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African–American Women: Body Image, Weight, & Depression

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African-American Women: Body Image, Weight, & Depression

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An abstract of
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Abstract

African-American Women: Body Image, Weight, & Depression
By Michelle A. Nelson

Obesity in African-American women (AAW) has become a disease of epidemic proportions. In addition, disproportionately higher rates of depression have been found in AAW when compared to other groups of women. Cultural factors, body image and depression have been purported to separately influence the weight of AAW.

The purpose of this study was to explore the relationship among cultural factors (social organization, biological factors, time and environmental control), weight class and depression in AAW with body image as a moderating variable. The adapted Transcultural Assessment Model was used to guide this study.

A descriptive, correlational design was utilized to obtain data from 103 male-female African-American dyads. Measures completed by participants included the Partner Perceptions of a Woman's Weight Scale, Female Perception of Weight and Dress Size Index, Male Perception of Female Partner's Weight and Dress Size Index. Waist-hip ratio and BMI were used as weight indicators. AAW were categorized as normal (n=31), overweight (n=34), or obese (n=37).

Findings indicated that obese AAW had the highest motivation for weight loss and lowest levels of self-efficacy for physical activity and diet control, perceptions of body image and male significant other's perception of body image. Normal weight AAW had the highest level of depression. There was an inverse relationship between depression and education, health beliefs about weight and weight control, self-efficacy for diet and physical activity and future time perspective. Body image moderated the relationship between the male partner's age and the AAW's BMI. A positive relationship was found between income and waist-hip ratio.

It was concluded that the highest level of concordance satisfaction regarding preferences for the woman's dress size and weight was noted between the group of overweight AAW and their male partners.

African-American Women: Body Image, Weight, & Depression

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Trust in the Lord with all thine heart; and lean not unto thine own understanding. In all thy ways acknowledge him, and he shall direct thy paths. Proverbs 3: 5-6

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I dedicate this dissertation to all African-American women who struggle with their weight and perceptions of self. Keep your head up because you are beautiful. This dissertation is not the end, but merely the continuance of a body of work focusing on the special issues of African-American women.

And to my beloved hometown of Brooklyn, we did it!

Michelle A Nelson

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CHAPTER I

Introduction

Statement of the Problem

Obesity has become a disease of epidemic proportions making, it a leading health concern in the United States (Flegal, Graubard, Williamson, & Gail, 2005; Hill, Catenacci, & Wyatt, 2005; National Task Force on the Prevention and Treatment of Obesity, 2000). Overweight and obesity are problems that are of particular significance to African-American women who are at an increased risk of obesity and obesity-related diseases, such as hypertension, stroke, diabetes, sleep disorders, cancer (Field et al., 2001; Hill et al., 2005; Surgeon General, 2001) and depression (Dixon, Dixon, & O'Brien, 2003; Onyike, Crum, Lee, Lyketsos, & Eaton, 2003; Surgeon General, 2001). In adult African-American women who were at least 20 years of age in 2003 to 2004, 81.6% were overweight or obese, 53.9% were obese, and 14.7% were extremely obese (Ogden et al., 2006). The total cost of the problems associated with overweight and obesity in the United States was estimated at $117 billion in 2000, nearly 10% of the U.S. health care expenditures (Surgeon General, 2001).

Most African-American women appear to be more accepting of self in terms of weight, body shape, and appearance than White women and are less likely to view themselves as being overweight (Allan, Mayo, & Michel, 1993; Baturka, Hornsby, & Schorling, 2000; Paeratakul, White, Williamson, Ryan, & Bray, 2002). Acknowledgment of the problem may only occur when related health problems develop (Gore, 1999). In addition, many African-American men tend to prefer women with a bigger frame (Johnson & Broadnax, 2003; Kuchler & Variyam, 2003), and it is assumed that this may

greatly influence African-American women's ideals of attractiveness. If this is the case in reality, many African-American women may have to choose between pleasing their partner and a healthy weight-related life style (Baturka et al., 2000). Four other culturally-related factors that may significantly affect perceptions of body image are social organization (i.e. income, education, and family history of obesity), biological variations (age, family history of depression, and women's past history of depression), future time perspective, and environmental control (i.e., health beliefs about weight and weight control, partner perceptions of weight, and empowerment through self-efficacy for diet and exercise) (Base-Smith & Campinha-Bacote, 2003).

The relationship between depression and overweight and obesity has been documented, particularly in White women (Franko & Striegel-Moore, 2002). However, the degree to which depression is a coexisting condition in overweight and obese African-American women is not fully understood. Depression has been found to have a positive association with overweight and obesity, and has been linked to overweight and obesity through various reports identifying obese subjects as having reported body image dissatisfaction, stigmatization, discrimination, and major psychosocial disturbance, along with thoughts of guilt, hopelessness, and poor self-esteem (Carpenter, Hasin, Allison, & Faith, 2000; Duckro, Leavitt, Beal, & Chang, 1983; Istvan, Zavela, & Weidner, 1992). What is not known is whether obesity causes depression or if depression causes obesity (Barefoot et al., 1998; DiPietro, Anda, Williamson, & Stunkard, 1992; Noppa & Hallstrom, 1981). For example, medication used to treat depression may lead to weight gain. In addition to the potential relationship of depression with overweight and obesity, African-American women also are at higher risk for depression, because of their over-

representation in the nation's lower socioeconomic group, chronic medical problems, their limited access to health and mental health services, and the stigma of mental illness embedded in some African-American communities (Gary & Yarandi, 2004). Since depression is also associated with chronic medical conditions, poor treatment compliance, higher utilization of health services, and worse health outcomes (Siegel, Yancey, & McCarthy, 2000), the relationship between obesity and depression in women, particularly African-American women, is of importance to clinicians, researchers, and policy-makers (Onyike et al., 2003).

Cultural differences appear to affect perceptions of body image and ultimately weight, (Padgett & Biro, 2003), and since more information is needed regarding the association of depression and overweight and obesity in African-American women, a close examination of these factors in African-American women is warranted in order to develop culturally sensitive and specific interventions. The National Institutes of Health (NIH) "Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults-The Evidence Report" stresses the importance of addressing cultural variations in attitudes and beliefs in order to increase treatment effectiveness of overweight and obesity (National Institutes of Health, 1998).

Purpose

A review of the literature indicated no studies that have investigated the relationships between weight class and the perceptions of body image among African-American women and their male significant others. In addition, there is also a lack of current studies that evaluate the relationship between various cultural factors, depression and weight class in African-American women. Thus, the purpose of this study is to

explore relationships among body image, cultural factors (social organization, biological factors, time and environmental control), weight class and depression in African-American women. A study focused on ascertaining the relationships between these variables could provide information which could be used as a basis for developing and testing interventions aimed at elucidating more effective approaches to addressing the problem of overweight and obesity in African-American women.

Conceptual Framework – The Base-Smith Model

Overview of the Transcultural Assessment Model

The Transcultural Assessment Model (TAM) (Giger & Davidhizar, 2002), will provide the conceptual basis for the proposed study. The TAM was developed in 1988 by Giger and Davidhizar (1990) in response to the need for a practical tool to evaluate cultural variables and their effects on health and illness behaviors. The tenets of Giger and Davidhizar's model (Giger & Davidhizar, 2002) distinguish each individual as a culturally unique, bio-psycho-social amalgamation of all past beliefs, experiences, and values that are ancestrally transmitted. The model was later adapted by Base-Smith and Campinha-Bacote in 2003 as an effort to provide nurses with a Model of the Culture of Obesity.

Various premises serve as a basis for the TAM (Giger & Davidhizar, 2002) and subsequently the Model of the Culture of Obesity (Base-Smith & Campinha-Bacote, 2003). These include: 1) Culture is a patterned behavioral response that develops over time as a result of imprinting the mind though social and religious structures and intellectual and artistic manifestations. 2) Culture is also the result of acquired mechanisms that may have innate influences but are primarily affected by internal and external stimuli. 3) Culture is

shaped by values, beliefs and norms, and practices that are shared by members of the same cultural group. 4) Culture guides our thinking, doing, and being and becomes patterned expressions of who we are. These patterned expressions are passed down from one generation to the next. 5) Culture implies a dynamic, ever-changing, active, or passive process. 6) Cultural values guide actions and decision- making and facilitate self-worth and self-esteem (Giger & Davidhizar, 2008).

To define a model of the culture of obesity, suppositions particular to the phenomena of obesity must be organized into a set of concepts and integrated assumptions that cohere to form a meaningful configuration (Fawcett, 1999). According to the TAM and the adapted version of this model entitled Model of the Culture of Obesity (Base-Smith & Campinha-Bacote, 2003) there are six factors which influence the culture of obesity; social organization, communication, environmental control, biological variations, time and space.

Social organization catalyzes the interactions and responses between individuals and families in addition to political, economic, religious, and health systems (Giger & Davidhizar, 2008). Initially, cultural behaviors are taught in the home and then expanded by the influences of an ever-widening circle of social stimuli (Base-Smith & Campinha-Bacote, 2003). Communication, inclusive of words, attitudes, touch, facial expression and background situations, (Base-Smith & Campinha-Bacote, 2003) is the medium through which cultural information is transmitted and preserved (Giger & Davidhizar, 2008). Space embodies not only the ethereal surrounding of a person, but also the degree of comfort one feels when in immediate proximity to another person or thing (Giger & Davidhizar, 1990, 2008; Base-Smith & Campinha-Bacote, 2003). Time, defined as clock

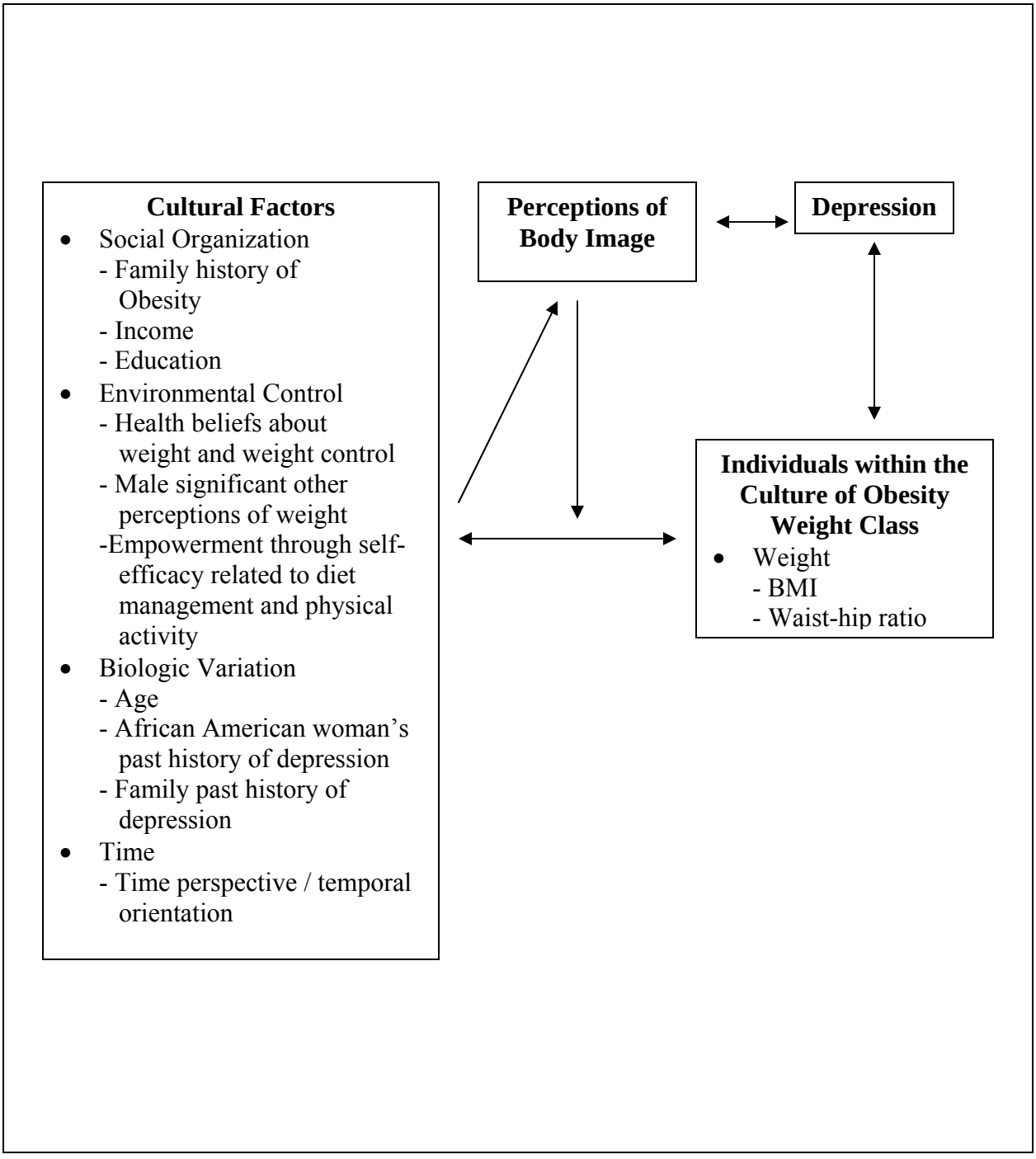
time or social time, and the way it is used, valued, and oriented affects behaviors, attitudes and physiological activities (Giger & Davidhizar, 1990, 2008; Base-Smith & Campinha-Bacote, 2003). Environmental control refers to the ability of a person to control systems, processes and direct factors in the environment through the use of their health practices, media, relationships with others and empowerment to perform certain activities (Giger & Davidhizar, 1990, 2008; Base-Smith & Campinha-Bacote, 2003). Biological variations can contribute to the development of obesity by way of genetics, age, race, sex and metabolism (Giger & Davidhizar, 1990, 2008; Base-Smith & Campinha-Bacote, 2003).

Conceptual Model of the Study

This model provides the most appropriate, comprehensive, and overarching framework to explore the major differences, subtle nuances and relationships between the culture of African-American women and the phenomenon of overweight and obesity. For the purposes of this study, the researcher is particularly interested in environmental control, social organization, biological variations, and time in regard to future orientation. These four domains are most closely related to factors influenced by cultural differences identified as the most significant predictors for overweight, obesity and depression: i.e., socio-economic status, (income and educational level), health practices (health beliefs), physical activity, and empowerment (self-efficacy related to diet and exercise management) (Sobal & Stunkard, 1989). The TAM along with supporting empirical literature will be used to explain the relationships among cultural factors, perceptions of body image, and their influence on weight class and depression. The model does not account for the perceptions of body image as a variable that may play a major role in the relationship between cultural factors and individuals within the culture of obesity and

depression. A review of the literature suggests that perceptions of body image play a major part in the failure of weight loss efforts and these activities are contingent upon an African-American woman's ability to define the meaning of normal weight, overweight and obesity within the cultural, social, and personal context of her individual reality (Gore, 1999). The majority of the perceptions that African-American women have regarding their weight stems from the differences between their cultural factors (Kuchler & Lin, 2002). Varying degrees and combinations of environmental control and social organization can dictate the way an African-American woman views herself (Gore, 1999). To date, a conceptual framework is yet to be developed that supports the role that perceptions of body image plays in the relationship between the cultural factors and weight class of African-American women and their prevalence of depression. Therefore, the model has been adapted to account for perceptions of body image as a moderating variable among the cultural factors, depression and weight class. See Fig. 1.

Figure 1. Perceptions of Body Image as a Moderator - Adapted from the Transcultural Assessment Model (Giger & Davidhizar, 2000, 1990).



Propositions of the Conceptual Framework

Given the conceptual model of the study, the state of the science, and an extensive review of the literature, the following propositional statements have been formulated to guide hypothesis derivation for this research:

1. Socioeconomic Status and Obesity

Income and education, both indicators of socioeconomic status have been found individually and in combination to be significantly negatively associated with obesity (Baltrus et al., 2005; Lewis et al., 2005) in African-American women. African-American women are particularly disadvantaged as they have the greatest prevalence of overweight and obesity with the greatest prevalence of socioeconomic disadvantage (Burke, Bilde, Hillner, Folsom, Wagenknecht, Sidney, 1996). As socioeconomic status increases, overweight and obesity decrease in African-American women.

2. Family History of Overweight and Obesity

Powerful social, economic, and environmental changes that influence family lifestyle drive the obesity epidemic (Rosenbloom, Young, Joe & Winter, 1999). Parental eating habits and an unwillingness to engage in diet and exercise modification could lend to their unwillingness to implement obesity prevention strategies in their children (Young-Hyman, Herman, Scott, & Schlundt, 2000) therefore creating a cyclical pattern of obese children who become overweight and obese adults. As the family history of obesity increases, overweight and obesity in African-American women increases.

3. Health Beliefs about Weight and Weight Control

African-American women tend to feel more comfortable at a larger body size and weight with a more positive body image (Parker et al., 1995; Altabe, 1998) and are less

likely to diet in comparison to their white counterparts (Akan & Grilo, 1995). African American women tend to accept larger body sizes as normal and demonstrate less control over their weight, contributing to the increasing prevalence of overweight and obesity. The less weight control they possess in concert with negative health beliefs related to diet and exercise, the higher the weight class of the Africa-American woman becomes.

4. Self-Efficacy Related to Diet and Exercise

African-American women have decreased self-efficacy for exercise and diet control when they maintain a larger body size and it is perceived to be attractive by others. African-American women are not empowered to diet or exercise if it will cost them or affect their relationship with their significant others, particularly their male partners. Maintaining a healthy diet and activity level requires that these women perceive themselves as having the ability to diet and exercise without the threat of damaging their relationships. As self-efficacy for diet and exercise increases, the weight of African-American women is expected to decrease.

5. ***Partner Perceptions of Weight***

African-American men tend to find larger body sizes and curvier figures more attractive (Johnson & Broadnax, 2003). African-American women are encouraged to maintain a more sizable body frame as this is thought to be considered more attractive to her partner. Therefore as the partners perception of a larger body weight as more desirable increases, the African-American female's weight increases.

6. ***Age***

More positive relationships between age and obesity have been found in African-American women as opposed to their white counterparts (Burke, 1992; Allison, 2005).

There is a significant increase in overweight and obesity as the age of African-American women increases.

7. Depression and Obesity

Depression and depressive symptoms have been linked to overweight and obesity (Onyike et al., 2003). African-American women have a greater prevalence of obesity when compared with white women and overeating has been purported as a strategy to cope with sexual abuse, racism, classism, and poverty in African-American women (Bender, 2005). In addition, overweight and obesity and depression may be genetically related, with first-degree relatives of obese subjects more likely to experience a range of psychiatric conditions, including depression. There is a negative association between obesity and depression and family history of obesity and depression among African-American women.

8. Future Time Perspective

Among African-American women, a lack of future time perspective connecting present behaviors to predictions of future consequences may be due to racism's potential for blocking rewards (Kochman, 1981). A live for today mentality stemming from years of persistent socioeconomic disadvantage has made delayed gratification related to healthy diet and exercise unattractive for this group. Decreased future time perspective contributes to increasing weight class among African-American women.

9. Perceptions of Body Image

African–American females select heavier figures and figures closer to their current size as ideal even though they perceive that their health care provider would recommend a leaner figure (Baptiste-Roberts, Gary, Bone, Hill, & Brancati, 2006). These

females also rate larger figures as healthy compared to other groups (Lieberman, Probart, & Schoenberg, 2003). There is a positive correlation between perceptions of body image and weight class in African-American women.

Assumptions of the Conceptual Framework

Several assumptions are associated with the proposed conceptual framework. The first assumption is that African-American women are commonly influenced by various unique cultural factors. These factors directly impact their distinctive perceptions of their body image, levels of depression and weight. Most importantly, African-American women have certain perceptions of body image making them more prone to overweight and obese weight classes based on various cultural factors.

Significance of the Proposed Study

It is important to investigate and understand the role that perceptions of body image play in the relationship between cultural factors and overweight and obesity if weight is to be adequately controlled, and the untoward effects of overweight and obesity are to be alleviated. As of yet, the nature of the dynamics between these constructs has not been explored, particularly within the population of African-American women who may be normal weight, overweight or obese. This gap in scientific knowledge presents an unprecedented opportunity to understand how this framework may help to elucidate the problem of overweight and obesity in African-American women. Ultimately, the understanding of the relationship between these concepts will lead to the development of interventions catering specifically to African-American women and their partners within the culture of obesity which could help reduce the incidence of high blood pressure, coronary heart disease, diabetes and other weight-related diseases.

This study is designed to develop the linkages between cultural factors, depression and overweight and obesity with perceptions of body image as a possible moderating variable. Its significance also addresses the initiatives of: "Healthy People 2010" (2006) – which proposes a reduction in the proportion of people who are obese to nearly half. The National Heart Lung and Blood Institute and the National Institute of Diabetes and Digestive and Kidney Diseases, also released Federal guidelines on the identification, evaluation, and treatment of overweight and obesity (National Institutes of Health, 1998) for which the study is significant. The National Institutes of Health (NIH) Roadmap Initiative, which is intended to support research efforts that will improve the ability to prevent, detect, diagnose and treat disease and disability related to obesity (National Institutes of Health, 2006) is addressed by this study. The study is supported by the National Institute of Nursing Research whose strategic plan for health disparities focuses on supporting culturally sensitive interventions to decrease health disparities among groups by focusing on health promotion activities and chronic illness management strategies (National Institute of Nursing Research, 2006).

Definition of Key Variables

This section presents conceptual and operational definitions of independent and dependent variables within the context of this study.

***Cultural Factors*:** Factors which influence the time-dependent patterned behavioral responses resulting form imprinting the mind through social and religious structures and intellectual and artistic manifestations by social organization factors, environmental control factors, biologic variations, and time.

1. Social Organization Factors: The manner in which a cultural group organizes itself around the family group (Giger & Davidhizar, 2002). Social organization factors include the following:

Income: The highest reported current combined annual income level attained by a family. This will be based on parent, spouse and personal income as indicated by self-report on the Demographic and Personal Information Form (DPIF).

Education**:** The highest grade level or degree completed as indicated by self-report on the DPIF.

Family History of Overweight and Obesity**:** The proportion of primary family members that are reported to be overweight and obese as reflected by the body mass index (BMI) of primary family members, i.e., parents, grandparents, siblings, aunts and uncles as indicated by self-report on the DPIF.

2. Environmental Control Factors**:** The ability of the person to control systems or processes and to direct the factors in the environment external to the body (Base-Smith & Campinha-Bacote, 2003) as indicated by the following**:**

Health Beliefs about Weight and Weight Control**:** One's beliefs relative to ideas of proper weight, controlling weight, and ideal weight will be measured by the Coverson Health Beliefs about Weight and Weight Control Scale (2006); and the Coverson Beliefs Regarding Weight Scale (2006).

Self-efficacy Related to Diet**:** The perception of how capable one is to perform behaviors (Bandura, 1977, 1986) that maintain healthy food consumption as measured by the "Cardiac Diet Self-Efficacy Instrument". (Hickey, Owen, & Froman, 1992).

***Self-efficacy Related to Physical Activity*:** The perception of how capable one is (Bandura, 1977, 1986) to perform physical body movements that result in energy expenditure adequate to maintain balance between food consumption and energy expenditure as measured by the "Cardiac Exercise Self-Efficacy Instrument" (Hickey et al., 1992).

***Partner Perceptions of Weight*:** The perceptions of African-American women's male partners towards the woman's weight as measured by the Partner's Perceptions of a Woman's Weight Scale adapted from the Coverson Weight Perceptions and Control Scale (Coverson, 2006).

***3. Biological Variations*:** Multiple physiological variations (age, woman's past history of depression and family history of depression) that contribute to the development of obesity (Base-Smith & Campinha-Bacote, 2003) as reported on the DPIF.

***Age*:** a quantitative, biological trait used to quantify individuals in terms of longevity of life. This demographic variable will be measured by self report on the DPIF.

***Woman's Past History of Depression*:** self-reported African-American woman's past history of depression as reported on the DPIF.

***Family History of Depression*:** self-reported family history of depression as determined by self-report, indicating that a first through third-degree pedigree relative currently has depression or has a past medical history of depression.

4. *Time*: A temporally present, past or future orientation as measured by the Future Time Perspective Scale (Yarcheski, 1984).

5. Perceptions of Body Image: The view and level of satisfaction one has of their body (Dotson, 2000) as measured by The Coverson Weight Perceptions and Control Scale (Coverson, 2006).

6. Body Mass Index (BMI) - Weight in pounds (lbs.) divided by height in inches squared (inches^2) multiplied by 703 [(lbs./height/height) x 703] (using a stadiometer) (Centers for Disease Control and Prevention, 2006).

7. Weight: weight as measured in kilograms via the Tanita BWB-800 electronic digital scale. Weight will be expressed as BMI and Waist-hip ration within this study.

8. Weight Class: One's weight categorization based on BMI**. (**a) *Normal Weight* – a BMI of 18.5-24.9 kg/m² (Centers for Disease Control and Prevention, 2006) (b) *Overweight* – a BMI of 25-29.9 (Centers for Disease Control and Prevention, 2006) (c) *Obese* – a BMI ≥30kg/m² will be considered obese (Centers for Disease Control and Prevention, 2006).

9: Waist-Hip Ratio**:** the ratio of the circumference of the waist to that of the hips. It is calculated by measuring the waist circumference (located just above the upper hip bone) and dividing by the hip circumference at its widest part (waist/hip).

10: Depression**:** A combination of psychological symptoms (feelings, thought and behaviors) and physical or "somatic" symptoms, which reflect a negative mood state of sadness and melancholy as measured by the Centers for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977).

9. African-American Woman: A woman who was born and bred in the United States with African racial heritage who indicated by self report that she was African-American on the DPIF.

10. Male Partner: Men in the United States with African racial heritage indicated by self report as the woman's partner on the DPIF.

Specific Aims

The specific aims with and their associated hypotheses and research questions are:

***Aim 1*:** To explore the relationships among cultural factors (social organization, environmental control, biologic variation and time) and weight (BMI and waist-hip ratio) in African-American women.

Hypothesis 1: There will be a negative relationship between income and education (social organization factors) with BMI and waist-hip ratio: and, there will be a positive relationship between family history of obesity (a social organization factor) with BMI and waist-hip ratio in African-American women.

Hypothesis 2: There will be a negative relationship between health beliefs about weight and weight control, and self-efficacy related to diet and physical activity (environmental control factors) with BMI and waist-hip ratio; and, a positive relationship between male significant other perceptions of weight (an environmental control factor) with BMI and waist-hip ratio in African-American women.

Hypothesis 3: There will be a positive relationship between the African-American women's past history of depression, family history of depression, and age (biologic variation) with BMI and waist-hip ratio in African-American women.

Hypothesis 4: There will be a negative relationship between future time perspective and BMI with waist-hip ratio in African-American women.

Research Question 1: What is the relationship between the age of the African-American woman's male partner with the male partner's perception of the African-

American woman's body image, and the African-American woman's BMI and waist-hip ratio?

Aim 2: To explore the relationship between cultural factors (social organization, environmental control, biologic variation and time) and perceptions of body image in African-American women.

Hypothesis 5: There will be a negative relationship between income and education and perceptions of body image; and, a positive relationship between family history of obesity and perceptions of body image in African-American women.

Hypothesis 6: There will be a negative relationship between health beliefs about weight, weight control and self-efficacy for diet and exercise and perceptions of body image: and, a positive relationship between partner perceptions of weight and perceptions of body image in African-American women.

Hypothesis 7: There will be a negative relationship between age, family history of depression, and the woman's past history of depression and perceptions of body image in African-American women.

Research Question 2: What is the relationship between future time perspective and perceptions of body image in African-American women?

Aim 3: To explore the cultural factors as predictors of BMI and waist-hip ratio and depression in African-American women with perceptions of body image as a moderating variable.

Research Question 3: What is the nature of the relationships among depression, cultural factors, perceptions of body image and BMI and waist-hip ratio in African-American women?

Hypothesis 8: Social organization factors, environmental control factors, future time perspective, and biological variations will predict weight and waist-hip ratio in African-American women with perceptions of body image as a moderating variable.

Hypothesis 9: Social organization factors, environmental control, future time perspective, and biologic variations will predict depression in African-American women with perceptions of body image as a moderating variable.

Aim 4: To determine if there are differences in cultural factors (social organization, environmental control, biologic variation and time), perception of body image and depression based on weight class in African-American women.

Hypothesis 10: There will be significant differences in cultural factors, perceptions of body image and depression based on the African-American woman's weight class (normal, overweight and obese).

Summary

Obesity has become a global epidemic with rates increasing dramatically among African-American women, despite a plethora of research studies devoted to this subject. Research has pointed to multiple societal, environmental, and biological factors that are thought to play a major role in the increasing prevalence of overweight and obesity among African –American women. However, there is a dearth of research related to the culturally-related factors that capture the specific nuances and complex relationships between the social, environmental, time oriented, and biological factors with overweight and obesity in this population of women. An understanding of the role environmental factors, inclusive of self-efficacy for diet and exercise and time-orientation, in overweight and obesity are sorely lacking among African-American women. In addition, an African-

American woman and her male partner's perceptions of weight, which may contribute to the cultural notions of a larger body size as ideal has not been adequately studied. Income and education levels along with a familial history of obesity also have not been adequately studied in relation to overweight and obesity among African-American women. Depression has been linked to overweight and obesity. However, a paucity of research dedicated to depression in overweight and obese African-American women makes the nature of the relationship unclear. Therefore, this study is designed to explore and determine the nature of the relationships among the various culturally-related factors, perceptions of body image, depression and weight in young African-American women within the framework of the Transcultural Assessment Model and the Culture of Obesity.

CHAPTER II

Background

The Impact of Overweight and Obesity in the United States

Overweight and obesity are considered two of the most serious health concerns in the United States (Flegal, 2005a; Roux & Donaldson, 2004; Wyatt, 2003). Obesity has become a global health problem and according to the Surgeon General (2001) and the American Obesity Association (1998), the prevalence of obesity in this country is increasing almost daily among adults and children of all ages. The problem of overweight and obesity are particularly prevalent among women. Overweight and obese women are at a great health risk (Base-Smith & Campinha-Bacote, 2003; Hargreaves, Schlundt, & Buchowski, 2002; Kayrooz, Moy, Yanek, & Becker, 1998), which imposes an increasing burden on the healthcare system (Andreyeva, Sturm, & Ringel, 2004; Bungum, Satterwhite, Jackson, & Morrow, 2003; Colditz, 1999; Finkelstein, Ruhm, & Kosa, 2005; Flegal, 2005b; Ganz, 2003; Wolf, 2002). Despite the numerous health-risks associated with obesity, 80% of African-American women ≥ 40 years old are overweight (BMI ≥ 30 kg/m²) (Flegal, Carroll, Ogden, & Johnson, 2002). Overweight and obesity are due to an imbalance between dietary intake and energy expenditure (Hill & Wyatt, 2005).

Excess weight increases the strain on the heart, increases blood pressure (Krousel-Wood, Muntner, He, & Whelton, 2004; Pischon & Sharma, 2002), gallbladder disease, blood cholesterol and triglyceride levels (Pi-Sunyer, 2002), osteoarthritis (Bray, 2003; Must et al., 1999), and diabetes (Sullivan, Morrato, Ghushchyan, Wyatt, & Hill, 2005). While obese and overweight people have difficulty losing weight, it has been shown that a

weight loss of as little as 10-20 pounds can help lower the risk of heart disease (Eckel & Krauss, 1998).

Overweight and obesity are compounded by unhealthy eating habits and the lack of vigorous physical activity (Ogden, Flegal, Carroll, & Johnson, 2002). Several studies have shown that the perception of ideal body size varies with culture (Cottam, 2004; Paquette & Raine, 2004), ethnicity (Caldwell, Brownell, & Wilfley, 1997; Sanchez-Johnsen et al., 2004), educational level and socioeconomic status (Chang & Lauderdale, 2005), and can influence the development of obesity (Gluck & Geliebter, 2002; Holdsworth, Gartner, Landais, Maire, & Delpeuch, 2004; Paeratakul et al., 2002). As noted in Chapter 1, environmental and biological variations can also play a key role in influencing a person's weight class (Base-Smith & Campinha-Bacote, 2003; Hill, Wyatt, Reed, & Peters, 2003; Peters, Wyatt, Donahoo, & Hill, 2002; Singh, 2004). In spite of its negative health consequences, the culture of obesity generates a spectacular industry, thus having a positive effect on the economy. Since no "cure" for obesity has been found, it must be re-evaluated for its meaning. The primary goal may not be to lose weight, but to focus on helping Americans gain a healthy lifestyle.

The Impact of Overweight and Obesity on African-American Women

The rates of overweight and obesity are increasing among women of all ethnicities and races. However, the rates are significantly higher among African-American women when compared to White women. A plethora of inter-disciplinary studies conducted over the past few decades have resulted in a multiplicity of weight loss related interventions which incorporate various levels and permutations of diet and exercise, surgical, and pharmacologic therapies. Social, environmental and genetic causal factors, among others,

continue to bolster the rise in obesity along with its health implications and the calls for policy development and change. A constant regurgitation of ethnic and gender related facts and statistics have done well in keeping a constant spotlight on the obesity epidemic but very few significant strides have been effective in halting the sharply increasing prevalence of overweight and obesity, especially among African-American women. Cultural competence and the efficacy of therapies related to issues and factors that specifically affect African-American women and their weight related choices have become a priority.

Morbidity and Mortality Related to Obesity

For the past few decades, health officials and various organizations have warned against the dangers of obesity (NHLBI, 1998; National Task Force on the Prevention and Treatment of Obesity, 2000). The US Surgeon General (2001) declared one of the strongest warnings by stating a failure to address overweight and obesity could reverse all of the gains that have been made in areas such as heart disease, several forms of cancer, and other chronic health problems. A study conducted by Fontaine and colleagues (2003) attempted to estimate the years of life lost related to overweight and obesity across the adult life span. Obesity was found to lessen the life expectancy markedly, especially among younger adults. Particularly in African-American women age 20-40 with a BMI >45, there was a maximum of five years of life lost. As more than 80% of African-American women older than 40 are categorized as either overweight or obese (Flegal, Carroll, Ogden, & Johnson, 2002; Mokdad et al., 2003), in the absence of dramatic changes, this population will continue to be at great risk for type 2 diabetes in addition to a host of other co-morbidities in decades to come.

Culture

Culture has been defined using a plethora of terms. Madeleine Leininger the nurse theorist who developed the theory of transcultural care diversity and universality, refers to culture as the learned, shared, and transmitted values, beliefs, norms, and life practices of a particular group that guides thinking, decisions, and actions in patterned ways (Leininger, 1985, 1991). By guiding thinking, decisions, and actions in specific ways, culture provides the basis for cultural values, which identify ways of thinking or acting. These values, along with beliefs, attitudes, customs, language and behavior, are usually held for a long time, passed down from one generation to the next and help guide decision-making within the culture (Spector, 2001, 2004). According to Giger and Davidhizar (1990, 2008), culture is a patterned behavioral response that develops over time as a result of imprinting the mind through social and religious structures and intellectual and artistic manifestations. Culture is also the result of acquired mechanisms that may have innate influences but are primarily affected by internal and external environmental stimuli. Culture is shaped by values, beliefs, norms and practices that are shared by members of the same cultural group. Culture guides our thinking, doing and being and becomes patterned expressions of who we are. These patterned expressions are passed down from one generation to the next.

Cultural values are unique expressions of a particular social group that have been accepted as appropriate over time. They guide actions and decisions making that facilitate self-worth and self-esteem (Giger & Davidhizar, 2008). Culture as a socially transmitted phenomenon carries with it the idea that people who interact on a regular basis know the

same unwritten rules and criteria for social life that confer status as a member of the group (D'Andrade, 1992).

Cultural Factors in the Culture of Obesity

Several cultural factors are propagated to play a role in the culture of obesity and are relevant for this study (Giger & Davidhizar, 2002; Fawcett 1999). These include social organization, environmental control, biologic variations, and time.

Social Organization Variables

Socioeconomic status

Differences in health outcomes by socioeconomic position have been recognized as a persisting and perhaps even increasing public health problem (Adler et al., 1993; Marmot, Kogevinas, & Elston, 1987; Pappas, Queen, Hadden & Fisher, 1993; Elo & Preston, 1996; House et al., 1990). Socioeconomic status, as defined by income and educational levels, has recently gained attention as a contextual factor serving as a key determinant for inequalities or disparities in health. Less well understood, however, is the relationship between health risk behaviors and socioeconomic differentials in health, especially in nationally representative samples. In a number of longitudinal studies, important socioeconomic indicators, such as income and education, have been shown to be inversely associated with various mortality outcomes, including premature mortality, cardiovascular mortality, and death from all causes (Appel, 2002; Marmot, Shipley & Rose, 1984; Sorlie, Backlund & Keller, 1995; Kaplan & Keil, 1993; Smith, Shipley & Rose, 1990). In addition, it is well documented that people of lower socioeconomic position are significantly more likely to lead a sedentary lifestyle, to be overweight, and to smoke cigarettes (Winkleby, Fortmann & Barrett, 1990; Osler, 1993; Wagenknecht, et al.,

1990). Thus, a prominent hypothesis is that the elevated mortality risk associated with low levels of income and education is primarily due to the higher prevalence of health risk behaviors among people who are poor and/or have low educational attainment (McGinnis & Foege, 1993; Krieger et al., 1993).

Female's perceptions of weight are likely to be influenced by the male's education level. Although this has not been studied in African-American samples, a study conducted by Lipowicz (2003) examined the social position of females achieved by marriage and levels of fatness and relative fat distribution. The researcher found that women with secondary schooling who married up (spouse with complete university education) were consistently leaner and had less abdominal body fat than women who married down (spouse who never passed beyond the basic vocational school). Lipkowicz (2003) asserts that "by income and prestige, husbands determine the family position on the social scale and the family position influences neighborhood environment, selection of friends, free-time activity, use of health services, etc." (p. 5)

Income

Historically, African-American women, who were fleshy, were viewed as having more money than the average woman of African ancestry. They were viewed as being healthy and fertile. In fact, according to African culture, fleshy African women were considered well endowed financially (Johnson & Broadnax, 2003). Many of these ideals have translated into today's African-American culture. Although there is now an inverse relationship between SES/education and overweight and obesity (Sobal & Stunkard, 1989), the mindset of a larger figure as ideal has transcended generations and continues to grow. While public health campaigns tend to stress the provision of information on diet

and health risks (Kumanyika et al., 2005), it is unlikely that the social appraisal of weight status can be adequately explained by an individual's stock of health knowledge.

In a more sociological framework, bodily form is not merely an issue of health; it is also an issue of social status (Becker, Yanek, Koffman, & Bronner, 1999; Chang & Christakis, 2003). Persons with lower incomes and less education typically have poorer dietary habits and are less physically active than those that have higher education and income levels (American Heart Association, 2006; U.S. Department of Health and Human Services, 2000). The links between income, education and obesity disproportionately impact African-American women, since in the U.S. African-American women frequently live in poverty and have low levels of education (Kumanyika, 1993). Black women in inner cities face especially high rates of obesity-related health problems (Diex-Rouz, Northridge, Morabia, Bassett, & Shea, 1999).

Lower socioeconomic position (SEP) has been shown to be associated with obesity (Sobal & Stunkard, 1989). Considering Blacks are more likely to experience lower SEP than Whites, it is plausible that observed racial differences in body weight might be because of socioeconomic disadvantage (Baltrus, Lynch, Everson-Rose, Raghunathan, & Kaplan, 2005). The secondary data analysis of the Alameda County Study, a longitudinal population-based cohort study of 6,928 adults conducted over thirty-four years, concluded that a cumulative measure of socioeconomic position explained a large amount of the racial difference in weight gain in African-American women who weighed more and gained significantly more weight than White women (Baltrus, Lynch, Everson-Rose, Raghunathan, & Kaplan, 2005).

Education

Researchers have suggested that factors such as social milieu, cultural values of thinness, and social class may be associated with weight management activities (Averett & Korenman, 1999). Throughout industrialized countries, lower education levels have been linked to poorer health (Lipowicz, 2003; Macintyre, 1997). Studies show that lower levels of education and income in some but not all - racial or ethnic groups are associated with increased risky behavior, including smoking, being overweight, and physical inactivity (Lantz et al., 1998). An integrative literature review done by Sobal and Stunkard (1989) found that education and obesity were inversely related. It was found that relatively abundant food with few normative constraints about body weight promotes obesity among less educated women in developed societies. Folsom and associates (1985) studied energy expenditure in leisure time physical activity in 1,626 individuals aged 25 to 74. Higher intensity activity was associated with higher education.

The literature concerning the relationship between education and BMI in African-American women has had conflicting findings. A study conducted by Lewis, Everson-Rose, Sternfeld, Karavolos, Wesley, and Powell (2005) sought to examine the interactive effects of race and 3 levels of education on body mass index and changes in BMI over 4 years in 2,019 middle-aged African-American and white women from the Study of Women's Health Across the Nation. At all levels of education, African American women were equally heavy, while white women were thinner with increasing baseline educational attainment. It was posited that African-American women do not seem to benefit from educational attainment in the same way that white women do. In fact, black-white disparities in BMI widen with increasing levels of education. Lewis et al, (2005)

concluded that for middle-aged women, racial disparities in BMI are largely patterned by education, with the greatest disparities observed at higher levels of education. Although a cross-sectional research design was utilized, findings suggest that these race-education patterns are determined and well established before midlife (pg. 545).

Lewis et al., (2005) found that the fact that racial disparities in BMI persisted for educated women after controlling for parity, diet, and exercise is intriguing because most researchers attribute black-white differences in weight to poor health behaviors among African-American women. While there were significant racial differences in parity and physical activity, these differences did not explain black-white disparities in BMI at higher levels of education. African-American women at the highest level of education had a BMI that was nearly 3.0 greater than that for their white counterparts, even after adjusting for potential confounds (Myers, Kagawa-Singer, Kumanyika, Lex, & Markides, 1995; Lantz, 1998, p. 549).

These findings suggest that there are other factors which contribute to the disparities in obesity between African-American and White women. Research has repeatedly suggested that there is less stigma associated with being overweight or obese for African Americans compared with white women. When shown photographs of same-race thin, average, and overweight women, African-American women rated African-American women of all sizes similarly on intelligence, job success, relationship success, and happiness. Conversely, white women rated larger white women lower on all 4 domains, indicating a distinct bias against overweight white women (Hebl & Heatherton, 1998). Compared with white women, African-American women report less of a “drive for

thinness" and tend to prefer "curvaceous," normal weight vs. thin body ideals (Perez & Joiner, 2003).

Although it is unclear whether these factors such as income or education are associated with weight gain or the prevalence of obesity in educated African-American women as a whole, there is some speculation that the "culture of weight management" is less developed in African Americans compared with white women (Kumanyika, 1998). Therefore, it is apparent that education among African-American women may not act as a buffer or mediator for overweight or obesity as in other races. Nevertheless, much of the literature indicates that they are generally inter-related.

Family History of Obesity

Obesity is a condition of familial tendency for many African-American women. When examined, either parents, grandparents, siblings, aunts and uncles may have struggled with weight and weight control at some point in their lives. For some of the family members in the African-American culture of obesity, a larger body size is considered the norm and possibly desirable. African-American women may find support for resisting social pressures to lose weight or to maintain the standard weights through the positive self-definition of overweight and obesity propagated within the Black community and the family. This greater acceptance of larger body shapes may help to account for African-American women's less critical attitudes toward overweight and appearance and contribute to their greater propensity toward obesity (Lovejoy, 2001).

The disinhibited eating patterns of parents have been found to influence the eating patterns of their children. Past research has indicated that mothers and fathers are both influential in shaping daughters' patterns of BMI change and the development of

disinhibited eating among girls was distinctly different among families in which both parents were overweight (Francis, Ventura, Marini, & Birch, 2007; Provencher et al., 2005; de Castro & Lilenfeld, 2005). However, Jacobi, Agras, & Hammer (2001) and Cutting, Fisher, Grimm-Thomas, & Birch (1999) found a stronger association between mothers' and daughters' eating behavior than fathers' and daughters' eating behavior. Thus intergenerational transmission of eating patterns from mother to daughter warrants special consideration. There is also evidence that disinhibited overeating has a genetic basis and can serve as a behavioral phenotype for obesity (Provencher et al., 2005; de Castro & Lilenfeld, 2005; McCrory, Suen, & Roberts, 2002). The environment must also be considered in this interaction between heritability and diet preferences. A study conducted by deCastro and Lilenfeld (2005) found that 40% of the variance in disinhibited eating behavior was explained by a shared environmental component. Provencher et al., (2005) also concluded that only a small amount of the familial resemblance in eating behavior was caused by genetics with family environment being particularly important for dietary disinhibition.

Environmental Control Variables

Partner Perceptions of Weight

Ritenbaugh (1991) examined body size values and concluded that the most important macro-environmental influence was the cultural norm of beauty. African-American women are empowered by their appearance when it is considered attractive and desirable (Patzer, 1997). A review of literature related to the African-American male's ideal body size has yielded a plethora of studies (Greenberg & LaPorte,1996; Thompson, Sargent & Kemper, 1996, Johnson & Broadnax, 2003) indicating the African-American

males prefer a larger body size and curvaceous figure than their White counterparts (Thompson, Sargent, & Kemper, 1996). Black men and boys are more likely to prefer larger specific body parts (such as hips, buttocks, and thighs) for women and girls than White men and boys do (Thompson, Sargent, & Kemper, 1996). However, there has been very little discussion about what the ideal specific body area and overall body size is.

According to Johnson and Broadnax (2003) an unpublished interview conducted with African-American men regarding obesity in African-American women revealed that their ideal woman was a size fourteen to twenty. Having a full figure and being of substantive size in all the right places was an asset that gave these men immense pleasure. To have such a woman on their arm made them proud. African-American women's awareness that African-American men may be more accepting of heavier body sizes (Freedman, Carter, Sbeocco & Gray, 2007) may contribute to the perception that there are few incentives to lose weight. Thus, African-American women can be faced with a dilemma involving the choice between a healthy lifestyle and pleasing her significant other.

Rosen et al. (1993) conducted a study on 91 African-American and 80 White college males and their preferences for a side-view silhouette of a female figure. The figures were on a Likert-type scale ranging from 1 to 8, with 1 being a very thin figure and 8 being an obese figure. When considering their women in various roles (date, sexual partner, wife, mother, sister, teacher, employer, grandmother, girlfriend, and female friend), African-American males always chose a larger ideal female silhouette and were not as tolerant as White males of women with very thin figures. It has been suggested that the preferences of Black men for larger bodies of Black women buffer and protect Black

women from the thin ideal of US culture (Milkie, 1999; Thompson, Sargent & Kemper, 1996; Jackson & McGill, 1996).

There have been conflicting results regarding the African-American males preferences from a recent study conducted by Freedman, Carter, Sbrocco and Gray (2007) questioning if men hold African-American and Caucasian women to different standards of beauty. The researchers found that there was a trend for African-American men to choose ideal figures with a lower waist-to-hip ratio, which is associated with a more curvaceous figure. Contrary to expectations, however, African-American men did not choose heavier female figures as ideal. In fact, both groups chose underweight and normal weight figures as ideal.

Health Beliefs about Weight and Weight Control

African-American women believe that weight maintenance and other health behaviors are beyond their control (Skelly et al., 2006). The environment and other external factors have a significant bearing on their ability to perform behaviors related to weight control (Base-Smith & Campinha-Bacote, 2003). For some, lack of physical activity or dieting is not seen as contributing to the development of overweight and obesity. Striegel-Moore et al. (1996) sought to examine race difference in attitudes and beliefs about dieting, motivations underlying dieting efforts, and actual dieting strategies and behaviors. It was found that compared to white women, black women experienced less social pressure about their weight, initiated dieting later in life, and were significantly less likely to diet at each developmental milestone. Over riding issues such as income and education levels influence health beliefs for weight and weight control. Breitkopf and Berenson (2004) conducted a study examining the prevalence and correlates of weight

reduction behaviors among low-income women. The research demonstrated that low-income women frequently use maladaptive strategies, such as diet pills and purging, to lose weight. Obesity and family exposure to these behaviors places women at increased risk of unhealthy behaviors. Interventions designed to reduce obesity must include precautions regarding the dangers of these practices.

For some African-Americans, the increasing prevalence of overweight and obesity is seen as "fate" or "luck" that can not be controlled by present behavior (Yarcheski & Mahon, 1986). These attitudes contribute to the ineffectiveness of lifestyle modification programs targeting African-American women. Decreased caloric intake, increased exercise, and use of professional services (Cachelin et al., 2006; Serdula et al. 1999) result in successful weight reduction among African-American and White women alike (Wing & Anglin, 1996; Buffington & Marema, 2006). However, racial/ethnic differences in the extent of weight loss have been demonstrated whether behavioral methods, (Daly et al., 2000; Wing & Anglin, 1996) medical therapies (Wadden et al. 2005; Sjostram, Rissanen, & Andersen, 1998) or surgical approaches (Buffington & Marema, 2006) are employed. Therefore, health beliefs regarding innovations in diet, exercise, and the behaviors needed for motivation and promotion of long-term compliance are priorities for success (Dubbert et al., 2002; Klem, Wing, Lang, McGuire, & Hill, 2000; National Institutes of Health, 1998).

Laparoscopic adjustable gastric banding has been shown in numerous studies to be an effective treatment for morbid obesity, leading to improvements in obesity-related co-morbidities and quality of life (Pontiroli et al., 2005; O'Brien, Brown & Dixon, 2005; Dixon & O'Brien, 2002). Gastric bypass surgery is increasingly being considered as an

option for weight loss and weight management. The effectiveness of bariatric surgery as a treatment for obesity is becoming increasingly recognized (Balsiger et al., 2000), and the frequency with which this procedure is performed has risen dramatically (Zizza et al., 2003). Consequently, it is likely that more and more African-American women will pursue this treatment option. However, previous studies have not examined the amount and characteristics of African-American women who are interested in bariatric surgery.

Lynch, Chang, Ford, and Ibrahim (2007) examined obese African-American women's perspectives on weight loss and bariatric surgery. Qualitative analysis of 6 focus group sessions revealed that the most common barriers to weight loss were lack of time and access to resources; issues regarding self-control and extrinsic control; and identification with a larger body size. Common barriers to bariatric surgery were fears and concerns about treatment effects and perceptions that surgery was too extreme or was a method of last resort. The recommendations of the researchers were to strive to eliminate these barriers to ensure African-American women receive the care needed to eliminate excess weight and prevent obesity-related morbidity and mortality. This seems easier said than done.

There are a plethora of available weight management products, programs and interventions aimed at overweight and obesity. Despite saturation of the consumer market with avenues to address the time factor, financial cost, and locus of control and accurate body size identification, the prevalence of overweight and obesity continues to increase.

Empowerment through Self-Efficacy for Diet and Physical Activity

African-American women can perceive themselves as empowered when they maintain a larger body size, but not empowered to diet or exercise for fear of losing

weight and the acceptance of significant others. According to Sanchez-Johnson and colleagues (2004), the combined effect of a diet higher in calories and fat, increased sedentary behavior, and more accepting body image could account for higher rates of obesity among black women. In addition, this may also account for higher levels of depression. Proper diet and exercise are prerequisite to maintaining a healthy weight. If African-American women do not perceive that they have the ability to diet and exercise they are not likely to initiate and maintain a healthy diet and activity level. They also must believe that controlling their diet and exercise will have the benefit of maintaining an acceptable body size as well as their health.

The increasing availability of fast food restaurants and lack of quality food markets act as barriers for self-efficacy for diet control. In African-American communities, there are more fast-food restaurants and vendors of alcoholic beverages per capita than in White communities, and the consumption of the same is arguably higher among African Americans as well (Williams, 1998)—not unrelated to the aggressive marketing of these products to African-American consumers. The frequent absence of major grocery chains, farmers' markets, and whole-food markets in African-American neighborhoods has meant that there are fewer affordable sources of fresh fruits and vegetables. This may well have implications for maintaining a healthy diet, as a study in an African-American community in North Carolina found that the availability of grocery stores was directly related to consumption of fresh fruits and vegetables (Morland, Wing, & Roux, 2002; Airhihenbuwa & Liburd, 2006). Race and class play major roles in African American's disproportionate affliction of substandard access to healthy foods and social environments.

Although current federal guidelines recommend at least 30 minutes of moderate-intensity activity on most, preferably all days of the week (either as one sustained session or broken up over the course of the day) (U.S. Department of Health & Human Services, 1996; Pate et al., 1995), nearly 30% of African-American women are physically inactive (Sapkota, Bowles, Ham, & Kohl, 2006; Kruger, Ham & Kohl, 2005). The lack of routine physical activity among African American women places them at risk for negative health outcomes associated with inactivity. A study conducted by Staffileno, Minnick, Coke, and Hollenberg (2007) found that a lifestyle physical activity intervention can be applied to young, hypertension-prone African-American women with cultural appropriateness and feasibility of replication; and, that this intervention can lead to measurable decreases in blood pressure indices within a relatively short period of time. But despite the well-documented benefits of increased physical activity African-American women remain largely sedentary. Participation in physical activity is lower among African American women than all other race–gender groups except Mexican-American women (Adams-Campbell et al., 2000; Crespo, Keteyian, Health, & Sempos, 1996)

Persistent challenges of the social conditions and the elusiveness of effective strategies to improve health experienced by an overwhelming segment of the African-American population has led to increasingly poorer health outcomes in their communities. Previous research has underscored the causal role of low physical activity as a risk factor of obesity and especially abdominal obesity during the transition from adolescence to early adulthood (Pietiläinen et al. 2008). In prior studies, physical activity was found to decrease with age for male and female study members, but the decrease was more profound among females (Kimm et al., 2005; Kimm et al., 2002; Tammelin,

Laitinen, & Nayha, 2004; Hasselstrom, Hansen, Froberg, & Andersen, 2002). This may be due to increasing opportunities for noncompetitive athletic activity, lack of interest or motivation or changes in family involvement that allow older adolescents to define their own physical activities (Richardson et al. 2003). Self-efficacy related to performing exercise can therefore be progressively diminished as the adolescent female transitions into adulthood. For African-American women, less focus on physical activity (compounded by other barriers such as unsafe walking areas, transportation problems and lack of child care) may lead to a higher probability of the development of obesity later in life.

Biological Variation Variables

The culture of obesity is also influenced by biological variations in the individual and family that may predispose a person to overweight and obesity. Within the context of the overweight and obesity, *age, family history of depression, and the African-American woman's history of depression* are key constructs, which are important.

Genetics has been explored as a major contributing factor to the development of overweight and obesity in adults particularly in families with a history of overweight and obesity. Parents provide both genes and environments that may promote behaviors associated with excessive weight gain in children (Patrick & Nicklas, 2005; Cullen, Lara, & de Moor, 2002; Whitaker et al., 1997; Davison & Birch, 2002; Maes, Neale, & Eaves, 1997) Additionally, obesity runs in families, and having obese parents increases obesity risk in children (Danielzik, 2002; Safer, Agras, Bryson, & Hammer, 2001; Agras, Hammer, McNicholas, & Kraemer, 2004; Maffeis, Talamini, & Tato, 1998; Lake, Power, & Cole, 1997). Parental weight status also predicts tracking of childhood overweight

(Francis, Ventura, Marini, & Birch, 2007; Magarey, Daniels, Boulton, & Cockington, 2003; Lake, Power, & Cole, 1997; Pietilainen et al., 2001; Williams, 2001). An overweight child living in a family where one or more parents is overweight is likely to remain overweight throughout his or her childhood and into adolescence and adulthood (Magarey, Daniels, Boulton, & Cockington, 2003). Additionally, it has been reported that a number of overweight parents predicted fat gain among normal weight girls (Treuth, Butte, & Sorkin, 2003) who tend to become overweight and obese women (Whitaker et al., 1997).

Age

It is known that persons are more likely to become overweight and obese as they age and as their body metabolism changes, often slowing down and encouraging a proclivity to weight gain. Nearly half of the African-American females aged 30 to 44 years are obese in contrast to 30% of similarly aged Caucasians (Ogden, Carroll, Curtin, McDowell, Tabak, & Flegal, 2006). The 1998 National Child and Infant Health Survey concluded that African-American women of child-bearing years tend to retain more weight postpartum than white women across all BMI categories. In addition, Black women who had higher rates of weight gain during pregnancy were also likely to retain more weight post partum (National Research Council and Institute of Medicine, 2007).

Scientists at Harvard School of Public Health examined the health habits and medical records of more than 100,000 women in the Nurses' Health Study, an ongoing federally financed study of women's health problems. In 1989, the participants, ages 24 to 44, reported their weight and height and also their weight at age 18. Over the next 12 years, 710 of the women died. Researchers found that in evaluating the deaths, it became

apparent that women who were overweight or obese at 18 were more likely to die in middle age. The heavier the woman was, the greater her risk of dying early (van Dam, Willett, Manson, & Hu, 2006).

Depression and Overweight and Obesity

Population based studies of the association between overweight and obesity and depression have yielded inconsistent results thus far. Some studies have found an association (Buddeberg-Fischer, Klaghofer, & Reed, 1999; Dong, Sanchez, & Price, 2004; Onyike et al., 2003; Siegel et al., 2000; Linde et al., 2004; Richardson et al., 2003; Kress, Peterson, & Hartzell, 2006; Jasienska, Ziomkiewicz, Gorkiewicz, & Pajak, 2005) while others have not (Crisp, Queenan, Sittampaln, & Harris, 1980; Palinkas, Wingard, Barrett-Connor,1996; Daniels, 2005). The American Obesity Association identified overweight and obesity as co-morbidities of depression and defines co-morbidity as any condition associated with overweight and obesity that usually worsens as the degree of overweight or obesity increases and that often improves as the condition is treated. In a study done by Gore, (1999) obesity was found to develop as a result of reduced interest and enjoyment of physical activity or, in susceptible subjects, increased appetite for energy-rich comfort foods. Onyike and associates (2003) found that the association between obesity and depression depends on the severity of the obesity. Depression has been linked to obesity through various reports identifying obese subjects as having reported body image dissatisfaction, stigmatization, discrimination, and major psychosocial disturbance, along with thoughts of guilt, hopelessness, and poor self-esteem (Dixon et al., 2003). Medication used to treat depression may lead to weight gain. What is not known is whether obesity causes depression or if depression causes obesity. What is

clearly known is that depression can have a genetic or familial basis as well as contributions from the social environment.

The way depression is confronted, discussed and managed varies among social worlds, cultural meaning and practices, which shape the course of the disease (Ross, 1994). Culture influences the experience of depressive symptoms, the idioms used to report them, decisions about treatment, doctor-patient interactions, the likelihood of outcomes such as suicide, and the practice of professionals (Kleinman, 2004). Depression has been positively associated with adult body mass index (Pender & Pories, 2005; Roberts, Kaplan, Shema, & Strawbridge, 2000) and it tends to exaggerate weight change tendencies, with leaner subjects becoming leaner adults and heavier subjects with depression becoming heavier adults compared with non-depressed controls (Gore, 1999). Although prior research attention has been given to the study of the relationship between depression and overweight and obesity as noted above, the literature is relatively mute on the association of these variables with each other in African Americans, particularly African-American women.

Various social scientists and health care providers contend that African Americans have a great risk for depression. African-American women in particular are purported to be at greatest risk. However, the related statistics are lacking. Warren (n.d., ¶ 3) states "part of this confusion is because past published clinical research on depression in African-American women has been scarce (Barbee, 1992; McGrath, Keita, Strickland, & Russo, 1992). This scarcity is, in part, due to the fact that African-American women may not seek treatment for mental illness or may withdraw from treatment because their

cultural, ethnic or gender related needs have not been met (Cannon, Higginbotham, & Guy, 1989; Warren, 1994a).

According to Warren (n.d., ¶ 4), "there are three major contributing factors that increase the African-American woman's proclivity to depression. First, they live in a majority-dominated society that repeatedly devalues their ethnicity, culture, and gender (Carrington, 1980). Second, African-American women may frequently find themselves at the lower spectrum of the American political and economic continuum. Third, African-American women may often be involved in multiple roles as they attempt to survive economically and advance themselves and their families through mainstream society. All of these factors intensify the amount of stress within their lives which can erode the African-American woman's self-esteem, social support systems, and health (Warren, 1994b)".

Given the evidence for a culture of obesity, acceptance of a large body size and the presence of multiple social, historical and environmental factors specific to the African-American community, it is important to determine if similar relationships exists between depression and overweight and obesity in African-American women as has been shown in White women. This study will address this gap in the literature.

Family History of Depression

Complex genetic mechanisms are purported to be involved in the vulnerability to depressive disorders and cognitive dysfunctions found in depression (Zhang et al., 2007). The tendency toward depression is known to have a biological and a possible familial basis (Dong, 2004) and is another biological variation within the culture of obesity. Although reports suggest that depression is a strong familial condition (Sullivan, Neale, &

Kendler, 2000) studies involving obese individuals generally have not examined the role of family history of depression. Overweight and obesity and depression may be genetically related, with first-degree relatives of obese subjects more likely to experience a range of psychiatric conditions, including depression. It is therefore crucial to examine the influence that family health history (including major depression, depressive symptoms, and mood states) has on the subject's health history and to explore the relationship between the history of depression and weight class.

If a first-degree relative (a parent or sibling) has suffered from major depression, the risk of becoming depressed is two to three times higher than that of someone without such a history (Sullivan, Neale, & Kendler, 2000). It has even been found that the association between parental major depressive disorder and child diagnosis is moderated by grandparental major depressive disorder status. The rates of psychopathology are highest in grandchildren of parents and grandparents with a moderately to severely impairing depression (Weissman et al., 2005). Tozzi et al. (2008) concluded that a family history of depression contributes to the onset of depression at a younger age and may affect the clinical features of the illness. Therefore, a family history of depression predisposes an African-American woman to depression. 'Research also has found that those with a family history of depression have a greater chance of becoming depressed in the face of stressful events--in other words, it takes less to provoke depression in them than in someone who doesn't have a family history, notes Kenneth Kendler, M.D., a professor of psychiatry and human genetics at Virginia Commonwealth University in Richmond' (Colino, 2004, p.2). The presence of feelings of guilt, anxiety symptoms and functional impairment due to depressive symptoms appear to characterize individuals

with positive family history of depression (Tozzi et al., 2008). Also, the severity and/or recurrence of a family member's depression may affect your risk.

It has been speculated that the transmission of depression risk may have an environmental component. The experience of living with a depressed parent encompasses a wide range of social factors that confer risk of depression to offspring, including parenting (Perris, Arrindell, & Eiseman, 1994), marital discord (Cummings & Davies, 1994), parental divorce (Dong et al., 2002), and economic hardship (Spence et al., 2002), which may account for the parent-offspring correlation for depression.

The African-American Woman's History of Depression

Coping with overweight and obesity can lead to the mental health symptoms such as depression. Unlike racial prejudice, society freely expresses prejudicial attitudes towards obese people, justifying these attitudes on the grounds that weight is controllable and often a result of moral failure. Thus, obese people may be more likely than other minority groups to encounter overt hostility and discrimination which can be long-term in nature. Negative stereotypes of obese people include the views that they are ugly, morally and emotionally impaired, asexual, discontented, weak-willed, and unlikable (Crandall, 1994). In a study conducted by Myers and Rosen (1999) stigmatization was found to be a common experience for those that were obese, and that obese subjects frequently engage in some effort to cope with stigma. More frequent exposure to stigmatization was associated with greater psychological distress, more attempts to cope, and more severe obesity. Certain coping strategies are associated with greater distress leading to a cyclical propensity for increasing weight gain.

A number of explanations for a relation between obesity and mental health, particularly depression, have been offered, including the possible role of psychologic, sociologic, and biologic factors (Friedman & Brownell, 1995; Ross, 1994; Palinkas; Wingard, & Barrett-Connor, 1996). Ross (1994), for example, has outlined two possible explanations for an association between obesity and depression. One, the reflected self-appraisal perspective, argues that the stigma toward and devaluation of the obese may cause overweight individuals to suffer lower self-esteem, have more negative self-images, think others dislike them, and have higher levels of depression. The less common, normal, and acceptable it is to be overweight in a group, the greater should be the psychologic impact. The second, the fitting norms of appearance perspective, argues that, for those who are obese, fitting the norm for weight is stressful because dieting is stressful rather than obesity per se. This may be particularly true when weight control is not successful, which is commonly the case (Brownell & Wadden, 1992). Ross (1994) presents data supporting the fitting norms of appearance hypothesis but found little support for the reflected appraisal hypothesis. These competing perspectives offer plausible explanations for sociocultural processes linking obesity with psychologic dysfunction. However, to date there have been no attempts to replicate or extend the research by Ross.

Time as a Variable

The perception of time is culturally influenced. Time orientation, one's focus regarding time, varies in different cultures. No individual or culture will look exclusively to the past, present, or future, but most will tend to emphasize one over the others. Future time perspective is the degree to which the future is perceived as structured, predictable,

and controllable (Heimberg, 1963). For cultures which tend to be future oriented, Such as middle class white Americans, progress and change are highly valued (Galanti, 2004).

African Americans tend to have a present time orientation (Akbar, 1991). This does not mean that they do not recognize the past or the future, but living in the present is more important to them. People with a predominantly present time orientation may be less likely to utilize preventive health measures. They reason that there is no point in taking a pill for hypertension when they feel fine, especially if the pill is expensive and inconveniently causes unpleasant side effects. They do not look ahead in hopes of preventing a stroke or heart attack, or they may feel they will deal with it when it happens. Poverty often forces people into a present time orientation. They are not likely to make plans for the future when they are concerned with surviving today (Galanti, 2004).

African-American time orientation has been captured by the phrase colored people's time (CPT) where arriving late is seen to be generally accepted. Seen as generally a negative personality trait, time is revered as a controlling measure. "The event can start when I arrive" is the general attitude. According to Akbar (1991), future time perspective, common among Eurocentric persons, is viewed as pressured, urgent and constraining. As for African-Americans, time is viewed as flexible, subjective and conveniently manipulated to meet the needs of people with immediate gratification. This has been associated with an inability to engage in behaviors rewarded by delayed gratification and control. Belgrave and Allison (2005) assert that the future time perspective emphasis on prediction and control has resulted in the misunderstanding of the African-American culture, which does not ascribe to this emphasis, as being labeled

deficient. In contrasting work done by Banks, McQuater, Anthony and Ward (1992), African Americans were found to have past, present and future orientation.

A study conducted by Lukwago et al. (2003) exploring the sociocultural correlates of breast cancer knowledge and screening in urban African-American women examined the association among five main factors: collectivism, spirituality, racial pride, and present and future time orientation, and breast cancer–related knowledge, barriers to mammography, and mammography use and stage of change among urban African-American women. The researchers found that Present time orientation (i.e., a focus on immediate or short-term consequences vs. planning for the future) was negatively associated with breast cancer–related knowledge and mammography and positively associated with perceived barriers to mammography. Because getting a mammogram suggests thinking about the future in the absence of symptoms, this finding is consistent with definitions of present time orientation and findings reported in previous research (Zimbardo, Keough, & Boyd, 1997; Brown & Segal, 1996; Rothspan & Read, 1996). The effects of present time orientation persisted after adjusting for income, education, and employment, 3 indicators of social circumstance (Lukwago et al., 2003).

For African-American women, a lack of future time perspective connecting present behaviors to predictions of future consequences may contribute to their inability to constructively plan for the future and structure future events in terms of goals (Yarcheski & Mahon, 1986). The African-American family culture and time perspective can have an instrumental and expressive influence depending on the sex of the participants in the interaction (Yarcheski, 1984). Yarcheski (1984) found that the strongest correlations were found between paternal expressiveness and girl's future time

perspectives. Therefore, for African-American women in particular, who are greatly swayed by the perceptions and ideals of their male significant others, future-related thoughts concerning weight and health can translate into low priorities. Living for today while letting tomorrow take care of itself acts as a barrier to planning for adequate weight control and maintenance. Because the benefits of weight loss and maintenance with diet modification and exercise focus on the future, it is believed that intervention and monitoring strategies should include helping present oriented patients make the connections between present behaviors and future outcomes. It should be kept in mind that temporal orientation is something learned which implies that it can be unlearned (Brown & Segal, 1996). Therefore, it is imperative that researchers and healthcare providers alike account for the temporal perspective of their patients and participants when developing weight loss management regimens and programs.

Perceptions of Body Image

Perception, a component of the personal system, is a process by which the individual organizes, interprets, and transforms information from sensory data and memory that gives meaning to one's experience. It represents one's image of reality, and influences one's behavior (Gore, 1999). Body image is a multidimensional construct encompassing self-perceptions and attitudes regarding one's physical appearance (Cash, Morrow, Hrabosky, & Perry, 2004). Two core facets of body-image attitudes include evaluation and investment. These attitudes may be assessed relative to overall appearance or with regard to specific physical characteristics, such as body weight or shape (Sarwer, Grossbart, & Didie, 2003).

A negative body image can occur when an individual's perception of himself or herself deviates too greatly from the ideal (Furnham & Baguma, 1994). Thus, negative body image perception might reflect conflict between perception and reality. Body image perception is reinforced and defined by media representations, cultural traditions and attitudes of friends and relatives (Thompson, 1996; Kostanski & Gullone, 1998; Altabe & Thompson, 1992). Important risk factors for misperception of body image include gender, personality, race/ethnicity, socio-economic status and other demographics such as age. In addition, negative body image perception is associated with an increased risk of poor eating behavior, low self-esteem and depression (Pastore, Fisher, & Friedman, 1996; Rierdan & Koff, 1997; Thomas & Raj 1985).

Self-evaluation of weight status is not simply an autonomous, individual response; it is likely subject to social patterning (Akan & Grillo, 1995; Frisby, 2004). Attitudes toward body size and preferences for particular levels of fatness are mediated by local social and cultural factors (Padgett & Biro, 2003), and perceptions may vary in predictable ways among population subgroups (Borzekowski & Bayer, 2005; Chang & Christakis, 2003). There are factors such as social norms and cultural and ethnic traditions, which may help to explain African-American women's perceptions of weight and weight control that may contribute to their acceptance of a larger body image as appropriate (Altabe, 2001; Barber, 1998; Fitzgibbon, Blackman, & Avellone, 2000; Flynn & Fitzgibbon, 1998; Miller, 2000).

White men have been found to choose significantly thinner figures, and reported wishing their girlfriends would lose weight significantly more often than African-American men (Greenberg & LaPorte, 1995). In Jackson and McGill's 1996 study not

only did Black men prefer larger women, but they also attributed positive characteristics such as “generous” to larger women, whereas White men were more likely to attribute characteristics such as “lazy” and “uneducated” to larger women. Evidence of Black men’s tendency to prefer larger body types has been proposed to influence Black women’s perceptions of themselves (Grabe & Hyde, 2006). Black men’s perceptions can, therefore, contribute to the African-American woman’s tendency to be more satisfied with their bodies, have less concern about their weight, and perceive themselves to be thinner than do White women. Other research has concluded that under-assessors of weight were more frequently found to be African-American female subjects with relatively low education and income levels (Kuchler & Variyam, 2003).

Misperceptions of body image amongst African-American women may lead them to believe that the message of health information programs is intended for someone else. Those women who are most in need of diet and lifestyle change will not attempt to do so. An entirely different strategy based on the differences in cultural factors affecting African-American women’s self-perceptions is warranted. Before these strategies can be developed, there must be a clear understanding of the nature of the relationship between cultural factors, perceptions of body image, weight and weight class. This study will add to the scientific knowledge base related to this phenomenon.

The Teen Lifestyle Project Survey conducted by Parker and associates (1995) was a multi-ethnic study of African-American adolescent females, which examined their perceptions of weight and beauty. The cultural factors that have an impact on weight perception, body image, beauty and style were also explored. Ethnic differences in the perceptions of body image, weight, and dieting concerns were contrasted between

African-American and White females to highlight the differences between these groups. African-American perceptions of beauty were defined by an extensive list of personality traits rather than physical attributes. These included smart, friendly, easy to talk to, fun to be with, and humorous (Parker et al., 1995). There was a clear de-emphasis on physical attributes or beauty related to weight as characterized by considering long fingernails, pretty eyes, big lips, a "big butt" and nice thighs as prerequisites for popularity. Creating and presenting a sense of style is the standard for beauty and body image amongst African-American adolescents. Looking good was related to public image, overall attractiveness, confidence and attitude; not to weight (Parker et al., 1995).

Dissatisfaction with body weight and shape among White girls, even when their weight/height ratio is normal, has been continually confirmed in the literature (Fisher, Schneider, Pegler, & Napolitano, 1991; Perez & Joiner, 2003; Storz & Greene, 1983). This is contrary to the beliefs of a large majority of African-American girls who tend to express satisfaction with their weight. According to Nichter and Yuckovic (1994) a thin toned body was clearly identified as the symbol of being healthy for White adolescents. Thus, perceptions were highly influenced by cultural orientation.

As with much social science research, the majority of investigations of questions about Black women and weight has come in the form of studies that use traditional quantitative measures and scales (Poran, 2006). On such scales Black women do indeed produce positive body esteem scores and indicate comfort with their bodies (Poran, 2002). It must be noted however that scales used to measure Black women and body image have for the most part been based on research with White participants. The possibility that the measures and scales used regularly may be missing information due to methodological

choices justifies the need for the development of culturally specific scales and measures. It must be recognized that these measures in themselves are likely to constrain the possibilities of responses, and the results from these measures are essentially being compared to those of White women as the normative gauge for behavior and psychological response (Collins, 1991). The majority of the perceptions that African-American women have regarding their weight stems from the differences between their cultural factors and that of other cultures (Kuchler & Lin, 2002). This can ultimately contribute to weight but, the limited amount of literature available regarding African-American women and body image does not currently support this relationship definitively. Thus, based on what has been presented by the empirical literature, it is a reasonable hypothetical proposition that an African-American woman's perception of her body image based on her cultural factors will influence her weight class.

Summary

The review of the literature presented in this chapter gives an over-arching analysis of the state of the science related to culture, body image, depression and weight in African-American women. Overweight and obesity are significant contributors to the morbidity and mortality of this population. Factors such as socioeconomic status, perceptions of weight and body image, future time orientation, self-efficacy for diet and exercise, along with depression, compound weight related risks. The literature reviewed highlights the importance of this study and justifies the conceptual framework under-girding the studies propositions. This study has important significance in assessing the nature of the relationships among the variables in respect to the insidious prevalence of overweight and obesity in African-American women. It will serve to extend our

knowledge filling gaps in the literature within the areas of culture, body image, depression and weight among African-American women.

CHAPTER III

Research Design and Methods

Overview

This chapter discusses the methodology utilized to conduct this study. The sample population and setting, characteristics of the sample, operational definitions along with their related instruments and the research design that under girds this study will be discussed in depth. The methodology and procedures that will be employed to obtain the sample population, data collection procedures and data analysis techniques are described. Central to this research was 103 African-American women and their male African-American partners who were participants in this study. Approval by Emory's Institutional Review Board was obtained prior to the study's commencement. In addition, the protection of human subjects will be addressed in depth. Funding was been obtained from the National Institute of Health - National Institute of Nursing Research via a National Research Service Award (Grant No. 1 F31 NR010202-01), as well as a Sigma Theta Tau International (Alpha Epsilon Chapter) Research Award.

An estimated 6,700 Georgians now die every year because they are overweight or obese, approximately 10% of all deaths (Georgia Department of Human Resources Division of Public Health, 2005). These deaths are caused by heart disease, some cancers, stroke, type 2 diabetes, and other medical conditions that arise from the metabolic and mechanical abnormalities induced by excess body fat (US Department of Health and Human Services, 2001). The study was based on the Transcultural Assessment Model (Giger & Davidhizar, 2008) as explicated through the Culture of Obesity (Base-Smith & Campinha-Bacote, 2003), and it assessed the nature of the relationships among the

various cultural factors, perceptions of body image, depression and weight in African American women and their male African-American partners. The study employed a descriptive correlational research design to address the study aims. Data collection was conducted from October 2007 to June 2008.

Research Design

A descriptive correlational design was employed to study the relationship of cultural factors (social organization factors, environmental control factors, biological variation, time and depression) with BMI, waist hip ratio and weight class, and perceptions of body image as a moderating variable. It has also been utilized to explore the relationships between cultural factors, weight, waist hip ratio and weight class, and depression as well as the relationships among cultural factors and perceptions of body image.

The study used a cross-sectional design which stratified the 103 African-American women in the sample by their weight category (normal, overweight and obese). As much as possible, equal numbers of women were recruited for each weight class category. The sample also included the women's male partners, who provided their perceptions of their partner's weight and body image. Although a convenience nonprobability sample limits the sample from being a true representation of African-American women in the general population, this sampling approach was used because it increased the feasibility of obtaining the required sample size of women and their partners in the desired weight categories. This convenience sampling strategy was designed to get a balanced proportion of women in each weight category and did not attempt to be representative of the actual

proportions of African-American women in each weight category in the general target population.

Sample Recruitment and Setting

The target population for this study was African-American women who are of varying weight classes: normal, overweight and obese and their partners. A sample of 103 African-American women who met the inclusion criteria were recruited from various beauty salons and barber shops, physicians' offices, university and college campuses, and churches in metropolitan Atlanta. Once the women were recruited their male partners also were asked to participate. Only those women who had a male partner who was willing to participate were eligible to participate. The beauty salon was particularly chosen as a site *par excellence*, where the attainment of femininity, and its definition and negotiation are being played out. In its generally closed and intimate nature, the beauty salon is not only a feminized space, but also one in which the secret routines of femininity are commoditized and exemplified (Black & Sharma, 2001). The barber shop can be considered the masculinized counterpart of the beauty salon were African-American men fitting the research criteria can also be recruited for the purposes of this study.

Local university and college campuses provided a wide sampling of African-American women from various backgrounds needed to account for the variance in cultural factors and perceptions. The Atlanta metropolitan area has several public and private traditionally African-American university and college campuses as well as large predominantly white universities and colleges that have large subpopulations of African-American women for recruitment. The Emory Bariatric Center on Emory University's campus ensured adequate access to African-American women who were obese. Contact

information inclusive of the primary investigators name, phone number and email address was provided on the study advertisement flyer for those interested in participating to contact the investigator (see Appendix A). Potential participants were invited to contact the PI to obtain information regarding this study. Although this convenience sample may over represent middle class African-American women due to the use of some university campuses for recruitment, this study can be utilized as a springboard for future studies that may employ larger samples which include low income respondents. This study can possibly lead to interventional studies that could address the issue of overweight and obesity in African-American women.

Sample Inclusion and Exclusion Criteria

In addition to having a male partner able and willing to participate, inclusion criteria consisted of women of normal weight, overweight or obese weight class who: (1) had self-reported African-American heritage; (2) were American-born; (3) were premenopausal; (4) were age 18-44; (5) had the ability to read, speak and write English; (6) who did not have diagnosed and currently treated mental health conditions; and, (7) agreed to participate in the study by providing informed consent. Exclusion criteria consisted of women who: (1) had a BMI ≤ 18.5 kg/m^2; (2) were pregnant; or (3) were mentally challenged or had a diagnosed mental illness; (4) are currently being treated with an antidepressant medication; (5) were menopausal; and (6) did not read or write English. The women's partners were required to be: (1) male; (2) African American; (3) able to read, write, and understand English; (4) between 18 and 65 years of age, and (5) able to consent to participate.

African-American women were the population of interest in this study because they have the greatest risk for health problems related to overweight and obesity. The ability to read, speak, and write English is paramount to optimal understanding of the items within the forms, surveys and questionnaires. Although overweight and obesity affect African-American women of all ages, ages 18 to 45 represent a wide range of women that can contribute to the study's generalizability. Only childbearing age women were used in the study because older women may have unique age-related social and physiological factors that may contribute to overweight and obesity and related variables in this study differently than younger women.

As noted previously, women who were mentally challenged or had diagnosed mental illness were excluded from the study, particularly because such conditions are likely to impact mood, and depression was a key variable in this study. Depression has been found to have a positive association with obesity Dixon (2003). Medication used to treat depression may lead to weight gain, and bias the findings of this study. Exclusion criteria also consisted of women who have a BMI ≤ 18.5 kg/m² who are underweight. Women who are mentally challenged are likely to have altered self-perceptions which could impact body image which is a variable in this study. Pregnant women were excluded because pregnancy can alter a woman's perceptions of her body image and weight. In addition, postpartum women's' well-being are often manifested in depressive symptoms (Walker & Grobe, 1999), making pregnancy a potential confounding variable.

Sample Size and Power Analysis Calculation

Hypotheses 8 and 9 require the most statistically complex analysis. Therefore, sample size was calculated based on the requirements of hierarchical multiple regression

procedures. Power Analysis and Sample Size (PASS) software (NCSS, 2005) was utilized for sample size calculation. It was determined that a sample size of 90 was sufficient for the sample of females and 90 for their partners (n=180). This sample size was considered adequate at an alpha level of 0.05 with a power of 80% to detect relationships among the variables and other related findings with moderate effect sizes. The sampling plan designated that each of the three weight categories of African-American women that comprised the sample were to include at least 30 subjects. However, because of the success of the recruitment efforts, many participants expressed a desire to be a part of the study. In addition, participants through their word of mouth promoted the study, and this aided in a rapid recruitment. If participants expressed a desire to participate they were not refused the ability to join the study although the requirement for that particular weight class had already been met. Therefore, a final sample size of 103 female and 103 male participants was obtained. Representation of women in each of the weight categories in the final sample was as follows: normal weight 31, overweight 34, and obese 37.

Data Collection Procedures

The Institutional Review Board of Emory University gave approval for this study prior to its initiation. Potential participants were screened for eligibility with the study Participant Screening Form (See Appendix B). Once the subject's eligibility for the study was verified according to the inclusion/exclusion criteria, the subject's participation was invited. African-American women who were eligible to participate were asked to furnish contact information on the Subject Profile Sheet for themselves and their male partner, who were also asked to participate (See Appendix C). Both the woman and her male partner provided informed consent for participation (see Appendix D and E). Those

persons who were not eligible were informed that they did not meet the eligibility criteria and were thanked for their interest in the study.

Efforts were made to facilitate the participant's schedules and comfort levels by conducting an initial meeting to provide and explain study materials and obtain the participants anthropometric measures in a private setting of the participant's choosing. The initial meeting required between 20-30 minutes to allow for questions related to any of the study documents and or procedures. Female participants were informed that completion of the documents and collection of the anthropometric measures would take 60 to 90 minutes with 30 minutes for males. Participants were instructed to complete all forms and surveys that were utilized for the study. They were given the option to complete the study documents in the presence of the principal investigator or on their own.

Eligible female subjects were screened for their weight class. BMI was calculated from weight and height using a Tanita BWB-800S digital physician's scale with a Seca 214 portable stadiometer. In addition to waist-hip ratio calculation, all other data were collected via questionnaire. The principal investigator collected and maintained all data in locked files. All questionnaires were administered for completion together. The questionnaires that were administered to the African-American women included: the Demographic and Personal Information Form, the Center for Epidemiologic Studies Depression Scale CES-D, Health Beliefs Related to Weight Scale, Cardiac Exercise Self-Efficacy Instrument, Cardiac Diet Self-Efficacy Instrument, Weight Perceptions and Control Scale, the Female Perceptions of Weight and Dress Size Index and the Heimberg Future Time Perspective Inventory. Instruments that were administered to male partners

included the Demographic and Personal Information Form, Partner's Perception of a Woman's Weight Scale, and the Male Perceptions of Female Partner's Weight and Dress Size Index

The women were provided with the documents that the male partners had to complete if both partners were not present at the time of recruitment. All male partners were contacted by phone or in-person to explain the male portion of the documents. Male partner participants that were not seen in person were instructed by phone that an envelope was provided in the research packet and to complete and seal their documents after they had been completed. Due to the sensitive nature of the Partner's Perceptions of a Woman's Weight Scale, the male participants were encourage to complete and submit the instrument without the woman viewing the male's documents. Male participants were instructed to seal the document and return the data to the principal investigator by the female participant, directly to the principal investigator in person or by mailing the study documents directly to the principal investigator.

Protection of Human Subjects

In compliance with the Health Insurance Portability and Accountability Act (HIPAA) policies, potential participants were introduced to the study, assured of confidentiality, and informed of the complete time commitment and benefits prior to obtaining consent. The HIPPA authorization form was provided and signed by all participants. Subjects were advised that participation in this research study was voluntary and were allowed to discontinue at any time without consequences. Each participant was provided with a study Revocation Letter allowing them to end their participation and

revoke authorization for the collection and use of their information or o end further participation but allow the use of their collected information (see Appendix G). Standardized procedures and protocols were established to minimize risks, including risks to confidentiality.

To reduce risks to confidentiality, the following strategies were employed: (1) coding the data using individual identification codes, (2) data were stored separately from names with identification codes, (3) keeping informed consent forms separate from the data; (4) data were locked file cabinets at Emory University Nell Hodgson Woodruff School of Nursing; and (5) only the individuals authorized by the Institutional Review Board (the primary investigator, co-investigator and study statistician) were given accessibility to the raw data. All computer databases will be password protected. After study completion, data will be kept according to Emory University regulations. Any publications resulting from the study will not name or describe individual participant in an identifiable manner.

This is not a clinical trial, however, adherence to the following procedures to ensure the quality of the data and the safety of the participants were maintained. The study was governed by the policies and procedures of Emory University Institutional Review Board and was considered low risk to subjects. The principal investigator ensured that the informed consent process was conducted appropriately and that written informed consent occurred prior to any data collection or study procedures. Eligibility criteria were reviewed and only eligible subjects were enrolled. The principal investigator has been appropriately trained and certified for human subjects' research. No adverse events occurred which required review by the Institutional Review Board as required.

Operationalization of Variables

Anthropometric Measures

Body Mass Index

A Tanita Electronic Digital Scale (Tanita Corporation Tokyo, Japan) was utilized to obtain the weight of the female participants. The SECA portable stadiometer (SECA Corporation Hanover, Maryland) was used to obtain their height measurements. Body weight was the first anthropometric measurement performed, followed by height and waist and hip circumference The digital weight scale was zeroed as evident by a 0.0 displayed across the LCD screen prior to taking two weight measurements for each participant.

Each female participant was instructed to remove their shoes, thick socks and any excessive clothing before standing on the scale. The on/off switch to the scale was pressed. Time was allowed for the display field to flash momentarily, 0.0 to display on the screen and then the center zero to turn on. The unit of display was set by pressing the kg/lb switch; first in pounds and then kilograms for each of the two measurements. The participant was instructed to step on the measuring platform and wait until the vibration stabilized, the "weight lock" turned on and the weight was registered on the screen. For continuous measurement after the first measurement, the participant was asked to step off, wait for the scale to zero as evident by an LCD display of 0.0 and step back on for a second weight measurement. Both measurements were recorded prior to the height measurements. Weight was displayed and recorded in both pounds and kilograms to the nearest 0.1 kilogram.

Following the weight measurement, the subjects were instructed to step on the portable stadiometer so that their height could be obtained. The measuring tongue was placed in a horizontal position above the participants head. While keeping her feet together, the participant was instructed to stand erect on the foot positioner with her feet pointed away from the measuring rod together. Shoulder blades, buttocks and heels were to be maintained flush against the measuring rod for accuracy. Her head was placed in a straight position according to the "Frankfurter Linie" - an imaginary horizontal from the ear to the beginning of the nose. The caliper gauge was pushed down on the head so that the measuring tongue rested without sagging. The height was recorded in both inches and centimeters and rounded to the nearest 0.1 centimeters. The participant was then asked to step off and repeat the process to obtain a second measurement. The average of both weight and height measurements served as the requisite sums for the calculation of body mass index.

The Quetelet index formula was used to calculate body mass index since this formula provides one of the best estimates of body mass index for adults (Gibson, 1990). The following formula was used to calculate body mass index: body mass index = weight (kilograms)/height (meters)^2 (Gibson, 1990). BMI was calculated via a formula computed by the SPSS 16.0 (2007) version statistical software. BMI was then categorized as normal weight, overweight and obese via the categorization parameters entered into SPSS.

Waist-Hip Ratio

To categorize waist-hip ratio, measurements of waist and hip circumference were obtained from each female participant. The subjects were asked to raise their shirt or

blouse while a standard tape measure was used to measure their waist circumference. The subject was asked to stand erect with her abdomen relaxed, to place her arms at her side and to stand with her feet together with her weight equally divided over both legs. The tape measure was positioned midway between the lowest rib margin and the iliac crest above the umbilicus. The subject was asked to hold the end of the tape measurer as the researcher passed the tape measurer around the back of the subject. The subject was asked to breathe normally and to breathe gently at the time of the measurement in order to prevent the subject from contracting her stomach muscle or holding her breath. Waist circumference was recorded to the nearest millimeter. The process was repeated with the average of the two readings used as the waist circumference measure for this analysis. Hip measurement was taken at the point of hip that contains the widest circumference of the buttocks and recorded to the nearest millimeter. The process was repeated with the average of the two readings used as the hip circumference measure for the analysis. Waist- hip ratio was then calculated by dividing the waist measurement by the hip measurement via the formula entered into the SPSS software.

Self-Report Measures

The Demographic and Personal Information Form (DPIF). This form was utilized to obtain demographic information inclusive of many *social organization and biological variation factors*: i.e., name; *age*; address; telephone numbers (home work, other), best time to be contacted; marital status; employment status; occupation; *educational background; income* (family, parent, spouse and/or individual); health history and *past history of depression*; and other relevant cultural factors. Versions specific for the male and female participant were used. In addition, an in depth assessment of *family history of*

overweight and obesity and *family history of depression* was obtained (see Appendices H and I). (Copies of all additional tools are provided in Appendices J, K, L, M, N, O, P, Q).

. ***Age.*** A quantitative, biological trait used to quantify individuals in terms of longevity of life in number years. This demographic variable will be measured by self report on the DPIF.

Education. The highest grade level or degree completed as indicated by self-report on the DPIF.

Income. The highest reported current combined annual income level attained by a family. This will be based on parent, spouse and personal income as indicated by self-report on the Demographic and Personal Information Form (DPIF).

Education: The highest grade level or degree completed as indicated by self-report on the DPIF.

Woman's Past History of Depression. Self-reported African-American woman's past history of depression as reported on the DPIF.

Family History of Overweight and Obesity. The proportion of primary family members that are reported to be overweight and obese as reflected by the body mass index (BMI) of primary family members, i.e., parents, grandparents, siblings, aunts and uncles as indicated by self-report on the DPIF.

***Family History of Depression*:** self-reported family history of depression as determined by self-report, indicating that a first through third-degree pedigree relative currently has depression or has a past medical history of depression.

The Coverson Beliefs Regarding Weight Scale. This questionnaire was developed to measure beliefs and perceptions concerning weight related behaviors and was adapted by Coverson from the Champion Health Belief Model Scale (CHBMS) (Champion, 1984). Behavior was explained by the Health Beliefs Model as resulting from the combination of attitudes related to five concepts: perceived susceptibility, perceived seriousness, perceived benefit, perceived barriers, and motivation (Rosenstock, 1974). Relevant psychometric properties of the CHBMS, from which the Coverson Beliefs Regarding Weight Scale was developed, are included as follows: Test-retest correlations ranged from .47 to .86. Principal components factor analysis loadings for all items ranged from .36 to 75. Internal consistency of the factors ranged from .36 to .78. Cronbach's alpha reliability coefficients for subscales range from .80 to .93 (Champion, 1984). Within the context of this study the subscale internal consistency reliability ranged from .54 to .96, with only one subscale, the motivation for weight (physical) below .75.

The Hickey Cardiac Diet and Exercise Self-Efficacy Instruments (Hickey, et al., 1992). These questionnaires were developed to explore self-efficacy for diet and weight control as measures of a patient's belief in their ability to cope with behavior changes in diet or exercises after a cardiac event. The Cardiac Diet Self-Efficacy Instrument (CDSEIS) is a 16-item measure that indicates how much confidence the respondent has performing diet related behaviors. The validity for diet scale produced a multiple R of .114 with sex as the only predictor entering the equation. The Cardiac Exercise Self-Efficacy Instrument (CESEI) is a 12-item measure that explores how much confidence the respondent has for performing exercise related behaviors. For exercise the validity was

supported with an $r^{2=}$.033 (df=1.368). Thus, these instruments have been shown to be valid for use with subjects to determine a degree of self-efficacy.

Hickey and associates (1992) reported that cardiac rehabilitation patients who have higher self-efficacy would have better diet and exercise behavior. Validity for the instruments was achieved *a priori* in a three-step process that included domain identification, item generation, and instrument formation. The overall Cardiac Diet and Exercise Self-Efficacy instrument scores are calculated using the mean scores of the actual values of the items of each of the scales. These instruments have been found to have high internal consistency, with alpha coefficients of 0.9 to 0.93 (Hickey, et al., 1992; Lau-Walker, 2004). A sample of 370 cardiac rehabilitation participants provided data for principal factor analyses showing the unidimensionality of each instrument. Known groups construct validity was supported by a comparison of CDSEI and CESEI scores for cardiac rehabilitation participants and marathon runners. The value of CDSEI and CESEI scores in predicting subsequent exercise and diet performance was demonstrated with a third group of cardiac rehabilitation participants (Hickey, et al., 1992).

The Heimberg Future Time Perspective Inventory (FTP). This instrument was developed to determine the degree to which the future is perceived as predictable, structured and controllable (Heimberg, 1961). This Likert scale consists of 25 items. The possible scores range from a low of 25 to a high of 175, with high scores indicating an extended future time perspective. The scale has high internal consistency, with a coefficient alpha of 0.84 both among college students (Heimberg, 1961) and a sample of tenth-grade students (Yarcheski, 1984). Construct validity was supported when future time perspective correlated positively with the theoretically related concept of internal

locus of control and the semantic differential ratings of "the future," "me," and "understandability of other people," and correlated negatively with anxiety (Heimberg, 1963).

The Self-Image in Relation to Weight Subscale. The perception of body image construct was measured by the Self-Image in Relation to Weight Subscale of the Weight Perceptions and Control Scale (WPCS). The WPCS developed by Coverson (2006) was designed to assess attitudes toward weight, one's self-image in relation to weight, social support for weight control, and attitudes toward weight. It is a 30-item tool scored on a 5-point Likert scale, (one indicating strongly disagree and five representing strongly agree), and designed to illicit an individual's level of agreement with each particular item. The WPCS has three subscales: self-image in relation to weight (15 items), social support for weight management (6 items) and weight management and control practices (9 items). However, only the Self-Image in Relation to Weight Subscale was used in this study. This tool is a newly designed tool that has been tested by Coverson (2006). Internal consistency analysis of the original scale yielded Cronbach's alpha coefficients for the subscales ranging from 0.36 to 0.79, with the attitudes toward weight subscale yielding the lowest reliability. The Self-Image in Relation to Weight Subscale had an internal consistency reliability of .62 as found in the research conducted by Coverson (2006).The overall Cronbach's alpha of 0.79. increased to 0.84 when the attitudes toward weight subscale was deleted. An alpha coefficient of 0.79 is acceptable for a newly devised scale therefore the attitudes toward weight subscale remained as part of the overall scale. Construct validity analysis yielded significant associations between the Weight Perceptions and Control subscale scores and age, socioeconomic status and body mass

index (Coverson, 2006). Within the context of this study the Self-Image in Relation to Weight Subscale had an internal consistency reliability of .85. This was the only subscale utilized for the purposes of this study.

The Center for Epidemiologic Studies Depression Scale (CES-D). This is a 20-item Likert scale that measures depression in healthy and unhealthy populations (Radloff, 1977). The tool is reliable with alpha coefficients ranging from .76 to .81. The subject is prompted to indicate how frequently she has experienced depressive symptoms over the past week. This tool is not an indicator of clinical depression. A total score is tallied for all items, which are scored from 0 (rarely or none of the time) to 3 (most or all of the time). Total scores range from 0 to 20 with 16 or greater indicating possible depression. Subjects with a score of ≥ 16 will be identified and instructed to follow up with their health care provider.

The CES-D was administered to all female participants. This instrument measures depressive symptomatology; a variable central to the examination of the relationship between weight, perceptions of body image and various cultural factors in this study. A total score greater than or equal to 16 on the CES-D indicates the presence of positive symptomatology over the past week. While the CES-D can screen for symptomotalogy, it is not a diagnostic instrument. Participants were therefore referred to their primary care providers for further evaluation. Although there were no instances of participants without their own health care providers, in the instance that they did not have a primary care provider, they were to be referred to the Atlanta Emergency Mental Health Service. Therefore this protocol was not utilized, but was in place during the course of the study.

The Partner Perceptions of a Woman's Weight Scale is a newly devised tool designed to assess male's attitudes towards a woman's weight and perceptions of a woman's self-image in relation to weight. This scale can be given to a general population of men and women by changing each reference to women to people. The Partner Perceptions of a Woman's Weight Scale is a 11-item self-report scale based on a five-point Likert scale ranging from one to five (one indicating strongly disagree and five representing strongly agree) designed to elicit an individual level of agreement with each particular item. Higher scores indicate more positive male perceptions of the female partner's weight.

The Female Perception of Weight and Dress Size Index is a newly devised scale comprised of three items: "A woman's ideal dress size is-", "My dress size is-" and "I am-". It was designed to assess the African-American woman's ideal dress size based on six ranges of 0 to 2, 4 to 6, 8 to 10, 12 to 14, 16 to 18 or 20 and above. The woman's actual dress size is assessed on the same six score range. The female then categorizes herself as underweight, normal weight, overweight or obese.

The Male Perception of Female Partner's Weight and Dress Size Index is a newly devised tool comprised of three items: "A woman's ideal dress size is-", "My partner's dress size is-" and "My partner is-". It was designed to assess the African-American males preferred female partner's dress size based on six ranges of 0 to 2, 4 to 6, 8 to 10, 12 to 14, 16 to 18 or 20 and above. The male's perception of the female's actual dress size is assessed on the same six score range. The male's perception of the female partner's weight is categorized as underweight, normal weight, overweight or obese.

Data Analysis

The theoretical assumptions of the Transcultural Assessment Model were employed to develop a conceptual framework that incorporates perceptions of body image and depression into the linkages among the cultural factors and weight in African-American women. By testing the linkages among the variables through a combination of descriptive statistics, correlations and regressions, the theoretical framework will be either supported or adapted based on the findings. As a descriptive correlational study, the main focus here was to explore the nature of the relationships among the variables in effort to test theory and drive future investigations related to depression and obesity.

Data analyses were conducted by using the statistical software SPSS version 16.0 (2007). Double data entry was utilized for data cleaning purposes. Demographic data for all participants were examined by a combination of descriptive statistics inclusive of means, frequencies and standard deviations. A significance level of 0.05 was selected for the testing of all aims with their associated hypotheses and research questions. The psychometric properties of each instrument were assessed as appropriate. Data analysis approaches used to address each hypothesis and research question includes the following:

Aim 1: To explore the relationships among cultural factors and weight with waist-hip ratio in African-American women.

Hypothesis 1: There will be a negative relationship between income and education (social organization factors) with BMI and waist-hip ratio: and, there will be a positive relationship between family history of obesity (a social organization factor) with BMI and waist-hip ratio in African-American women.

Hypothesis 2: There will be a negative relationship between health beliefs about weight, weight control, and self-efficacy related to diet and physical activity (environmental control factors) with BMI and waist-hip ratio; and, a positive relationship between male significant other perceptions of weight (an environmental control factor) with BMI and waist-hip ratio in African-American women.

Hypothesis 3: There will be a positive relationship between the African-American women's past history of depression, family history of depression, and age (biological variables) with BMI and waist-hip ratio in African-American women.

Hypothesis 4: There will be a negative relationship between future time perspective and BMI with waist-hip ratio in African-American women.

Research Questions 1: What is the relationship between the age of the African-American woman's male partner with the male partner's perception of the African-American woman's body image, and the African-American woman's BMI and waist-hip ratio?

Aim 1 was examined by first computing Pearson's correlations when data were at the interval level of measurement. Spearman's Rho correlations were used for categorical variables or if data were highly skewed.

Aim 2: To explore the relationship between cultural factors and perceptions of body image in African-American women.

Hypothesis 5: There will be a negative relationship between income and education and perceptions of body image: and, a positive relationship between family history of obesity and perceptions of body image in African-American women.

Hypothesis 6: There will be a negative relationship between health beliefs about weight, weight control and self-efficacy for diet and exercise and perceptions of body image: and,

a positive relationship between partner perceptions of weight and perceptions of body image in African-American women.

Hypothesis 7: There will be a negative relationship between age, family history of depression, and the woman's past history of depression and perceptions of body image in African-American women.

Research Questions 2: What is the relationship between future time perspective and perceptions of body image in African-American women?

Hypotheses under Aim 2 were examined by initially computing Pearson's correlations when data were at the interval level of measurement. Spearman's Rho correlations were used for categorical variables or if data were highly skewed. RQ2 was analyzed using Pearson's correlations.

Aim 3: To explore the cultural factors as predictors of BMI and waist-hip ratio and depression in African-American women with perceptions of body image as a moderating variable.

Research Question 3: What is the nature of the relationships among depression, cultural factors, perceptions of body image and BMI and waist-hip ratio in African-American women?

Hypothesis 8: Social organization factors, environmental control, future time perspective, and biological variations will predict BMI and waist-hip ratio in African-American women with perceptions of body image as a moderating variable.

Hypothesis 9: Social organization factors, environmental control, future time perspective, and biological variations will predict depression in African-American women with perceptions of body image as a moderating variable.

Research Question 3 was examined by initially computing Pearson's correlations when data were at the interval level of measurement. Spearman's Rho correlations were used for categorical variables or if data were highly skewed. To address H8 and H9, hierarchical regression models were created and analyzed to determine which cultural factors (independent variables) predicted BMI, waist hip ratio and depression as dependent variables. In addition, interaction terms were created between the woman's perceptions of body image and all cultural factors significantly correlated with the dependent variables to determine if women's perception of body image moderated the relationship between the cultural factors and the dependent variables. Based on the correlational analyses, variables that were significantly correlated with BMI, waist-hip ratio and depression were entered into the regression model as step 1. The independent variables for the model with BMI as the dependent variable were the male partner's age, the partner's perceptions of a woman's weight, motivation for weight loss (physical activity) [a subscale of the Coverson Beliefs Regarding Weight Scale] and education. Independent variables for the model with waist-hip ratio as the dependent model were depression, self-efficacy related to physical activity and diet, future time perspective, three Coverson Beliefs Regarding Weight Subscales [barriers to weight loss (nutrition), self-efficacy for physical activity for weight loss and motivation for weight loss (physical activity)], income, and education. The independent variables for the model with depression as the dependent variable were waist-hip ratio, self efficacy related to physical activity and diet, beliefs regarding weight, and future time perspective. Interaction terms were created between the woman's perceptions of body image and those independent

variables found to be significant predictors of BMI, waist-hip ratio and depression; and were subsequently entered into the second step of the equation modeling.

Aim 4: To determine if there are differences in cultural factors, perception of body image and depression based on weight class in African-American women.

Hypothesis 10: There will be significant differences in cultural factors, perceptions of body image and depression based on the African-American woman's weight class (normal, overweight and obese).

Hypothesis 10 was examined by computing the analysis of covariance when data were at the interval level of measurement. Chi square analyses were used for categorical variables

Methodological Assumptions

Several assumptions regarding this study are present. It is assumed that the study participants will answer all study related materials and questionnaires truthfully. It is also assumed that all study materials and questionnaires associated with this study were comprehensible and appropriately encouraged this sample of African-American females and males to accurately and truthfully report their perceptions of the African-American woman's body image. There is an assumption the African-American women have unique health beliefs regarding their weight and weight control, which will be elucidated via this study's proper measurement techniques. Although volunteers where utilized as participants, it is assumed that self-selection would not threaten the validity of this study based on the appropriate research design and methods employed in this study.

Limitations Related to the Conduct of the Study

Several limitations to the study have been identified. Although potential threats to validity are present, multiple control measures within the study design have been implemented to compensate for them. Selection bias potentially introduced by the use of a convenience sample of volunteers may allow for the introduction of confounding extraneous variables. The lack of control optimally ensured by random selection of participants could mask the true nature of the relationships under examination. However it was impractical and expensive to use random selection. Nevertheless, the stringent inclusion/exclusion criteria serve to minimize this threat within this cross-sectional research design. External validity may be affected by a selective effect via the use of a self-selected convenience sample. This may potentially limit the generalizability of the findings to other samples and the population in general. A reactive effect as evident by subjects wanting to portray their best attitudes and health practices knowing that they are being observed and measured is a possibility. Another limitation is the use of some relatively new measurement instruments. However, the psychometric properties of each instrument were appropriately evaluated prior to data analysis to help address this limitation.

Given that no known study has examined female perception of body image paired with their male partner's perceptions of her body image and how the male perceptions influence female body image resulting in any given weight class, the benefits of the study's findings far outweigh the limitations. Information gained from this investigation could lead to the development of hypotheses about intervention approaches within

clinical trials involving overweight and obese African-American women, ultimately leading to improved health outcomes for all women who are overweight or obese.

Summary

A multiplicity of research studies have suggested that various cultural factors greatly impact weight in African-American women and increase the risks of co-morbidities and mortality. However, none of them have quantified the nature of the relationship between the cultural factors, perceptions of body image, depression and weight in African-American. In addition, this study is the first one of its kind to assess the impact that the African-American woman's partner's perception of the woman's body image has in relation to the African-American woman's BMI and perception of body image.

A descriptive correlational study design was employed to explore the relationships among the social organization, environmental, biological, time, body image, depression and weight, waist-hip ratio and weight class variables. The Institutional Review Board of Emory University approved this study and funding was obtained from the National Institute of Nursing Research of the National Institutes of Health and Sigma Theta Tau International Honor Society. The sample included 103 African-American women and their male partners recruited from the Metro-Atlanta area. Once participants agreed to participate and signed the appropriate consent forms, they were provided with questionnaires that elicited information inclusive of beliefs regarding weight, weight perception and control, the male partner's perception of their female partner's weight, cardiac diet and exercise self-efficacy, future time perspective and depressive symptomatology along with additional demographic information.

Statistical analysis included reliability assessment particularly, for the newly devised Beliefs Regarding Weight Scale, the Weight Perceptions and Control Scale and the Partner Perceptions of a Woman's Weight Scale. Control measures were implemented to reduce threats to internal and external validity. The protection of study data and the confidentiality of participant information were maintained. The study employed mainly correlations, ANOVA and hierarchical regressions to determine the ability of the conceptual framework to test for the predictors and differences in weight, waist-hip ratio and weight class among African-American women.

CHAPTER IV

Results

Overview

This study investigated the nature of the relationship between various cultural and biologic factors, inclusive of social organization, environmental control, biological variation and time, perceptions of body image, depression and weight in African-American women. The role that perceptions of body image of the African-American woman and her male African-American partner play in the relationship between the cultural factors and weight and depression is of particular interest. The results of the data analysis related to the study's hypotheses are reported in this chapter along with additional findings of importance. Reporting of the findings begins with a comprehensive view of the demographic characteristics of the 103 African-American female participants and their male partners. An in-depth look at participant scores for each major variable and responses for items of particular interest are presented. Significant and non-significant findings are reported for discussion along with their implications in the subsequent section.

Recruitment and Screening of Participants

The metropolitan Atlanta, Georgia community was used as the backdrop for participant recruitment activities. Recruitment sites included universities, colleges, clinics, churches, local businesses and corporations, and hospitals. A variety of recruitment techniques were utilized, such as study flyers, email communications, and a snowballing technique. All women who expressed interest in this study were screened according to the study eligibility criteria. One hundred and forty-six women expressed

interest in participation and completed the screening process for this study. However, 10 women were ineligible due to having a female partner as opposed to the requisite male partner, 6 women reported that their male partners had a change of heart regarding participation, 5 women declared that they were pregnant during the screening process, and 22 women were excluded due to failure to complete the required study protocol materials during the designated recruitment time-frame. As a result, 103 African-American women and their African-American male partners participated in this study, with a total sample of 206.

Data Analysis Procedures

Data for the 206 study participants were analyzed using the Statistical Program for the Social Sciences (SPSS) 16.0 version software (2007). Each statistical hypothesis was tested based on a 0.05 significance level. Reliability statistics that were calculated in the sample are reported in the presentation of the specific instruments in chapter 3. Normal probability plots, Box whisker plots, stem and leaf plots and histograms were assessed along with skewness and kurtosis statistics to identify outliers and normality of data. Scatter plots were created to explore the relationships between variables. No outliers were found. Means, standard deviations, analysis of variance, reliability analyses, multiple linear regression, chi-square and Spearman's Rho and Pearson's Product Moment correlations were analyzed according to the nature of the data and specified aims and hypotheses. Missing data were deemed minimal as nearly all participants provided answers for key variables. Individual analyses required for the examination of each hypothesis were detailed in the previous chapter and will be revisited in the current one as results are presented.

Description of the Sample

The final sample for the study was 206 participants. The sample consisted of 103 premenopausal women between the ages of 18 and 45, who self-identified as African-American, and 103 male partners. A comprehensive account of the demographic characteristics for the female and male participants is presented in Tables 1 and 2.

Description of the Female Participants

The average age of the female participants was 31.88 years with a standard deviation of 6.45 years. The sample was relatively well-educated with the average female participant having received at least an associate's degree and 61.8% of the sample having received a baccalaureate degree or higher.

Table 1. Education, Income, Employment and Size of City of Origin of Female and Male Participants (n = 206).

Demographic Characteristics	Females		Males	
	f	%	*f*	%
Educational Level				
12th grade	2	1.9	15	14.6
Vocational or trade school diploma	9	8.7	9	8.7
At least 1 year junior or senior college	24	23.3	32	31.1
Associate's Degree	4	3.9	0	0
Baccalaureate degree	35	34.0	28	27.2
Master's degree	22	21.4	14	13.6
Doctorate or law degree	6	5.8	4	3.9
Subtotal	102	99.0	102	99.0
Missing	1	1.0	1	1.0
Total	103	100	103	100
Annual Family Income Level				
$10,000 or less	1	1.0	0	0
$10,001 to $20,000	7	6.8	7	6.8
$20,001 to $30,000	12	11.7	6	5.8
$30,001 to $40,000	14	13.6	11	10.7
$40,001 to $50,000	12	10.7	11	10.7
$50,001 to $75,000	22	21.4	25	24.3
$75,001 to $100,000	19	18.4	19	18.4
More than $100,000	17	16.5	23	22.4
Subtotal	103	103	102	99.0
Missing	0	0	1	1.0
Total	103	100.0	103	100.0

Table 1 cont'd. Education, Income, Employment and Size of City of Origin of Female and Male Participants (n = 206).

Demographic Characteristics	Females		Males	
	f	%	*f*	%
Employment Classification				
Professional Executive	35	34.0	35	34.0
Business manager/Administration	19	18.4	15	14.6
Clerical/sales	24	23.3	7	6.8
Skilled labor	15	14.6	30	29.1
Semi-skilled labor	2	1.9	3	2.9
Unskilled labor	1	1.0	5	4.9
Not Applicable	7	6.8	6	5.8
Total	103	100	101	98.1
Missing	0	0	2	1.9
Total	103	100	103	100
Population of City of Origin				
10,000 or less	7	6.8	7	6.9
10,001 to 25,000	8	7.8	7	7.9
25,001 to 50,000	9	8.7	7	6.9
50,001 to 100,000	19	18.4	10	9.7
100,001 to 200,000	10	9.7	16	15.5
200,001 to 500,000	10	9.7	14	13.6
500,001 to 1 million	17	16.5	12	11.7
Over 1 million	23	22.3	29	28.2
Total	103	100%	102	100%

Table 2. Age and Domestic Characteristics of Participants (n = 206).

Demographic Characteristics	Females	
	f	%
Marital Status		
Married	57	55.3
Domestic partner	4	3.9
Single	38	36.9
Divorced/separated	4	3.9
Total	103	100%
Living Arrangements	n	Percent
Live alone	32	31.4
Live with spouse	54	52.9
Live with domestic partner	7	6.7
Live with children	8	7.8
Live with parents	1	1.0
Missing	1	
Total	102	100%
	Mean (SD)	Range
Length of Marriage (years)	8.1 (9.0)	0.1 - 35.0
Length of Living Arrangements (years)	7.2 (6.9)	0.2 - 28.0
African-American Woman's Age	31.9 (6.5)	21 - 44
Male Partner's Age	34.7 (7.7)	21 - 60

The reported family income was fairly well distributed among the categories with a modal gross income ranging from $50,001 to $75,000 annually and 58% of total female participants reporting a total family income of more than $50,001 annually. Family income is reported in Table 1. Additionally, the majority of the female participants were employed with an occupation classified as professional/executive, business manager/administration or clerical/sales. Approximately 70% of the females had a relatively high employment classification.

An examination of the city of origin for the female participants as indicated in Table 1 shows that the majority of them, approximately 58%, came from a mid to large

size city with a population of 50,001 or more inhabitants. Most participants, roughly 79%, indicated that they came from a city or suburban setting.

Description of Male Participants

The male participants consisted of 103 men between the ages of 18 and 65 who all self-identified as African-American. The average age of the male participants was 34.7 years with a standard deviation of 7.7 years. The sample of males was also relatively well-educated with the average male participant having received at least 1 year of junior or senior college, approximately 75.8% of the male sample.

Since about 40% of the couples did not live together, family income levels of male partners are reported separately from their female counterparts. The reported family income for males was fairly well distributed among the categories as evident by a modal gross income ranging from $50,001 to $75,000 annually, with 58% of total male participants reporting a total family income of more than $50,001 annually. Additionally, the majority of the male participants were employed with an occupation classified as professional/executive, business manager/administration clerical/sales or skilled labor. Approximately 55% of the males had a relatively high employment classification with 30% classified as skilled labors (See Table 1). An examination of the city of origin for the male participants revealed that the majority or approximately 79% came from a mid- to large-size city with a population of 50,001 or more inhabitants. Most male participants, roughly 75%, indicated that they came from a city or suburban setting. The marital status and living arrangements of the participants varied widely as presented in Table 2. The related demographic characteristics are presented in Table 4. Approximately 55% of the couples were married with 37% single. Similarly 53% of the participants resided with

their spouse with 31% living alone. Although nearly 8% of the sample had a domestic partner or was divorced/separated, many of the participants classified themselves as living with their children or domestic partner. The participants were involved in relationships for relatively long periods of time, indicating significant longevity within the relationships regardless of marital status or living arrangements. Relationships spanned an average of 8 years and domestic living arrangements for more than 7 years. Approximately 40% of participants either lived alone, with children or with parents. A large amount of the female and male participants were not married and lived separately.

In summary, the female and male samples were generally well-educated, had family incomes over $50,000 per year, grew up in cities or suburban areas, and had been in their current relationship or lived together an average of 7 to 8 years.

The sample means and standard deviations, along with the actual and potential range of scores, of the cultural factors and indicators of weight (BMI and waist-hip ratio) are presented in Table 3.

Table 3. Cultural Factors and Weight Indicators - Sample Means (SD, Range of Scores, and Cronbach's Alpha (n = 103).

	Mean (SD)	Actual Range of scores	Potential Range of Scores	Number of Items	α
BMI	30.27 (11.24)	-	-		
Waist–hip Ratio	.78 (.07)	-	-		
Self-efficacy Related to Diet (Hickey Cardiac Diet Self-Efficacy Instrument)	56.17 (14.54)	19-80	16-80	16	.95
Self-efficacy Related to Physical Activity (Hickey Cardiac Exercise Self-Efficacy Instrument)	43.01 (120.67)	18-60	12-60	12	.90
Male Significant Other Perceptions of Body Image (Partner Perceptions of a Woman's Weight Scale)	33.62 (3.22)	25-42	11-55	11	.84
Female Perceptions of Body Image (Coverson Weight Perceptions and Control – Self-Image in Relation to Weight Subscale)	45.22 (10.84)	23-70	15-75	15	.85
Depression (CES-D)	8.74 (8.08)	0-45	0-60	20	.88
Future Time Perspective (Heimberg Future Time Perspective Inventory)	134.15 (17.52)	68-161	25-175	25	.84
Health Beliefs about Weight and Weight Control (Coverson Beliefs Regarding Weight Scale Total Score)	250.22 (26.19)	168-301	69-345	69	.91

Results of Data Analysis

Results of data analyses for each of the study hypotheses are presented in this section. Data were checked for violations of assumptions before performing all statistical tests. All data were normally distributed; therefore, Pearson's correlations were computed to examine the relationships between continuous variables. Spearman's Rho correlations were computed to address nominal and ordinal variables. Correlations were examined using a one-tailed approach where directional relationships were hypothesized. Findings of the hypotheses are organized and presented according to their associated major aims. Each of the four aims and related hypotheses are restated prior to presenting their associated results to enhance clarity.

Aim 1

Aim 1: To explore the relationships among cultural factors and BMI and waist-hip ratio in African-American women. Findings are presented in Table 4.

Hypothesis 1**:** There will be a negative relationship between income and education (social organization factors) and body mass index (BMI) and waist-hip ratio; and there will be a positive relationship between family history of obesity (a social organization factor) with BMI and waist-hip ratio in African-American women.

General guidelines for the interpretation of correlations are as follows: less than 0.25 indicates little if any relationship; 0.25 to 0.49 suggests low to fair; 0.50 to 0.69 moderate; 0.70 to 0.89 suggests a high or strong relationship; and greater than 0.90 suggests a very high or excellent relationship (Munro, 2001). The findings for Hypotheses 1 through 4 and research question 1 are presented in Table 4. Spearman's Rho correlations were conducted to examine the relationships between income, education, and

family history of obesity with BMI and waist-hip ratio. A significant negative relationship was found between education and BMI as well as education and waist-hip ratio. Hence, as the woman's education increased, the woman's BMI and waist-hip ratio decreased. A significant positive relationship was found between income and waist-hip ratio. As income increased, waist-hip ratio increased.

Hypothesis 2: There will be a negative relationship between health beliefs about weight and weight control, and self-efficacy related to diet and physical activity (environmental control factors) and BMI and waist-hip ratio; and, a positive relationship between male significant other perceptions of body image (an environmental control factor) with BMI and waist-hip ratio in African-American women.

Pearson's correlation analysis was conducted to assess the relationship between health beliefs about weight and weight control, and self-efficacy related to diet and physical activity with BMI. Significant negative relationships were found between self-efficacy related to diet and physical activity and waist-hip ratio. As self-efficacy for diet and physical activity increased, the woman's waist-hip ratio decreased. The male significant other's perceptions of the woman's body image was found to have a significant negative association with BMI. Thus as the male significant other's perceptions of the woman's body image increased, the woman's BMI decreased.

Hypothesis 3: There will be a positive relationship between the African-American woman's past history of depression, family history of depression, and age with BMI and waist-hip ratio (biologic variation variables) in African-American women.

Spearman's correlation analyses were performed to assess the relationship between the African-American woman's past history of depression, family history of

depression, and BMI and waist-hip ratio. The relationship between age, BMI and waist-hip ratio was analyzed using Pearson's correlations. No significant relationships were found.

Hypothesis 4: There will be a negative relationship between future time perspective with BMI and waist-hip ratio in African-American women.

Pearson's correlation analyses were performed to examine the relationships between future time perspective and BMI with waist-hip ratio. Future time perspective was found to have a significant negative relationship with waist-hip ratio in African-American women. Therefore, as future time perspective increased, waist-hip ratio decreased.

Research Question 1: What is the relationship between the age of the African-American woman's male partner with the male partner's perception of the African-American woman's body image and the African-American woman's BMI and waist-hip ratio?

Pearson's correlation analyses were performed to examine the relationship between the age of the African-American woman's male partner, the male partner's perception of body image and BMI, as well as waist-hip ratio. The male partner's age was found to have a significant positive correlation with BMI. Therefore, as the male partner's increased, so did his partner's BMI. However there was a significant inverse relationship between the male's perception of his partner's body image and BMI as noted for Hypothesis 2. The correlation between the male partner's age and his perceptions of his partner's body image was found to be non-significant ($r = -.154$, $p = .125$)

Table 4. Correlations for Cultural Factors, Weight (BMI) and Waist-Hip Ratio (Pearson's / Spearman's Rho Correlations) (n=103).

	Weight (BMI)	p-value	Waist-Hip Ratio	p-value
Income (S)	.13	.09	.17	**.039**
Education (S)	-.19	**.03**	-.25	**.01**
Age (P)	.14	.09	-.025	.40
Family History of Obesity (S)	-.06	.29	-.04	.35
Health Beliefs about Weight and Weight Control (P)	.10	.15	-.03	.39
Self-Efficacy Related to Diet (P)	-.03	.39	-.27	**.003**
Self-Efficacy Related to Physical Activity (P)	-.01	.44	-.35	**.0001**
Male's Perception of Partner's Body Image	-.31	**.001**	-.07	.24
AAW Past History of Depression (S)	.03	.37	-.06	.27
Family History of Depression (S)	.04	.33	.10	.15
Future Time Perspective (P)	-.12	.12	-.25	**.006**
Male Partner's Age (P)	.32	**.001**	.04	.34

Note. Significant p-values are in bold print.

Aim 2

Aim 2: To explore the relationship between cultural factors and perceptions of body image in African-American women. Findings related to Aim 2 are presented in Table 5.

Hypothesis 5: There will be a negative relationship between income and education and perceptions of body image: and, a positive relationship between family history of obesity and perceptions of body image in African-American women.

Spearman's correlations were utilized to examine the relationships between income, education, and body image. No significant relationships were found among any of the variables.

Hypothesis 6: There will be a negative relationship between health beliefs about weight and weight control, self-efficacy related to diet and physical activity, and perceptions of body image; and, a positive relationship between the male's perceptions of his partner's body image.

Pearson's correlation analyses were conducted to assess the relationship between health beliefs about weight and weight control, self-efficacy for diet and exercise, partner perceptions of weight and perceptions of body image. A significant negative relationship was found between health beliefs about weight and weight control and perceptions of body image. As the females' health beliefs about weight and weight control increased, her perceptions of body image decreased. A significant positive relationship was found between the male's perceptions of his partner's body image and the female's perceptions of body image. As male's perceptions of his partner's body image increased, so did the female's perception of her own body image.

Hypothesis 7: There will be a negative relationship between age, family history of depression, and the woman's past history of depression and perceptions of body image in African-American women.

Spearman's correlation analyses were performed to assess the relationship between the woman's past history of depression, family history of depression, and perceptions of body image. The relationship between age and perceptions of body image

was analyzed using Pearson's correlations. Non-significant relationships were found among the variables

Research Question 2: What is the relationship between future time perspective and perceptions of body image in African-American women?

Pearson's correlation analysis was performed to examine the relationship between future time perspective and perceptions of body image and a non-significant relationship was found.

Table 5. Correlations for Cultural Factors & Perceptions of Body Image (Pearson's / Spearman's Rho Correlations) (n = 103).

	The Females Perceptions of Her Own Body Image	p-value
Income (S)	-.13	.09
Education (S)	.10	.15
Age (P)	-.05	.31
Family History of Obesity (S)	.12	.12
Health Beliefs about Weight and Weight Control (P)	-.30	**.001**
Self-Efficacy Related to Diet (P)	.06	.28
Self-Efficacy Related to Physical Activity (P)	.04	.34
Male's Perceptions of His Partner's Body Image (P)	.16	**.05**
AAW Past History of Depression (S)	-.02	.41
Family History of Depression (S)	.03	.39
Future Time Perspective (P)	.07	.27

Note. Significant p-values are in bold print.

Aim 3

Aim 3: To explore the cultural factors as predictors of BMI and waist-hip ratio and depression in African-American women with perceptions of body image as a moderating variable.

Research Question 3: What is the nature of the relationships among cultural factors, perceptions of body image, BMI, waist-hip ratio, and depression in African-American women?

Pearson's correlations were examined to assess the nature of the relationship between depression and the various cultural factors, perceptions of body image, BMI, and waist-hip ratio. Findings are presented in Table 6. Significant relationships were found between depression and education, health beliefs about weight and weight control, self-efficacy related to diet and physical activity, future time perspective, and waist-hip ratio in African-American women as evident by the significant Pearson's correlations. Depression was significantly negatively associated with education. As education increased, depression decreased. A significant negative association was found between depression and health beliefs about weight and weight control. As the African-American woman exhibited more positive health beliefs about weight and weight control, depression decreased. A negative significant relationship was found between depression and self-efficacy for diet and physical activity indicating that as self efficacy for diet and physical activity increased, depression decreased. Future time perspective was found to have a significant negative relationship with depression indicating that as African-American women were found to have more of a future time perspective, the level of depression

decreased. As waist-hip ratio increased, so did levels of depression as evidenced by the significant positive relationship.

Table 6. Correlations among Depression and Cultural Factors, Perceptions of Body Image, BMI and Waist-Hip Ratio (Pearson's / Spearman's Rho Correlations) (n = 103).

	Depression	p-value
Income (S)	-.10	.17
Education (S)	-.27	**.004**
Age (P)	-.09	.18
Family History of Obesity (S)	.10	.17
Health Beliefs about Weight and Weight Control (P)	-.27	**.003**
Self-Efficacy Related to Diet (P)	-.23	**.01**
Self-Efficacy Related to Physical Activity (P)	-.40	**.0001**
Male's Perceptions of His Partner's Body Image (P)	.14	.08
AAW Past History of Depression (S)	-.09	.19
Family History of Depression (S)	.10	.16
Future Time Perspective (P)	-.53	**.0001**
Male Partner's Age (P)	-.11	.14
BMI (P)	.01	.47
Waist-Hip Ratio (P)	.25	**.006**
Body Image	.06	.29

Note. Significant p-values are in bold print.

***Hypothesis 8*:** Social organization factors, environmental control, future time perspective, and biological variations will predict BMI and waist-hip ratio in African-American women with perceptions of body image as a moderating variable.

Individual hierarchical regression analyses were conducted to test the predictive ability of the various cultural factors on BMI. Only factors significantly correlated with BMI were entered into the regression analyses. These factors included the male partner's age, the partner's perception of a woman's weight, the motivation for weight loss physical (a subscale of the Coverson Beliefs Regarding Weight scale), education and body image. The interaction terms were highly correlated with the corresponding singular independent variables in the regression equation, possibly creating problems with assessing the relative importance of main effects and interaction effects. In an effort to reduce multicollinearity, centered variables were utilized – a transformation where the mean was subtracted from each datum. The results of the regression are listed in Table 8. Interaction terms were added as independent variables to the model to incorporate the joint effect of partner perceptions of women's weight and body image, the male partner's age and body image, education and body image and motivation for weight loss physical and body image (the independent variables) on BMI (the dependent variable) over and above their separate effects on BMI.

Step 1 with the male partner's age, the partner's perception of a woman's weight, motivation for weight loss physical, education, and body image as independent variables accounted for 36.1% of the variance in the model with BMI as the dependent variable. The standardized Beta's indicate the relative influence of the variables in the model with the partner's perceptions of women's weight (β =-.17, p=.038); male partners age (β =.25,

p=.002); motivation for weight loss physical activity (β =.23, p=.047); perceptions of body image (β =-.29, p=.005); and education (β =-.22, p=.005) all significantly influencing BMI. When Step 2, which introduced the interaction terms of the partner's perceptions of women's weight x body image, the male partner's age x body image, education x body image and motivation for weight loss physical x body image, was computed, the R^2 change in the model indicated that 16% of the variance in BMI was explained, for an overall R^2 of 52.1% for the full model. The change in the model with the introduction of the interaction term between the male partner's age and body image indicated this interaction term significantly influenced BMI (β =-.29, p=.0001). The model inclusive of the singular independent variables (partner's perceptions of women's weight, male partner's age, motivation for weight loss physical, education, and perceptions of body image) and the male partner's age x body image interaction term significantly predicted BMI. Hypothesis 8 was partially supported with body image moderating the effect of the male partners age on the African-American woman's BMI (See Table 7).

Table 7. Summary of Multiple Hierarchical Regression Analysis for Variables Predicting BMI in African-American Women (n=100).

Variable	B	SE B	β	p Value
Step 1				
Partner's Perceptions of Woman's Weight (PPW)	-.53	.27	-.15	**.055**
Male Partner's Age (MPA)	.43	.11	.29	**.0001**
Motivation for Weight Loss Physical (MWLP)	.61	.31	.21	**.054**
Perceptions of Body Image (BI)	-.29	.10	-.28	**.005**
Education (E)	-1.6	.57	-.22	**.005**
Step 2				
PPW x BI	.04	.03	.13	.160
MPA x BI	-.04	.01	-.29	**.0001**
MWLP x BI	-.03	.02	-.12	.176
E x BI	.08	.05	.12	.121

Note. $R^2 = .361$ for step 1 ($p<.001$); $\Delta R^2 = .160$ for step 2 ($p<.001$). Significant p-values are in bold print. Beta coefficients for the variables in Step 1 represent the final model inclusive of the interaction terms.

Individual hierarchical regression analyses were also conducted to test the predictive ability of the various cultural factors on waist-hip ratio. Only factors significantly correlated with waist-hip ratio were entered in the regression analyses. These factors were inclusive of depression, self-efficacy related to physical activity, self-efficacy related to diet, future time perspective, barriers to weight loss (nutrition), self-efficacy for physical activity for weight loss, motivation for weight loss physical, income, education, and perceptions of body image. In an effort to reduce multicollinearity, centered variables were utilized. The results of the regression are listed in Table 8. Interaction terms were added as independent variables to the model to incorporate the joint effect of depression, self-efficacy related to physical activity, self-efficacy related to diet, future time perspective, barriers to weight loss (nutrition), self-efficacy for physical activity for weight loss, motivation for weight loss physical, income and education (the independent variables) on waist-hip ratio (the dependent variable) over and above their separate effects on waist-hip ratio.

Step 1 with depression, self-efficacy related to exercise, self-efficacy related to diet, future time perspective, barriers to weight loss (nutrition), self-efficacy for physical activity for weight loss, motivation for weight loss physical activity, perceptions of body image, income, and education as independent variables accounted for 29.6% of the variance in the model with waist-hip ratio as the dependent variable. The standardized Beta's indicate the relative influence of the variables in the model with depression, self-efficacy related to exercise, self-efficacy related to diet, future time perspective, barriers to weight loss (nutrition), self-efficacy for physical activity for weight loss, and motivation for weight loss physical, income and education. Self-efficacy related to

physical activity (β = -.39, p=.019) and body image (β = -.36, p=.012) were the only independent variables to significantly predict waist-hip ratio. When Step 2, which introduced the interaction terms of the depression x body image, self-efficacy related to physical activity x body image, self-efficacy related to diet x body image, future time perspective x body image, barriers to weight loss (nutrition) x body image, self-efficacy for physical activity for weight loss x body image, income x body image, education x body image, and motivation for weight loss physical x body image, was computed, an insignificant R^2 change was noted in the model indicating that only 11% of the variance in BMI was explained, for an overall R^2 of 40.6% for the full model. The model which included only the singular independent variables depression, self-efficacy related to physical activity, self-efficacy related to diet, future time perspective, barriers to weight loss (nutrition), self-efficacy for physical activity for weight loss, income, education, perceptions of body image, and motivation for weight loss physical significantly predicted BMI. Hypothesis 8 was not supported because body image did not moderate the effect of any cultural factors on the African-American women's waist-hip ratio.

Table 8. Summary of Multiple Hierarchical Regression Analysis for Variables Predicting Waist-Hip Ratio in African-American Women (n = 103).

Variable	B	SE B	B	p Value
Step 1				
Depression (CES-D)	.001	.001	.13	.247
Self-Efficacy Related to Physical Activity (SERPA)	-.003	.001	-.39	**.019**
Self-Efficacy Related to Diet (SERD)	.0001	.001	.078	.608
Future Time Perspective (FTP)	.0001	.001	-.08	.517
Barriers to weight loss (nutrition) (BWLN)	.001	.002	.10	.459
Self-Efficacy for Physical Activity for Weight Loss (SEPAW)	.002	.001	.152	.257
Motivation for Weight Loss Physical (MWLP)	-.004	.003	-.189	.178
Perceptions of Body Image (BI)	-.002	.001	-.361	**.012**
Income (I)	.008	.004	.201	.075
Education (E)	-.009	.005	-.19	.088
Step 2				
CESD x BI	.0001	.0001	-.20	.112
SERPA x BI	-5.97	.0001	-.09	.618
SERD x BI	.0001	.0001	-.30	.056
FTP x BI	-2.28	.0001	-.06	.623
BWLN x BI	.0001	.000	-.19	.121
SEPAW x BI	2.87	.0001	.03	.844
MWLP x BI	.0001	.000	.15	.216
I x BI	.0001	.0001	.075	.497
E x BI	.0001	.0001	-.11	.302

Note. R^2 = .296 for step 1 (p<.001); ΔR^2 = .110 for step 2 (p<.207). Significant p-values are in bold print. Beta coefficients for the variables in Step 1 represent the final model inclusive of the interaction terms.

Hypothesis 9: Social organization factors, environmental control, future time perspective, and biological variations will predict depression in African-American women with perceptions of body image as a moderating variable.

Individual hierarchical regression analyses were also conducted to test the predictive ability of the various cultural factors on depression in African-American women. Only factors significantly correlated with depression were entered into the regression analyses. These factors were waist-hip ratio, self-efficacy related to physical activity, self-efficacy related to diet, beliefs regarding weight, future time perspective, and perceptions of body image. In an effort to reduce multicollinearity, centered variables were utilized. The results of the regression are listed in Table 9. Interaction terms were added as independent variables to the model to incorporate the joint effect of waist-hip ratio, self-efficacy related to physical activity, self-efficacy related to diet, beliefs regarding weight, future time perspective, and perceptions of body image (the independent variables) on depression (the dependent variable) over and above their separate effects on depression.

Step 1 with waist-hip ratio, self-efficacy related to physical activity, self-efficacy related to diet, beliefs regarding weight, future time perspective, and perceptions of body image as independent variables accounted for 37.8% of the variance in the model with depression as the dependent variable. The standardized Beta's indicate the relative influence of the variables in the model with waist-hip ratio, self-efficacy related to physical activity, self-efficacy related to diet, beliefs regarding weight, future time perspective, and perceptions of body image. Self-efficacy related to physical activity (β =-.28, p=.042) and future time perspective (β =-.45, p=.0001) were the only independent

variables to significantly predict depression. Body image did not significantly contribute to the variance in the model. This is reflected in Table 9. When Step 2, which introduced the interaction terms of waist-hip ratio x body image, self-efficacy related to physical activity x body image, self-efficacy related to diet x body image, beliefs regarding weight x body image, future time perspective x body image, was computed, an insignificant R^2 change was noted in the model indicating that only 4.6% of the variance in depression was explained, for an overall R^2 of 42.4% for the full model. The model inclusive of only the singular independent variables, i.e., waist-hip ratio, self-efficacy related to physical activity, self-efficacy related to diet, beliefs regarding weight, future time perspective, and perceptions of body image significantly predicted depression. Hypothesis 9 was not supported. Body image was not found to be a moderating variable between any of the social organization, environmental control, future time perspective, and biologic variation factors and depression in African-American women.

Table 9. Summary of Multiple Hierarchical Regression Analysis for Variables Predicting Depression in African-American Women (n = 103).

Variable	B	SE B	B	p Value
Step 1				
Waist-Hip Ratio (WHR)	8.96	10.44	.08	.393
Self-Efficacy Related to Exercise (SERE)	-.21	.10	-.28	**.042**
Self-Efficacy Related to Diet (SERD)	.09	.07	.17	.179
Beliefs Regarding Weight	-.04	.03	-.12	.206
Future Time Perspective (FTP)	-.21	.04	-.45	**.0001**
Perceptions of Body Image (BI)	.08	.07	.11	.271
Step 2				
WHR x BI	-.94	.91	-.10	.303
SERE x BI	-.001	.01	-.02	.892
SERD x BI	-.003	.006	-.07	.592
BRW x BI	-.004	.003	-.13	.210
FTP x BI	-.005	.003	-.13	.137

Note. $R^2 = .378$ for step 1 ($p<.001$); $\Delta R^2 = .046$ for step 2 ($p<.211$). Significant p-values are in bold print. Beta coefficients for the variables in Step 1 represent the final model inclusive of the interaction terms.

The Coverson Beliefs Regarding Weight Scale is a 69-item scale with nine subscales: susceptibility, seriousness, benefits to weight loss (nutrition), barriers to weight loss (nutrition), self-efficacy for nutrition for weight loss, benefits to weight loss (physical activity), barriers to weight loss (physical activity), self-efficacy for physical activity for weight loss, and motivation for weight loss physical. Given that this is a new scale, the descriptive statistics for the subscale and total scores are presented in Table 10.

Table 10. Coverson Beliefs Regarding Weight Subscale Descriptive Statistics Mean Standard Deviation) and Range of Subscale Scores (n=103).

Subscale	Mean (SD)	Range	Cronbachs' Alpha	Number of Items
Susceptibility	36.61 (7.2)	9-45	0.92	9
Seriousness	33.91 (5.9)	8-40	0.94	8
Benefits to Weight Loss (Nutrition)	25.18 (4.9)	6-30	0.96	6
Barriers to Weight Loss (Nutrition)	23.28 (5.1)	8-40	0.76	8
Self-efficacy for Nutrition for Weight Loss	38.62 (6.7)	10-50	0.88	10
Benefits to Weight Loss (Physical Activity)	30.67 (4.1)	7-35	0.88	7
Barriers to Weight Loss (Physical Activity)	20.92 (5.1)	8-40	0.69	8
Self-efficacy for Physical Activity for Weight Loss	24.12 (6.6)	7-35	0.93	7
Motivation for Weight Loss Physical	16.94 (3.9)	6-30	0.54	6
Belief's Regarding Weight Scale Total Score	250.22 (26.2)	69 - 345	0.92	69

The Coverson Beliefs Regarding Weight Scale was developed a priori using a review of the literature and posteriori by conducting a concept analysis of weight, overweight and obesity. It is imperative to examine the nature of the associations the Coverson Beliefs Regarding Weight Scale subscales had with this study's weight-related measures (BMI and waist-hip ratio), along with depression, which was found to be significantly associated with waist-hip ratio. Note that the internal consistency reliability for the total scale is .92 and the subscale reliability coefficients are all above .76, except for motivation for weight loss physical which was .54. Findings are presented in Table 11.

The barriers to weight loss (nutrition) and motivation for weight loss (physical) both had a significant positive relationship with BMI indicating that as BMI increased, barriers to weight loss (nutrition) and motivation for weight loss physical activity also increased. Barriers to weight loss (nutrition), barriers to weight loss (physical activity), and motivation for weight loss physical all had a significant positive relationship with waist-hip ratio. As waist-hip ratio increased, so did barriers to weight loss (nutrition), barriers to weight loss (physical activity), and the African-American woman's motivation for weight loss physical. Self-efficacy for physical activity for weight loss has a significant negative relationship with waist-hip ratio indicating that as waist-hip ratio increases, self-efficacy for physical activity for weight loss decreased.

Depression was significantly correlated with most of the subscales including the total scale. Susceptibility, seriousness, barriers to weight loss (nutrition), self-efficacy for nutrition for weight loss, benefits to weight loss (physical activity), and self-efficacy for physical activity for weight loss all had a significant negative relationship with

depression. As depression increased, these subscales decreased. Barriers to weight loss (nutrition) and barriers to weight loss (physical activity) both had a significant positive relationship with depression indicating that as they increased, depression increased.

Table 11. The Relationship between the Coverson Beliefs Regarding Weight Scale Subscales, BMI, Waist-hip Ratio and Depression.

Variables	BMI	Waist-Hip Ratio	Depression
Susceptibility	.38	-.06	-.37**
Seriousness	-.01	-.12	-.36**
Benefits to Weight Loss (Nutrition)	-.04	-.01	-.11
Barriers to Weight Loss (Nutrition)	.17*	.29**	.29**
Self-efficacy Nutrition for Weight Loss	.09	-.08	-.31**
Benefits to Weight loss (Physical Activity)	-.14	-.13	-.17*
Barriers to Weight loss (Physical Activity)	-.04	.19*	.30**
Self-efficacy for Physical Activity for Weight Loss	.02	-.26**	-.28**
Motivation for Weight Loss Physical	.37**	.21*	-.03
Coverson Beliefs Regarding Weight Scale Total Score	.10	-.03	-.27**

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

Aim 4

Aim 4: To determine if there are differences in cultural factors, perception of body image and depression based on weight class in African-American women.

Hypothesis 10: There will be significant differences in cultural factors, perceptions of body image and depression based on the African-American woman's weight class (normal, overweight and obese).

Body mass index (BMI) was categorized as either normal weight, overweight or obese according to guidelines established by the CDC (2006). Chi square analysis was conducted to assess categorical variables according to weight class. Analysis of variance was conducted to examine the differences for continuous variables.

Marital status, education and income level were assessed in relation to weight class. Findings are presented in Table 12. Statistically significant mean differences in income level were found among the weight categories. Women in the overweight and obese categories were more likely to have income in the two highest income categories ($75,001 to $100,000 and More than $100,000) when compared to the normal weight category (χ^2 (14, N = 103) = 26.734, p=.02). Although mean differences for the other demographic characteristics were noted, statistically significant differences were not found. It is worth noting that overweight and obese African–American women had higher percentages of marriage than normal weight women. African-American women across all categories had high levels of education with approximately 60% of women in each category having an Associate's degrees or higher.

Table 12. Demographic Characteristics and Social Organization Factors by Weight Class.

	Normal	Overweight	Obese	N
Marital Status				
Single	41.9 % (13)	28.6% (10)	41.7% (15)	37.3% (38)
Domestic Partner	3.2 % (1)	2.9% (1)	5.6% (2)	3.9% (4)
Married	45.2 % (14)	65.7% (23)	52.8% (19)	54.9% (56)
Divorced/Separated	9.7 % (3)	2.9% (1)	0% (0)	3.9% (4)
Total	100% (31)	100% (35)	100% (36)	100% (102)
Education Level				
12th Grade	3.2% (1)	0% (0)	2.8% (1)	2.0% (2)
Vocational or trade school diploma	3.2% (1)	11.8% (4)	11.1% (4)	8.9% (9)
At least 1 year junior or senior college	25.8% (8)	17.6% (6)	25.0% (9)	22.8% (23)
Associate's degree	0% (0)	0% (0)	11.1% (4)	4.0% (4)
Baccalaureate degree	38.7% (12)	38.2% (13)	27.8% (10)	34.7% (35)
Master's degree	19.4% (6)	26.5% (9)	19.4% (7)	21.8% (22)
Doctorate or law degree	9.7% (3)	5.9% (2)	2.8% (1)	5.9% (6)
Total	100% (31)	100% (34)	100% (36)	100% (101)
Annual Family Household Income				
$10,000 or less	0% (0)	2.9% (1)	0% (0)	1.0% (1)
$10,001 to $20,000	19.4% (6)	0% (0)	2.8% (1)	6.9% (7)
$20,001 to $30,000	12.9% (4)	8.6% (3)	11.1% (4)	10.8% (11)
$30,001 to $40,000	6.5% (2)	14.3% (5)	19.4% (7)	13.7% (14)
$40,001 to $50,000	3.2% (1)	17.1% (6)	11.1% (4)	10.8% (11)
$50,001 to $75,000	35.5%(11)	11.4% (4)	19.4% (7)	21.6% (22)
$7 5,001 to $100,000	16.1% (5)	25.7% (9)	13.9% (5)	18.6% (19)
More than $100,000	6.5% (2)	20.0% (7)	22.2% (8)	16.7% (17)
Total	100% (31)	100% (35)	100% (36)	100% (102)

Note: The demographic variables are specific to the female participants.

Analysis of variance (ANOVA) and Tukey's post hoc analyses were performed to assess mean differences in biologic variation variables, i.e., age, waist circumference, hip circumference, waist-hip ratio and the male partner's age. The findings of these analyses are presented in Table 13. Although the mean age increased from the normal to obese categories for females and males, statistically significant differences were not found. The mean age for the African-American female normal, overweight and obese weight classes was 30.84 (s.d 6.82), 31.69 (5.91) and 33.11 (6.65), respectively. For the African-American male normal, overweight and obese weight classes, the mean ages were 33.20 (s.d 8.18), 34.59 (7.09) and 36.03 (7.81) respectively. Waist circumference, hip circumference, and waist-hip ratio mean differences significantly increased from the normal to obese weight class.

Chi-square analysis was also conducted to assess the biologic variation variables; the woman's past history of depression, family history of depression and family history of obesity. Significant differences were not seen among these variables. However, there was a noteworthy decrease in the family history of obesity as the African- American woman's weight class increased. There were few positive reports of a family history of depression, family history of obesity and an African-American woman's past history of depression for these women across all weight classes.

Table 13. Biologic Variation Descriptive Statistics of Women by Weight Class (n = 103).

	Normal (SD)	Overweight (SD)	Obese (SD)	χ^2 or F Values (sig)
Age	30.84 (6.82)	31.69 (5.91)	32.95 (6.64)	.923 (.401)
Waist Circumference	73.05 (5.19)	82.38 (7.08)	98.79 (18.40)	39.719 **(.0001)**
Hip Circumference	98.27 (5.41)	107.49 (5.39)	120.38 (15.95)	38.238 **(.0001)**
Waist-Hip Ratio	0.74 (0.05)	0.77 (0.06)	0.82 (0.09)	11.033 **(.0001)**
Male Partner's Age	33.20 (8.18)	34.59 (7.09)	36.03 (7.81)	1.11 (.334)
AAW Past History of Depression				
Yes	6.5% (2)	8.6% (3)	8.1% (3)	.112 (.945)
No	93.5% (29)	91.4% (32)	91.9% (34)	
Total	100.0% (31)	100.0 % (35)	100.0% (37)	
Family History of Depression				
Yes	25.8% (8)	20.6% (7)	21.6% (8)	.281 (.869)
No	74.2% (23)	79.4% (27)	78.4% (29)	
Total	100.0% (31)	100.0% (34)	100.0% (37)	
Family History of Obesity				
Yes	32.3% (10)	23.5% (8)	40.5% (15)	2.343 (.310)
No	67.7% (21)	76.5% (26)	59.5% (22)	
Total	100.0% (31)	100.00% (34)	100.00% (37)	

Note: df for all $\chi^2 = 2$. *df* for all F values = (2,100).

Analysis of variance and Tukey's post hoc analyses were performed to assess mean differences in environmental control variables, health beliefs about weight and weight control, self-efficacy related to diet, self-efficacy related to physical activity, the male significant other's perception of weight, body image, and depression. As the weight class of the female participants increased the mean difference in the male significant other's positive perception of weight significantly decreased $F(2, n = 102) = 3.121$, $p=.048$. Mean difference in the perceptions of body image of the female participants significantly decreased as the female's weight class increased $F(2, n = 102) = 35.970$, $p=.0001$.

Self-efficacy related to diet and physical activity were not significantly different across the weight classes, although the highest levels of self-efficacy are seen among the overweight participants. Self-efficacy related to diet increased as the woman's weight class increased. Future time perspective was highest in normal weight women, followed by obese then overweight women although mean differences were non-significant. The trend showed that health beliefs about weight and weight control were highest in obese women followed by overweight and normal weight women even though mean differences were non-significant. Although not significantly different, the highest levels of depression were found among the normal weight women followed by the obese women. Overweight women had the lowest levels of depression. The results of the analyses are presented in Table14.

Table 14. Environmental Control and Additional Factor Descriptive Statistics of Women by Weight Class (n = 103).

	Normal (SD)	Overweight (SD)	Obese (SD)	F Values (sig)
Health Beliefs About Weight and Weight Control	245.65 (29.94)	249.80 (22.94)	254.46 (25.75)	.961 (.386)
Self-efficacy Related to Diet	54.26 (16.45)	55.71 (15.70)	58.19 (11.54)	.637 (.531)
Self-efficacy Related to Physical Activity	42.94 (11.13)	43.06 (10.71)	43.03 (10.55)	.001 (.999)
Male Significant Other Perceptions of Weight	34.77 (2.49)	33.34 (3.66)	32.92 (3.14)	3.121 **(.048)**
Body Image	55.16 (10.01)	44.00 (7.63)	38.05 (7.42)	35.970 **(.001)**
Depression	9.74 (8.83)	7.17 (6.28)	9.37 (8.91)	1.012 (.367)
Future Time Perspective	135.68 (19.12)	132.40 (19.08)	134.51 (14.68)	.296 (.744)

Note: df for all F values = (2,100). Significant p-values are in bold print.

The nine subscales of the Coverson Beliefs Regarding Weight Scale were examined according to their mean differences stratified by the woman's weight class. Although ANOVA analyses revealed few significant mean differences, the trends are of particular importance. Motivation for weight loss physical was found to have significant mean differences which were highest in obese women followed by overweight then normal weight women. Mean self-efficacy for nutrition for weight loss and self-efficacy for physical activity for weight loss had the highest means among obese women, followed by normal weight and overweight women. Seriousness, benefits to weight loss (nutrition) and benefits to weight loss (physical activity) were all found to have the highest means among overweight women followed by obese then normal weight women. Susceptibility had the highest mean among obese women followed by overweight and normal weight women. Barriers to weight loss (nutrition) had the highest mean among normal weight then obese followed by overweight women. Barriers to weight loss (physical activity) had the highest mean among normal weight then overweight women followed by the obese. Analyses results are presented in Table 15.

Table 15. Beliefs Regarding Weight Subscale Descriptive Statistics by Weight Class (n = 103).

	Normal (SD)	Overweight (SD)	Obese (SD)	F Values (sig)
Susceptibility	34.97 (8.89)	37.20 (6.71)	37.43 (5.84)	1.178 (.312)
Seriousness	33.35 (7.13)	34.40 (5.09)	33.92 (5.50)	.257 (.774)
Benefits to Weight Loss (Nutrition)	24.29 (5.73)	26.09 (3.94)	25.08 (4.94)	1.119 (.331)
Barriers to Weight Loss (Nutrition)	23.35 (4.98)	23.23 (5.00)	23.27 (5.59)	.005 (.995)
Self-efficacy Nutrition for Weight Loss	38.48 (8.10)	37.46 (5.90)	39.83 (6.12)	1.142 (.323)
Benefits to Weight loss (Physical Activity)	30.74 (3.66)	30.91 (3.36)	30.38 (4.94)	.162 (.851)
Barriers to Weight loss (Physical Activity)	21.94 (5.12)	21.06 (5.26)	19.95 (5.00)	1.289 (.280)
Self-efficacy for Physical Activity for Weight Loss	24.19 (6.85)	22.29 (7.16)	25.78 (5.62)	2.569 (.082)
Motivation for Weight Loss (physical)	14.32 (3.97)	17.17 (3.39)	18.92 (3.17)	14.617 **(.0001)**
Health Beliefs about Weight and Weight Control (Total Score)	245.65 (29.94)	249.80 (22.94)	254.46 (25.75)	.961 (.386)

Note: *df* for all F values = (2, 100). Significant p-values are in bold print.

Additional Analyses

The Relationship between the African-American woman and her African-American male partner's perceptions of the African-American woman's ideal dress size, actual dress size and weight class.

Based on the conceptual model and a review of the literature, the concordance in perceptions of body image of the African-American woman and her male partner may be related to the weight class of the African-American woman. Additionally, a difference in the woman's actual versus ideal dress size and weight class may potentially serve as a motivator for her to take action to change her weight. Differences in the male's perceptions of his female partner's ideal and actual dress size, as well as how he classifies her weight may influence the way the African-American woman see's herself, and whether she might be motivated to change her weight.

The Female Perceptions of Weight and Dress Size Index was developed to examine the concordance between the African-American woman's perceptions of a woman's ideal dress size versus her self-reported dress size. It also examined her self-reported weight classification in relation to her perceived ideal and actual dress size in an effort to determine how congruent the woman's weight class is with her actual dress size. The Male Perception of Female Partner's Weight and Dress Size Index was also developed to examine the concordance between the African-American males perception of the African-American woman's ideal dress size versus his perception of her actual dress size. The scale also examined the African-American male's perception of his female partner's weight class versus his perception of her actual dress size.

Concordance scores for the female versus male perceptions of partner's ideal dress size, female versus male perceptions of partner's actual dress size, and the female versus male perceptions of partner's weight class variables were all computed by subtracting the male from the female scores. For the female ideal versus actual dress size and male ideal versus actual dress size, actual scores were subtracted from ideal scores. See table 16 for a list of computations specific to each concordance variable. Positive concordance scores of 1 indicate that the African-American female (1) perceives a larger dress size to be ideal as compared to male partner, (2) reports herself to wear a larger dress size than her male partner perceives her to wear, and/ or (3) perceives herself to be in a larger weight class than her male partner perceives. A concordance score of zero indicates that there is concordance or no difference between the woman's perceptions and her male partner's perceptions. Negative concordance of -1 indicates that the male (1) perceives a larger dress size to be ideal as compared to his female partner, (2) perceives his female partner to wear a larger dress size than she reports, and/ or (3) perceives his female partner to be in a larger weight class than she reports.

Table 16. Computations for Concordance Scores of Specific Concordance Variables.

Concordance Variables	Computation	Score Interpretation
Female Ideal versus Male Partner's Perceptions of Ideal Dress Size	Female Ideal minus Male Partner's Perceptions of Ideal Dress Size	-1: Male prefers a larger dress size than his female partner prefers. 0: Concordance between male and female preferred dress size. 1: Male prefers a smaller dress size than his female partner prefers.
Female Actual versus Male Perceptions of Partner's Actual Dress Size	Female Actual minus Male Perceptions of Partner's Actual Dress Size	-1: Male perceives partner to actually wear a larger dress size than she wears. 0: Concordance between male and female perceptions of the females actual dress size. 1: Male perceives partner to actually wear a smaller dress size than she wears.
Female versus Male Perceptions of Partner's Weight Class	Female minus Male Perceptions of Partner's Weight Class	-1: Male perceives partner to be in a larger weight class than she is in. 0: Concordance between male and female perceived weight class. 1: Male perceives partner to be in a smaller weight class than she is in.
Female Ideal versus Actual Dress Size	Female Ideal minus Actual Dress Size	-1: Female prefers a smaller dress size than what she actually wears. 0: Female wears her preferred dress size. 1: Female prefers a larger dress size than what she actually wears.
Male Ideal versus Partner's Actual Dress Size	Male Ideal minus Partner's Actual Dress Size	-1: Male prefers his female partner to wear a smaller dress size than she actually wears. 0: Male prefers his partner to wear her actual dress size. 1: Male prefers his female partner to wear a larger dress size than she wears

Note: Concordance variables are abbreviated as follows: Female Ideal versus Male Partner's Perceptions of Ideal Dress Size = FvM IDS; Female Actual versus Male Perceptions of Partner's Actual Dress Size = FvM ADS; Female versus Male Perceptions of Partner's Weight Class = FvM WC; Female Ideal versus Actual Dress Size = F IDSvADS; Male Ideal versus Partner's Actual Dress Size = M IDSvADS.

Based on the theoretical model and the review of the literature, the relationship between the African-American woman and her African-American male partner's actual weight class (BMI categorized as normal, overweight or obese) and their perceptions of the African-American woman's ideal dress size, and actual dress size were all examined using Spearman's correlations. The correlation matrix of the relationships between these concordance variables is presented in Table 17. The Correlations displayed were all evaluated using Spearman's Rho correlations for ordinal variables.

Multiple significant correlations were evident in the matrix. Male and female BMI were significantly positively correlated, indicating that as the male's BMI increased, his female partner's BMI increased. Female BMI was found to have a significant negative correlation with the female versus male partner's perceptions of ideal dress size, indicating that as the woman's dress size goes up so does her male's preference for a larger dress size. Female BMI was also found to have a negative correlation with the female's ideal versus actual dress size indicating that as the woman's BMI increased so did her preference for a larger dress size than she actually wears. Significant negative correlations between the female's BMI and the male's ideal versus his partner's actual dress size resulted and the male's BMI and the male's ideal versus his partner's dress size. This indicates that as the female's BMI increases, the male prefers that his female partner wear a larger size dress size than she actually does, as well as the woman. Heavier men want heavier women – if he is overweight, he wants his partner to be overweight and, heavier women want to be heavier.

Table 17. The Relationship between the African-American Woman and Her African-American Male Partner's Perceptions of the African-American Woman's Ideal Dress Size, Actual Dress Size, and Weight Class – Concordance Variables.

Variable	Female BMI	Male BMI	FvM IDS	FvM ADS	FvM WC	F IDSvADS	M IDSvADS
Female BMI	__	.21*	-.33**	-.10	.19	-.61**	-.51**
Male BMI		__	-.04	-.17	-.08	-.09	-.22*
FvM IDS			__	.25*	-.26*	.53**	-.09
FvM ADS				__	.28**	-.16	.26*
FvM WC					__	-.16	.26*
F IDSvADS						__	.59**
M IDSvADS							__

Note. BMI = Body mass Index. FvM = Female vs. Male. IDS = Ideal dress size. ADS = Actual Dress Size. WC = Weight class (normal, overweight, or obese), IDSvADS = Ideal dress size vs. Actual dress size. * $p < .05$; ** $p < .01$

As the female versus male partner's perception of ideal dress size went up so did the female versus male perceptions of actual dress size – as the male preferred the female to wear a bigger size, the female wore a bigger size. As the female versus male ideal dress size increases, the male partner perceived his female partner to be in a larger weight class than she was. As the male prefers a smaller weight class, the female partner was perceived to be in a larger weight class. His perceptions of differences between ideal and actual weight class are accurate. As the female versus male ideal dress size went up, the female was found to prefer a larger dress size than what she actually wore. When a female preferred a larger dress size than her partner, the female also preferred a larger dress size than she actually wore. This is consistent with conversations held with participants who expressed their desire to be a larger dress size due to familial pressures. Many of these women had high levels of depression related to the desires of their partner's and families for them to gain weight. As the female versus male actual dress size increases, so does the female versus male perceptions of weight class indicating that when the male perceives the partner to wear a smaller dress size than she did, then the male also perceived the partner to be in a smaller weight class.

A significant positive association was evident between the female versus male actual dress size and the male ideal versus actual dress size. When the female versus male perceptions of actual dress size increased, so did the male ideal dress size versus the actual dress size. Therefore, when the male partners preferred that his partner wear a smaller dress size than she did, then he also perceived his partner to wear a smaller dress size than he prefers. Female versus male weight class had a significant positive association with male ideal versus actual dress size indicating that the more the male

preferred that the female wear a larger dress size than she actually wore, the more the male perceived his partner to be in a smaller weight class. A significant positive association was noted between female ideal versus actual dress size and male ideal versus actual dress size. The more the male preferred that the female wear a larger dress size than she actually wore, then the female preferred a larger dress size than what she actually wore.

Chi square analyses were computed to determine if significant differences were present between the African-American woman and her male partner's perception of the ideal dress size, their perception of the African-American woman's actual dress size, and their partner's perception of the African-American woman's weight class (normal, overweight, or obese). Additionally, differences between the African-American woman's ideal and actual dress size were examined. Differences between African-American male partner's perception of the African-American woman's ideal and actual dress size were also examined. Findings are presented in Table 18.

Statistically significant differences were seen between the female and male ideal dress size. Fifty percent of normal weight African-American women prefer to wear a larger dress size than they actually wore followed by 22% of obese women and 19% of overweight women, respectively. The greatest concordance between the female and male preferred dress size was seen among approximately 64% of the overweight women and their male partners followed by more than 44% of women in the obese weight class and approximately 43% of the women in the normal weight class. Thus the greatest concordance was in the overweight group.

Table 18. Chi Square Analyses Concordance Analysis by Weight Class.

	Normal	Overweight	Obese	N	χ^2 Statistics
Female versus Male Partner's Perception of Ideal Dress Size (FvM IDS)					
-1	7.1% (2)	16.1% (5)	33.3% (9)	16	12.329 **(p = .015)**
0	42.9% (12)	64.5% (20)	44.4% (12)	44	
1	50.0% (14)	19.4% (6)	22.2%(6)	26	
Total	100%28	100% (31)	100% (27)	86	
Female Actual versus Male Perceptions of Partner's Actual Dress Size (FvM ADS)					
-1	10.7% (3)	6.5% (2)	18.5% (5)	10	2.314 (p = .678)
0	67.9% (19)	74.2% (23)	66.7% (18)	60	
1	21.4% (6)	19.4% (6)	14.8% (4)	16	
Total	100% (28)	100% (31)	100% (27)	86	
Female versus Male Perceptions of Partner's Weight Class (FvM WC)					
-1	17.9% (5)	6.5% (2)	3.7% (1)	8	5.306 (p = .257)
0	64.3% (18)	58.1% (18)	63.0% (17)	53	
1	17.9% (5)	35.5% (11)	33.3% (9)	25	
Total	100% (28)	100% (31)	100% (27)	86	

Note. df for all χ^2 values = 4. Significant p-values are in bold print.

Table 18 cont'd. Chi Square Analyses Concordance Analysis by Weight Class

	Normal	Overweight	Obese	N	χ^2 Statistics
Female Ideal versus Actual Dress Size (F IvADS)					
-1	14.3% (4)	51.6% (16)	74.1% (20)	40	35.389 **(p = .0001)**
0	28.6% (8)	38.7% (12)	25.9% (7)	27	
1	57.1% (16)	9.7% (3)	0% (0)	19	
Total	100% (28)	100% (31)	100% (27)	86	
Male Ideal versus Partner's Actual Dress Size (M IvADS)					
-1	12.9% (4)	42.9% (15)	67.6% (25)	44	24.389 **(p = .0001)**
0	64.5% (20)	48.6% (17)	32.4% (12)	49	
1	22.6% (7)	8.6% (3)	0% (0)	10	
Total	100% (31)	100% (35)	100% (37)	103	

Note. df for all χ^2 values = 4. Significant p-values are in bold print.

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Differences between the female and male perceptions of actual dress size were not statistically significant. For obese women, approximately 15% of the male partners perceive that their female partners wore a smaller size than they actually did. There was greater than 66% concordance across all weight classes indicating that regardless of weight classes, the females actually wear the dress sizes that their male partners perceive them to wear. The greatest concordance was found among more than seventy percent of female participants in the overweight class and their male partners. This means that most males had realistic perceptions of their female partner's weight and dress size.

Differences between male and female perceptions of weight class were not statistically significant. In all weight classes there was more than 60% concordance between the female and male perceptions of the African-American woman's weight class. However, more than 33% of male partners of women in the obese class and 35% of male partners in the overweight weight class saw them as being in a smaller weight class, followed by 17% of the male partners of normal weight women.

The female ideal versus actual dress size scores differed significantly across the weight classes. For the normal weight women, more than 57% of them wanted to wear a larger dress size than they actually wore. In essence, most of the normal weight women wanted to be larger than they really were. More than 38% of the female participants in the overweight category wore their preferred dress size. However, 74.1% of the obese women wan to wear a smaller dress size.

The male ideal versus actual dress size scores differed significantly across the weight classes. Although there was 64.5% concordance in the normal weight group, 22% of the women in the normal weight category had male partners that preferred their female

partners wear a larger dress size than they actually wore. More than 48% of the male participants in the female obese weight category exhibited concordance between the male's preferred dress size and the females actual dress size, while this was the case for 32.4% of the obese group.

Qualitative Comments Made by Participants That Amplify Findings

The African-American female participants were very involved and invested in this study which shed light on the culture of obesity in African-American women. The participants often made statements to the researcher, which were relevant to the study and written records of these statements were maintained. Examples of statements that have relevance to the study's findings are as follows:

"I have spent so many years unhappy with myself. I think I look normal, but my family say's I'm too thin."

"My family says you don't belong. You must have been adopted. You need to eat, you're too skinny."

"My husband told me he doesn't mind me being on the small side because when I have kids, I'll be just right."

"Even though I'm big, my husband never says anything to me about it. He's happy with me."

"I've gained so much weight. I don't know what happened to me. I really need to do something. I know he's not saying anything, but I need to do something about this. It's just too hard with work, kids and a new house."

Such statements provide further information regarding overweight and obesity in African-Americans and further shed light on cultural perspectives on the issue of overweight and obesity within families and society.

Summary

Various cultural factors had significant relationships with BMI, waist-hip ratio and depression as specified by the hypotheses. BMI had a negative significant association with health beliefs about weight and weight control. Waist-hip ratio had a significant negative relationship with education, self-efficacy related to exercise and diet, and future time perspective. Waist-hip ratio and the male partner's age had a significant positive relationship. Depression was found to have a significant negative relationship with education, health beliefs about weight and weight control, self-efficacy related to physical activity and diet and future time perspective. Depression and waist-hip ratio had a significant positive relationship.

Perceptions of body image significantly moderated the relationship between motivation for weight loss physical activity and BMI. Obese African-American women had the highest percentages of a past history of depression, family history of depression, and family history of obesity followed by overweight and normal weight women. Although not statistically significant, the African-American female and male's age increased as the weight class of the sample increased from normal weight to obese. The African-American female and male's perceptions of body image significantly decreased as the females weight class increased from normal weight to obese. As the Males BMI increases the females BMI increases significantly. The African-American woman's motivation to lose weight increases as her weight class increases.

Based on the additional analyses, female BMI was found to have a significant negative correlation with the female versus male ideal dress size, the female ideal versus actual dress size and the male ideal versus actual dress size. Male BMI and male ideal versus actual dress size demonstrated a significant negative correlation. Female versus male ideal dress size demonstrated a significant positive relationship with female ideal versus actual dress size as well as a significant negative relationship with female versus male actual dress size and a significant positive relationship with female versus male weight class. Significant positive associations were evident between the female versus male actual dress size and female versus male weight class and female versus male actual dress size and male ideal versus actual dress size. Female versus male weight class had a significant positive association with male ideal versus actual dress size. A significant positive association was noted between female ideal versus actual dress size and male ideal versus actual dress size. Statistically significant correlations were found between statistically significant differences were seen between the female versus male ideal dress size, female ideal versus actual dress size, and male ideal versus actual dress size.

CHAPTER V

Discussion, Conclusions, and Recommendations

This descriptive correlational study was developed to examine the conceptual underpinnings of body image, weight, and depression in African-American women. The interrelationships of various cultural factors, inclusive of environmental control, social organization, biologic variation and time, were examined in relation to body image, weight and depression. Additionally, the study explored the concordance between the perceptions of body image of the African-American woman and her African-American male partner, along with the influence that it has on the woman's weight. The Transcultural Assessment Model and the relevant literature were utilized as the basis for the conceptual framework that guided this study. This chapter provides a discussion of the study findings within the context of the conceptual framework and examines the study's strengths and limitations. Implications and recommendations for clinical practice, future research and policy are also provided.

Summary of the Research

A convenience sample of 103 African-American women and their African-American male partners (total n=206) was recruited from the Metropolitan Atlanta area to participate in this study. The sample was comprised of 31 normal weight, 35 overweight, and 37 obese women and their male partners. Participants were recruited from a variety of settings inclusive of community churches, businesses, college and university campuses, doctor's offices and beauty salons. The independent cultural variables under examination were categorized into four main factors: environmental control, social organization, biologic variation and time. The major variables categorized under

environmental control were health beliefs about weight and weight control, self-efficacy related to diet management and physical activity, and the male significant other's perceptions of his partner's weight. Social organization was comprised of the major variables, i.e., income, education and family history of obesity. Biologic variation variables were inclusive of the African-American woman's age, past history of depression, and family history of depression. Time was a major variable that represented the African-American woman's time perspective and temporal orientation. Depression was also examined as a major variable in this sample of African-American women. Other key variables under examination were the African-American woman and the male partner's perceptions of body image, along with the male partner's age. The dependent weight related variables utilized in the study were BMI, waist-hip ratio and weight class (normal, overweight and obese).

Additional analyses were conducted to examine the concordance between the African-American woman and her male partner's perceptions of the African-American woman's ideal dress size, actual dress size and weight class. Significant as well as non-significant findings are discussed as the nature of the relationships between the variables of interest and differences based on weight class were of particular importance. Table 19 summarizes the findings related to the study's hypotheses and research questions that were reported in Chapter IV.

Table 19. Summary of Significant Findings for Each Hypothesis and Research Question.

Hypotheses	Significant Findings
***Hypothesis 1*:** There will be a negative relationship between income and education (social organization factors) with weight (BMI) and waist-hip ratio: and, there will be a positive relationship between family history of obesity (a social organization factor) with weight and waist-hip ratio in African-American women.	Education and waist-hip ratio were found to have a significant negative relationship. Education and BMI were found to have a significant negative relationship. Income and waist-hip ratio were found to have a significant positive relationship.
***Hypothesis 2*:** There will be a negative relationship between health beliefs about weight, weight control, and self-efficacy related to diet and physical activity (environmental control factors) with weight and waist-hip ratio; and, a positive relationship between male significant other perceptions of weight (an environmental control factor) with weight and waist-hip ratio in African-American women.	Self-efficacy related to diet and waist-hip ratio was found to have a significant negative relationship. Self-efficacy related to physical activity and waist-hip ratio was found to have a significant negative relationship. Male significant other's perceptions of body image were found to have a significant negative association with BMI.
***Hypothesis 3*:** There will be a positive relationship between the African-American woman's past history of depression, family history of depression, and age with BMI and waist-hip ratio (biological variables) in African-American women.	Non-significant relationships were observed amongst these variables.
Hypothesis 4: There will be a negative relationship between future time perspective with BMI and waist-hip ratio in African-American women.	Future time perspective was found to have a significant negative relationship with waist-hip ratio in African-American women.
Research Question 1: What is the relationship between the age of the African-American woman's male partner with the male partner's perception of the African-American woman's body image, and the African-American woman's BMI and waist-hip ratio?	The male partner's age was found to have a significant positive correlation with the woman's BMI.

Hypothesis 5: There will be a negative relationship between income and education and perceptions of body image: and, a positive relationship between family history of obesity and perceptions of body image in African-American women.	Non-significant relationships were observed amongst these variables.
Hypothesis 6: There will be a negative relationship between health beliefs about weight and weight control, self-efficacy related to diet and physical activity and perceptions of body image: and, a positive relationship between the male's perceptions of his partners body image.	Health beliefs about weight and weight control were found to have a significant negative relationship with perceptions of body image. The male partner's perception of his female partner's body image was found to have a significant positive relationship with the female's perceptions of her own body image.
Hypothesis 7: There will be a negative relationship between age, family history of depression, and the woman's past history of depression and perceptions of body image in African-American women.	Non-significant relationships were observed amongst these variables.
Research Question 2: What is the relationship between future time perspective and perceptions of body image in African-American women?	A non-significant positive relationship was found between future time perspective and perceptions of body image.
Research Question 3: What is the nature of the relationships among cultural factors, perceptions of body image, BMI, waist-hip ratio, and depression in African-American women?	Depression and waist-hip ratio were found to have a significant positive relationship. Depression and education were found to have a significant negative relationship. Depression and health beliefs about weight and weight control were found to have a significant negative relationship. Depression and self-efficacy for diet and physical activity were found to have significant negative relationship. Depression and future time perspective were found to have a significant negative relationship.

Hypothesis 8: Social organization factors, environmental control, future time perspective, and biological variations will predict BMI and waist-hip ratio in African-American women with perceptions of body image as a moderating variable.	When perceptions of body image was considered as a moderating variable: The partner's perceptions of woman's weight, male partner's age, motivation for weight loss physical activity, the African-American woman's perception of body image and education all significantly predicted BMI. Self-efficacy related to physical activity and the African-American woman's perception of body image significantly predicted waist-hip ratio. The partner's perceptions of woman's weight and the African-American woman's perception of body image had a significant negative association with BMI. The male partner's age and the African-American woman's motivation for weight loss physical activity were significantly positively associated with BMI. Body image significantly moderates the relationship between the male partner's age and BMI with a negative association.
Hypothesis 9: Social organization factors, environmental control, future time perspective, and biological variations will predict depression in African-American women with perceptions of body image as a moderating variable.	When perceptions of body image was considered as a moderating variable: Self-efficacy related to exercise and future time perspective significantly predicted depression. Self-efficacy related to exercise and future time perspective had a significant negative association with depression.
Hypothesis 10: There will be significant differences in cultural factors, perceptions of body image and depression based on the African-American woman's weight class (normal, overweight and obese).	Obese women had the highest waist circumference followed by overweight and normal weight women.

	Obese women had the highest hip circumference followed by overweight and normal weight women. Obese women had the highest waist- hip ratio followed by overweight and normal weight women. Normal weight women's partners had the significantly highest scores for male significant other's perceptions of weight followed by overweight and obese women. Normal weight women had the significantly highest body image followed by overweight and obese women. Obese women had the significantly highest motivation for weight loss physical followed by overweight and normal weight women.
Additional Concordance Analyses	Significant Findings
The Relationship between the African-American woman and her African-American male partner's perceptions of the African-American woman's ideal dress size, actual dress size and weight class.	The African-American woman's BMI had a significant positive association with her male partner's BMI. The African-American woman's BMI had a significant negative association with the female ideal versus male partner's perception of ideal dress size, female ideal versus actual dress size and the male ideal versus actual dress size. The African-American male's BMI had a significant negative association with the male ideal versus partner's actual dress size. The female versus male ideal dress size had a significant negative association with the female versus male perceptions of partner's weight class.

	The female ideal versus male partner's perception of ideal dress size had a significant positive association with female actual versus male perceptions of partner's actual dress size and the female ideal versus actual dress size. The female actual versus male perceptions of partner's actual dress size had a significant positive association with female versus male perceptions of partner's weight class and male ideal versus partner's actual dress size. The female versus male perceptions of partner's weight class had a significant positive association with the male ideal versus partner's actual dress size. The female ideal versus actual dress size had a significant positive association with male ideal versus partner's actual dress size.
Concordance analyses between the African-American woman and her African-American male partner's perceptions of the African-American woman's ideal dress size, actual dress size and weight class.	Significant differences were found among the female versus male ideal dress size, female ideal versus actual dress size, and male ideal versus actual dress size based on the African-American woman's weight class.

Discussion of Findings

Obesity and Depression

A major underlying rationale for this study was that obesity and depression are problems of particular significance to African-American women who have an increased risk for related negative health outcomes such as hypertension, stroke, diabetes, cancer and a higher utilization of health care services (Field et al., 2001; Hill et al., 2005; Surgeon General, 2001; Dixon, Dixon, & O'Brien, 2003; Onyike, Crum, Lee, Lyketsos,

& Eaton, 2003; Surgeon General, 2001). There has been an ongoing debate regarding the role of culture in obesity and depression and the causal relationship between obesity and depression. Only about one-tenth (n=11) of the female participants in the current sample had significant moderate to high levels of depression.

Depression was found to have multiple significant relationships with various cultural factors and waist-hip ratio as hypothesized. Although depression is a key variable not accounted for by the TAM, these results are embedded within a broader discussion of culture and its influence on overweight and obesity. Very few women indicated that they had a family member with a history of depression, and only a few noted that they themselves had a past history or had been treated for depression. This may have contributed to some of the non-significant findings for this sample. Although the relationships among the African-American woman's past history of depression, family history of depression, the woman's age, BMI, waist-hip ratio and body image were found to be non-significant, the woman's current levels of depression had multiple associations with key variables.

As waist-hip ratio increased, so did depression in this sample which is consistent with studies done by Buddeberg-Fischer, Klaghofer, and Reed (1999); Dong, Sanchez, and Price (2004), Onyike et al., (2003); Siegel et al., (2000); Linde et al., (2004); Richardson et al., (2003); Kress, Peterson, and Hartzell, (2006); and Jasienska, Ziomkiewicz, Gorkiewicz, and Pajak, (2005). In direct contradiction to the study done by Onyike et al. (2003) which noted that the association between obesity and depression depends on the severity of the obesity, the highest levels of depression and family history of depression in the current study were seen among women in the normal weight class

followed by the obese and overweight class, although differences were not statistically significant. It must be noted here that normal weight women verbally expressed to the researcher that although they were happy with their body image, their depressive symptoms were due to the perceptions of their families and male partners of them as "being too thin," "unattractive" and/or "not belonging to their families". Unlike normal weight women, comments of obese women indicated depressive symptoms that were due to their self-perceptions as well as non-weight related pressures (such as balancing work, home life and children), even if their partners expressed satisfaction with their body size. As future time perspective increased in these women, depression decreased. African-American women with a present time orientation were less likely to engage in present time behaviors, such as diet and physical activity, which have future consequences and rewards (Yarcheski & Mahon, 1986). As confirmed by the findings in this study, present time orientation were associated with higher levels of depression and higher weights. Therefore, interventions and monitoring strategies focusing on helping African-American women make the connections between present behaviors and future outcomes are paramount to healthy weight-related success.

A significant negative association between depression and education indicated that as the levels of education decreased in this sample, depressive symptomotology increased. Higher levels of education are likely to equip women to better deal with the challenges of life most impacted by socioeconomic status. Unfortunately, African-Americans too often find themselves at the lower end of the socioeconomic continuum which may contribute to greater levels of stress and subsequent depression (Carrington, 1980; Warren, 1994b). Additionally, as health beliefs about weight and weight control

along with self efficacy for diet and physical activity increase, depressive symptomotology decreased in this sample. This behooves health care providers and other stakeholders, such as insurance companies, community businesses, churches, etc. to increase education in the form of awareness of the morbidity and mortality issues related to overweight and obesity in a culturally appropriate manner aimed at African-American women. To increase educational attainment, in terms of highest academic degrees attained, among African-American women is a long-term goal that may not be feasible or achievable in a short-time frame. However, to choose low hanging fruit such as educational methods to increase obesity related education, as well as health beliefs about weight and weight control and self-efficacy for diet management and exercise, which are all inextricably linked, would result in the positive outcomes which enable African-American women to engage in healthy weight loss behaviors and successful weight loss maintenance. It is imperative that these educational methods be focused and crafted towards the specific cultural needs of African-American women despite the lack of statistical data and clinical research on depression in this population as discussed by Barbee (1992) and McGrath et al. (1992). This may indirectly contribute to a shift in time perspective and orientation in African-American women, making weight loss and weight maintenance a present time priority with an understanding that delayed results and gratification lead to more positive and beneficial future health outcomes.

Implications of the Findings for the Transcultural Assessment Model (TAM)

The (TAM) purports that there is a relationship between social organization factors and weight. Therefore, the relationship between income, education, and family history of obesity and BMI and waist hip ratio were examined. It was found in this

sample of African-American women that as income levels increased, waist-hip ratio also increased. Conversely in previous literature, income was found to have a negative relationship with BMI indicating that as income decreases, BMI increases. Research conducted by Sobal and Stunkard (1989) and Diex-Rouz, Northridge, Morabia, Bassett and Shea (1999) found that African-American women, in particular, who most frequently live in poverty have the highest rates of obesity.

Socioeconomic Status

Most prior studies have used cumulative measures of socioeconomic status, with income and education combined as a single indicator of socioeconomic status. In this study, income and education were examined separately and education was positively associated with BMI and waist-hip ratio as expected, whereas this was not the case for income. In essence, the use of a cumulative measure in this study would have masked the fact that income, when considered alone was positively associated with higher weigh in African-American women. Income was found to have an opposite association with waist-hip ratio in this sample. Thus, as income increased so did waist-hip ratio.

Education has been reported to have a an inverse relationship with obesity (Sobal & Stunkard, 1989) with less educated women in developed societies exhibiting few normative constraints about body weight. Unlike the inverse relationship between income and body weight present in the literature, but not found in this study, an inverse relationship between education and BMI and waist-hip ratio was significantly supported by this study's findings. African-American women with higher levels of education were found to have lower BMIs and waist-hip ratios. It must be noted that there have been opposite findings in the literature reporting that for some African-American women,

weight disparities are highest among African-American and White women at the highest levels of education. In fact, Wesley and Powell's 2005 study found that African-American women do not seem to benefit from educational attainment when compared to White women, with the greater BMI disparities widening with increasing levels of education. Although the review of the literature results in conflicting findings regarding education and obesity, thoughtful consideration must be given to the education levels of African-American women as an explanation for their weights.

Family History of Obesity

An African-American woman's family history of obesity has a great bearing on her subsequent weight classification and this relationship is purported by the TAM. There is a familial tendency for obesity among African-American women where acceptance of a larger body size and disinhibited eating patterns are the norm (Lovejoy, 2001; Francis, Ventura, Marini, & Birch, 2007; Provencher et al., 2005, de Castro &b Lilenfield, 2005). Strong associations have been found among overweight African-American women and a family history of overweight, which results in a poorer health status (Gary, Gross, Browne and LaVeist, 2006). However, a significant correlation between the African-American woman's BMI or waist-hip ratio and her family history of obesity was not found in this study, which did not support the TAM. This could be partially due to the low percentages of a positive family history of obesity (32%) reported among these women. Only fifteen obese women, ten normal weight and eight overweight women reported a positive family history of overweight and obesity. It must be considered that many of the study participants may not have recognized family members or themselves for that matter as being overweight and obese, when according to BMI or waist-hip ratio,

they were technically classified as such. Therefore, the women's reports of family history of obesity may not have been accurate and may have been deflated. This idea is evident by the fact that only a few of the study participants (n = 2, or less than 2%) categorized themselves as obese, when more than one-third of this sample was actually classified as obese according to BMI.

The Woman's Perceptions of Her Body Image

Income and education also were examined in relation to the African-African women's perceptions of body image. Although historically in African ancestry heavier African-American women were viewed as being financially well endowed (Johnson & Broadnax, 2003), contemporary literature has found a significant inverse relationship between income, education, and obesity (Sobal & Stunkard, 1989). When perceptions of body image are examined specifically across weight classes, significant differences have not been found among African-American women in comparison to White women. Hebl and Hetherton (1989) concluded that African-American women rated thin, overweight and obese African-American women as similar on intelligence, job success, relationship success, and happiness, indicating no difference in characteristics attributed to women of lower weights. Conversely, White women indicated a distinct bias against overweight White women. African-American women, therefore, value larger weight classes as equivalent to normal and thin women. Similar to the findings of Hebl and Hetherton (1989), non-significant findings were found among the levels of income and education in relation to perceptions of body image in this study.

A non-significant relationship was also found between family history of obesity and perceptions of body image. In previous literature, the positive perceptions of the

African-American woman's body image have been found to be reinforced and defined by the attitudes of friends and relatives (Thompson, 1996; Kostanski & Gullone, 1998; Altabe & Thompson, 1992). As stated previously, the miniscule numbers of participants who classified themselves and family members as obese may account for the non-significant findings related to this hypothesis. An overarching familial acceptance of a larger African-American body size as ideal may still lead the African-American woman to resist social pressures to lose weight and attribute a positive self–definition to an overweight or obese classification despite this study's non-significant findings. Interestingly and intuitively, when examined according to weight classification, obese women had the highest family history of obesity followed by normal weight then overweight women. What was most surprising and unexpected was that the normal weight women had a greater family history of obesity than overweight women which may partially explain their higher levels of depression. These women may face greater pressures to gain weight or at least greater acceptance by a family of larger body shapes and could perceive extra weight to be the norm as found earlier by Lovejoy (2001).

The Male Partner's Perception of the Female's Body Image

In this study the male significant other's perceptions of his partner's body image decreased as the African-American woman's BMI increased, which contradicts the hypothesized relationship between these two variables. Although there is a paucity of research dedicated to this issue, it had been purported that African-American men tend to prefer African-American women with a larger body size. This finding is of particular significance as African-American women are comfortable maintaining a more curvaceous figure at a higher body weight, believing that this is what is most attractive to

their male partners. The nature of the research design afforded the male participant the opportunity to answer items related to their preferences for the female partner's weight and body image honestly and in a confidential manner. The results of this study is in direct opposition to the study conducted by Jackson and McGill (1996) where Black men preferred larger women and attributed positive characteristics to them. The normal weight women in this study had the most positive male perceptions of their female partner's body image followed by perceptions of partners of the overweight and obese women.

A finding of particular interest is the correlation between the male partner's perception of his female partner's body image and his female partner's perception of her own body image. As the male partner's perceptions of the woman's body image increased so did his female partner's perception. In essence, if the male is pleased with his partner's body image, she is pleased as well.

Health Beliefs about Weight and Weight Control

More positive health beliefs about weight and weight control were significantly associated with lower BMIs. Women with more normal body weights perceived that they had more control over their weight and more positive beliefs regarding their weight. Obese women scored lowest on items such as: I know the difference between normal weight, overweight, and obese; I know how to develop an exercise plan; I am more likely to be overweight or obese if my parents are overweight or obese; and I would have more energy if I exercised. These findings are in alignment with findings of Striegel-Moore et al. (1996) and Skelly et al. (2006) who concluded that African-American women, particularly those who are overweight and obese, find weight maintenance and other health behaviors to be beyond their control. Additionally, as found in this study, a lack of

physical activity and proper diet management was seen as noncontributory to overweight and obesity more so among women who were overweight and obese. It must be noted that obese African-American women had the highest motivation for weight loss (physical activity) followed by overweight and normal weight women. This makes sense in that obese and overweight women who recognized that they needed to lose weight were more highly motivated to lose weight than the normal weight women who didn't need to lose weight. This was also supported by normal weight women reporting the highest perceptions of body image followed by overweight then obese women. This suggests that obese women perceived themselves to have a more negative body image requiring weight loss, and they were more likely to be motivated to lose weight.

Self-efficacy Related to Diet and Physical Activity

As hypothesized, self-efficacy related to diet and physical activity both increased as the African-American woman's waist-hip ratio decreased. Some of the overweight and obese African-American women in this study verbally expressed to the researcher prohibitive factors for weight loss, such as losing the admiration and desire of their partners as well as little confidence in their abilities to endure strenuous exercise or cut out unhealthy snacks during the day or evening. According to Sanchez-Johnson, et al. (2004), a diet high in fat, a lack of physical activity, and a more accepting body image accounts for higher rates of obesity and may account for higher rates of depression. Self-efficacy and confidence are requisite for diet management, physical activity and health maintenance, and may possibly contribute to lower rates of depression. Dixon (2003) reports that poor self-esteem, psychosocial disturbance, thoughts of guilt and hopelessness found in obese subjects along with low self-efficacy have been linked to

depression. This is confirmed by this study's findings of significant negative correlations among self-efficacy for diet and physical activity and waist-hip ratio as well as depression.

Time Perspective

Time perspective, within the context of the TAM, was examined in relation to past, present, or future time orientation of the female participants. The TAM purports that time orientation affects behaviors, attitudes and physiological activities such as weight loss. When the African-American woman's future time perspective increased, her waist-hip ratio decreased in this sample. These findings are in keeping with Yarcheski and Mahon's assertions (1986) that African-American women who have a future time perspective may have the ability to connect present behaviors to predictions of future consequence, subsequently contributing to the construction of future plans and the structuring of future events of goals. Engaging in behaviors such as diet management, physical activity, and weight maintenance require present time sacrifices with delayed gratification. Living for tomorrow requires control, structure and predictability, all essential for future time perspective which had a greater presence in the women who had the lowest waist-hip ratios.

Age and Weight

As the male partner's age increased so did the BMI of the African-American woman and her age. Older African-American men had partners that were older and heavier. This may be due to a multiplicity of factors which have not been previously addressed in the literature. A point of major consideration is that as males get older, they tend to be with female partners who are older, which is likely due to the progression of a

relationship over time. A direct correlation between a woman's age and an increase in BMI has been found in the literature. Ogden, et al (2006) concluded that when compared to White women, approximately half of the African-American women aged 30 to 44 were obese. The National Research Council and Institute of Medicine (2007) concluded in their 1998 National Child and Infant Health Survey that African-American women maintained the highest postpartum weights across all weight categories when compared to Whites. The female participants in this study expressed a greater sense of comfort and security regarding their weight the longer they had been in a relationship with their male partners. However, there was a non-significant correlation between the woman's age and BMI and waist-hip ratio, which may have been due to an even distribution of weight classes across the age range for this sample. Despite a non-significant correlation between the male partner's perceptions of the female's body image and his age, significant negative associations were found between the male partner's perceptions of the female's body image and the female's BMI and age indicating that as male partner's positive perception of the female's body image increased, the females BMI and age decreased. In this sample, African-American men had a more positive perception when the female partners where smaller and younger. However, older men tended to be with women who were heavier and older. Men who were with younger women, regardless of the man's age, wanted the woman to be smaller.

Body Mass Index and Waist-Hip Ratio

The partner's perceptions of the woman's weight, the male partner's age, and motivation for weight loss (physical activity), perceptions of body image and education were significantly associated with BMI. African-American women with higher BMIs had

lower positive partner perceptions of their weight, lower personal perceptions of their own body image and lower educational levels as discussed earlier. African-American women with higher BMIs also had male partner's that were older and a greater motivation to engage in physical activity to ensure weight loss. Of particular importance from the regression analysis, perceptions of body image moderated the relationship between the male partner's age and BMI. When body image in African-American women was lower, the relationship of male age with BMI was less than when the body image was higher. The lowest BMI was seen in women with the highest positive perceptions of body image and with younger male partners. Findings indicating significant associations between BMI and the aforementioned variables are supported by the tenets of the TAM and the previously discussed review of the literature. Younger African-American males prefer smaller African-American women. Older African-American males, although they may be with heavier African-American females, also prefer smaller African-American women. This is a very powerful finding which negates the "myth" that has been perpetuated in the African-American culture that African-American men prefer larger women. The results of this study indicate that most African-American men prefer smaller women. If African-American women are of the belief that they have to maintain a larger body size to please their male partner's, this is generally a falsehood.

In this study, waist-hip ratio was associated with self-efficacy related to physical activity and perceptions of body image. Higher waist-hip ratio was associated with less self-efficacy to perform physical activity in African-American women, and with less positive perception of her body image. Higher levels of depression were also associated with lower levels of self-efficacy related to physical activity and a greater present time

perspective or orientation. An interaction was not found among any of these variables indicating that these variables are associated with ether waist-hip ratio or depression alone without the moderation of body image.

In the final analysis, the TAM was partially supported by findings in this study. Social organization, environmental control, biological variation variables, and time, were the four domains of the TAM under examination in relation to body image and weight in this study. Of the social organization factors, education was negatively associated with BMI and waist-hip ratio and income was positively associated with waist-hip ratio. Of the environmental control factors, self-efficacy was negatively associated with BMI and waist-hip ratio and the male significant other's perceptions of the woman's body image were negatively associated with BMI. None of the biologic variation variables were associated with BMI or waist-hip ratio. Future time perspective was negatively associated with waist-hip ratio. Family history of obesity, the African-American woman's history of depression, a family history of depression were not associated with BMI or waist-hip ratio possibly due to under reporting by the participants. Age was not associated with BMI or waist-hip ratio, possibly due to an even distribution of age across weight classes of the participants.

It must be highlighted that more culturally related factors were significantly associated with waist-hip ratio than with BMI. The significant findings related to waist-hip ratio in this study emphasize the notion that this variable is likely to be culturally significant. Although an African-American woman may be overweight or obese, there is likely to be a cultural value placed on body shapes with a small waistline in relation to the hips, which is perceived to be more attractive, particularly among many African-

American males. BMI has become the gold standard for identifying patients at increased risk of adiposity-related adverse health outcomes (Klein et al., 2007). Additionally, waist circumference, along with BMI, has been found to be a strong predictor of adverse cardiometabolic outcomes (Klein et al., 2007; Neufield, Jones-Smith, Garcia, & Fernald, 2008). Therefore, waist circumference is also considered a very important anthropometric measure as far as health risk is concerned. However, waist-hip ratio, which incorporates waist circumference, was found to be more culturally significant than BMI in this sample of African-American women although not considered an indicator of cardiometabolic risk.

Discussion of Additional Findings

Based on the review of the literature the perceptions of the body of the African-American woman and her male partner's perceptions may influence the weight class of the African-American woman as well as perceptions of the African-American woman's ideal dress size in relation to her actual dress size. This is a novel concept that has never been previously addressed in relation to African-American women. Three simple statements were formulated to assess the degree of concordance between the African-American male's perceptions and his female partner's perceptions of ideal and actual dress size as well as perceived weight class. The findings clearly established a significant relationship of the male's preferred dress size of his female partner, and his perceptions of her actual dress size, and his perceptions of weight class with her actual dress size, weight class and preferred dress size. This study is the first to examine and establish significant relationships among these variables which could definitively provide healthcare providers insight into the need to incorporate the male significant other in the

educational process and interventions specific to the African-American woman's weight loss and management plan.

Conclusions

African-American women have a disproportionate prevalence of obesity and depression. Awareness of the correlates of obesity and depression will aide in the development of culturally appropriate interventions aimed at decreasing obesity and depression in this population of women. Therefore, the importance of this research is evident. The tenets of the TAM in conjunction with a review of the literature were partially supported for explaining obesity and depression in this sample of African-American women.

The conclusions of this study include the following:

1. Given the findings of this study, when studying African-Americans, caution needs to be taken in regards to bundling education and income together to derive a single SES variable. As was seen in this study, it is possible that income and education may explain phenomena differently when explored separately.
2. In the African-American culture, variables that are perceived to be stigmatizing, such as depression, may lead African-Americans to under-report such personal or familial conditions.
3. Measures that directly ask African-Americans to report a diagnosis such as depression may not capture its true representation due to under reporting, lack of recognition, or a lack of awareness of a diagnosis. However, a measure such as the CES-D, that does not require a self-report of a depression diagnosis, encouraged the African-American woman's depressive symptomotology to be

more reliably and validly measured. When African-American women are asked to report a diagnosis of depression based on history, the findings should be adjudicated with medical records when possible.

4. Although women tend to gain weight as they age, African-American women are heavy regardless of age as evident with the non-significant age related differences in this sample. Therefore youth should not be considered a buffer for the psychological and physiological sequelae related to overweight and obesity in African-American women.
5. Since an inverse relationship was found between future time perspective and waist hip ratio, weight loss interventions that incorporate methods to facilitate a shift in time orientation may prove most beneficial for encouraging weight loss in overweight and obese African-American women.
6. African-American men across the age range in this sample prefer to be with a smaller woman. This somewhat dispels the long-standing myth that most African-American men prefer a woman with a large body size. Some of the African-American women were comfortable maintaining a higher weight based on a false sense of security with the male partner's perceptions of their body image.
7. The myth that most African-American men prefer their women to have large body sizes serves to protect overweight and obese African-American women emotionally from depression due to their weight, but they are not protected physiologically from the health risk factors that result from being overweight and obese. The myth is a double edge sword for African-American women. They are less likely to be depressed, when overweight and obese, than has been shown for

White women. However, they are at a higher health risk for obesity related diseases such as heart disease, cancer and diabetes.

8. Perceptions of body image moderated the relationship between the African-American woman's BMI and the male partner's age indicating that women with the lowest BMI have the highest positive perceptions of body image and younger male partners.
9. Obese African-American women have the highest motivation for weight loss (physical activity). It stands to reason that heavier women, who believe they have the greatest susceptibility to obesity related illnesses, believe themselves to have more benefits for weight control.
10. Obese African-American women have low levels of self-efficacy for physical activity and diet. In addition to being motivated to lose weight, the woman must have self-efficacy or believe she is capable of engaging in physical activity and diet management resulting in weight loss. Although the motivation may be present, the ability to lose weight must be encouraged in heavier African-American women.
11. Once they reconcile that they should engage in weight loss activities, overweight and obese African-American women possess the highest health beliefs related to obesity, i.e., motivation and serious attitude to lose weight, as opposed to normal weight women who do not need to lose weight and are therefore significantly less motivated to do so.
12. As the African-American male's perception of body image increases, the African-American woman's perceptions of her own body image increases provided that

she is accurately aware of what her male partner's preferences are. It is, therefore, crucial to shed light on what the male partners prefer considering that they tend to prefer a smaller body size and shape. This in turn may spur many African-American women to lose and maintain their weight.

13. As the African-American male's preference for a larger dress size and BMI increases so does the African-American woman's BMI. In addition, as the African-American woman's BMI increases, the African-American male prefers his female partner wear a larger dress size and the female also prefers to wear a larger dress size. This indicates that African-American females, especially heavier ones, will adapt to the preferences of their male partner.
14. If the male partner is bigger he also wants the woman to be bigger, and she wants to be bigger and is bigger. However, if her male partner prefers the woman to wear a smaller dress size, the woman is likely to be smaller and vice versa. Therefore, programs designed to help overweight and obese African-American women lose weight need to engage the male partner in the process as a key social support person.
15. The highest level of concordance satisfaction regarding preferences for the woman's dress size and weight was noted between the group of overweight African-American women and their male partners. Normal weight African-American women and their male partners tended to prefer the women to wear a larger dress size. Conversely, obese African-American women and their male partners preferred that they wear a smaller dress size than they actually wore.

Implications for Clinical Practice

African-American women have a long standing history and pervasive prevalence of overweight and obesity. The findings of one study do not change the clinical practice landscape. However, the unique findings of this study, in a discipline where there is no prior knowledge of this kind, are a significant contribution to the preponderance of the evidence related to obesity and depression management. It is important to understand the role that body image as a culturally specific common denominator plays in obesity and depression in hopes of addressing these problems across the entire population of affected African-American women. Factors such as the African-American woman's time orientation, income and educational level, male partner's age and weight, self-efficacy for diet and physical activity, and health beliefs about weight and weight control should be considered and culturally appropriate tailor made obesity and depression interventions and treatment plans specific to overweight and obese African-American woman need to be developed.

Most importantly, healthcare providers need to know the cultural preferences and beliefs specific to the individual African-American woman and her male partner that contribute to the woman's classification into one weight class versus another. As found in this study, African-American men's preferences and perceptions of the female partner's body image can influence her desire to lose weight when she is overweight. Therefore, weight-loss interventions aimed at the African-American female must focus on her partner's perceptions and preferences as well.

The newly devised Partner's Perception of a Woman's Weight Scale, Female Perception of Weight and Dress Size Index and Male Perception of Female Partner's

Weight and Dress Size Index are short tools that can be used within clinical practice to examine underlying issues related to body image, which may act as a barrier to weight loss and weight maintenance in African-American women. The findings from this study suggest that these measures of body image are valid instruments based on the construct validity established by the level of agreement between these newly devised measures and previously developed measures used in this study with adequate established psychometric properties. A wealth of information is elucidated via the concordance analysis, which is simple to calculate and interpret. It is imperative that new streamlined tools, such as these, be accessible in a clinical setting to address obesity issues.

Implications for Research

Although this study was informative about African-American women, and various cultural factors in relation to body image, weight and depression, it was the first one of its kind to explore this issue in depth. Future research dedicated to these topics is necessary and should begin with an exploration of the influence that the African-American male's preferences and perceptions have on the African-American woman's perceptions of herself. In addition, an exploration of what normal weight, overweight and obese means to African-American women and men would explicate the variances in perception related to body size.

As demonstrated in this study, variables such as the family history of depression and obesity were likely not accurately reported, possibly due to a lack of awareness or stigmatization related to a diagnosis of depression. To address this issue, the studies designed to include family members in a manner that directly address this issue is indicated. In addition, the African-American woman's past history of depression, or lack

thereof, should be verified by a review of the participant's medical records. However, it is possible that some past history of depression may not have been diagnosed even when it did exist.

Further psychometric testing of the Partner's Perception of a Woman's Weight Scale, Female Perception of Weight and Dress Size Index and Male Perception of Female Partner's Weight and Dress Size Index is recommended in clinical as well as community samples. Primary care providers can utilize weight classifications along with the knowledge of culturally and ethnically appropriate norms and mores to address preferences regarding diet and physical activity in an effort to develop appropriate weight loss and weight maintenance activities. With this in mind, the findings of this study are timely and useful in identifying correlates of obesity and depression and developing appropriate weight loss interventions in this population based on weight classification. Specifically, focusing on eating patterns which are purported to be disinhibited in African Americans and their families, as well as the influence of an adult's childhood weight on her adult weight are factors that deserve future consideration and measurement. Further exploration of the roles body image, diet management, and physical activity and depression play in relation to weight in African Americans is indicated. Further assessment of psychometric properties of the newly devised tools is warranted to increase the evidence for reliability, validity, and utilization of the tools in other research.

Implications for Policy

Health policy is paramount to the visibility and attention necessary to pinpoint and address the correlates of and issues surrounding depression and obesity in African-American women. Funding from various governmental agencies and private

organizations is crucial to developing interdisciplinary programs which incorporate the perspectives of nursing, medicine, psychology, women's studies, anthropology and sociology in an effort to target this particular population. Health policy set forth by federal and state governments, along with the healthcare industry, must focus on developing culturally sensitive healthcare providers required to meet the multicultural needs of minority populations such as overweight and obese African-American women. Policy dictating that cultural understanding related to conditions such as overweight and obesity should become a requirement for all healthcare providers. In addition, the utilization of culturally specific measurement tools and diagnostic tests such as those used in this study should be considered in clinical settings that provide services to minority populations. The results of this study have strong implications for the need for a greater allocation of preventive health spending dollars earmarked for obesity research and treatment in African-American women.

Strengths of the Study

This study has several unique strengths. First, this study provided data on young African-American adults, a relatively understudied group, with respect to the relationship between culture, perceptions of body image, depression and weight. There have been no studies to date that have investigated the concordance between the African–American woman and her male partner's perceptions of body image along with the influence this has on the weight classification of the African-American woman. Second, the Transcultural Assessment model, the only comprehensive model of its kind uniquely suited to address the culture of obesity, along with an extensive review of the literature were used as the conceptual framework to undergird this study. This study provides a

distinctive framework of variables, inclusive of extensive data on socio-economic, familial and weight-related factors, which have not been previously investigated collectively. Third, very little research specific to obesity and depression has been conducted with African-American women as the focus, particularly along with their partners. The findings of this study contribute to this crucial, but limited, body of knowledge although causality can not be addressed. Fourth, a major gap in the literature is present regarding culturally appropriate and sensitive measurement tools examining perceptions of body image in African-American women and men. Two measurement tools, the Female Perception of Weight and Dress Size Index and the Male Perception of Female Partner's Weight and Dress Size Index, were developed exclusively for this study, which have direct applicability in a clinical setting as well as broad based transferability and utilization in studies that focus on a multiplicity of populations in addition to African-Americans. A very important point of consideration aside the strengths of this study focusing on African-American women is the benefit of inclusion of African-American men. A great percentage of the males in this study were overweight and obese. By having included them in the discussion, these men have been exposed to obesity and depression related concepts, and the influence that this may have on their female partners.

Limitations of the Study

Several limitations are present and should be noted in this study. First, a descriptive correlational research design was employed, which precludes the researcher from making causal statements. Second, a larger sample size may have allowed the elucidation of findings that may have been masked due to under reporting of key study

variables such as the prevalence of the African-American woman's family history of depression or obesity. Third, this study included a convenience sample, so findings must be generalized to the entire population of African-American women with caution. It is recognized that African-American women are a heterogeneous population with several subpopulations with their own unique cultural roots and perspectives. Therefore, women from different cultural subgroups may not always exemplify the same attitudes and behaviors. All of the measures utilized in this study, exclusive of height, weight, waist and hip circumference were self-report. A reliance on self-report measures opens the possibility of poor recall and inaccuracy in reporting. Despite these limitations, the strengths of the study far outweigh the limitations.

Summary

This descriptive correlational study was developed to examine the relationships between body image, weight, and depression in African-American women. The TAM was used as a conceptual basis for the development of research hypotheses and research questions which encouraged the exploration of interrelationships of various cultural factors, inclusive of environmental control, social organization, biologic variation and time, with body image, weight and depression. The perceptions of the women's body image and size by their partner's contributed much to the explanation of cultural factors relevant to the issue of overweight and obesity in African-American women.

Findings partially supported the TAM and provided insights into the influencing factors in the lives of African-American women who are overweight and obese. Results indicated the importance of the role of culture and the women's partner's perceptions in contributing to and possibly helping to alleviate the problem of overweight and obesity in

African-American women. Depression was found to be associated with weight in this population with normal weight and obese women reporting the highest levels of depression. Overweight women reported the lowest levels of depression. Increased depression was associated with an increased waist-hip ratio as an indicator of weight. This finding was probably occurred due to the higher levels of depression in obese women. Normal weight African-American women and their male partner's preferred a larger body size while obese women and the male partners preferred a smaller body size. The greatest ideal dress size, actual dress size, and weight classification concordance was seen between overweight women and their male partners. Therefore, the findings of this study did not fully support the myth that African-American men prefer obese women, but indicated preferences for overweight women based on women's and men's dress size preferences.

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Appendix A

Study Advertisement Flyer

Volunteers Needed for Research Study

Primary Investigator: Michelle Nelson, RN, MS, FNP
Research Facility: Emory University School of Nursing
1520 Clifton Road, Atlanta GA 30322

Study Title: African-American Women: Body Image, Weight, & Depression

Study Purpose: To examine the various cultural factors, perceptions of body image, weight and possible depression in African-American women and perceptions of body image in their male significant others

Female volunteers interested in participating in this study should:
Be between the ages of 18 & 44 years, American-born, and African American. They must have a male significant other who is willing to participate in a research study.

Male participants should: Be between 18 & 65 years and African American.
Males and females must be able to read and write English
Individuals that are menopausal, pregnant, or have been diagnosed with a mental illness are not eligible to participate.

Female research volunteers will answer questionnaires for 60-90 minutes (30 minutes for males).

Compensation will be provided for all participants.

Please remove the contact information below and contact the researcher if you are interested in participating in this study

Michelle Nelson
African-American Women Study
(770)667-6292
email: manelso@emory.edu

Michelle Nelson
African-American Women Study
(770)667-6292
email: manelso@emory.edu
Michelle Nelson
African-American Women Study
(770)667-6292
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(770)667-6292
email: manelso@emory.edu

Appendix B

Participant Screening Form

Emory University School of Nursing
African American Women: Body Image, Weight, & Depression

Weight Class and Depression Study

Participant Screening Form

Are you between 18 and 44 years of age _____ Yes _____No

What is your ethnic background? _____

Have you menstruated in the last year? _____ Yes _____No _____N/A-Male

Do you still have regular menstrual periods? _____ Yes _____No _____N/A-Male

Are you pregnant? _____Yes _____No

Are you currently being medicated for depressive symptoms or psychiatric disorders?

_____Yes _____No

Do you live in the Metro-Atlanta Area _____ Yes _____No

Females Only:
Do you have a male partner in your life? _____Yes _____No

Males Only:
Do you have a female partner in your life? _____Yes _____No

Are there any evident cognitive impairments? _____Yes _____No

Height: _____ Weight: _____ Waist: _____ Hip: _____

Has the Inclusion/Exclusion criteria been met? _____Yes _____No

Contact Information for potential participants who chose to participate in the study.

Name_____

Address _____

_____

Phone Number _____

What is the best time to contact you? _____

Do I have permission to contact your partner? _____ Yes _____ No

What is your partner's contact information?

Name_____

Address _____

_____

Phone Number _____

Appendix C

Subject Profile Sheet

Subject Profile Sheet

Date: _____

Name: _____

Subject ID Number: _____

Age/Birth Date: _____

Telephone Number: _____

Address: _____

_____

Email Address: _____

Recruitment Site: _____

Do you have a male significant other/partner who may be willing to participate?

Yes _____ N0 _____

Appendix D

Consent to be a Research Subject (Female)

Emory University School of Nursing
Consent to be a Research Subject (Female)

Title: African American Women: Body Image, Weight, & Depression

Principal Investigator: Michelle Nelson, RN, MS, FNP

Introduction/Purpose:

You are being asked to volunteer for a research project to help explore associations between two common problems in African American women – obesity and depression. The researchers think that perceptions of body image may play an important role in obesity. The study will be conducted by Michelle Nelson, a doctoral student in the School of Nursing at Emory University. Your participation in the study is completely voluntary and should take less than 90 minutes. About 90 African American women and 90 African American men will participate in this study from the local community.

Procedures:

You may have been notified of this study by flyers posted around the community. You are being given this consent form because you contacted the principal investigator and you are eligible to participate in the study. Once you sign and return the informed consent to the principal investigator, arrangements will be made to fill out questionnaires and measure your height, weight, waist and hip circumference. A copy of the consent form will be provided to you.

The principal investigator (PI) will assess your eligibility to participate in this study using the Participant Screening form. The PI will then ask to have your height, weight, waist and hip circumference measured once. Following this you will complete eight paper and pencil questionnaires.

Your height, weight, waist and hip circumference will be measured in a private area.

Female participants will be asked to identify and provide the contact information of her male partner.

You will be interviewed by the researcher to determine eligibility. Once eligibility is determined, you will complete eight questionnaires in a private and comfortable area.

The questionnaires will take approximately 60-90 minutes to complete in one sitting.

Risks:

You may experience some mental or emotional stress as a result of answering questions on the surveys, or having your height, weight, waist or hip circumference measured and exploring your perceptions about you or your partner's body image. There may be other risks that are currently unknown.

Benefits:

You may benefit from participating in the study by having the opportunity to discuss your feelings and experiences about obesity and depression with the principal investigator. Taking part in this research may not benefit you personally, but the researchers may learn new things that will help others.

Confidentiality:

We will keep all facts about you private. People other than those doing the study may look at both medical charts and study records. Agencies that make rules and policy about how research is done have the right to review these records. So do agencies that pay for the study. Those with the right to look at your study records include the Office for Human Research Protections and the Emory University and high school system (if applicable) Institutional Review Boards. Records can also be opened by court order. We will keep your records private to the extent allowed by law. We will do this even if outside review occurs. We will use a study number rather than your name on study records where we can. Your name and other facts that might point to you will not appear when we present this study or publish its results.

We will arrange for emergency care if you are injured by this research. However, Emory University has not set aside funds to pay for this care or to compensate you if a mishap occurs. If you believe you have been injured by this research, you should contact Michelle Nelson (phone: 770-667-6292).

Costs:

There will be no cost to you for participating in this research study. However, you and your partner together will receive one ten dollar gift card for participation upon completion of the studies procedures and materials.

Contact Persons:

If you have any questions about this study or have been harmed from being in the study, call Michelle Nelson, RN, MS, FNP. Call Dr. Colleen DiIorio, chair of the Emory University Institutional Review Board if you have any questions about your rights as a participant in this research study.
Their telephone numbers are:

Michelle Nelson, RN, MS, FNP: (770) 667-6292
Colleen DiIorio, PhD: (404) 712-0720

Voluntary Participation and Withdrawal:

Your participation is completely voluntary and you have the right to refuse to be in this study. You can stop at anytime after giving your consent. This decision will not affect in any way your grades or current or future medical care or any other benefits to which you are otherwise entitled. The principal investigator has the right to end your participation in this study at any time if she decides that it is in your best interest, or if you do not follow study procedures.

We will give you a copy of this consent form to keep.

If you are willing to volunteer for this research, please sign below.

_____ _____ _____

Signature of Subject ***Date*** ***Time***

_____

Printed Name of Subject

Appendix E

Consent to be a Research Subject (Male)

Emory University School of Nursing
Consent to be a Research Subject (Male)

Title: African American Women: Body Image, Weight, & Depression

Principal Investigator: Michelle Nelson, RN, MS, FNP

Introduction/Purpose:

You are being asked to volunteer for a research project to help explore associations between two common problems in African American women – obesity and depression. The researchers think that perceptions of body image may play an important role in obesity. The study will be conducted by Michelle Nelson, a doctoral student in the School of Nursing at Emory University. Your participation in the study is completely voluntary and should take less than 30 minutes. About 90 African American women and 90 African American men will participate in this study from the local community.

Procedures:

You may have been identified and contacted as the male partner of a female participant in this research study. You are being given this consent form because you are eligible to participate in the study. Once you sign and return the informed consent to the principal investigator, arrangements will be made to fill out the questionnaires. A copy of the consent form will be provided to you.

The principal investigator (PI) will assess your eligibility to participate in this study using the Participant Screening form. Following this you will complete two paper and pencil questionnaires.

The questionnaires will take approximately 30 minutes to complete in one sitting.

Risks:

You may experience some mental or emotional stress as a result of answering questions on the surveys which explores your perceptions about your partner's body image. There may be other risks that are currently unknown.

Benefits:

You may benefit from participating in the study by having the opportunity to discuss your feelings and experiences about obesity and depression with the principal investigator. Taking part in this research may not benefit you personally, but the researchers may learn new things that will help others.

Confidentiality:

We will keep all facts about you private. People other than those doing the study may look at both medical charts and study records. Agencies that make rules and policy about how research is done have the right to review these records. So do agencies that pay for the study. Those with the right to look at your study records include the Office for Human Research Protections and the Emory University and high school system (if applicable) Institutional Review Boards. Records can also be opened by court order. We will keep your records private to the extent allowed by law. We will do this even if outside review occurs. We will use a study number rather than your name on study records where we

can. Your name and other facts that might point to you will not appear when we present this study or publish its results.

We will arrange for emergency care if you are injured by this research. However, Emory University has not set aside funds to pay for this care or to compensate you if a mishap occurs. If you believe you have been injured by this research, you should contact Michelle Nelson (phone: 770-667-6292).

Costs:

There will be no cost to you for participating in this research study. However, you and your partner together will receive one ten dollar gift card for participation upon completion of the studies procedures and materials.

Contact Persons:

If you have any questions about this study or have been harmed from being in the study, call Michelle Nelson, RN, MS, FNP. Call Dr. Colleen DiIorio, chair of the Emory University Institutional Review Board if you have any questions about your rights as a participant in this research study.
Their telephone numbers are:

Michelle Nelson, RN, MS, FNP: (770) 667-6292
Colleen DiIorio, PhD: (404) 712-0720

Voluntary Participation and Withdrawal:

Your participation is completely voluntary and you have the right to refuse to be in this study. You can stop at anytime after giving your consent. This decision will not affect in any way your grades or current or future medical care or any other benefits to which you are otherwise entitled. The principal investigator has the right to end your participation in this study at any time if she decides that it is in your best interest, or if you do not follow study procedures.

We will give you a copy of this consent form to keep.

If you are willing to volunteer for this research, please sign below.

_____ _____ _____

Signature of Subject ***Date*** ***Time***

_____

Printed Name of Subject

Appendix F

Research Subject Authorization Form

YOUR PRIVACY

The privacy of your medical record is important to us. Before we start our research we want to tell you about a law that protects your medical record, and the information you give us for this study. The law is called the Health Insurance Accountability and Portability Act or HIPAA for short.

Under HIPAA, your personal health information that identifies you receives greater protection. We will now tell you more about how we will protect your health information for this study.

African American Women: Body Image, Weight, & Depression

Michelle Nelson RN, MS, FNP

Authorization to Use or Disclose Health Information that Identifies You for a Research Study

Title: African American Women: Body Image, Weight, & Depression

Lead Researcher: Michelle Nelson, RN, MSN, FNP

Sponsor's Name: National Institute of Nursing Research, National Institutes of Health

Introduction/Purpose: You are being asked to volunteer to participate in a research study. You are being asked to participate in this study because you are a pre-menopausal African American woman with no diagnosed or currently treated mental health conditions or her African American male partner. The purpose of the study is to examine the relationships between various cultural factors, perceptions of body image, depression and weight class in African American women and the perceptions of body image of their male partners. Your willingness to participate in this study will assist in developing a better understanding of the obesity and depression in African American women. You will be asked to complete survey questions. The entire amount of time needed to complete the study questions will be 60-90 minutes for females and 30 minutes for males. The lead researcher for this study is a doctoral student in the Nursing School at Emory University. This study will be conducted as part of the requirements for her work towards completing the requirements for a doctoral degree.

By signing this document, you agree to take part in this research. You are giving your permission to let researchers and others described in this form use and share your protected health information.

Confidentiality and Protected Health Information (PHI): PHI is a term we use for protected health information. PHI are many facts about you or your health that could tell someone who you are. "Researchers" are people that conduct the study and make rules and regulations about how the study is done. Researchers may need to look at your study records that contain PHI. The Office for Human Research Protections is also considered researchers. Sponsors who pay for the study also have the right to look at the information we collect in this research study. The Emory University Institutional Review Board (IRB) is also considered as researchers and has the right to look at the information we collect in this research study. Your PHI may be disclosed if a court of law should order it.

We will not use or disclose our research study records in any ways other than the ways we describe in this form. We will keep your records private to the extent allowed by law. We will do this even if outside review of your records occurs. We will use a study number or other code rather than your name on study records where we can. Your name and other facts that might point to you will not appear when we present this study or publish its results.

A federal law now protects the privacy of your PHI. This law is the Health Insurance and Portability and Accountability Act (HIPAA). That law says we must tell you what we will use your PHI for and how we will use and disclose it before we can let any of that

happen. We give you those facts about your PHI in this section of this form. HIPPA tells you facts you need to know such as:

1. What PHI of yours the Researchers will look at.
2. Who will collect your PHI.
3. Who will use your PHI.
4. With whom your PHI will be shared and why it is shared each time.
5. The date or event, if any is set, after which we won't use or disclosure your PHI any more; and
6. Your rights under HIPAA to ask us not to use your PHI any more.

You may choose to join in this research. If you do, you will be agreeing to let the Researchers and any other persons, companies or agencies described below to use and share your PHI for the study in the ways that are set forth in this section. So please review this section carefully.

What PHI will the Research Team Use (female): **If you are willing to take part in the study, you will be asked to fill out some questionnaires. You will also be asked to allow the researcher to take your height, weight, waist and hip circumference if you are a female. The set of questions will include questions about you such as your age, education, perceptions, diet and exercise history, and some questions regarding the health of your family members. Some questions you will answer are about signs of depression. If your answers show you may be helped by an evaluation for depression, we will contact you and tell you. We will suggest that you see your health care provider for further evaluation.**

What PHI will the Research Team Use (male): **If you are willing to take part in the study, you will be asked to fill out some questionnaires. The set of questions will include questions about you such as your age, education, perceptions, diet and exercise history, and some questions regarding the health of your family members.**

Who will Collect the PHI**: The Researchers will collect the PHI described above. If any of the PHI is to be shared with other persons, as described later on in this section, then the Researchers will be responsible for making these disclosures.**

People That Will Use or Disclose You Information and Purpose of Use/Disclosure:
The following individuals or groups are people who will be conducting the Research Study or who have the job of monitoring and regulating research and who will use or disclose your health information to do this work (the "Information Recipients"):

Person/Entity	Purpose
Researchers	To conduct the study entitled, "African American Women: Body Image, Weight, & Depression". The purpose of the study is to develop a better understanding of incidence of obesity and depression in adult African American women along with the perceptions of body image of these women and their male partners.

	Researchers will collect and analyze data.
University Personnel, committees and departments charged with oversight of research, including the Institution Review Board (IRB).	To monitor safety and compliance with applicable laws, regulations, and University policy and procedures.
National Institutes of Health, the study sponsor.	To provide oversight for the study and to perform data analysis.
Statisticians hired by the study sponsor.	To perform data analysis.

By signing this document you agree to allow these Information Recipients to use or disclose your health information that identifies you for the Research Study, or to monitor or regulate research. In addition, your health information may be used or disclosed as required by law, and it may be shared with a public health authority that is authorized by law to collect or receive such information for the purpose of preventing or controlling disease, injury or disability and/or conducting public health surveillance, investigations or interventions.

Revoking your Authorization:

You do not have to sign this Authorization. If you sign this Authorization, later you may change your mind at any time and revoke (take back) this Authorization. If you want to revoke this Authorization you must write to:

Michelle Nelson, RN, MS
Emory University
Nell Hodgson Woodruff School of Nursing
Suite 244
Atlanta, GA 30322-4207

Attached is pre-printed revocation letter to (Ms. Nelson) that you can send to Ms. Nelson indicating that you are revoking your authorization regarding your PHI. If you revoke your Authorization, the Researchers will not collect any more health information that identifies you, but they may use or disclose information that you already gave them in order to notify any of the other Researchers that you have revoked your authorization; to maintain the integrity or reliability of the Research Study; and to comply with any law that they are required to obey.

Other Items You Should Know:

The Information Recipients who work for Emory University School of Nursing are required by HIPAA to protect your health information. However, some of the other Information Recipients who receive your health information do not work for Emory University School of Nursing, and they may not be required by HIPAA to protect your health information. These Information Recipients may share your information with others without your permission if the law permits them to do so.

You do not have to sign this authorization form, but if you do not, you may not participate in the Research Study.

If your identifying information is removed from your health information, then the information that remains will not be subject to this authorization and it may be used or disclosed for other purposes.

Expiration Date: The Researchers will add your PHI to a database that they are compiling for research purposes. There is no data or event after which your authorization will expire and your PHI will no longer be used for this purpose.

As a study participant, if you any questions regarding the study, you may call Ms. Nelson, the study's Lead Researcher at (770) 667-6292. If you have any questions regarding your rights as a study subject, you may call Dr. Colleen DiIorio, Chairman of the Emory University Institutional Review Board at (404) 712-0720.

Signature and Date: The Researchers will ask you to sign and date the form. A copy of your signed and dated form will be maintained as part of the study records.

Copy of the form: A copy of this authorization form will be given to you.

I have read this authorization form and have been given the chance to ask questions about it. I am signing this firm voluntarily and I understand that by signing I will be authorizing the Researchers to use and disclose my PHI as described in the form.

_____
Signature of Study Subject

_____ _____
Date Time

_____
Printed Name of Study Subject

_____
Signature of Person Obtaining Authorization

_____ _____
Date Time

Thank You for Your Participation

Appendix G

Revocation Letter

Michelle Nelson
Nell Hodgson Woodruff School of Nursing
Emory University
1520 Clifton Road, NE Suite 244
Atlanta, GA 30322-4027

Re: African American Women: Body Image, Weight, & Depression

Dear Ms. Nelson,

I want to end my participation in the research study that is named above. In addition to ending my participation I would like to (pick one of the following):

REVOKE MY AUTHORIZATION FOR THE RESEARCHERS TO COLLECT AND USE MY INFORMATION:

____ I will participate in the research study, and I revoke my authorization to permit the researchers to collect and use any more information about me. I understand and agree that in certain circumstances the researchers may need to use my information even though I have revoked my authorization, for example to let me know about any safety concerns, or to make any required reports to governmental regulatory agencies.

CONTINUE MY AUTHORIZATION FOR THE RESEARCHERS TO COLLECT AND USE MY INFORMATION:

____ I will not actively participate in the research study anymore, but the researchers may continue to collect and use information as needed for the research study, but only for the reasons discussed in the consent form that I signed.

I understand that the researchers will respond to this letter by letting me know that they have received it.

Sincerely,

_____ _____
Signature of Study Participant Date

Appendix H

Demographic and Personal Information Form (Female)

Demographic and Personal Information Form

Age _____ Date of Birth _____ Height _____ Weight _____ BMI_____

Are you between 18 and 44 years of age _____ Yes? _____No?

What was the population of the city or town where you grew up?

A. _____(1) 10,000 or less
B. _____(2) 10,001 to 25,000
C. _____(3) 25,001 to 50,000
D. _____(4) 50,001 to 100, 000
E. _____(5) 100,001 to 200,000
F. _____(6) 200,001 to 500,000
G. _____(7) 500, 001 to 1 million
H. _____(8) Over 1 million

Which of the following best describes where you grew up?

_____rural area or countryside
_____a small town
_____a city
_____a suburb

Marital Status

_____Married
_____Domestic Partner
_____Single
_____Divorced/Separated
_____Widowed

Living Arrangements

_____Live Alone
_____ Live with Spouse
_____Live with Domestic Partner
_____Live with children

How long have you been in your current marital status? years/months _____

How long have you had you current living arrangements? years/months _____

Educational level

_____6th grade or less
_____7th to 9th grade
_____10th to 11th grade
_____12th grade
_____Vocational or trade school diploma
_____At least 1 year of junior or senior college
_____Baccalaureate degree
_____Master's degree
_____Doctorate or law degree

Employment Status

_____ Full-time
_____ Part-time
_____ Retired
_____ Medical leave/disability
_____ Unemployed

Occupation_____

Employment Classification

_____ Professional/Executive
_____ Business manager/administration
_____ Clerical/sales
_____ Skilled labor
_____ Semi-skilled labor
_____ Unskilled Labor
_____ Not applicable

Is your spouse or partner currently employed? _____Yes _____No

What is the highest educational level your spouse or partner has completed?

_____6th grade or less
_____7th to 9th grade
_____10th to 11th grade
_____12th grade
_____Vocational or trade school diploma
_____At least 1 year of junior or senior college
_____Baccalaureate degree
_____Master's degree
_____Doctorate or law degree

Do you have any children living at home? _____Yes _____No

How many children in each of the following age categories live with you? (Enter a zero where there are no children living with you.)

1 year or younger _____
2 to 5 years of age _____
6 to 12 years of age _____
13 to 17 years of age _____
18 years or older _____

Are you currently a student? _____Yes _____No

If yes, are you _____Full time? ____Part-time?

What is your major field of study? _____

To get an idea of how family income affects people's lives, we ask the general range of income of our volunteers. Approximately what is your total household income from all sources, before taxes, this year?

_____$10,000 or less
_____$10,001 to $20,000
_____$20,001 to $30,000
_____$30,001 to $40,000
_____$40,000 to $50,000
_____$50,001 to $75,000
_____$75,001 to $100,000
_____More than $100,000

How many persons are dependent upon this income for support? _____

How adequately does your income allow you to meet your needs in the areas of your life as indicated in the following items? Fill in the appropriate numbers beside each item from the following scale:

1= not at all adequately 3 = adequately
2 = less than adequately 4 = more than adequately

_____daily living
_____rent or mortgage payments
_____food bills
_____education-related costs
_____recreation/vacation
_____ child care
_____health care
_____other needs_____
(Specify)

How tall were you at your tallest height? _____feet _____inches

What was you weight at about age 18(when you were not pregnant)? _____pounds

What was your weight at about age 30 (when you were not pregnant)? _____pounds
What was you weight at about age 42 (when you were not pregnant)? _____pounds

What was your maximum adult weight (the most you have ever weighed) when you were not pregnant? _____pounds

How old were you when you were at your maximum weight? _____years old

What was your minimum adult weight (the least you ever weighed as an adult)?
_____ pounds

How old were you when you were at your minimum adult weight? _____years old

Women's weights change during their adult lives. Mark the answer that best describes you during your adult life. Do not include times you were pregnant or sick.
_____weight has stayed about the same (within 10 pounds)
_____steady gain in weight
_____lost weight as an adult and kept it off
_____weight has gone up and down by more than 10 pounds

If your weight has gone up and down, about how many times did your weight go up and down more than 10 pounds? Do not include times you were pregnant or sick.
_____1-3 times
_____4-6 times
_____7-10 times
_____11-15 times
_____Mores than 15 times

How long have you been within 10 pounds of your current weight (excluding times you were pregnant or sick) _____years

Are you now on a low calorie diet? _____Yes _____No

Did a doctor prescribe this diet? _____Yes _____No

Are you now on a low-fat diet? _____Yes _____No

Did a doctor prescribe this diet for you? _____Yes _____No

Are you now on a low cholesterol diet? _____Yes _____No

Did a doctor prescribe this diet for you? _____Yes _____No

Are you now on a low-salt diet? _____Yes _____No

Did a doctor prescribe this diet for you? _____Yes _____No

Are you now on any other type of diet? _____Yes _____No
What kind? _____
Did a doctor prescribe this diet for you? _____Yes _____No
If a doctor did not prescribe a diet for you, why are you following it?
_____

Has anyone in you family been categorized as overweight? _____Yes _____No

If so, who? _____

Has anyone in your family been categorized as obese? _____Yes ____No

If so, who? _____

About how many hours each week do you usually spend doing heavy (strenuous) chores like scrubbing floors or vacuuming? _____hours each week

About how many months during the year do you usually do things in the yard, like mowing, raking, or doing gardening? _____months each year

If you do these things in the yard, how many hours each week do you do them?
_____Less than 1 hour each week
_____1-4 hours each week
_____5-9 hours each week
_____10-14 hours each week
_____15-19 hours each week
_____20 or more hours each week

Think about the walking you do outside the home. How often do you walk outside the home for more than 10 minutes without stopping? (Mark only one)
_____rarely or never
_____1-3 times each month
_____1 time each week
_____13-18 blocks (1 to 1 ½ miles)
_____19-24 blocks (1 ½ to 2 miles)
_____25 or more blocks (2 or more miles)

When you walk outside the home for more than 10 minutes, what is your usual walking speed?
_____No walking at all
_____Casual strolling or walking (2 miles in an hour or less)
_____Average or normal (2-3 miles in an hour)
_____Fairly fast or brisk (3-4 miles in an hour)
_____Fast, brisk or striding (more than 4 miles in an hour)
_____Don't know

If you do not walk, is there some other physical activity or exercise that you perform?
_____

If you do not exercise, indicate why? _____

Have you ever been treated for depression or depressive symptoms in the past?
_____Yes _____No

Were you ever taken medications for depression or depressive symptoms in the past?
_____Yes _____No

Were you ever hospitalized for depression or depressive symptoms in the past?
_____Yes _____No

If so what medications did you take? _____

Has anyone in your family been treated for depression or depressive symptoms in the past? _____Yes _____No

Indicate who _____

Has anyone in your family taken medications for depression or depressive symptoms in the past? _____Yes _____No

If so, what medication did they take? _____

Was anyone in your family ever hospitalized for depression or depressive symptoms in the past? _____Yes _____No

Please indicate yes or no for any health conditions that you or a family member has been diagnosed with by a physician in the past or the present.

Health Condition	Personal History			Family History (Grandparent, parent, sibling, aunt, uncle)		
Check if applicable	Yes	No	Current	Yes	No	Current
Heart attack						
Heart disease						
Stroke						
Dementia						
Chronic Obstructive Pulmonary Disease (COPD)						
Ulcer Disease						
Liver Disease						
Diabetes						
Cancer						
Any tumor						

Health Condition	Personal History			Family History (Grandparent, parent, sibling, aunt, uncle)		
Check if applicable	Yes	No	Current	Yes	No	Current
Hypertension						
Chest Pain						
Sleep Problems						
Congestive Heart Failure						
Blood Clots						
Asthma						
Depression						
Anxiety Disorders						
High Cholesterol						
Back Pain						
Shortness of breath with exertion						

Appendix I

Demographic and Personal Information Form (Male)

Demographic and Personal Information Form (Male)

Age _____ Date of Birth _____ Height _____ Weight _____ BMI_____

Are you between 18 and 44 years of age _____ Yes? _____No?

What was the population of the city or town where you grew up?

A. _____(1) 10,000 or less
B. _____(2) 10,001 to 25,000
C. _____(3) 25,001 to 50,000
D. _____(4) 50,001 to 100, 000
E. _____(5) 100,001 to 200,000
F. _____(6) 200,001 to 500,000
G. _____(7) 500, 001 to 1 million
H. _____(8) Over 1 million

Which of the following best describes where you grew up?

_____rural area or countryside
_____a small town
_____a city
_____a suburb

Marital Status

_____Married
_____Domestic Partner
_____Single
_____Divorced/Separated
_____Widowed

Living Arrangements

_____Live Alone
_____ Live with Spouse
_____Live with Domestic Partner
_____Live with children

How long have you been in your current marital status? years/months _____

How long have you had you current living arrangements? years/months _____

Educational level

_____6th grade or less
_____7th to 9th grade
_____10th to 11th grade
_____12th grade
_____Vocational or trade school diploma
_____At least 1 year of junior or senior college
_____Baccalaureate degree
_____Master's degree
_____Doctorate or law degree

Employment Status

_____ Full-time
_____ Part-time
_____ Retired
_____ Medical leave/disability
_____ Unemployed

Occupation_____

Employment Classification

_____ Professional/Executive
_____ Business manager/administration
_____ Clerical/sales
_____ Skilled labor
_____ Semi-skilled labor
_____ Unskilled Labor
_____ Not applicable

Is your spouse or partner currently employed? _____Yes _____No

What is the highest educational level your spouse or partner has completed?

_____6th grade or less
_____7th to 9th grade
_____10th to 11th grade
_____12th grade
_____Vocational or trade school diploma
_____At least 1 year of junior or senior college
_____Baccalaureate degree
_____Master's degree
_____Doctorate or law degree

Do you have any children living at home? _____Yes _____No

How many children in each of the following age categories live with you? (Enter a zero where there are no children living with you.)

1 year or younger _____
2 to 5 years of age _____
6 to 12 years of age _____
13 to 17 years of age _____
18 years or older _____

Are you currently a student? _____Yes _____No

If yes, are you _____Full time? ____Part-time?

What is your major field of study? _____

To get an idea of how family income affects people's lives, we ask the general range of income of our volunteers. Approximately what is your total household income from all sources, before taxes, this year?

_____$10,000 or less
_____$10,001 to $20,000
_____$20,001 to $30,000
_____$30,001 to $40,000
_____$40,000 to $50,000
_____$50,001 to $75,000
_____$75,001 to $100,000
_____More than $100,000

How many persons are dependent upon this income for support? _____

How adequately does your income allow you to meet your needs in the areas of your life as indicated in the following items? Fill in the appropriate numbers beside each item from the following scale:

1= not at all adequately 3 = adequately
2 = less than adequately 4 = more than adequately

_____daily living
_____rent or mortgage payments
_____food bills
_____education-related costs
_____recreation/vacation
_____ child care
_____health care
_____other needs_____
(Specify)

How tall were you at your tallest height? _____feet _____inches

What was you weight at about age 18? _____pounds

What was your weight at about age 30 (if applicable)? _____pounds

What was you weight at about age 42 (if applicable)? _____pounds

What was your maximum adult weight (the most you have ever weighed? _____pounds

How old were you when you were at your maximum weight? _____years old

What was your minimum adult weight (the least you ever weighed as an adult)?
_____ pounds

How old were you when you were at your minimum adult weight? _____years old

Men's weights change during their adult lives. Mark the answer that best describes you during your adult life.
_____weight has stayed about the same (within 10 pounds)
_____steady gain in weight
_____lost weight as an adult and kept it off
_____weight has gone up and down by more than 10 pounds

If your weight has gone up and down, about how many times did your weight go up and down more than 10 pounds?
_____1-3 times
_____4-6 times
_____7-10 times
_____11-15 times
_____Mores than 15 times

How long have you been within 10 pounds of your current weight _____years

Are you now on a low calorie diet? _____Yes _____No

Did a doctor prescribe this diet? _____Yes _____No

Are you now on a low-fat diet? _____Yes _____No

Did a doctor prescribe this diet for you? _____Yes _____No

Are you now on a low cholesterol diet? _____Yes _____No

Did a doctor prescribe this diet for you? _____Yes _____No

Are you now on a low-salt diet? _____Yes _____No

Did a doctor prescribe this diet for you? _____Yes _____No

Are you now on any other type of diet? _____Yes _____No
What kind? _____

Did a doctor prescribe this diet for you? _____Yes _____No

If a doctor did not prescribe a diet for you, why are you following it?
_____

Has anyone in you family been categorized as overweight? _____Yes _____No

If so, who? _____

Has anyone in your family been categorized as obese? _____Yes ____No

If so, who? _____

About how many hours each week do you usually spend doing heavy (strenuous) chores like scrubbing floors or vacuuming? _____hours each week

About how many months during the year do you usually do things in the yard, like mowing, raking, or doing gardening? _____months each year

If you do these things in the yard, how many hours each week do you do them?
_____Less than 1 hour each week
_____1-4 hours each week
_____5-9 hours each week
_____10-14 hours each week
_____15-19 hours each week
_____20 or more hours each week

Think about the walking you do outside the home. How often do you walk outside the home for more than 10 minutes without stopping? (Mark only one)
_____rarely or never
_____1-3 times each month
_____1 time each week
_____13-18 blocks (1 to 1 ½ miles)
_____19-24 blocks (1 ½ to 2 miles)
_____25 or more blocks (2 or more miles)

When you walk outside the home for more than 10 minutes, what is your usual walking speed?
_____No walking at all
_____Casual strolling or walking (2 miles in an hour or less)
_____Average or normal (2-3 miles in an hour)
_____Fairly fast or brisk (3-4 miles in an hour)
_____Fast, brisk or striding (more than 4 miles in an hour)
_____Don't know

If you do not walk, is there some other physical activity or exercise that you perform?
_____

If you do not exercise, indicate why? _____

Have you ever been treated for depression or depressive symptoms in the past?
_____Yes _____No

Were you ever taken medications for depression or depressive symptoms in the past?
_____Yes _____No

Were you ever hospitalized for depression or depressive symptoms in the past?
_____Yes _____No

If so what medications did you take? _____

Has anyone in your family been treated for depression or depressive symptoms in the past? _____Yes _____No

Indicate who _____

Has anyone in your family taken medications for depression or depressive symptoms in the past? _____Yes _____No

If so, what medication did they take? _____

Was anyone in your family ever hospitalized for depression or depressive symptoms in the past? _____Yes _____No

Please indicate yes or no for any health conditions that you or a family member has been diagnosed with by a physician in the past or the present.

Health Condition	Personal History			Family History (Grandparent, parent, sibling, aunt, uncle)		
Check if applicable	Yes	No	Current	Yes	No	Current
Heart attack						
Heart disease						
Stroke						
Dementia						
Chronic Obstructive Pulmonary Disease (COPD)						
Ulcer Disease						
Liver Disease						

Health Condition	Personal History			Family History (Grandparent, parent, sibling, aunt, uncle)		
Check if applicable	Yes	No	Current	Yes	No	Current
Diabetes						
Cancer						
Any tumor						
Hypertension						
Chest Pain						
Sleep Problems						
Congestive Heart Failure						
Blood Clots						
Asthma						
Depression						
Anxiety Disorders						
High Cholesterol						
Back Pain						
Shortness of breath with exertion						

Appendix J

Self Image in Relation to Weight Subscale

Self Image in Relation to Weight Subscale of The Weight Perceptions and Control Scale

	Item	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1.	I feel good about my current weight.					
2.	My weight does not affect my health.					
3.	When I maintain my ideal body weight I look sick.					
4.	I look unhealthy					
5.	At my current weight, I look just as attractive as other women.					
6.	I would look better if I weighed less.					
7.	Ideal body weight charts are not designed for me.					
8.	If I were overweight I would still look good.					
9.	I would look better in my clothes if I lost weight.					
10.	My current weight is a good weight for me.					
11.	I want to lose weight.					
12.	I am currently overweight.					
13.	If I lose weight my self-esteem would improve.					
14.	Weight loss would make me feel more attractive.					
15.	I feel healthier when I lose weight.					

Appendix K

Sample Items from the Coverson Beliefs Regarding Weight Scale

Beliefs Regarding Weight Scale Sample Items

	Item	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
	Susceptibility					
1.	I am more likely to be overweight or obese if my parents are overweight or obese.					
	Seriousness					
10.	Being overweight or obese would increase my chances of having hypertension.					
	Benefits to weight loss (nutrition)					
18.	Eating the right number of calories will help me maintain a normal weight.					
	Barriers to weight loss (nutrition)					
24.	I like high fat foods.					
	Self-efficacy nutrition for weight loss					
32.	I know the difference between normal weight, overweight, and obese.					
	Benefits to weight loss (physical activity)					
42.	I would have more energy if I exercised.					
	Barriers to weight loss (physical activity)					
49.	I do not like to exercise.					
	Self-efficacy for physical activity for weight loss					
57.	I know how to develop an exercise plan.					
	Motivation for weight loss (physical)					
64.	Weight loss would improve my overall health.					

Appendix L

Heimberg Future Time Perspective Inventory

FTP INVENTORY

	Completely Disagree	Mostly Disagree	Disagree More Than Agree	Neutral	Agree More Than Disagree	Mostly Agree	Completely Agree
1. I find it hard to get things done without a deadline.	7	6	5	4	3	2	1
2. Often I am upset because I feel that I am not making the best use of my time.	7	6	5	4	3	2	1
3. I look forward to the future with hope and enthusiasm.	7	6	5	4	3	2	1
4. I have too much to do.	7	6	5	4	3	2	1
5. I am afraid of getting older.	7	6	5	4	3	2	1
6. Sometimes I feel that everything is moving on ahead and leaving me behind.	7	6	5	4	3	2	1
7. I need to fell rushed before I can really get going.	7	6	5	4	3	2	1
8. My future seems dark to me.	7	6	5	4	3	2	1
9. I expect to become the kind of person I most want to be.	7	6	5	4	3	2	1

10. I always seem to be doing things at the last minute.	7	6	5	4	3	2	1
11. I have a great faith in the future.	7	6	5	4	3	2	1
12. A person with ability and willingness to work hard will be successful.	7	6	5	4	3	2	1
13. It is very hard for me to visualize the kind of person I will be ten years from now.	7	6	5	4	3	2	1
14. I expect that my plans for my life will be like in twenty years.	7	6	5	4	3	2	1
15. I don't know what kind of work I will do in the future.	7	6	5	4	3	2	1
16. I can't even imagine what my life will be like in twenty years.	7	6	5	4	3	2	1
17. The future seems very vague and uncertain to me.	7	6	5	4	3	2	1
18. It's really no use worrying about the future because what will be will be.	7	6	5	4	3	2	1

19. It often seems like the day will never end.	7	6	5	4	3	2	1
20. I know the kind of job I will feel comfortable with in the future.	7	6	5	4	3	2	1
21. I generally act on the spur of the moment.	7	6	5	4	3	2	1
22. Sometimes I feel that the future is a mere repetition of the past.	7	6	5	4	3	2	1
23. Sometimes I feel there is nothing new to look forward to in the future.	7	6	5	4	3	2	1
24. When I am depressed I often fear I may never be really happy again.	7	6	5	4	3	2	1
25. I often find myself looking for ways to kill time.	7	6	5	4	3	2	1

Appendix M

Hickey Cardiac Diet Self-Efficacy Instrument

Cardiac Diet Self-Efficacy Instrument

Beside each item below, please circle the number that represents how much confidence you have about performing it.

1 2 3 4 5

Very Little Confidence Quite A Lot

1	**2**	**3**	**4**	**5**	**1. Reaching my ideal weight by eating healthy food.**
1	**2**	**3**	**4**	**5**	**2. Decreasing the amount of fat and cholesterol in my diet.**
1	**2**	**3**	**4**	**5**	**3. Staying on a healthy diet when I am busy or in a rush.**
1	**2**	**3**	**4**	**5**	**4. Staying on a healthy diet when no one at home is on it.**
1	**2**	**3**	**4**	**5**	**5. Staying on a healthy diet when I eat at a restaurant.**
1	**2**	**3**	**4**	**5**	**6. Staying on a healthy diet when I am not at home to eat.**
1	**2**	**3**	**4**	**5**	**7. Staying on a healthy diet on special occasions or holidays.**
1	**2**	**3**	**4**	**5**	**8. Knowing what foods I should eat on a healthy diet.**
1	**2**	**3**	**4**	**5**	**9. Cutting out unhealthy snacks during the day or evening.**
1	**2**	**3**	**4**	**5**	**10. Increasing the amount of fiber and vegetables in my diet.**
1	**2**	**3**	**4**	**5**	**11. Staying at my ideal weight once I have reached it.**
1	**2**	**3**	**4**	**5**	**12. Knowing how to cook healthy meals.**
1	**2**	**3**	**4**	**5**	**13. Preparing a healthy meal for myself when I eat alone.**
1	**2**	**3**	**4**	**5**	**14. Limiting the number of egg yolks I eat a week.**
1	**2**	**3**	**4**	**5**	**15. Knowing what food to buy at the store.**
1	**2**	**3**	**4**	**5**	**16. Decreasing the amount of sugar and sweets in my diet.**

Appendix N

Hickey Cardiac Exercise Self-Efficacy Instrument

Cardiac Exercise Self-Efficacy Instrument

Beside each item below, please circle the number that represents how much confidence you have about performing it.

1	2	3	4	5
Very Little		**Confidence**		**Quite A Lot**

1	**2**	**3**	**4**	**5**	**1. "Warming up" before exercise.**
1	**2**	**3**	**4**	**5**	**2. Exercising without getting chest pain.**
1	**2**	**3**	**4**	**5**	**3. Knowing when I have exercised too much and need to stop.**
1	**2**	**3**	**4**	**5**	**4. Exercising when it is inconvenient.**
1	**2**	**3**	**4**	**5**	**5. Knowing what my heart rate should be before & after exercise.**
1	**2**	**3**	**4**	**5**	**6. "Cooling down" after exercise.**
1	**2**	**3**	**4**	**5**	**7. Fitting exercise into a busy day.**
1	**2**	**3**	**4**	**5**	**8. Enduring strenuous exercise.**
1	**2**	**3**	**4**	**5**	**9. Knowing what exercise is healthy for me.**
1	**2**	**3**	**4**	**5**	**10. Knowing when I can increase my exercise level.**
1	**2**	**3**	**4**	**5**	**11. Enduring moderate exercise.**
1	**2**	**3**	**4**	**5**	**12. Taking my heart rate before and after exercise.**

Appendix O

Center for Epidemiologic Studies Depression Scale (CES-D)

Center for Epidemiologic Studies Depression Scale (CES-D), NIMH

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

	During the Past Week			
	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me.	☐	☐	☐	☐
2. I did not feel like eating; my appetite was poor.	☐	☐	☐	☐
3. I felt that I could not shake off the blues even with help from my family or friends.	☐	☐	☐	☐
4. I felt it I was just as good as other people.	☐	☐	☐	☐
5. I had trouble keeping my mind on what I was doing.	☐	☐	☐	☐
6. I felt depressed.	☐	☐	☐	☐
7. I felt that everything I did was an effort.	☐	☐	☐	☐
8. I felt hopeful about the future.	☐	☐	☐	☐
9. I thought my life had been a failure.	☐	☐	☐	☐
10. I felt fearful.	☐	☐	☐	☐
11. My sleep was restless.	☐	☐	☐	☐
12. I was happy.	☐	☐	☐	☐
13. I talked less than usual.	☐	☐	☐	☐
14. I felt lonely.	☐	☐	☐	☐
15. People were unfriendly.	☐	☐	☐	☐
16. I enjoyed life.	☐	☐	☐	☐
17. I had crying spells.	☐	☐	☐	☐
18. I felt sad.	☐	☐	☐	☐
19. I felt that people dislike me	☐	☐	☐	☐
20. I could not get "going".	☐	☐	☐	☐

SCORING: zero for answers in the first column, 1 for answers in the second column, 2 for answers in the third column, 3 for answers in the fourth column. The scoring of positive items is reversed. Possible range of scores is zero to 60, with the higher scores indicating the presence of more symptomotology.

Appendix P

Partner Perceptions of a Woman's Weight Scale

Partner Perceptions of a Woman's Weight Scale

	Item	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1.	I feel good about my partner's current weight.					
2.	My partner's weight does not negatively affect her health.					
3.	My partner looks unhealthy.					
4.	At her current weight, my partner looks just as attractive as other women.					
5.	My partner would look better if she weighed less.					
6.	My partner would be attractive at any weight.					
7.	My partner would look better in her clothes if she lost weight.					
8.	My partner's current weight is a good weight for her.					
9.	I want my partner to lose weight.					
10.	I am satisfied with my partner's current body size.					
11.	My partner would look better if she gained some weight.					

Appendix Q

Female Perceptions of Weight and Dress Size

Female Perceptions of Weight and Dress Size Index

Please place a check mark next to the response that reflects your feelings and beliefs.

1. A woman's ideal dress size is:
_____a) size 0 to 2
_____b) size 4 to 6
_____c) size 8 to 10
_____d) size 12 to 14
_____e) size 16 to 18
_____f) size 20 and above

2. My dress size is:
_____a) size 0 to 2
_____b) size 4 to 6
_____c) size 8 to 10
_____d) size 12 to 14
_____e) size 16 to 18
_____f) size 20 and above

3. I am:
_____a) Underweight
_____b) Normal weight
_____c) Overweight
_____d) Obese

Appendix R

Male Perception of Female Partner's Weight and Dress Size Index

Male Perceptions of Female Partner's Weight and Dress Size Index

Please place a check mark next to the response that reflects your feelings and beliefs.

1. A woman's ideal dress size is:
_____a) size 0 to 2
_____b) size 4 to 6
_____c) size 8 to 10
_____d) size 12 to 14
_____e) size 16 to 18
_____f) size 20 and above

2. My partner's dress size is:
_____a) size 0 to 2
_____b) size 4 to 6
_____c) size 8 to 10
_____d) size 12 to 14
_____e) size 16 to 18
_____f) size 20 and above

3. My partner is:
_____a) Underweight
_____b) Normal weight
_____c) Overweight
_____d) Obese