) effect between independent variables (parent education status, parent health knowledge, parent perceptions body size, child's perception of weight) and the dependent variable (child weight status), and a regression analysis testing the mediating effect (parent feeding behaviors and parent social support) between independent variables (parent education status, parent health knowledge, parent weight status, parent perceptions of child body size, child's perception of weight) and dependent variable (child weight status). A Bonferroni adjustment was made across all of the multiple regressions as these regressions are a part of a larger theoretical model.

The Bonferroni adjustment is used to maintain the study-wide error rate at .05 by dividing .05 by the number of related statistical tests (Keselman & Keselman, 1988).

For the standard multiple regression, the F value, p value, beta and b coefficients were calculated. The results will be deemed significant if the p value is less than .05. For the regression with the moderator variables, the analysis will be done in two steps (Field, 2012). First, it will be performed with only the independent (parent education status, parent health knowledge, parent weight status, parent perceptions of child body size, child's perception of weight) and dependent variable (Child Weight Status). Then it will be performed with each of the moderator variables (discrimination, number of children in the home, SES, maternal distress, parenting rules and disciplining). According to Field (2012), a moderator variable is a quantitative variable that affects the direction and/or strength of the relation between an independent variable and a dependent variable. If the independent variable is significant in the first regression analysis and is no longer significant or the sign of the beta changes in the second analysis, then it can be said that moderator variable has moderated the relationship between the independent and dependent variables.

To evaluate if a variable mediates the relationship between an independent variable and dependent variable, the following three criteria must be met (Barron & Kenny, 1986; Fields, 2012; Hair et al, 2010; Tabachnick & Fidell, 2012):

- 1) Variations in levels of the independent variable significantly account for variations in the presumed mediator (Pearson correlation).
- 2) Variations in the mediating variable significantly account for variations in the dependent variable (Pearson correlation) and
- 3) When both the independent variable and mediating variable appear in the model, a previously significant relation between the IV and DV is no longer significant (multiple regression).

In summary, data analysis will take place in three phases: the data preparation phase, the preliminary analysis phase, and the primary analysis phase. In the primary analysis phase, multiple regression analysis will be used to measure the linear relationship between independent and dependent variables, the mediating effect between independent and dependent variables, and the moderation effect between independent and dependent variables. Post-hoc tests will not be performed with multiple regression as these analyses are conducted among analyses of variance after a significant main effect (Fields, 2012; Hair et al, 2010; Tabachnick & Fidell, 2012).

Outcome Variables

Child Weight Status. The dependent variable for this study is the child's weight status (underweight, healthy weight, overweight, obese, extremely obese) as described previously in the background of the primary study section.

Child's Perception of Weight. Children's perception of their own weight specifically stated: Compared to other students in your grade who are as tall as you, do you think you weigh: 1) Too much; 2) The right amount; 3) Too little (or not enough).

Predictor Variables

Parent Perception of Child Body Size. Adult figure drawings developed by Stunkard, Sorenson, and Schulsinger (1983) were used by permission for guidance in designing a new pictorial instrument (Collins, 1991) including child figures. Seven boy and girl child figures were created to illustrate body weight ranging from very thin to obese. See Figure 3-1 and Figure 3-2. Parents were asked two questions based on each boy and girl figure size (images). First, which of these bodies looks most like your fourth grade girl/boy. Then, parents were asked what an ideal boy/girl should look like. This study will only examine parent perceptions of their child's body size.

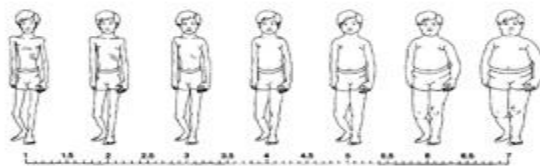


Figure 3-1 4th Grade Boy

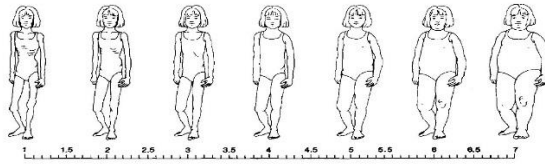


Figure 3-2 4th Grade Girl

Parent Rules and Discipline. There were six questions that comprised this variable. The respondent scores ranged from 1 to 5 where low scores represented less discipline and higher scores represent more discipline. Mean scores will be computed from these five discipline questions to create a composite variable for parenting rules and disciplining. Sample questions included, I don't make my child do her/his homework; I punish my child for doing something one day, but ignore it the next; I change my mind to make things easier for myself.

Parent Social Support for Physical Activity. Parent Social Support measures the degree to which the parent respondent is physically active with their fourth grade child. Specifically, the question stated, I am physically active with the fourth grade child (Examples: running, jogging, walking fast, bike riding, swimming, dancing, or skating). The response options were 1) never, 2) yes, sometime, 3) yes, most of the time, 4) yes, all of the time, 5) My fourth grade child has disability or health condition that prevents him/her from being physically active, 6) I have a disability or health condition that prevents me from being physically active.

Parent Feeding Behaviors. This variable is made up of seven questions that relate to parent feeding behaviors. Sample questions included, 1) were fresh/frozen fruits served as snacks in your home, 2) were fresh/frozen fruits served at the evening meal in your home, and 3) was skim or non-fat milk served at meals as meals or snacks in your home? Response choices were 1) never, 2) 1 to 2 times, 3) 3 to 4 times, 4) 5 to 6 times, 5) 7 times, and 8) more than 7 times. Mean scores will be computed from these eight feeding questions to create a composite variable for parent feeding behaviors.

Mediating Variables

Parent health knowledge. There were seven variables that measured parent health knowledge. See Table 3-2. Based on the health knowledge questions, for selecting the correct answer, the question was recoded as a 1 and those that did not select the right answer, responses were recoded as a 0.

Table 3-2 Parent Health Knowledge

Question	Response
1. If I am overweight I am more likely to have more health problems like cancer or heart disease.	True, False, Don't Know
2. How many total cups of fruit should you eat each day?	At least 2, At least 3, At least 4, At least 5, I don't know
3. How many total cups of vegetables should you eat each day?	At least 2, At least 3, At least 4, At least 5, I don't know
4. Experts recommend that children should be physically active for at least how many minutes per day?	10 minutes, 20 minutes, 30 minutes, 60 minutes, 90 minutes, I don't know
5. Experts recommend that children should engage in no more than how many hours of media-related activities, such as TV watching and video game playing, per day?	1 hour, 2 hours, 3 hours, 4 hours, 5 hours, 6 hours, I don't know
6. Experts recommend that children should be physically active on how many days per week?	0 days, 2 days, 3 days, 4 days, 5 days, 6 days, 7 days, I don't know
7. Which contains the most calories?	One gram of protein, one gram of fat, one gram of carbohydrate, I don't know

Moderator Variables

Discrimination. There were two moderating variables that measured discrimination from the parents' perspective. The first assessed to what extent discrimination is a problem in the respondents' neighborhood. The variable is scored on a 4 point scale where 1 is not a problem, 2 is a minor problem, and 3 is somewhat serious, and 4 is a very serious problem. The second discrimination variable asks how much prejudice the participant personally experienced because of your ethnic group during the past 12 months. This too is a four point scale where 1 was a great deal of discrimination, 2 some discrimination, 3 a little discrimination, and 4 no discrimination. A proxy discrimination variable will be created by calculating the mean of the two discrimination variables. Also, both discrimination questions will be analyzed separately as moderating variables in the regression models.

Maternal Stress. The fourth moderating variable consist of six questions that ask to what degree mothers experienced nervousness, hopelessness, restless or fidgety, feelings of depression, everything was an effort, and worthlessness. Scores range from 1 to 5, where 1 was all the time, 2 was most of the time, 3 was some of the time, and 4 was all of the time, and 5 was none of the time. A composite variable will be created by computing a mean score from the size research questions, where low scores represent high maternal stress and high scores equal low maternal stress.

Number of Children in the Home. This was a descriptive variable where the parent was asked specifically to indicate the number of children living in the home by age level. The age levels were 0-23 months, 2- 4 years, 5-8 years, 9-11 years, 12-14 years, and 15-18 years. Respondents were then asked to indicate whether there were 0, 1, 2, or 3 or more in the specific age category. This variable will be created by totaling the number of children from each age range.

Predictor, Mediator, and Moderator Variables

Parent education status. This was a descriptive independent variable and at times where the parent was asked specifically to indicate the highest level of education completed for the primary caregiver in the household. The degree levels were: 1) Less than high school; 2) High school or GED; 3) Some college; 4) College Degree; 5) Graduate or professional degree (Master's, PhD, MD, etc.).

Parent's Weight Status. Parent's weight status is derived from parent's self-report of their height and weight which is one independent variable. Specifically, the question stated; How tall do you think you are (If unsure give your best guess) and How much do you think you weigh (If unsure give your best guess). When height and weight are calculated, weight status can be determined.

Mediator and Moderator Variables

Parent age. This variable asked parents to report their age.

Socioeconomic Status (SES). This variable asked how often did your family not have enough money in the past 12 months to: 1) buy clothing; 2) buy medicine prescribed by a doctor; 3) see a doctor; 4) pay the rent or house payment; 5) buy food; 6) pay for school fees and supplies, 7) pay utilities; and 8) buy gas for car or truck. A composite variable will be created by computing a mean score from the size research questions, where low scores represent high SES and high scores represent low SES.

Research Questions

R1: What are the associations between parent education and child weight status and are they mediated by parent health knowledge?

H₀₁: There will not be associations between parent education and child weight status and there will be no mediation of parent health knowledge.

R2: What are the associations between parent's weight status and child's perceptions of their own weight and are they moderated by parent age, SES, education, weight status, discrimination, stress and number of children in the home?

H₀₁: There will not be an association between parent's weight status and child's perceptions of their own weight and they will not be moderated by parent

age, SES, education, weight status, discrimination, stress and number of children in the home.

R3: What are the associations between parent perception of child body size and child weight status and are they moderated by parent age, SES, education, weight status, discrimination, stress and number of children in the home?

H₀₁: There will not be any associations between parent perception of their child's body size and child weight status and they will not be moderated by parent age, SES, education, weight status, discrimination, stress and number of children in the home.

RQ4: What are the associations between parenting behaviors (parenting rules/discipline, parent physical activity support, and parent feeding) and child weight status and are they mediated by parent age, weight status, SES, and education?

H₀₁: There will not be any associations between parenting behaviors (parenting rules/discipline, parent physical activity support, and parent feeding) and child weight status and they will not be mediated by parent age, weight status, SES, and education.

Chapter 4

Results

The primary research questions for this study were as follows: 1). What are the associations between parent education and child weight status and are they mediated by parent health knowledge? 2). What are the associations between parent's weight status and child's perceptions of their own weight and are they moderated by parent age, SES, education, weight status, discrimination, stress and number of children in the home? 3). What are the associations between parent perception of child body size and child weight status and are they moderated by parent age, SES, education, weight status, discrimination, stress and number of children in the home? 4). What are the associations between parenting behaviors (parenting rules/discipline, parent physical activity support, and parent feeding) and child weight status and are they mediated by parent age, weight status, SES, and education?

The results section is divided into two areas. The first area consists of descriptive statistics on the participants in the study. This includes child and parent demographic information. The second area contains the reporting of results for each research question and the sub-questions which contain two components. Linear and multiple regressions found significant associations among several variables of interest. Preliminary analyses were conducted to test the parametric assumptions of normality, linearity, and homoscedasticity. All preliminary

analyses indicated that the assumptions of normality, linearity, and homoscedasticity were not violated.

Participants

There were 744 participants, of which 372 were children and 372 were the parents of the children. In this study, 50.5% were male children and 49.5% were female children. The average age of each child was 9.6 years of age ($SD = .63$) and the average height and weight were 142.62 cm (4.6 feet) ($SD = 7.73$ cm) and 41.93 kgs (92.4 lbs) ($SD = 12.71$ kgs), respectively. Over half of the children, 53.5%, were classified as having a healthy weight, 16.4% were overweight, 22% obese, 5.4% extremely obese, and 2.7% underweight. The majority of children reported speaking primarily English with their parents (88.7%). Among the parents, the vast majority were female (86.8%) and the average age was 36.80 ($SD = 7.61$). Parents self-reported their height and weight and the average was 64.74 inches ($SD = 7.61$) and 175.28 lbs ($SD = 47.80$) respectively. Among parents, 28% had a healthy weight, 27.4% overweight, and 31.2% were obese. A total of 50 parents did not report their height and weight, therefore weight status for these parents could not be determined.

Research Questions

RQ1: What are the associations between parent education and child weight status and are they mediated by parent health knowledge?

1.1 Is parent education associated with parent health knowledge?

To determine if there was a direct, significant positive relation between parent education and parent health knowledge, a linear regression was conducted. Distributions of parent education level are presented in Table 4-1. Results of the linear regression indicated that there was no significant linear relation between parent education and parental health knowledge, $F(1, 353) = .002$, $p = .961$. The amount of variance explained by the model was .0001% ($R^2 = .0001$). The correlation coefficient (effect size) was .03, which is very close to 0.

*Table 4-1
Highest Level of Education Completed for the Primary Caregiver*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than high school	19	5.1	5.3	5.3
	High school/ GED	94	25.3	26.3	31.7
	Some College	113	30.4	31.7	63.3
	College Degree	91	24.5	25.5	88.8
	Grad/Prof	40	10.8	11.2	100.0
	Total	357	96.0	100.0	
Missing	System	15	4.0		
Total		372	100.0		

Additional linear regressions were performed to determine if there was a direct, significant positive relation between parent education and the seven disaggregated parent health knowledge questions. Three health knowledge questions were significantly associated with parent education: (1) How many total cups of vegetables should you eat each day, $F(1, 347) = 6.524$, $p=.011$; (2) Experts recommend that children should be physically active for at least how

many minutes per day, $F(1, 346) = 9.599, p=.002$ and; (3) Experts recommend that children engage in no more than how many hours of media-related activities, such as TV watching and video game playing, per day, $F(1, 351) = 3.651, p=.057$, which revealed a trend toward statistical significance. See Table 4-2, Table 4-3, and Table 4-4.

Table 4-2 Parent Health Knowledge (1) Regressed on Parent Education

	B	SE B	β	95% CI
Constant	1.366	.056		[1.236, 1.495]
Education	-.051*	.020	-.136	[-.090, -.012]
R ²	.018			
F	6.524			

* $p<.05$. ** $p<.01$.

Table 4-3 Parent Health Knowledge (2) Regressed on Parent Education

	B	SE B	β	95% CI
Constant	1.029	.069		[.893, 1.166]
Education	.065*	.021	.164	[.024, .107]
R ²	.027			
F	9.599			

* $p<.05$. ** $p<.01$.

Table 4-4 Parent Health Knowledge (3) Regressed on Parent Education

	B	SE B	β	95% CI
Constant	1.099	.068		[.966, 1.232]
Education	.039	.021	.164	[-.001, .080]
R ²	.010			
F	3.651			

* $p<.05$. ** $p<.01$.

Further posthoc analysis explored if there was a direct, significant positive relation between each parent education level and the three significant parent health knowledge questions. Each level of education was recoded into a separate

variable. Results of the multiple regression indicated that health knowledge (1) model as a whole was significant $F(5, 349) = 5.235, p < .001$, where 5.8% ($R^2 = .058$) of the variability in parent health knowledge (1) was explained by the model. The coefficients table showed that no level of education made a significant contribution to the model. Table 4-5

Table 4-5 Parent Health Knowledge (1) Regressed on Parent Education

	B	SE B	β	95% CI
Constant	1.333	.162		[1.014, 1.653]
Less than high school	.278	.187	.150	[-.091, .647]
High School or GED	-.114	.168	-.122	[-.443, .216]
Some College	-.170	.167	-.193	[-.498, .158]
College Degree	.158	.168	.169	[-.487, .172]
Graduate/Professional	-.154	.174	.118	[-.497, .189]
R^2	.058			
F	5.235			

* $p < .05$. ** $p < .01$.

Next, the same analysis was performed with health knowledge (2) as the dependent variable. Results of the multiple regression indicated a trend toward significance $F(5, 347) = 1.940, p = .087$, where 2.7% ($R^2 = .027$) of the variability in parent health knowledge (2) was explained by the model. The coefficients table showed that no level of education made a significant contribution to the model.

Lastly, the same analysis was performed with health knowledge (3) as the dependent variable. Results of the multiple regression indicated that the model as a whole was not significant $F(5, 353) = 1.687, p = .137$, where 2.3% ($R^2 = .023$) of the variability in parent health knowledge (3) was explained by the model.

1.2 Is parent education associated with child weight status?

To determine if there was a direct, significant positive relation between parent education and child weight status, a multiple regression was conducted.

Distributions for child weight status are presented in Table 4-6. Results indicated that the model was not significant, $F(4, 352) = .446$, $p = .775$. There is no relation between parent education and child weight status.

Table 4-6 Distributions of Child Weight Status

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1. Underweight	10	2.7	2.7	2.7
2. Healthy Weight	199	53.5	53.5	56.2
3. Overweight	61	16.4	16.4	72.6
4. Obese	82	22.0	22.0	94.6
5. Extremely Obese	20	5.4	5.4	100.0
Total	372	100.0	100.0	

1.3 Does health knowledge mediate or moderate the association between parent education and child weight status?

No significant relation was found between parent education and child weight status. Therefore, no variable can moderate or mediate a non-significant association.

RQ2: What are the associations between parent’s weight status and child’s perceptions of their own weight and are they moderated by parent age, SES, education, weight status, discrimination, stress and number of children in the home?

2.1 Is parent weight status associated with child's perceptions of their own weight?

A linear regression was conducted to assess if there was a relation between parent's weight status and child's perception of their own weight. Results indicated that parent's weight status was not significantly related to child's perception of their own weight, $F(1, 302) = .039$ $p = .844$. The total variance explained by the model was 0.0% ($R^2 = .000$). Since no significant relation was found between parent's weight status and child's perceptions of their own weight, no variable can moderate a non-significant association. An adjusted regression was explored by adding covariates: parent education, parent stress and number of children in the home. Results of the multiple regression indicated that the model as a whole was non-significant and no covariate made a significant contribution to the model.

RQ3: What are the associations between parent perception of child body size and child weight status and are they moderated by parent age, SES, education, weight status, discrimination, stress and number of children in the home?

3.1 Is parent perception of child body size associated with child weight status?

A multiple regression was performed to determine if there was a significant relation between parent's perception of their child's body size and

their child's weight status. Results of the multiple regression indicated that the model as a whole was significant $F(2, 290) = 187.456, p < .001$. Parent's perception of their boy's body size ($\beta = .716, p < .001$) and girl's body size ($\beta = .718, p < .001$) were significantly associated with child weight status. Based on the beta coefficient (effect size) .751, increases in parent's perception of their child's body size were associated with increases in child's weight status. The model explained 56.4% of the variability in child weight status ($R^2 = .564$), and the relation was strong ($\beta = .751$). See Table 4-7.

Table 4-7 Child's Weight Status Regressed on Parent's Perception of their Child's Body Size

	B	SE B	β	95% CI
Constant	-6.012			[-6.912, -5.112]
Perception of boy	.716**	1.453	1.453	[.642, .789]
Perception of girl	.718**	1.382	1.382	[.640, .796]
R^2	.564			
F	187.456			

* $p < .05$. ** $p < .01$.

3.2 Does parent age, SES, education, weight status, discrimination, stress and number of children in the home moderate the association between parent perception of child body size and child weight status?

The Hayes SPSS Process Macro for Moderation and Mediation (Hayes, 2013), was performed to determine if parent age, SES, education, weight status, discrimination, stress and number of children in the home moderated the relation between parent perceptions of their child's body size and child's weight status.

Results of the multiple regression indicated that the model as a whole was a significant predictor of child's weight status, $F(7, 276) = 2.084$, $p = .045$, where 5% ($R^2 = .050$) of the variability in child's weight status was explained by the model. The coefficients table showed that parent weight status made a significant contribution to the model, where increases in parent weight status was associated with increases in child's weight status ($B = .186$, $p = .002$). Table 4-8.

Table 4-8 Parent Age, SES, Education, Weight Status, Discrimination, Stress and Number of Children in the Home Moderation Analysis for Parent Perception of Child Body Size and Child Weight Status

	B	SE B	β	95% CI
(Constant)	1.787	.430		[.941, 2.634]
Age	.009	.008	.068	[-.007, .025]
SES	.084	.071	.074	[-.057, .224]
Education	.014	.059	.015	[-.102, .130]
Weight Status	.227*	.073	.186	[.085, .370]
Discrimination	.008	.101	.005	[-.191, .207]
Stress	-.075	.083	-.059	[-.238, .089]
Children in home	-.038	.041	-.055	[-.119, .044]
Perception x Weight Status	.4155**	.0834	.439	
R^2	.050			
F	2.084			

* $p < .05$. ** $p < .01$.

However, age ($B = .009$, $p = .259$), SES ($B = .084$, $p = .242$), education ($B = .014$, $p = .810$), discrimination ($B = .008$, $p = .936$), stress ($B = -.075$, $p = .369$), and number of children living in the home ($B = -.038$, $p = .362$) did not make significant contributions to the model. The parent perception of child weight

status-parent weight status interaction variable was significant and therefore moderated the relation between parent perceptions of child body size and child weight status.

3.3 Will discrimination moderate the association between parent weight status and child's weight status?

The Hayes SPSS Process Macro for Moderation and Mediation (Hayes, 2013), was used to determine if the discrimination proxy moderated the relation between parent weight status and child's weight status. Results of the multiple regression analysis indicated that the model as a whole, was a significant predictor of child's weight status, $F(3, 313) = 5.136, p = .002$. The amount of variance explained by the model was 4.9% ($R^2 = .049$). Parent's weight status made a significant contribution to the model ($\beta = .269, p < .001$). However, discrimination was not significantly associated with parent's weight status ($\beta = .028, p = .756$) and therefore, moderation did not occur.

Additional post hoc analysis explored each discrimination variable separately by analyzing the relation between ethnic discrimination and neighborhood discrimination with child weight status. Neither discrimination variable was significantly related to child weight status. To further test the validity of these findings, a multiple regression of ethnic discrimination regressed on education, and neighborhood discrimination regressed on education was performed. The model as a whole was significant $F(5, 333) = 3.239, p = .007$ with

each level of education making a significant contribution to the model. The model for ethnic discrimination accounted for 4.6% of the variability ($R^2 = .046$), and the beta coefficient (effect size) was .215, indicating a weak positive association between education status and ethnic discrimination. See Table 4-9

Table 4-9 Ethnic Discrimination Regressed on Education Status

	B	SE B	β	95% CI
Constant	1.800	.393		[1.028, 2.572]
Less than high school	-1.300	.450*	-.309	[-2.185, -.415]
High School or GED	-1.288	.404*	-.629	[-2.083, -.494]
Some College	-.948	.402*	-.496	[-1.738, -.158]
College Degree	-1.062	.404*	-.515	[-1.857, -.267]
Graduate/Professional	-1.000	.416*	-.362	[-1.819, -.181]
R^2	.046			
F	3.239			

* $p < .05$. ** $p < .01$.

Next, a multiple regression of neighborhood discrimination regressed on education was performed. Results indicated that the model as a whole was not significant $F(5, 349) = 1.808, p = .110$.

3.4 Will number of children living in the home be associated with SES?

To determine if there was a linear relation between number of children living in the home and SES, a linear regression was conducted. The regression revealed that there was a weak positive linear relation between number of children in the home and SES, $F(1, 358) = 9.18, p = .002$. The model accounted for 2.7% of the variability in SES scores ($R^2 = .027$), and the beta coefficient (effect size) was .163, indicating a weak positive correlation between number of children in

the home and SES. The results indicated that as the number of children increased, SES increased (high SES scores equaled lower SES). An adjusted regression was done to assess the effect of number of children in the home, after accounting for the impact of covariates: age and education. After running the adjusted regression, the relation between number of children in the home and SES remained unchanged. See Table 4-10.

Table 4-10 SES Regressed on Number of Children in the Home

	B	SE	β	95% CI
(Constant)	.372	.102		[.041, 1.236]
Number of children in the home	.101	.032	.163	[.020, .159]
Age	.000	.007	.003	[-.206, -.017]
Education	-.111	.048	-.131	[-.011, .015]
R ²	.027			
F	9.18			

*p<.05. **p<.01.

3.5 Will there be an association between SES and parent stress?

A linear regression was conducted to determine if SES is associated with parent stress. The results indicated that the model was a significant predictor of stress, $F(1, 357) = 37.89$, $p < .001$, accounting for 9.6% of the variability in stress ($R^2 = .096$). The beta coefficient (effect size) for SES was .310, indicating that there was a positive moderate linear relationship between SES and stress, higher SES were associated with higher stress. Since high SES scores represented low SES, those with higher SES had lower stress. An adjusted regression was done to assess the effect of stress after accounting for the impact of the covariates: age

and education. After running the adjusted regression, the relation between number of children in the home and SES remained unchanged.

Table 4-11 Parent Stress Regressed on SES

	B	SE	β	95% CI
[(Constant)	.372	.220		[.344, 1.211]
Parent Stress	.101	.050	.314	[.196, .392]
Age	.000	.006	-.071	[-.019, .004]
Education	-.125	.042	-.163	[-.207, -.043]
R ²	.096			
F	37.89			

Note. *p<.05. **p<.01.

3.6 Will there be an association between stress and parenting rules/discipline?

A linear regression was performed to assess the impact of stress on parenting rules/discipline. The regression analysis did produce a significant result, indicating that the model was a significant predictor of parenting rules/discipline, $F(1, 353) = 38.922, p < .001$. The amount of variance explained by the model was 9.9% ($R^2 = .099$). The coefficients table indicated that stress had a positive moderate linear relation on parenting rules/discipline, where increases in stress were associated with increases in parenting rules/discipline scores. An adjusted regression was done to assess the effect of parenting rules/discipline after accounting for the impact of the covariate, age. After running the adjusted regression, the relation between stress and parenting rules/discipline remained unchanged. See Table 4-12.

Table 4-12 Parenting Rules/Discipline Regressed on Stress

	B	SE	β	95% CI
[(Constant)	.1.054	.169		[.722, 1.387]
Parent Stress	.204	.040	.275	[.125, .284]
Age	.007	.004	.089	[-.001, .016]
R ²	.099			
F	38.922			

Note. * $p < .05$. ** $p < .01$.

RQ4: What are the associations between parenting behaviors (parenting rules/discipline, parent physical activity support, and parent feeding) and child weight status and are they mediated by parent age, weight status, SES, and education?

4.1 Will parenting rules/discipline be associated with child weight status?

To evaluate if there is a significant relation between parenting rules/discipline and child weight status, a linear regression was conducted. Results of the linear regression indicated that the model was not a significant predictor of child weight status, $F(1, 356) = 2.00, p = .157$, meaning there was no significant linear relation between parenting rules/discipline and child weight status. The amount of variance explained by the model was 0.6% ($R^2 = .006$).

4.2 Will parent age, weight status, SES, and education moderate the association between parenting rules and child weight status?

No significant relation was found between parenting rules/discipline and child weight status. Therefore, no variable can mediate a non-significant association.

4.3 Will parent physical activity support be associated with child weight status?

A linear regression was performed to determine if there was a significant relation between parent physical activity support and their child's weight status. Results indicated that there was a significant positive relation between parent physical activity support and their child's weight status, $F(1, 363) = 5.388$, $p=.021$. Based on the beta coefficient (effect size) $-.121$, increases in parents' physical activity support were associated with decreases in child's weight status. The model explained 1.5% of the variability in child weight status ($R^2 = .015$). See Table 4-13.

Table 4-13 Child Weight Status Regressed on Parent Physical Activity Support

	B	SE B	β	95% CI
Constant	2.908	.091		[2.728, 3.087]
Activity Support	-.128	.055	-.121	[-.237, -.019]
R^2	.015			
F	5.388			

* $p<.05$. ** $p<.01$.

4.4 Will parent age, weight status, SES, and education mediate the association between parent physical activity support and child weight status?

A multiple regression was performed using the Hayes SPSS Process Macro for Moderation and Mediation (Hayes, 2013). To assess mediation, there should first be a significant association between the possible mediating variable(s) and the independent variable. The model as a whole was significant $F(5, 277) = 3.5645, p = .0039$. Parent weight status was the only potential mediator that was significantly associated with parent support for physical activity $F(1, 281) = 5.2069, p = .0232$. Next, in order for mediation to occur, there should be a significant relation between the independent variable and the dependent variable. As previously mentioned, there was a significant positive relation between parent physical activity support and their child's weight status, $F(1, 363) = 5.388, p = .021$. Lastly, if the bootstrapped confidence interval of the indirect effect produced by the Hayes SPSS Macro contains 0, then mediation has not occurred. Here, the bootstrapped confidence interval was $-.0868$ to $-.0072$, therefore, parent weight status has mediated the relation between parent support for physical activity and child weight status. See Table 4-14.

Table 4-14 Parent Age, Weight Status, SES, and Education Mediation Analysis Between Parent Physical Activity Support and Child's Weight Status

	B	SE B	Bootstrapped CI
(Constant)	1.7495	.3696	[-.0751, .0327]
Age	.0112	.0084	[-.0043, .0612]
Weight Status	.2128*	.0730	[-.0868, -.0072]
SES	.0482	.0725	[-.0032, .0220]
Education	.0229	.0579	[-.0056, .0196]
R ²	.0567		
F	3.5645		

*p<.05. **p<.01.

4.5 Will parent feeding be associated with child weight status?

A multiple regression was performed to determine if there was a significant relation between parent feeding (healthy and unhealthy) behaviors and their child's weight status. The model as a whole was not significant $F(2, 348) = 1.965, p = .142$, but there was a trend toward significance in healthy feeding behaviors ($\beta = .101, p = .061$). Based on the beta coefficient (effect size) .106, increases in parent healthy feeding behaviors were associated with increases in child's weight status. The model explained 1.1% of the variability in child weight status ($R^2 = .011$). See Table 4-15.

Table 4-15 Child Weight Status Regressed on Parent Feeding

	B	SE B	β	95% CI
Constant	2.629	.136		[2.361, 2.898]
Healthy Food	.093	.050	.101	[-.004, .191]
Non-Healthy Food	-.041	.047	-.047	[-.134, .052]
R^2	.011			
F	1.965			

*p<.05. **p<.01.

4.6 Will parent age, weight status, SES, and education mediate the association between parent healthy feeding and child weight status?

A multiple regression was performed using the Hayes SPSS Process Macro for Moderation and Mediation (Hayes, 2013). The model as a whole was

significant $F(5, 278) = 3.2492, p = .0072$ and a trend toward significance in parent weight status was the only potential mediator associated with parent healthy feeding $F(1, 310) = 3.074, p = .081$. As previously mentioned, there was a trend toward significance in healthy feeding behaviors ($\beta = .101, p = .061$). Lastly, the bootstrapped confidence interval was $-.0524$ to $.0006$, which includes 0. Therefore, parent weight status did not mediate the relation between parent healthy feeding and child weight status. Table 4-16

Table 4-16 Parent Age, Weight Status, SES, and Education Mediation Analysis Between Parent Healthy Feeding and Child's Weight Status

	B	SE B	Bootstrapped CI
(Constant)	1.4231	.3918	[-.0453, .0143]
Age	.0090	.0085	[-.0055, .0251]
Weight Status	.2253	.0715	[-.0524, .0006]
SES	.0555	.0749	[-.0039, .0138]
Education	.0251	.0584	[-.0043, .0164]
R ²	.0512		
F	3.2492		

* $p < .05$. ** $p < .01$.

Chapter 5

Discussion, Implications, and Conclusions

The impetus of this study was to fill a gap in the childhood obesity literature in relation to African-American parental perception of child weight status. The questions of interest explored the associations among African American parent education, perceptions, behaviors, and child weight status. People often have inaccurate perceptions of their body size and weight status and this may play a key role in the prevalence of obesity, especially for ethnic minorities (Gillard, Lackland, Mountford, et al., & Egan, 2007; Hendley, et al., 2011). However, findings from this dissertation revealed a significant association between parent perceptions of their child's body size and the child's weight status. How is it that parent perceptions from this sample do not reflect those from previous findings? Future research in this area suggest further exploration of this finding through a qualitative lens. It is imperative to explore what helped contribute to this significant association and can these contributions be applied to the African American population?

In addition to investigating the associations among African American parent education, perceptions, behaviors, and their impact on child weight status, this dissertation explored possible mediating and moderating variables that could influence these associations. These objectives were met through the analysis of the School Physical Activity and Nutrition (SPAN) survey (2009-2011). A robust

theoretical conceptual model and testable model of theory and evidence-based literature guided the research questions in this exploratory study and led to the development of a final model to guide future research. The curved arrows noted in the figure below, represent a spurious relationship which is when “two variables are related because they share a common cause, but not because either causes the other” (Jaccard & Jaccoby, 2010, p. 143). See Figure 5-1.

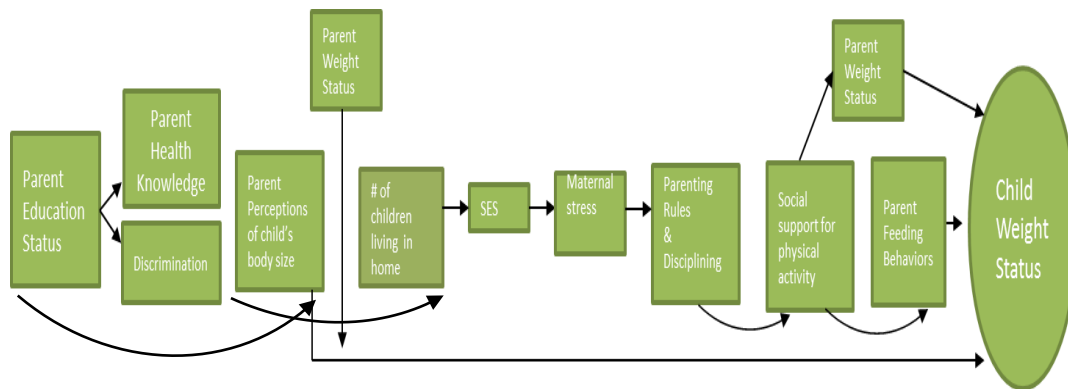


Figure 5-1 African American parent education, perceptions, and behaviors that influence child weight status
Discussion of Research Findings

Parent Education Status and Parent Health Knowledge

Parent health knowledge is one of many parenting styles and family characteristics suggested by Davidson and Birch (2001) as contributing to a child’s weight status. Parental educational attainment was hypothesized to be associated with parent health knowledge. However, this study found that when all parent health knowledge questions are aggregated to create a parent health knowledge proxy, there was no significant association to support this hypothesis.

This is consistent with previous research (Altindag, Cannonier, and Mocan, 2011) that only found weak evidence to support that an increase in education would improve health knowledge.

However Davidson and Birch (2001) suggest that when attempts are made to reduce child overweight and obesity, specific health knowledge factors such as parent nutritional knowledge should be taken into consideration. Findings from this study did reveal that as parent education increased, so did one's knowledge that he/she should consume two servings of vegetables per day. Lehto et al. (2015) found similar results of a positive correlation among parent education level and their child's daily fruit and vegetable intake; however, parent knowledge of daily recommended servings of fruit was not significant in this study. Secondly, for this study, parents demonstrated awareness in knowing that their children should be physically active for at least 60 minutes per day and that children should not engage in more than 1-2 hours of media-related activities, such as TV watching and video game playing per day.

Parent perception of child body size association with child weight status

When most studies investigated parental perceptions of their child's weight status, findings revealed that African-American parents do not perceive their child's correct weight status and are likely to underestimate their child's overweight status (Baughcum, Chamberlin, Deeks, Powers, & Whitaker, 2000; Carnell, Edwards, Croket, Boniface, & Ward, 2005; Etelson, Brand, Patrick, &

Shirali, 2003; Jain, Sherman, Chamberlin, & Carter, 2001; Wake, Salmon, Waters, Wright, & Hesketh, 2002). Results from this study revealed a significant positive linear relation between parent's weight status, parent's perception of their child's body size, and the association with their child's weight status. As parent's weight status increased, so did their child's weight status, and as parent's perception of their child's body size increased, so did the child's weight status. As previously mentioned, the literature indicates a positive association between parent and child weight status, however the unexpected finding was seen in parent perception of their child's body size and the child's actual weight status. To examine these findings through the lens of the Health Belief Model, results suggest that these parents had accurate perceptions regarding their child's weight status and possibly health status.

Therefore, the researcher adopts the notion that these parents believe that in order to avoid illness, one must value wellness and they trust that healthy food preparations will mitigate an expected illness. Although over half of the children in this sample had a healthy weight, over half of the parents were overweight and obese. The literature indicates that children of overweight and obese parents are likely to have the same health trajectory as they age. Disparities in overweight and

obesity exist among African Americans, and knowledge about their health behaviors vary and require further exploration.

Literature on this topic suggests that parents underestimate their child's weight status. In a cross-sectional study to explore maternal estimation of their African American child's weight status, Moore and colleagues asked mothers if they felt their child was underweight, normal weight, a little overweight, or overweight (2008). In the category for girls who were overweight, their mothers significantly underestimated their weight status. In a similar study Skelton, Busey, and Havens (2006) explored the perceptions of African American parents' weight status, their child's weight status, and the impact of weight status on health. The height and weight of the child were taken and compared with the parent's perception or the child's perception of the child's weight status. Sixty-eight percent of parents who had children who were overweight and/or obese perceived their child's weight status to be normal, and 80 percent thought their child's weight status was healthy.

However this dissertation found that as parent's perception of their child's body size increased, so did the child's weight status. A possible explanation of this could be due to the numerous child obesity prevention efforts that are being implemented in the state of Texas. Although SPAN is the official population-based surveillance to examine regional changes in obesity prevalence among children in grades 4, 8, and 11, in the Texas Health Services Regions (HSRs),

there are other initiatives such as the Coordinated Approach to Child Health (CATCH). CATCH is a school-based obesity prevention program that aims to increase healthy food and physical activity and decrease tobacco use among school-age children (Hoelscher, Springer, Menendez, Cribb, & Kelder, 2011). Furthermore, CATCH has reversed child obesity in El Paso and Austin, Texas schools by including families as part of its curriculum. Although CATCH does not focus on perceptions, increased health knowledge in general over time could have contributed to the significant findings seen here.

Discrimination and level of education

Although the literature indicates a correlation between experiencing discrimination within the past year and poor health outcomes, this researcher did not find a relation in this study. However, additional analysis revealed an inverse association between education and discrimination. Findings revealed that as education decreased one's chances of experiencing discrimination based on their ethnicity within the past 12 months increased. The researcher hypothesizes that a few conditions could explain this finding. For instance, it is important to examine the wording of the question in this area. People with low levels of education may not always understand the terminology used in relation to discrimination. If one does not adequately understand discrimination, then how can he/she ascertain if they have experienced such? Quite frankly, acts of prejudice and discrimination, at times, can come in many subtle nuances. For example, a person with a lower

education level is highly unlikely to frequent a major, top-designer boutique. Therefore, he/she will not be exposed to the same differential treatment that numerous, well-educated African Americans have historically experienced when shopping in stores that were predominately white.

Additionally, the individual may or may not recognize that discrimination has occurred as they perhaps view their mistreatment practices in relation to their lower economic status. Another thought to consider is that as education increases, so does exposure to numerous people from various ethnic groups, therefore increasing one's chances of experiencing prejudice and discrimination at a higher level, particularly in the workforce as corporate America is still predominately white. Hypothetically, an individual who has a lower education level is possibly working in a minimum wage job, and he/she is surrounded by similar individuals. It is unlikely that this person will experience discrimination in job practices if he/she is stuck in a dead-end job which provides no upward mobility.

The second discrimination question asked "How much of a problem is prejudice or discrimination in your neighborhood" and this question was not significantly associated with education status. Seventy-three percent of parents said that prejudice and discrimination are not problems they encounter in their neighborhoods. This finding is not cause for alarm if the majority of the African Americans in this study reside in predominately black neighborhoods. It is highly

unlikely that a person of color will experience discrimination when he/she is surrounded by people of the same race.

Children and the association with family SES

In this study, the researcher found a weak positive linear relation between number of children living in the home and SES. As the number of children increased, SES decreased. The more people who reside in a home, the more a family's income will go towards caring for the needs and not wants of those individuals. Indulgent items such as vintage inspired luxury toy cars, four wheelers, outdoor pools, Wii, PlayStations, and Xbox systems will likely go unpurchased in order to meet the family's basic necessities. Perhaps when children lack such items that promote sedentary activities, they are more likely to go outside, use their imaginations, and engage in more physical activity. When there is an increased number of people in a home that are pulling from the family's total finances, there is less food to go around and/or snack on. Nichols-English et al. (2006) found that when more individuals resided in the home, the African American child's weight status was significantly lower and they had more intentions to be physically active.

Take an African American family of four. When mom and dad are both working hard to make ends meet, there exists an understood, but often unstated, realization that each child will eat the meal that is served to him/her, regardless if the child likes it or not. Families living at or below the poverty line do not have

the luxury of catering menu items to meet the wants of each child. In September 2014, the US Census Bureau (2014) published data that revealed child poverty decreased from 21.8 percent in 2012 to 19.9 percent in 2013 for Hispanic, White, and Asian children; however poverty did not decrease for African American children. It often takes a daily miracle to simply put the basic food items on the table. By doing a meta-analysis, Rao, Afshin, Singh, & Mozaffarian (2013) found that healthy diets (fruits, vegetables, nuts and fish) cost approximately \$1.50 more per day than unhealthy diets (meats, processed foods, and refined grains). For one person, this would increase food cost over the course of a year to about \$550 and for a family of four, this would increase to \$2,200 in additional cost which could place more financial burdens on a family. Furthermore, the added pressure of working multiple jobs often takes the primary breadwinner away from the home for numerous hours at a time, therefore increasing the likelihood that children may perhaps assume active roles in the household. This increased physical activity coupled with decreased food supply fully supports the findings in this area.

Stress and SES

The next research question revealed that as SES decreased, parent stress increased. Epstein, Wisniewski, and Weng (1994) found that maternal stress was linked to a decrease in child weight loss in an efficacy treatment trial. Prior research indicates that low SES ethnic minority women display greater levels of

stress due to undesirable life events and lack the necessary resources to aid in the coping process (Chung et al., 2004; Heneghan et al., 1998). Also, maternal depression has been reported to be associated with pressuring children to eat which can negatively impact a child's weight status and long-term health outcomes (Francis, Hofer, & Birch, 2001). Perhaps when mothers are the sole bread winner in the home, there is inherently an increased stress to meet all of the needs of the family, in this case, the need of nourishment for the children. Single moms must handle the role of both father and mother, and these added pressures only exacerbate the issues related to food choices. When money is scarce, food selections must be made with great scrutiny.

Unfortunately, healthy food choices are pricier than their junk-food counterparts as Rao and colleagues (2013) found that healthy diets (fruits, vegetables, nuts and fish) cost approximately \$1.50 more per day than unhealthy diets (meats, processed foods, and refined grains). Moms in low SES groups simply want to fill the bellies of their children; this may often be done with unhealthy food items which lead to increased weight issues. Furthermore, the pressures to make tough food choices will quite often increase levels of stress as

moms feel powerless over issues that are beyond their control. These critical facts only reinforce the discoveries in this category.

Parent Stress and Parenting Rules and Discipline

Results from this study found that as maternal stress increased, so did parenting rules/discipline. A parenting psychological characteristic found by Zeller et al. (2007) was in the presence of a higher level of psychological distress in mothers of obese youth. This is an indication that the odds of a child being obese increase with the level of parent stress. When African American parent discipline styles are compared to whites, they tend to be very strict with their children (Polfus & Frenn, 2012). One tenet of the Afrocentric Perspective is spirituality. Future research should examine this parenting style within the Afrocentric context as historically African Americans embrace the biblical principle of using a rod to discipline a child.

Many African American moms depend on their cultural background for parenting techniques, and when pressures are high, patience levels decrease. Perchance, if mom is stressed about meeting the daily needs of her child, she will have an increased tendency to lash out on those closest to her, the children. In about one third of African American households, the woman is the sole provider. According to the United States Department of Health and Human Services (2012) 27.5% of non-Hispanic Black women, compared to non-Hispanic Asian (7.5%) and non-Hispanic white (9.4%) women were more likely to be single heads of

households with family members present. This means that she alone is faced with many decisions which are normally shared by two parents in other ethnic homes (DHHS, 2012). How does one choose between paying the electric bill or buying groceries for the week? These are unfair choices of which many African American moms must make. The discipline does not always coincide with the offense because the stress levels within the home are exceedingly great in the first place.

Parent physical activity and feeding behaviors

Despite knowing that physical activity will improve one's overall health, many still do not make a conscious effort to exercise (Kirschhoff et al., 2008; Gletsu & Tovin, 2010). However this dissertation study found that as parent level of physical activity with their child increased, the child's weight status decreased. This is a positive finding because as parents begin to model healthy behaviors, their children are likely to adopt and continue these same behaviors for the rest of their lives. An individual's risk factors for developing chronic diseases such as hypertension, diabetes, heart disease, colon and breast cancer can lessen simply by engaging in 30 minutes of moderate physical activity per day (American Heart Association, 2014; Gletsu & Tovin, 2010; Kirshhoff, Elliott, Schlichting, & Chin, 2008).

Another positive finding from this study highlights the implementation of healthy feeding behaviors. Based on literature of food preferences in the African

American community, the researcher expected unhealthy eating behaviors to be a predictor of increased child weight status. However, child weight status increased along with healthy feeding behaviors. Findings such as this highlight the fact that BMI (weight status) is just a measure of body fat, however it does not measure where fat is stored or fat itself (Delgado, 2013). Also, water retention, muscle mass, and skeletal size are not taken into account when considering one's weight status (European Union Public Health System, 2009). Therefore, it is possible for a child to eat numerous healthy foods and engage in at least 60 minutes of physical activity each day and still have an unhealthy weight status.

Parental feeding behaviors are influential in child food preferences and can impact child weight status (Faith, Berkowitz, Stallings, Kerns, Storey & Stunkard, 2004; Fisher & Birch, 1999; Davidson and Birch, 2001). After a family based treatment approach to examine associations in parent feeding practices, child diet, and child weight status post treatment, Holland et al. (2014) found a significant reduction in child total energy, percent energy from fat, sugar-sweetened beverages, added sugars, and added fats, and increases in percent energy from protein, percent energy from carbohydrate, fiber, and total fruits and vegetables.

Culture plays a significant role in parental feeding behaviors. When interviewing a group of 8-11 year old African American children in Mississippi, they commented on how much they loved going grocery shopping with their

parents because they could select the foods they wanted. The following are a few restaurants and comments on the restaurants where the children would often visit with their family: “Ryan's because they have a lot of food there. Wendy's because I like the chicken tenders. Red Lobster because I want some crab legs, some fried chicken, and some frog legs. Ryan's because they got some good food; like they got pizza, steaks, and ice cream. They got salad, they got strawberry shortcake, they got pudding, cookies, chocolate cookies, and they got Skittles” (Davis & Davis, 2008, p. 161). As one can see, the minds of children in this age group are still malleable. That is why it is so important for parents to know the importance of healthy eating.

Strengths and Limitations of the Study

While this study was a secondary analysis of an existing cross-sectional data-set, using African American specific theories helped the researcher to better understand the mindsets of the survey participants. Also, the health belief model was used as a guide to help the researcher interpret parent perceptions, education and behaviors as these factors pertained to how they valued health and wellness. Lastly, the ecological model of predictors of child weight status suggested additional variables that did not appear in theory or research and helped the researcher identify and explore numerous areas for further exploration.

Several limitations to this study exist. The first limitation, albeit assumed as the one with most significance, was the use of child weight status as the main

outcome variable. An individual's weight status is not an accurate representation of their overall health status. Many professional athletes have a weight status of overweight or obese, however their total muscle mass, weekly minutes of moderate and vigorous physical activity, and nutritional intake are not taken into account. Likewise, people with slender bodies and small frames may have a normal weight status, yet they may engage in little to no moderate or vigorous activity each week and may lead very sedentary lifestyles. Until technological advances are made in this area, health professionals will continue to use weight status (BMI) as an indication of disease risk.

The second limitation to this methodology is the cross-sectional nature of the SPAN data set. Cross-sectional research designs have three distinct features: no time dimension, it has a reliance on existing differences rather than change following an intervention, and selection of groups based on existing differences rather than random selection (Hall, 2008). In this analysis, the variance explained for independent variables ranged from 0-55%; this means that other factors also contributed to weight status but were not a part of the theory and evidence that lead in developing the research questions. Next, proxy variables developed for this dissertation were derived from secondary data. Secondary data analysis limits the amount of information that can be extracted for analysis, causing reduced validity or reliability.

There were a few survey questions that the researcher identified as causing possible limitations. The variable to assess parent education asked: What is the highest level of education completed for the primary caregiver in your household. Never did the survey ask the participant to indicate whether the person completing the survey was the primary caregiver. By not knowing if the person who completed the survey was the primary caregiver could have skewed research findings related to education status. As education level can influence how one comprehends questions. Secondly, participants were asked how much discrimination they have personally experienced because of their race and ethnicity during the past 12 months. Further research questions in this area should consider expanding 12 months to years and maybe decades. This would help capture if discrimination over a lifetime has contributed to poor health outcomes as previous research has found.

Implications

Implications for social work practice

Social workers practice with diverse ethnic groups in various agencies such as child welfare and mental health, and the roles of culture, norms and values must always be considered when implementing interventions. Findings from this study revealed that as parent education increased, so did parent's knowledge of certain health related questions. When working with African American parents in practice, social workers can start by using the Health Belief Model, Afrocentric

Perspective, and the Ecological model to guide not only psychoeducation, but health knowledge education as well. It is imperative that social workers meet clients where they are, based on their level of education. Social workers can begin by explaining cardiovascular disease risk factors and future health complications in laymen's terms. By extending beyond the individualistic, — social workers can influence different levels of the ecological landscape using principles applicable to social work. Instead of just having a poster of “MyPlate” hanging in his/her office, a social worker can help a parent preplan weekly meals that adhere to the United States Department of Agriculture's dietary guidelines. Obesity is such a huge challenge that it must be addressed from the micro, mezzo, and macro levels, and social workers are among the best professionals to help tackle this issue (Donaldson & Daugherty, 2011; Kaiser, 2011).

Implications for Social Work Theory

Schiele (1996) laid the foundation to suggest the infusion of Afrocentricity in social work practice and others agree (Freeman & Logan, 2004; Gibson & McRoy, 2004; Manning, Cornelius, & Okundaye, 2004) as Afrocentricity is a worldview that promotes social justice such as the social work profession. Others (Graham, 1999) have suggested this worldview as a method of exposing and challenging privilege in social work practice. No matter the intent, this researcher is in favor of the social work profession firstly incorporating and teaching Afrocentric principles at the bachelor's and master's levels in social work course

curriculum. The social work profession has taken an active stance to infuse literature related to other areas, but nothing has been integrated in relation to the Afrocentric perspective. However, this is not the case for psychology, sociology, and the humanities (Pellebon, 2012).

In the areas of parent education, perceptions, behaviors and the association with child body size and the impact on child weight status, by using an Afrocentric world view the social worker would keep the African American parent at center and focus on their strengths by empowering them. Being mindful of the Afrocentric tenets: collective identity, human beings are good, much of human behavior is non-rational, and the highest value (or axiology) lies in interpersonal relations; instead of making the parent(s) feel badly for their current way of living, an Afrocentric perspective would highlight how parents can provide healthier, culturally appropriate meals and even suggest passing these new traditions on to their children by allowing them to help cook.

The affective approach to knowledge as an epistemologically valid tenet suggests that from a qualitative perspective, one would first begin to question, what does a normal weight look like for black parents and their children? No good parent would intentionally give their child(ren) something that would cause harm, therefore education of nutrition and physical activity through the Afrocentric lens may put a significant dent in the obesity epidemic. An African American parent's style of parenting may be based on feelings and not rationale thinking. This

dissertation was guided by evidence and a theory-based testable model to fill a gap in the literature to gain a better understanding of the association between African American parent education, perceptions, behaviors, and the influence on child weight status. The Health Belief Model, tenets of the Afrocentric Perspective, and the Ecological Model along with evidence produced a significant model that can now be used and further tested in future research. See Figure 5-1.

Implications for Social Work Policy

Numerous policies and programs have been implemented to tackle child obesity. On a national level, The White House Task Force on Childhood Obesity was first established in 2010 by President Obama and on the same day, Michelle Obama launched Let's Move, a campaign that aims to solve the obesity challenge within a generation (White House, 2010). Bills such as the reauthorization of the Healthy, Hunger-Free Kids Act (HHFKA) of 2010, was signed into law on December 13, 2010, by President Obama to reauthorize many federal nutrition programs until September 30, 2015 (National Conference of State Legislators, 2011). On a state level, a few researchers from the SPAN team (Lee, Kim, Dowdy, Hoelscher, & Ory, 2013), also contributed to The Texas Childhood Obesity Prevention Policy Evaluation (T-COPPE) project by interviewing 83 Texas legislators or their aides regarding control measures and perceptions when addressing childhood obesity. To tackle childhood obesity, the majority of legislators agreed that parents/families, individuals, health care providers and

communities are the key players to eradicating this epidemic. Significant findings from this dissertation can now be presented to the 83 legislators and their aides as proof that much work still remains as Texans continue on their quest to reduce childhood obesity.

Before Texas legislators spend too much money on restaurant menu labeling, they should know this dissertation found that a person's level of education is associated with their health knowledge. A social worker would be able to help policy makers consider that although nutrition facts are being presented to the customer who is purchasing the fast food, that customer may or may not be interested in reading the nutrition facts, if they even understand what the numbers mean in the first place. Financial literacy components should be addressed as well, in terms of parental resistance of advertising which stresses the convenience and cheapness of food, and markets it to children who then request it of parents as a "treat". Perhaps a more telling graphic such as a picture of someone who has high blood pressure, diabetes, or gained a large amount of weight of the years stating they ate too much fast food would make a larger impact on their minds. If Texas legislators are considering implementing more bike lanes in Texas neighborhoods, a social worker's perspective would be vital in this area, as he/she has frequented many of the parts in which the bike lanes would be integrated. Social workers are perhaps among very few professionals who ever see the inside of their client's home, travel in cars with their clients, and

at times, take their client's children to school and/or a physician's appointment. The professional's intrinsic knowledge of safety concerns would further help to predict the usability of similar new strategies. Further, the social worker would know which neighborhoods are considered safe or not and maybe that bike riding is not common due to neighborhood crime.

In an effort to challenge social injustice while promoting social justice, as one can see, social workers can be very instrumental in obesity prevention policies because they have firsthand knowledge of what does and does not work. Social workers can encourage and work alongside parents to establish relationships with elected officials and address numerous neighborhood barriers that prevent families from living healthy lifestyles. A first step in this would be writing letters, requesting appointments, and meeting with elected officials to address the issues that are negatively impacting one's community. An important role of all social workers is to address social problems and help those in need.

Suggestions for Future Social Work Research

Another tenet of the Afrocentric perspective is nonmaterial or spiritual. Spirituality is very important in the African American community. Resnisow et al. (2002) found that when African American adolescents were compared to whites, they displayed a higher value on religion, therefore making African American adolescents more amenable to church affiliated programs and interventions. African American churches are seen as the epicenter of many communities

(Aaron, Levine, & Burstin, 2003). Also, African American churches have been known to implement health programs which have proven to be effective in reducing health disparities (Bopp et al., 2007; Isaac, Rowland, & Blackwell, 2007; McNabb, Quinn, Kerver, Cook, & Karrison, 1997; Peterson, Yates, Atwood, & Hertzog, 2005).

Therefore, findings from this dissertation can enhance or create new obesity prevention efforts tailored specifically for members of black churches in Texas. Additionally, based on the health knowledge, physical activity and nutritional significant findings, a pilot program very similar to CATCH, could be developed for African American churches. African American churches have served as viable conduits for health service delivery when attempts are made to close the health disparity gap (Hatcher, Clay, & Burley, 2009). For this reason, surveys comparable to SPAN, can now be adapted, developed, tested and administered yearly to members of black churches in Texas. Once these dissertation findings are explained to clergy in laymen's terms, they may begin to include these messages of health promotion in sermons and church bulletins which eventually will begin to turn the tides on how and what types of food are served during church gatherings. Almost every church has at least one member who is a health professional who could help administer and oversee such projects.

Expressive communication is another aspect of Afrocentrism as dance is considered a fun and enjoyable physical activity in which African American

adolescents often partake (Ciccomascolo & Grossi, 2008). Interventions that include components of dancing are well received by African American adolescents, and they also highlight the cultural, historical and social significance of dance in the African American community (Robinson et al., 2003; Story et al., 2002; Watson, Poczwadowski, & Eisenman, 2000). Findings from this dissertation revealed that parents are engaging in physical activity with their children and they are aware that children should be physically active at least 60 minutes each day. However, when it comes to obesity prevention one must go beyond the call of duty. Churches can start by encouraging more children to take part in praise and dance teams and inspire parents to add a physical activity component to their weekly small group Bible class. As individuals begin to notice overall improvements in their spiritual growth, they will also recognize improvements to their physical health as well.

Conclusions

Regarding African American parental education, behaviors, and perceptions of their child's body size and how this impacts a child's weight status, very few studies have utilized theory to guide their research; the majority of the studies focus on preschool and not school-aged children (Baughcum, Chamberlin, Deeks, Powers, & Whitaker, 2000; Garrett-Wright, 2011; Kourlaba, Kondaki, Grammatikaki, Roma-Giannikou, & Manios, 2009; Opusunju, 2013; Taylor, 2012); very few studies examine African American parent perceptions as a

predictor of child weight status and no studies were found that sampled parent perceptions of only African American boys.

Because this study investigated the associations between parental behaviors, education, and perceptions of child body size and the impact on child weight status within a strong theoretical conceptual model using a theory of health, race/ethnicity, and an ecological perspective, this dissertation will assist in closing a significant gap in the research literature. It is imperative for social work researchers and social work practitioners to understand the thought process behind African American parental perceptions, education and behaviors as they relate to child weight status before they can help parents fully grasp the importance of implementing healthy changes in nutrition and physical activity.

The integration of the Health Belief Model, Afrocentric Perspective, Ecological Model and systematic literature findings provide a comprehensive conceptual model to aid in understanding how African American parents' education, behaviors, and perceptions influence child weight status.

Appendix A
Definition of Key Terms

African Americans: An American of African Descent.

BMI: Body Mass Index. An estimation of body fat and a number that is calculated from height and weight (CDC, 2011a).

Child Overweight: a BMI from 85th to less than 95th percentile (CDC, 2011b).

Child Obesity: a Body Mass Index (BMI) equal to or above the 95th percentile (CDC, 2011b).

Body image: The way a person perceives their physical appearance that may not reflect how others view them.

Adult Underweight: BMI under 18.5 (CDC, 2011b).

Adult Normal weight: BMI of 18.5 to 24.9 (CDC, 2011b).

Adult Overweight: BMI of 25 to 29.9 (CDC, 2011b).

Adult Obese: BMI of 30 or higher (CDC, 2011b).

Parent: Caregiver of a child, adolescent, young adult and/or adult who assumes the responsibility of caring for another human being.

Perceptions: An individual's beliefs, attitudes, way of understanding and interpreting the world.

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Biographical Information

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