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Biosociocultural Factors and Motivation to Lose Weight Among Obese African American Women

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Abstract

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MS, Walden University, 2012

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Dissertation Submitted in Partial Fulfillment

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Abstract

Obesity is a pandemic that has a substantial impact among African American women. Biological, social, and cultural acceptance of obesity, collectively referred to as *biosociocultural factors*, represents an obstacle to efforts to address this health risk among this group. The purpose of this study was to develop a better understanding of the relationship between biosociocultural factors and motivation to lose weight. Self-determination theory, objectification theory, and social learning theory formed the study's theoretical framework. The key research question concerned the extent to which the investigated constructs (BMI, internalized body image, and social networks) helped to explain motivation for weight loss among nonpregnant obese African American heterosexual or bisexual women who preferred to date and mate with African American men. The study used a quantitative and correlational cross-sectional survey design. Data were collected from a sample of 183 African American women with obesity. Survey components included a demographic questionnaire, Pulvers's Culturally Relevant Body Image Scale and Questionnaire, the Social Support for Eating Habits Survey, and the Dieting Readiness Test. Multiple regression analyses were used to examine the predictive strength of these factors (BMI, 3 components of internalized body image, and 4 components of social network) for motivation to lose weight. A statistically significant positive relationship was found between motivation to lose weight and 3 predictors (2 components of body image and 1 component of social network). Further examination indicated that body image was the most reliable construct predicting motivation to lose weight. Insights gained from this study may inform the development of culturally sensitive approaches to obesity prevention and intervention for this population.

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Chapter 1: Introduction to the Study

Introduction

The consequences of many obesity-related activities are not immediately apparent and may not be evidenced until years later. However, obesity is a disease that has elicited concern from the nation's medical and financial institutions because it has the capacity to reduce life expectancy and debilitate the economy (Cawley & Meyerhoefer, 2012; Khan, Raine, Donovan, & Hillman, 2014). Obesity can compromise every aspect of quality of life, causing an individual to lose the ability to easily move, sleep, and breathe. The impact of this disease goes past physical handicaps, as it also has social, psychological, emotional, financial, and academic implications (Booth et al., 2014; Chen, Williams, Hendrickson, & Chen, 2012; Merten, Wickrama, & Williams, 2008; Siceloff, Coulon, & Wilson, 2013). Due to the level of severity of the problem, the World Health Organization is currently focusing a sizable amount of attention on how to tackle this phenomenon globally as modern lifestyles have transformed obesity into an international crisis (Lau, 2010).

Nationally, concern over obesity is high. In the past 30 years, the American adult obesity rate has doubled (Centers for Disease Control and Prevention [CDC], 2014). This study focused on a U.S. population group that is greatly affected by obesity: African American women. Currently, more than half of the population of African American women—58%—have this disease (CDC, 2012). The most disturbing factor with regard to this population's connection to obesity is how the population correlates excessive weight, along with related ailments, with a natural process of aging (Lóp et al., 2014; McTigue et al., 2003; Wing & Anglin, 1996). This study focused on the phenomenon of

obesity using three biosociocultural obesity-related predictors and one criterion to develop greater understanding of the issue.

Major sections of this chapter are as follows: Introduction, Background of the Study, Problem Statement, Purpose of Study, Research Question and Hypotheses, Methodology, Theoretical Framework for the Study, Operational Definitions, Limitations and Assumptions, Significance and Scope of the Study, and Summary.

Background of the Study

Medical Risk of Obesity Among African Americans

Excessive weight gain is prevalent within the United States. This disease is primarily induced through continual participation in unhealthy activities. Given the many challenges that exist in relation to modifying obesogenic behaviors, obesity is a difficult disease to address (Schneiderman, Speers, Silva, Tomes, & Gentry, 2010). Obesity is a ticking time bomb that threatens to become a national calamity affecting 72 million American adults (Bean, Stewart, & Olbrisch, 2008) and an international pandemic affecting approximately 2 billion adults (Juarascio, Forman, Timko, Butryn, & Goodwin, 2011; Lau, 2010).

There are many concerns over the escalating growth rate of obesity because obesity is responsible for the development of numerous deadly diseases that incur high economic expenditures. In terms of physical and psychological concerns, obesity is associated with strokes, Type II diabetes, asthma, sleep apnea, high cholesterol and triglycerides, hypertension, nonalcoholic fatty liver disease, depression, anxiety, eating disorders, cardiovascular disease, lower body disability, and various forms of cancers (Merten et al., 2008; Shields, 2009; Spruijt-Metz, 2011). Based on this factuality, it is

forecasted that within 30 years, one-third of the U.S. adult population will become irreversibly ill as a result of obesity-related ailments (Lohman, Stewart, Gundersen, Garasky, & Eisenmann, 2009).

The process of weight gain is based on simple mathematics involving the balance between increases in energy intake in combination with decreases in energy outflow. Anyone who participates in continuous obesity-related behaviors, including the consumption of highly caloric and fatty meals, while living a sedentary lifestyle and practicing poor sleep habits, has a high probability of developing excessive weight issues (CDC, 2014; Melton, Langdon, & McDaniel, 2013). These behaviors are referred to within this study as *obesogenic-related behaviors* or *lifestyle* (Li, Adab, & Cheng, 2014). Unfortunately, obesogenic-related behaviors are prevalent and widely practiced within modern society.

Common activities such as overeating and lack of physical activity are the primary factors responsible for weight gain. However, according to Melton et al. (2013), lack of sleep can also be a factor in obesity. Individuals who lack adequate sleep can alter their circadian clock, thereby affecting the metabolic flow of energy intake due to hormonal changes (Melton et al., 2013). To test this theory, Patel et al. (2008) demonstrated how older adults who slept fewer than 5 hours per night had a higher body mass index (BMI) than older adults who slept 7-8 hours per night.

As previously discussed, many normal functions, including consumption, movement, and sleeping, when engaged improperly, can increase weight gain. In essence, anyone engaging in an obesogenic lifestyle can become obese. When it comes to obesity, an individual's age, gender, race, or sexual preference does not matter. Sadly,

obesity is a disease that also affects children. Obesity's effect on children is just as detrimental as its effect on adults, as children can also develop chronic diseases from maintaining excessive weight. Research studies have revealed that 61% of obese children have at least one heart-disease-related health issue, while 39% have at least two heart-disease-related health issues (Dietz, Benken, & Hunter, 2009). Obese children's lifestyle outcomes will likely be more severe than those of their parents, as these young individuals will suffer for a lifetime from this disease and its consequences. It is projected that obese children's life expectancy may be shorter than that of their normal-size parents (Lhachimi et al., 2013).

An example of a consequence stemming from being obese as a child involves brain development (Khanett et al., 2014). Obesity is linked to neurodevelopmental dysfunctions, mental impairments, and learning delays in children (Clark, Slate, & Vigliette, 2009). According to Clark et al. (2009), normal weight children tend to achieve higher academic levels than their obese peers. When obese children become adults, the struggle continues. Such individuals are less likely to attend college and obtain employment that is comparable to that of their normal-weight counterparts (Merten et al., 2008). Many areas of an individual's life are negatively affected by obesity, and if the excessive weight is not lost as the person gets older, the negative effects will only be exacerbated.

Unfortunately, the harmful effects of obesity also affect nonobese individuals as this disease and its related ailments deplete the economic foundation of this society. Obesity is one of several variables responsible for draining the United States financially as obesity-related diseases, which are increasing in prevalence, require medical and

psychological treatments. Due to extensive treatments, medication usage, and hospitalization, the medical obesity expenditures of the United States have reached $147 billion annually (Ford, Li, Zhoa, & Tsai, 2011).

Obesogenic Attitudes and Behaviors Within the Female African American Community

Although obesity can affect anyone, within the United States 58% of the female African American population is affected by obesity (CDC, 2012). Obesogenic behaviors are more prevalent among minority communities, especially African American low-income communities. Multiple factors that have particularly pronounced impacts on vulnerable communities, such as biological, social, and cultural contributors to obesity (referred to within this study as *biosociocultural factors*); poverty; environment; education; genetics; and chronic stress make it difficult for this population to lose weight (Schneiderman et al., 2010). These same factors also hinder the effectiveness of weight-loss programs that are advised by medical practitioners.

Traditional eating patterns. For the female African American, one influential factor that perpetuates an obesogenic lifestyle is biosociocultural acceptance of obesity (Lóp et al., 2014). Many ascribe this biosociocultural value of obesity to the traditions of American slavery. Inhumane conditions forced slaves to develop and rely upon endurance techniques to survive, such as consuming more when food was available to counter the effects of unpredictability and starvation, and having to endure limited access to healthy foods (Airhihenbuwa et al., 1996; Lóp et al., 2014). Over time, these coping mechanisms evolved into reliable cultural values and unseen guidelines that enforced work ethics, family and social interaction, and consumption patterns.

According to Kannan, Sparks, DeWitt, Krishnakumar, and Lumeng (2010), lack of availability of quality foods for slaves played a major role in establishing modern African American consumption patterns, as well as in the development of cooking styles relying on high levels of salt, sugar, and unhealthy fats. Currently, the African American population has this country's lowest consumption rate of fruits and vegetables (Kannan et al., 2010). African Americans developed unhealthy consumption patterns out of necessity, due to the fact that the only food available to slaves consisted of the scraps that slave owners would provide. Slaves had to create satiating meals from these high-saturated-fat and starchy scraps, and they had limited access to fruits and vegetables (Kannan et al., 2010).

As slavery ended and quality of life improved for the African American population, consumption patterns remained the same. Slave meals transitioned into dependable food rituals, becoming sufficient to sustain this population while evolving into a desirable cuisine known as *soul food*. Soul food fulfilled African Americans' consumption needs, in that it was affordable, accessible, palatable, and satiating (Lucan, Barg, Karasz, Palmer, & Long, 2012). Unfortunately, these criteria overrode the most important feature of consumption, nutrition.

Beauty standards and social acceptance. Despite their limited food intake, African American slaves desired to gain weight in order to physically support their heavy workloads and be perceived as stronger, healthier, and happier (Airhihenbuwa et al., 1996; Lóp et al., 2014). Being overweight became an index of survivability. Being overweight also became a culturally relevant physical index of health for breeding (Chen, Williams, Hendrickson, & Chen, 2012) and became intricately intertwined with sexual

attraction among African Americans (Johnson & Broadnax, 2003). Even today, standards of beauty for African American women are different from those of Caucasian women. In the African American culture, excessive adiposity (storage of body fat) is considered a more attractive mating feature among many African Americans (Dannelly, Kicklighter, Hopkins, & Rivers, 2005; Freedman, Carter, Sbrocco, & Gray, 2007). As with other cultural norms, physical appearance not only becomes a basis for judging others who share the culture, but also for judging oneself (i.e., one's body image; Santostefano, 2014). In general, most individuals are motivated to meet the expectations of the social group with which they identify, including those related to physical appearance (Brewis, 2011; Guan, Lee, & Cole, 2012). This creates a potential conflict for African American women between aspiring to lose weight for health reasons and the desire to be acceptable to their social network, with who they identify and gain social support and intimate relationships (Christakis & Fowler, 2007; Lynch et al., 2007).

Various solutions to unhealthy eating patterns in African American communities have been proposed, such as building large supermarkets to give more people access to healthy foods. However, the availability of such foods will not change eating patterns, cooking styles, and body image perceptions that have been established for generations. This is why it is important to learn more about the concept behind this population's acceptance of obesity and motivation level to lose weight, which stems from biosociocultural traditions. Not addressing this issue can only lead to continual growth of this disease among this population. The goal of this study was to develop answers by learning more about this situation.

Problem Statement

The CDC (2012) has indicated concern about the continuous growth of obesity, especially among minority groups such as the African American female population. The concern for this disease is related to its affiliation with the numerous debilitating illnesses that are a result of carrying excessive weight. Trepidation is heightened when African American women, the most affected population, lack interest in losing weight (Chen & Wang, 2012; Hall, 1995; Kronenfeld et al., 2010; Lóp et al., 2014). Previous research has acknowledged this issue and elaborated on relevant factors that trigger obesity-related activities; however, effective solutions have never been established (Lóp et al., 2014; McTigue et al., 2003; Wing & Anglin, 1996). The focus of many of these studies has been efforts to improve minority communities' obesity rates by encouraging healthier lifestyles. Unfortunately, improving socioeconomic and environmental factors will not alter people's behavior so that they make better lifestyle choices if they hold their excessive weight in high regard, or are not interested in losing weight (Freedman et al., 2007; Lóp et al., 2014; Merten et al., 2008).

Improving socioeconomic and environmental factors can be helpful to individuals who desire to lose weight; however, this study was designed to address a population whose members view obesity as tolerable and, in some cases, even acceptable. According to Dr. Susan Czajkowski, research psychologist from the National Heart, Lung, and Blood Institute in Bethesda, Maryland, modifying obese individuals' behaviors is very difficult to accomplish because they have a problem committing to modifications (Anthes, 2014). This was the rationale behind this study's examination of biosociocultural variables that are predictive of the motivation to lose weight.

This effort to understand biosociocultural motivational factors presented an opportunity to reevaluate and improve existing ineffective prevention and intervention programs designed for this demographic. Reevaluating ineffective weight intervention programs may be feasible once the research problem, which is a societal concern, is addressed. The research question was as follows: To what extent do the investigated constructs (BMI, internalized body image, or social networks) help to explain motivation for weight loss among nonpregnant obese African American heterosexual or bisexual women who prefer to date and mate with African American men? I sought to answer this question by developing an understanding of the relationship between the constructs (BMI, internalized body image, and social networks, which included as subcomponent beliefs about African American men's preference for full-figured women over smaller women) and the criterion variable, motivation to lose weight among obese African American women.

Purpose of Study

The purpose of this study was to develop a better understanding of the biosociocultural factors that influence nonpregnant obese African American women's level of motivation to lose weight. Do any of the three constructs, individually or combined, increase understanding of this population's drive to lose weight or explain members' acceptance of obesity? Surveys were used to gather and interpret relevant data.

Nature of the Study

This research was a quantitative, cross-sectional, correlational survey study. I examined the extent to which scores on the three constructs account for the variability in

scores on the dependent measure, and I used multiple linear regression analyses to test the research hypotheses. Participants were adult nonpregnant African American women who were identified as obese (BMI $\geq$ 30 kg/m^2). Volunteers were recruited from two predominantly African American churches.

Research Question and Hypotheses

I used online self-report surveys to test hypothesized relationships between three general constructs (BMI, components of internalized body image, and social networks) and one criterion variable, defined as motivation to lose weight among nonpregnant obese African American women. The following research questions and hypotheses guided the study:

RQ1: To what extent is BMI among nonpregnant obese African American women (as measured by self-reports on the demographic questionnaire and calculated based on height and weight) related to motivation to lose weight (as measured by the Diet Readiness Test)?

$H1_0$: There is no relationship between BMI and motivation to lose weight.

$H1_1$: There is a statistically significant relationship between BMI and motivation to lose weight.

RQ2: To what extent are components of internalized body image among nonpregnant obese African American women (as measured by the Body Image Measurement Scale) related to motivation to lose weight (as measured by the Diet Readiness Test)?

$H2_0$: There is no relationship between the four components of internalized body image and motivation to lose weight.

$H2_1$: There is a statistically significant relationship between the four components of internalized body image and motivation to lose weight.

RQ3: To what extent are influences from one's social network among nonpregnant obese African American women (as measured by the Social Support for Eating Habits Survey) related to motivation to lose weight (as measured by the Diet Readiness Test)?

$H3_0$: There is no relationship between the four components of social network and motivation to lose weight.

$H3_1$: There is a statistically significant relationship between the four components of social network and motivation to lose weight.

RQ4: What proportion of the total variance in motivation to lose weight among a sample of nonpregnant obese African American women is explained by simultaneous consideration of BMI, components of internalized body image, and social network as predictors?

$H4_0$: There is no appreciable proportion of the total variance in motivation to lose weight among a sample of nonpregnant obese African American women that is explained by simultaneous consideration of BMI, components of internalized body image, and social networking as predictors.

$H4_1$: A statistically significant proportion of the total variance in motivation to lose weight among a sample of nonpregnant obese African American women is explained by simultaneous consideration of BMI, components of internalized body image, and social networking as predictors.

Methodology

To conduct this study, I employed a quantitative, correlational, cross-sectional design using an online survey method. Originally, the planned sample for this study was a minimum of 111 volunteer adult nonpregnant African American women with a BMI $\geq$ 30 kg/m^2 who described themselves as heterosexual or bisexual and who preferred to date and mate with African American men. Individuals with a BMI lower than 30, who were pregnant, who were homosexual, or who were uninterested in dating and mating with African American men were not invited to participate in the study. African American homosexual women or African American women uninterested in dating and mating with African American men were not considered as participants because the focus of this study was women's expectations regarding attractiveness to men as a factor in motivation to lose weight. That is, the factor of interest was what women believed were the expectations of African American men and potential intimate partners regarding their body size.

Participants who met the study criteria were solicited through flyers. These flyers, which provided information about the study and participation requirements, directed potential participants to the online survey. Only eligible participants were invited to participate in the online survey, which required them to self-report BMI by

supplying their weight and height in the demographic section. As researcher, I calculated potential participants' BMIs. To increase the opportunity to reach the minimum sample size of 111 participants with useable data and statistical power of .80, a total of 25% (i.e., totaling 139 participants) additional candidates than were originally considered were surveyed.

The study's cross-sectional design was selected because it is a respected approach that has been used in many short-term health studies to establish the prevalence rate of a health issue in a specific population (Mann, 2003). The cross-sectional approach is a cost-effective, quick, and convenient method that allowed this study to collect data from the participants when they were available.

The participants were recruited as volunteers from two predominantly African American megachurches. The study tested correlational relationships (Lappe, 2000) between three general constructs (BMI, internalized body image, and social networks) and motivation to lose weight among nonpregnant obese adult African American women. Research hypotheses were evaluated through multiple regression analyses.

Theoretical Framework for the Study

Three theories were used to develop a better understanding of dynamics between biosociocultural factors and attitudes, goals, and behaviors, which may support obesogenic patterns among African American women: self-determination theory (SDT), objectification theory, and social learning theory (SLT). Used together, these theories provide guidance regarding how behaviors are developed, and more importantly, how unwanted habitual behaviors can be replaced or eliminated (Zaparanick & Wodarski, 2004). The goal, with respect to this study, was to use these theories to assist in first

developing and then answering the research questions and hypotheses. In addition, these theoretical models provided some insight into a way to address behavioral changes (Sweet, Fortier, Strachan, & Blanchard, 2012).

SDT was applied to motivation to control weight by addressing techniques to elicit behavioral changes (Sweet, Fortier, Strachan, & Blanchard, 2012). Understanding the parameters of motivation as a tool is useful when enforcing positive behavioral modifications (Deci & Ryan, 2012). The role of SDT was sufficient in analyzing the connections between each construct and the criterion. Objectification theory was used to address how one's personal appearance can motivate behaviors based on social viewpoint (Fredrickson & Roberts, 1997). This theory indicates how an individual's perception of himself or herself can translate into many health issues that can be damaging. Finally, SLT provided a viewpoint on human behaviors, attitudes, and emotional reactions based on biosociocultural standards (Chavis, 2012). This theory addresses how behaviors are learned through imitation and observation and are reinforced through social rewards and punishments (Randall et al., 2011). SLT clarifies cognitive learning processes that develop behaviors and attitudes, which, in the context of this study, supported the population's commitment to obesity-supportive behaviors.

Operational Definitions

Three general constructs and one dependent variable were analyzed in this study, as outlined below.

Body mass index (BMI): BMI is an index tool used as an indicator to determine an individual's body fat category; it is calculated using a person's weight and height (Kilcarsian et al., 2006). This method is used by many health professionals as a

barometer to determine if an individual has weight concerns that need to be addressed. Individuals with BMI $\geq$ 25 kg/m^2 are categorized as overweight, and those with BMI $\geq$ 30 kg/m^2 are categorized as obese. Although a reliable instrument, this index tool does not measure actual body fat directly (Kilcarsian et al., 2006).

Internalized body image: This term refers to the internalized cognitive and affective schema that an individual has of his or her own physical appearance. Individuals develop body image from past social experiences and their interpretations of how they are viewed by or compared with others; these social comparisons include information about sexual appeal and attractiveness (Szymanski, 2007). As internalized body image is generally associated with social encounters; it also is highly related to social and cultural norms within one's own family, community, and culture (Santostefano, 2014).

Motivation to lose weight: *Motivation* generally is defined as a force to energize, impel, and direct behavioral responses (Naughton, McCarthy, & McCarthy, 2015). In addition to maintaining current behaviors, it is the internal impetus for change (Deci & Ryan, 2012; Sweet et al., 2012). Relating to consumption behaviors that can affect an individual's weight, motivation to lose weight can involve numerous factors, including environmental, psychological, biological, social, and cultural factors (McTigue et al., 2003; Wing & Anglin, 1996). Thus, motivation to lose weight is the internal process of energized cognitions (e.g., beliefs, attitudes, and goals) and emotions, which then support further changes in behaviors, cognition, and emotions to reach the goal of weight loss (Elfhag & Rossner, 2005).

Social networks: Social networks are social structures that are established from birth among immediate family members and caretakers. These social structures have the

ability to leave imprints on an individual's personality, attitudes, and behaviors, which ultimately affect psychological and physical outcomes (Carson et al., 2013). As individuals grow, their social networks expand, moving outside their circle of immediate family and peers into new life stages and activities, such as those involving schoolmates and coworkers. Social networks usually include family, peers, schoolmates, coworkers, community members, and church members.

Limitations and Assumptions

All research is susceptible to limitations, although it is researchers' goal to reduce limitations as much as possible to legitimize studies' outcomes. Because this study used surveys, understanding surveys' weaknesses was mandatory. A primary weakness of using surveys to collect data is that this method fully depends on the accuracy of the responses to obtain adequate results (Groves et al., 2009). Inconsistent, inaccurate, or incomplete data can affect results. This can occur if questions on questionnaires are poorly written and unclear, or if interviewers are biased and unprofessional **(**Krosnick, 1999**).**

To avoid this concern, this study used validated instruments. Using validated instruments reduced unsustainable responses, as validated instruments are more likely to be comprehensible and clear; researchers previously assessed the instrument for clarity of written language and cultural relevance (Groves et al., 2009). Closed-ended questions and a simple multiple-choice format enhanced the legitimacy of the instrument (Groves et al., 2009).

Participants had the power to commit or quit. Incomplete surveys can prolong a study's timeframe and weaken its results. Any incomplete questionnaire that contained a

large amount of missing data was not included in the study for analysis because it was considered inconclusive, and inconclusive surveys can increase sampling errors (Ordonez, 2011). All inconclusive surveys were removed. To assure that the data collected were properly interpreted, I worked very closely with my dissertation chairman to confirm that the information collected was operative.

The study used multiple regression as a statistical technique to analyze the collected data. Using a statistical method improperly can increase limitations. To assure proper use of the intended statistical analysis method, it was important that the statistical assumptions were met (Gravetter & Wallnau, 2009). Assumptions, when met, validate the accuracy of a study. Regarding the use of multiple regression, relevant assumptions include that all variables are normally distributed and measured without errors, as well as that each construct has a linear relationship with the dependent variable. It was also important that the data not show multicollinearity, that there were no significant outliers**,** and that homoscedasticity was indicated. From the study's inception to its conclusion, I placed a high amount of emphasis on reducing the study's limitations and validating the multiple regression's assumptions to ensure accurate results.

One of the assumptions of this study was that all respondents replied honestly. To avoid the possibility of the participants feeling uncomfortable within the study's setting, I allowed the participants the opportunity to complete the survey at their convenience via the Internet. Allowing a pleasurable and unconfined environment for survey completion increased the response rate and inspired truthfulness, in that participants' responses were not influenced. Responses that are not private can be influenced by others through an effect known as *social desirability bias* (Flores-Macias & Lawson, 2008). Social

desirability bias occurs when participants provide responses that are not their personal opinions but are what they believe to be approved by society. Another assumption was that the participants could be influenced by the survey through the structure of the questions. To avoid the use of inappropriate questions that might invalidate responses, I used instruments that had been validated. Finally, the assumption could not be made that the study's target population would not socially or culturally accept obesity and have a high level of motivation to lose weight. However, the goal of this study was to evaluate African American women who were obese and whether biosociocultural (biological, social, and cultural variables) appeared to help explain their levels of motivation to lose weight.

Significance and Scope of the Study

The significance of this study resides in the collection of data to shed light on a population whose members tolerate obesity as part of their culture. This population of interest was nonpregnant obese African American heterosexual or bisexual women who prefer to date and mate with African American men. Unfortunately, this population has the highest rate of obesity than any other female, racial and ethnic group in the United States. Over half of the members of this population were categorized as obese (CDC, 2012). Information obtained from this study may be used to direct efficient intervention and prevention programs for individuals who perceive obesity-promoting activities as a natural cultural phenomenon. Many factors contribute to high obesity rates for African American women; the focus of this study was on biological, social, and cultural variables due to their historical implications.

Summary

Obesity has been recognized as one of the most complex diseases due to the multiple components of its causation. The many factors that can cause obesity make it difficult to determine the cause for any one case of obesity (Hofbauer, 2002; Horn, Turkheimer, Strachan, & Duncan, 2015). The complexity of obesity makes it difficult to address and resolve the issue, especially because each obese individual may require his or her own customized weight loss treatment.

This study addressed the issue of obesity in relation to a highly affected population that has culturally accepted this disease. The goal for this study was to develop a respectful understanding of the acceptance of this disease among nonpregnant obese African American women and to use this understanding to restructure obesity intervention protocols so that they are more culturally relevant. Modifying this population's lifestyle would include replacing familiar long-term behaviors and attitudes with unfamiliar ones. Efforts to support individuals in modifying several primary lifestyle choices (i.e., consumption, socialization, mating rituals, and child rearing) may be facilitated by a better understanding of this population’s biosociocultural perception of obesity.

In summary, in Chapter 1 I elaborated on the importance of being concerned as a society about obesity and how it affects everyone. This chapter included the problem statement, purpose, variables, and significance of the study. Also included in this chapter are the limitations, as well as the assumptions necessary to ensure a quality research study. Further discussion of general factors in obesity along with this study’s

components, including a criterion variable and three biosociocultural constructs, is presented in Chapter 2.

Chapter 2: Literature Review

Introduction

Currently, there is a plethora of intervention programs for obesity, which are designed to enhance healthy lifestyles through weight loss. Unfortunately, the only area where the billion-dollar weight loss prevention industry succeeds is in its profit margin (Meekums, 2005). A surplus of weight loss treatments and commercial programs consisting of behavioral modification techniques, diet pills, self-help books, conditioning apparatuses, counseling therapy, wellness apps, fitness gyms, television/Internet programs, and weight loss clinics (Weight Watchers, Jenny Craig, and Nutrisystem) have a low long-term achievement rate, as these programs are not preventing the continual increase of the national obesity rate (Meekums, 2005). Obesity is a chronic disease whose sufferers face devastating consequences as the physical, mental, social, and economic aspects of their lives deteriorate (Diggins, Woods-Giscombe, & Waters, 2015; Faith, Fontaine, Baskin, & Allison, 2007). According to Mastin and Campo (2006), obesity is an epidemic in the United States that will be difficult to eradicate because this complex disease requires customized intervention programs to address the simultaneous interaction of genetic, cultural, financial, social, behavioral, physiological, historical, environmental, metabolic, and cellular influences.

For 50 years, obesity has been an issue within minority communities; however, prior to the 1960s, health officials did not publicly acknowledge this concern (Mastin & Campo, 2006; Sutton, Magwood, Jenkins, & Nemeth, 2016). Now, recognizing the deadly effects and the increase of this disease, the CDC (2012) has identified African American females as the most affected American population, with over half classified as

obese. More disturbingly, according to the Office of Minority Health, 80% of this highly affected population has a BMI $\geq$ 25 kg/m^2 (Antin & Hunt, 2012; Barnett & Praetorius, 2015), with a 70% chance of being obese compared to Caucasian counterparts (Diggins et al., 2015). Public health officials' acknowledgment of the danger obesity presents to human anatomy has generated urgency to create solutions, which is why a plethora of weight loss research, treatments, and programs exist.

Although public forums address the negative effects of obesity, many American subgroups are unconcerned, perceiving obesity as a nonthreatening and tolerable phenomenon (Barnett & Praetorius, 2015; Dannelly et al., 2005; Freedman, Carter, Sbrocco, & Gray, 2004). Disturbingly, the African American female population is one of the American subgroups that accepts obesity (Lóp et al., 2014; Poran, 2006; Sabik, Cole, & Ward, 2010). Most obese adult African American females have dealt with obesity throughout their childhood. Among 6-year-old African American girls, the prevalence of excessive weight is higher than among their Caucasian counterparts (Mastin & Campo, 2006). Successfully motivating weight loss for female African Americans requires an effort to address the population's strong biosociocultural ties that affect acceptance of the disease. The purpose of this study was to address three biosociocultural variables that may function as barriers to motivation to lose weight.

Because motivation to lose weight is a key factor in weight reduction, this factor was the study's criterion variable. Three biosociocultural constructs were investigated among a population of nonpregnant obese African American heterosexual or bisexual women who preferred to date and mate with African American men: BMI, internal body image, and social networks, which included a subcomponent of the perception of African

American males' attitudes toward large women. A discussion of each of these constructs occurs later within this chapter.

A thorough review of the literature was conducted using the health sciences and psychology subject databases of Walden University's electronic library. Under the topic of health sciences, valuable information was collected through MEDLINE and CINAHL Plus using full-text sources. Information acquired here had a strong medical and preclinical science approach, which assisted in understanding the biological aspect of obesity and related factors. Under the topic of psychology, reliable information was collected from PsycINFO, PsycARTICLES, ProQuest Dissertations, and PsycCRITIQUES. These databases provided myself with dependable peer-reviewed journals, articles, and other literature focusing on behavioral sciences and mental health. Key words used to search topic matter included *obesity, obese, overweight, obesity clusters, fat, African American, Blacks, body image,* and *women.*

General Factors in Obesity

Many factors contribute to obesity, ranging from genetic, environmental, and psychological factors to behavioral, cultural, and social issues. Obesity is a complex disease; a network of combined and overlapping elements prompts an increase of body fat, making it difficult to resolve. One individual might become obese due to genotype and environment, whereas another might obtain excess weight because of psychological and cultural factors (Hofbauer, 2002; Horn, Turkheimer, Strachan, & Duncan, 2015; Lóp et al., 2014). Regardless of the causes, consideration of individual cases is essential for resolving obesity. Resolutions should be customized based on the factors that are

responsible for causing obesity. A brief review of each type of factor related to obesity follows, with special emphasis on biosociocultural influences.

Genetic Factors

An individual's deoxyribonucleic acid (DNA) consists of genes influencing the functioning of every component of his or her body. DNA "road maps" instruct genes to direct human growth and development, which in some cases includes obesity (Bartle, 2012; Manco & Dallapiccola, 2012). Genetic factors related to obesity can involve mutations in genes, which can create dysfunction with appetite hormones as well as lipid/protein metabolism abnormalities, increase blood insulin levels, disrupt energy homeostasis, and elevate food intake (Hinney, Vogel, & Hebebrand, 2010; Hofbauer, 2002; Manco & Dallapiccola, 2012). Svensson et al. (2011) confirmed that obese parents are likely to produce obese children who will remain obese throughout their adulthood, possibly obtaining higher BMI than their parents and becoming morbidly or severely obese adults. In this way, later generations may have higher BMIs than those that preceded them. The lifelong effects of excessive fat in the human body lead to deadly consequences that can shorten life spans up to 30 years (Lohman et al., 2009).

Genetic influences may hamper the benefits of healthy lifestyles. There are over 500 genes and markers associated with obesity, some with stronger effects than others (Rankinen et al., 2006). Complications include how genes are mutating, merging, and adapting to unhealthy lifestyles, causing susceptibility to obesity. Of great concern is the fact that the number of genes that are associated with obesity is increasing (Rankinen et al., 2006). Obese parents maintaining obesogenic lifestyles are inadvertently mutating the genes inherited by their offspring.

There are several factors that have been discovered in relation to the biology of obesity. For example, the hormone leptin regulates appetite as it alerts the hypothalamus when the body requires or has obtained enough energy (Hofbauer, 2002). Dysfunctional leptin receptors, which can emerge from a mutated gene, may be caused by excessive food intake. When one consumes more energy (calories) than is used by the body, the excess is stored within white adipose tissue, thus expanding the fat cells (Priego, Sanchez, Pico, & Palou, 2008). Further, the CD36 gene can elevate the gustatory mechanism regarding cravings for fat consumption. Keller et al. (2012) found that CD36 is a commonly inherited gene within the African American population. Additionally, many traditional soul food cuisines contain high levels of unhealthy oils and fats, which contribute to the obesity epidemic for this population.

Melanofortin-4 receptor (MC4R) is a rare inherited mutated gene that can cause obesity by stimulating excessive food intake (Hinney et al., 2010). Concern for this gene is related to how it can create overeating tendencies and dangerously increases blood insulin levels, potentially leading to irreversible diseases. Overeating, regardless of the cause, dangerously increases blood insulin levels, potentially leading to Type 2 diabetes. Increased or overworked insulin can cause the pancreas to dysfunction, preventing this hormone from properly removing excessive glucose from the bloodstream. The inability to remove excessive glucose from the bloodstream causes unremoved glucose to become toxic, creating incurable diabetes (Funnell et al., 2010).

Mutated genes that correlate with obesity are on the rise. For individuals who are genetically predisposed to obesity, there is a psychological effect that reduces the desire to participate in activities targeted at healthy lifestyles and weight reduction (Lippa &

Sanderson, 2012). Thus, a similar attitude may be shared among members of an ethnic group, such as African Americans, and provide an additional psychosocial risk factor for obesity.

Environmental Factors

Environmental factors play an important role in the rise of obesity for this targeted population. Siceloff, Coulon, and Wilson (2013) proposed a bioecological framework for analyzing obesogenic patterns among African Americans. A bioecological model consists of complex layers of networks, microsystems, and macrosystems in which an individual function. At the microsystem level, individual factors, including genetics and individual personality, present one layer of influences on weight-related behaviors. The individual functions within an inner circle, which can encourage obesity-related activities, in that the individual's behaviors may mimic those in his or her family, household, religion, neighborhood, school, and workplace (Cook & Mueser, 2013).

Other environmental influences lie beyond the inner networks. These may include geographic elements, such as proximity to healthy food sources versus unhealthy alternatives such as fast food. Davis and Carpenter (2009) found that the weight of students from schools near fast food restaurants was significantly higher than that of students in schools not located near fast food restaurants. Further, facilities that enforce 5-days-per-week attendance can also affect the lifestyle choices of students. Macroenvironmental influences may include food manufacturers, social events, media, and government standards (Cook & Mueser, 2013). An example is the effect of television commercials in stimulating unhealthy food consumption. Often, food

manufacturers use clever marketing tactics that are particularly effective with obese individuals because they have a higher rate of spontaneous eating that is easily affected by external cues (Rothemund et al., 2007). According to Nederkoorn, Guerrieri, Havermans, Roafs, and Jansen (2009), obese individuals have impulsive personalities that inspire spontaneous eating. This was confirmed by Rothemund et al. (2007), who performed neural testing on 26 obese and normal-size participants. The study revealed that the dorsal striatum of obese individuals showed higher activity when they were shown images of food. The role of the dorsal striatum involves reward anticipation and the development of appetizing consumption habits, which can trigger compulsive eating leading to an overeating disorder (Rothemund et al., 2007).

Economically strained communities are more likely to include the population that has the highest risk for obesity, low-income African American women (Rowe, 2010). These communities contain minimal fitness and wellness atmospheres to promote weight loss. In addition, when compared with wealthier neighborhoods, there is less access to large supermarkets, farmer's markets, neighborhood walkability, and healthy street life activities (Cook & Mueser, 2013; James et al., 2006; Rowe, 2010). Low-income communities have been described as *food deserts*, communities that provide residents with low-quality foods with minimal access to fresh meats, fish, fruits, and vegetables (James et al., 2006). These communities consist of fringe food establishments that include fast-food restaurants, liquor stores, convenience stores, dollar stores, bodegas (small grocery stores), and gas stations (Moore & Roux, 2006). A study measuring differences in access to healthy foods in two diverse-income-level neighborhoods in Manhattan revealed that food stores in low-income neighborhoods provided 18% of all

five government-recommended food groups, whereas food stores in middle-income neighborhoods had 58% of all five government-recommended food groups (Horowitz, Colson, Hebert, & Lancaster, 2004). Regarding food consumption, low-income residents prioritize convenience, cost, and taste over nutrition.

Being reared in a household and a community whose members consume high levels of fatty, salty, and sugary foods not only prompts weight gain, but also results in the development of heightened sensitivity and lower thresholds to both sucrose and sodium chloride (Pasquet, Frelut, Simmen, Hladik, & Monneuse, 2007). This pattern is similar to dependency on an illicit drug, in that more sugar and salt will be necessary for individuals to reach their hedonic level during consumption. Children reared in an environment where their staple diet is high in salts, unhealthy fats, and sugar will likely develop emotional and physical dependency that will elevate as they become adults.

Low-income communities invite unnaturally sedentary lifestyles as limited sidewalks, destitute parks, and unsafe playgrounds discourage residents from taking part in outdoor physical exercise. The presence of drug dealers, vagrants, and muggers dissuades community participation in jogging, walking, roller staking, and bike riding. Because of crime-infested neighborhoods, citizens elect to stay indoors, where physical activities are limited. A residential environment's support of physical activities is known as *neighborhood walkability*. Infrastructure can be designed to support residents leaving their homes and becoming active. Residents of walkable neighborhoods benefit from sidewalks, inviting playgrounds/parks, and the ability to walk from one business establishment to another (Moore & Roux, 2006). Enhancing street life activities encourages fitness and a healthy atmosphere, making residents want to enjoy the

outdoors. However, the demands of an obesogenic environment can lead to psychological stressors that support obesity-related behaviors (Deuster, Su Jong, Remaley, & Poth, 2011).

Psychological Factors

Physical hunger is only one motivator for food consumption. Moods, attitudes, opinions, and emotions, including boredom and loneliness, can motivate and influence consumption activities (Johnson & Wesley, 2012). Food can be used as a coping device when life stressors become overwhelming, or it may be used to address uncomfortable surroundings (Wood, 2010). Concepts such as "comfort foods" allude to how certain foods have strong emotional associations with consolation and familiarity, promoting feelings of security and safety while soothing emotional distress (Stein, 2008). Comfort foods are normally associated with high levels of unhealthy fats, sucrose (sugar), and sodium, as well as overall density in calories. These highly caloric foods increase the risk of weight gain and present some physiological risks, such as elevated cholesterol, diabetes, and hypertension. Food's effect on mood, appetite, learning, memory, and sleep occurs through changes in production of a neurochemical called *serotonin*, which also affects areas of the brain associated with hedonic (i.e., pleasurable) experiences (Lichtblau, 2011; Pratt, Blackstone, Connolly, & Skelly, 2009). The neural circuitries of serotonin's terminals and receptors trigger feelings of importance, accomplishments, and pleasure; however, deregulated serotonin can incur mood swings, depression, insomnia, loss of libido, and eating disorders, all relating to obesity (Lichtblau, 2011). Just as the pleasure response can motivate overeating, so too can serotonin dysfunctions lead to the

development of an eating disorder, as the judgment to discontinue food intake is impaired.

Stress is a primary psychological factor that stimulates an individual to increase food intake. According to Sims et al. (2008), excessive food intake is a coping mechanism that contributes to the epidemic of obesity, especially among African Americans. Overconsumption due to stressors not only occurs when individuals are dealing with actual stressors, but also when they are anticipating stressors. The use of food as a coping device for anticipated stressors often occurs in relation to work-related problems, financial strain, or relationship issues. The use of food to cope with anticipated stress leads to negative eating patterns.

African American women are prone to experiencing more daily stressors than their African American male and Caucasian female counterparts, especially in relation to racism and sexism, and the interaction of them both (Johnson & Wesley, 2012). Specifically, African American women's primary stressors consist of (a) historical and current discrimination; (b) poor access to medical facilities; (c) living and rearing children within high-crime, low-income communities; (d) low-quality eating habits; (e) feelings of being undervalued; and (f) socioeconomic frustrations. Collectively, these stressors can elevate allostatic loads, which can compromise the immune system (Keyes, Barnes, & Bates, 2010). An excessive burden of chronic stressors, which is common among African American women, creates imbalances in hormones and chemical baselines as allostatic loads increase. These imbalances not only initiate unhealthy consumption habits, but also can have other physiological and psychological consequences (Juster et al., 2011). According to Hall (1995), individuals experiencing

chronic discrimination and racism can develop emotional dysfunctions resembling posttraumatic stress disorder, which can trigger many forms of emotional eating habits (Diggins et al., 2015). Addressing chronic stressors through excessive food consumption is acceptable in this population, in which eating has positive psychological connotations of celebration within households and communities.

In addition, individuals driven to increase food intake due to stress have a higher BMI than individuals not driven to increase food intake due to stress. African American women are more likely to become "stress-driven eaters" as they tend to eat emotionally, mindfulness eat, skip meals, and do not preplan meals (Sims et al., 2008, p. 138). Each of these eating consumption habits lead to excessive weight gain, as the selection of foods tend to include foods that are low in nutrition and high in calories.

Individuals prone to a complicated lifestyle with high levels of stressors are less likely to manage weight control by participating in a healthy lifestyle; this is common among African American women who encounter racism, sexism, poverty, lack of career options, and health disparities (Johnson & Wesley, 2012). Psychological factors contain many components that direct an individual toward an obesogenic lifestyle. These unhealthy habit-forming activities can develop into chronic behavior patterns.

Behavioral Factors

Behavioral factors are any activities, conduct, and mannerisms performed by human beings. Behaviors can include excessive food intake, lack of physical activities, and poor sleep hygiene, all of which can cause obesity (Vgontzas et al., 2008). The predictable cause of obesity consists of behaviors that relate to simple mathematics,

increasing energy intake while decreasing energy outflow. Hence, over consumption of high-caloric meals and maintaining a sedentary lifestyle will escalate weight gain.

Another obesity-related behavior is poor sleep hygiene. According to Vgontzas et al. (2008), the primary cause of shortened sleep duration are emotional stressors; these emotional stressors are more common among African American women. Consistent unhealthy sleeping behaviors will alter biological functions that lead to other unhealthy outcomes. Sleep deprivation can cause unhealthy biological dysfunctions such as deregulating appetite hormones to include: leptin and ghrelin, disturbing metabolic syndrome, and increasing fatigue (Citlalli, Pilar, Agustín, René, & Manuel, 2012). The results of not feeling satiated during consumption include reduction in metabolism function and/or lack of energy to exercise; these biological dysfunctions can increase weight gain.

Like most behaviors, consumption is a learned behavior. Consumption behaviors are a variety of dietary patterns that are learned through long-term established customs. Anderson et al. (2007) conducted a study to assess food consumption behaviors among African Americans via collecting defined and extensive dietary assessments related to food preparation, restriction, acceptance, modification, substitution, cues, and impulsiveness. The survey instrument was an extensive, 94-item food habit questionnaire, titled *SisterTalk*. Unfortunately, attempts to study those most in need of dietary modification have been hampered by low completion rates among the participants (Anderson et al., 2007).

Media outlets are influential in directing individual's perceptions of what is considered proper consumption practices. Sixty percent of the advertisements that are

shown during African American television programs are advertisements promoting unhealthy foods and beverages (Mastin & Campo, 2006). These commercials elevate cues triggering poor quality mealtime habits. Increased consumption of unhealthy foods can lead to food cravings and severe food compulsions (Coccurello, D'Amato, & Moles, 2009). Media networks also influence the acceptance of body size, which for African Americans, is to accept a large body frame. Twenty-seven percent of African American actors featured within programs directed to this population are oversize. Within mainstream (Caucasian) television programs, the percentage of oversize actors is only two percent (Mastin & Campo, 2006).

Regardless of how a behavior was formed, fortunately, behaviors can be modified. To modify unhealthy behaviors effectively requires replacing existing behaviors with new behaviors. This process can occur by adopting new patterns through self-regulation and planning (Sniehotta, 2009). While modifying unhealthy behaviors is possible, this procedure is difficult when behaviors are heavily stimulated through daily triggers such as media advertisements, combined with social and cultural influences.

Cultural Factors

Culture develops an individual's identity by directing and guiding behaviors and responses to many social events. Culturally driven behaviors and responses are thought to be norms which are defined often in invisible, unspoken rules that have been passed down for generations through dependable sources including family members (Schiefer & Krahé, 2014). American subgroups follow their cultural guidelines that distinguish each group from one another, and the African American population is no exception.

The uniqueness of the African American culture is based on a blended culture from various heritages including African, West Indian, Caribbean, Native American, and European American. This combined heritage influenced survival tactics that assisted the African American population during the horrors of slavery (Airhihenbuwa et al., 1996). One of those survival tactics is the eating patterns that were developed from the lack of healthy food on the plantation. The scraps that the slave owners would provide their slaves became the slaves' primary source of food, which evolved into a cooking style based on high-saturated fatty meals with limited fruits and vegetables (Kannan et al., 2010; Lóp et al., 2014). These meals developed into dependable food rituals, ultimately becoming a traditional and desirable cuisine known as *soul food* (e.g., ham hocks, pig feet, and neck bones). Soul food fulfilled African Americans' consumption needs as it fit the necessary criteria of being affordable, accessible, palatable, and satiating. Unfortunately, these attributes override the most important feature in consumption, which is nutrition.

During the American slavery era, strenuous workloads and low food intake made it difficult for African American slaves to sustain extra weight. Obtaining extra weight became desirable to the slaves as they associated having a thin frail body to having a weak immune response system, having a strong immune system is necessary to search, destroy, and eliminate toxic elements that can cause diseases (McGhee & Fujihashi, 2012). An overweight African American slave exhibited the perception that he or she was well taken care of, healthy, and happy (Airhihenbuwa et al., 1996). Within the family structure, overweight African American women symbolized who they were competent household caregivers and would therefore make great wives and mothers

(Chen et al., 2012). An additional factor to this matter is how Caucasian male slave owners viewed overweight African American women as unappealing, making obesity a vessel for immunity to sexual advances and sexual violence (Johnson & Broadnax, 2003). Over time, the perception of obesity was integrated into the cultural values of many African Americans as a positive attribute representing protection, health, beauty, and wealth.

Cultural acceptance of obesity expanded into stereotypical mass communication imagery of the African American women as the *Big Mama* or large maid scenario (Chen et al., 2012). These images were derived from the 1830s concept of *Mammy* and *Aunt Jemima*, which represented strong hardy matriarchs who were positive role models and nurturers for the African American family and good managers for Caucasian households (Chen et al., 2012). Images of large African American women received mass approval in modern media portrayals as Tyler Perry's character, Madea, generated $530 million from a predominantly African American audience (Chen et al., 2012).

The culturally generated acceptance of obesity also affected the youth who believed that a large body with cleavage, breasts, legs, thighs, and buttocks will attract a mate (Frisby & Aubrey, 2012). Through a research study, Dannelly et al. (2005) concluded that 25% of normal weight African American females deliberately tried to gain weight to attract African American males, assuming African American men prefer oversize women. Young African American women are susceptible to developing dangerous compulsive/overeating disorders in their efforts to gain weight. Cultural attitudes sanctioned by trusted loved ones' validated the practice of an obesogenic

lifestyle, thereby elevating the prevalence of this disease among this population (Frisby & Audrey, 2012).

In summary, understanding human obesity is complex, with at least five critical dimensions: (a) genetic, (b) environmental, (c) psychological, (d) behavioral, and (e) cultural/biosociocultural. This study concentrated on three biosociocultural elements as critical motivating factors for losing weight among the target population, African American women. Specifically, these biosociocultural variables were BMI, internalized body image, and social networks that include the perception of African American males' attitudes towards large women. The conceptual framework underlying this study's goals will be delineated in the next section.

Conceptual Framework Model

As discussed earlier, research has led to a multidimensional and ecological model for understanding obesity (see Figure 1), which can be applied to understanding obesity among African American women. The focus of the study was on biosociocultural factors, which showed an influence on motivation for weight loss among heterosexual or bisexual nonpregnant obese African American women who preferred to date and mate with African American men. In particular, three constructs are of interest as predictors of motivation to lose weight: BMI, internalized body image, social networks that included a subcomponent of the perception of African American males' attitudes towards large women (see Figure 2). Each of these factors are discussed separately.

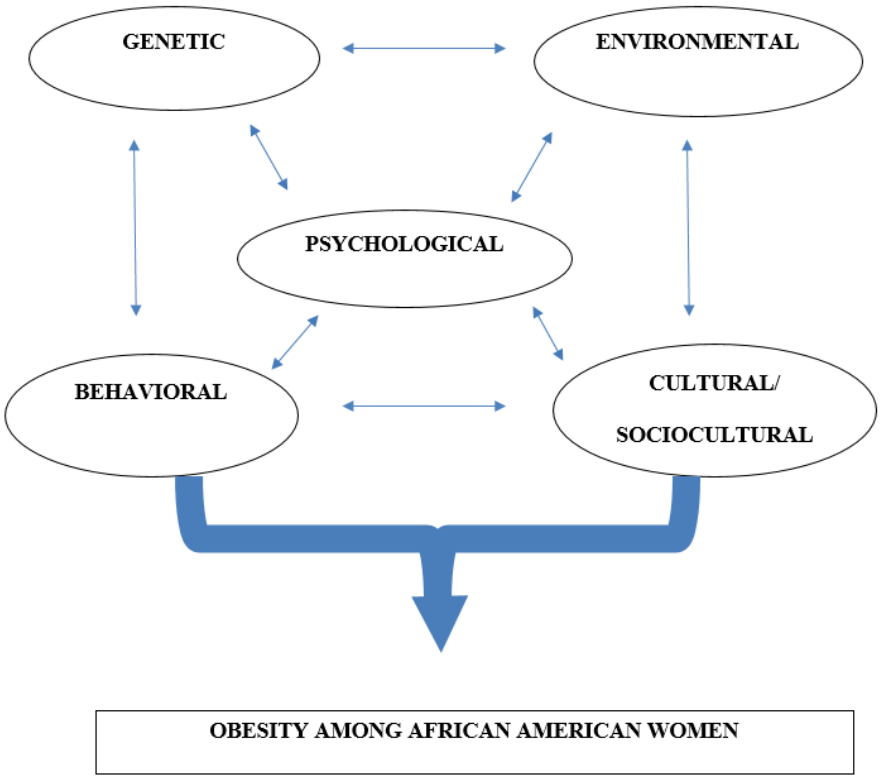

Figure 1. Summary of multidimensional factors identified in risk for obesity among African American women.

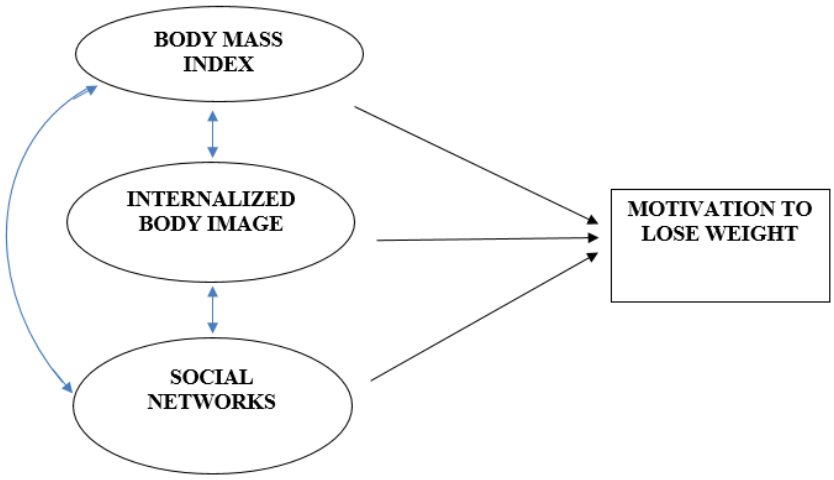

Figure 2. Biosociocultural variables that are predictors of motivation to lose weight among African American women.

Social Cultural Model

Body Mass Index

BMI is a tool used to measure an individual's body fat percentage that is calculated from an individual's weight and height (Kilcarsian et al., 2006). The formula used to calculate this index in the metric system is obtained by dividing an individual's weight in kilograms by his or her height in meters squared (CDC, 2012). This method is used by many health professionals to determine if an individual has weight concerns that need to be addressed. Individuals under 18 kg/m^2 are categorized as underweight, those 18-24 kg/m^2 are categorized as normal, those 25-29 kg/m^2 are categorized as overweight, those 30-34 kg/m^2 are categorized as obese, and those $\geq$ 35 kg/m^2 are categorized as morbidly obese. Although BMI does not directly measure a person's complete level of body fat, it was an appropriate tool to use for this study because it is highly respected in the medical industry.

According to Passos, Cintra, Branco, Machado, and Fisberg (2010), BMI is one of the most cost effective methods to evaluate an adult's weight, making this tool most fitting for this study. For the study, this variable did not discriminate against race, sexual preference, or age. Although this is not a consideration for the study, BMIs can also be used for men and children.

Internalized Body Image

The way individuals view themselves as they look in a mirror or through the reactions of others can affect how they perceive their appearance. According to Oney, Cole, and Seller (2011), appearance is an important component of self-definition for many westernized females. As a female's anatomy develops into adulthood, so does the internalized concept of one's attractiveness and the acceptability of one's body. That is, one develops a self-schema based on assumptions concerning others' approval or disapproval of physical appearance. Not fitting within the norm of beauty or general physical markers can develop into negative body image. The perception of body disapproval or dissatisfaction can produce cognitive, behavioral, and emotional threats to wellbeing (Carlson-Jones, 2004), as well as reluctance in pursuing intimate relationships (Swami et al., 2013). Some women with a negative body image may develop extreme perceptual distortions of their actual body size and shape, ruthlessly comparing it against an unrealistic ideal (Handelzalts & Ben-Artzy-Cohen, 2014). Negative body image can be associated with low self-esteem, depression, anxiety, body dysmorphic disorder, obsessive-compulsive disorders, eating disorders, urges to mutilate the body, and low self-worth (Carlson-Jones, 2004; Jones, 2004; Pruzinsky, 2001). Emotions related to

physical discontentment can intensify over time developing into lifelong struggles with severe disorders.

Theories of body image generally emphasize an association between the development of an internalized image of one's body and one's social interactions within particular families and cultures (Santostefano, 2014). It is during the transition stage of puberty where researchers find that body image dissatisfaction, ideal body frame fantasies, and unhealthy diet-related behaviors can develop (Handelzalts & Ben-Artzy-Cohen, 2014; Jones, 2004). Puberty consists of many physical phenomenon including increased hormones, awkward growth spurts, and the development of primary and secondary sexual characteristics. These physical modifications intensify the evaluation of personal body frame and emotional intimate relationships. Biosociocultural norms of ideal body size and features are learned through experiences from family, friends, and within communities. When one's actual body features are *relatively* consistent with community ideals for appearances, even if not an exact match, one is less likely to form a negative body image (Handelzalts & Ben-Artzy-Cohen, 2014).

The North American biosociocultural ideal standard for the body frame for females is to be dainty, petite, slender, and slim. Failure to achieve the slim body idealistic image impacts many mainstream (Caucasian) American female adolescents causing them to develop negative body images. Thomsen, Weber, and Brown (2002) disclosed how diet related activities such as using diet pills and monitoring calories are related to the body image stigma of adolescent females who read mainstream beauty and fashion magazines. Competing with and idealizing models in fashion magazines that

have extremely small body frames of size 0, 2 and 4 sets impossible standards for average size women who are size 10, 12, and 14 (Guan, Lee, & Cole, 2012).

Biosociocultural standards place high expectations on the ideal look for a person. If a body type does not fit within the norm, positive opinions of the body can decline. As negative impressions of one's body grows, so does the desire to take action to restore control over the matter. It is possible that eating disorders could be one of those actions. Eating disorders are dysfunctional eating habits that usually start when individuals have distorted views on food and how they look (Fox, Larkin, & Leung, 2011). There are several variations to this disorder. The most common are overeating (excessive food consumption that includes binge eating and emotional feeding), bulimia nervosa (binge eating followed by either purging, abuse of laxative or, excessive exercising), and a severe restricted food diet known as anorexia nervosa (Fox et al., 2011; Masheb & Grilo, 2006). Interestingly, new forms of eating disorders are developing due to our society's fixation on the slim body idealistic standard and the perception of the role of food in obtaining that standard. Examples are night eating syndrome (eat at night while sleeping), and orthorexia nervosa (rigid healthy eating patterns that causes malnourishment). Many of these disorders can overlap; for example, an individual can shift from being bulimic to anorexia, which over time can lead to death (Fox et al., 2011).

Eating disorders involve food obsessions and distorted reactions to food-related stimuli through altered neurochemicals, which modifies a person’s impression of food. The drive to consume in response to hunger cues controlled through the homeostatic system becomes abnormal, and a more complex procedure is formed whenever a person is presented with any food-related stimulus (Treasure, Cardi, & Kan, 2012). Food-related

stimulus can consist of the anticipation of consuming food, actually consuming food, the thought of consuming food, or visualizing a picture of food. Any one of those stimuli can evoke emotions that in turn trigger the eating disorder, resulting in a distorted decision about the consumption of food. The emotions that are evoked by food-related stimulus are varied, and can range from desirability for food to fear, and disgust.

African American females are less influenced by the dominant Caucasian American culture's emphasis on thinness and, as a result, are less affected with eating disorders that relate to losing weight (Chen & Wang, 2012; Hall, 1995; Kronenfeld et al., 2010; Lóp et al., 2014; Paeratakul et al., 2002; Schuler et al., 2008). However, the eating disorder that is of concern to overweight or obese African American women is overeating. Overeating consists of excessive food consumption including binge eating and emotional feeding. The fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM), defines binge eating as the loss of control relating to consumption of large amounts of foods within one setting (Berg et al., 2014; Masheb & Grilo, 2006). Although not every individual who binge eats is obese, many with this disorder frequently are obese. Based on previous research it was determined that overeating and binge eating are both triggered by stressors that initially started from emotional eating (Berg et al., 2014).

Therefore, the internalized body image for African American females is uninfluenced by the mainstream North American slim body image standards (Brewis, 2011). This is due to the fact that African American tradition standards conceptualize the ideal body frame based on the uniqueness of their own community's characteristics. These characteristics, developed from cultural standards, set the stage for African

American females to have a greater tolerance for excessive body weight, and for maintaining a satisfactory body image even for individuals who have high BMIs (Brewis, 2011). Interestingly, these embedded customs become fixated as it structures personalities and decision patterns that can affect every facet of an individual's life.

Among the African American community, positive attributes such as beauty, marriageability, fertility, tranquility, health, generosity, and spirituality, are associated with women with excessive body weight. In fact, it is even considered as a sign of prosperity. This cultural body image is also prevalent in areas of Africa, the West Indies, South/Central America, as well as several minority North American subgroups (Brewis et al., 2011). For these cultures, their societies embrace obesity as a normal phenomenon with minimum negative fat stigmas.

Previous researchers have concluded that, relative to American Caucasian women, African American women accept having a larger body frame (Chen & Wang, 2012; Hall, 1995; Kronenfeld et al., 2010; Lóp et al., 2014; Paeratakul et al., 2002; Schuler et al., 2008). Sabik et al. (2010) confirmed that the African American population seems to have fewer concerns regarding an internalized body image that is overweight. Thus, it is proposed that with a greater acceptance of larger physical sizes, obese African American women who have a positive body image will also have a lower motivation to lose weight. Unfortunately, this means that positive body image related to an overweight ideal may be a risk factor for medical complications and reduced quality of life among African American women. Additional primary predictors of the acceptance of obesity for these individuals involves the previously mentioned BMI and social networks that

included its subcomponents of the perception of African American males' attitudes towards large women. The rationale of the last construct will be further elaborated next.

Social Networks

The perception African American women have about acquiring and maintaining large body sizes is reinforced by valid and trustworthy social sources. These social influences subconsciously elevate obesity-related activities by showcasing excessive adiposity as a natural body structure (Dannelly et al., 2005; Lóp et al., 2014). One specific social interactive stimulus that has a strong influence among this population is social networks. Social networks are clusters of individuals who are connected by practicing similar activities, sharing similar lifestyles, and experiencing common environmental factors (Barnes, 1972). Frequently, social networks include kinship groups, as well as others who share the same biosociocultural ties and social identities (Marsden, 2000). Social networks are established from birth among immediate family members and caretakers, and expand as one grows and enters new life stages and activities, moving beyond the confines of immediate family and proximal friends. Other than family, social networks can include peers, schoolmates, coworkers, community members, and church members. Social networks can leave imprints on an individual's personality, attitudes, and behaviors, which ultimately affect psychological and physical outcomes (Carson et al., 2013).

Close family and friends reinforce behaviors relating to obesity by viewing and representing obesogenic activities as normal. This occurs because social networks support attitudes and behaviors that promote obesity, which includes poor consumption habits and practicing a sedentary lifestyle (Dannelly et al., 2005; Lóp et al., 2014). This

is particularly evident in social obesity clusters containing individuals who share an average BMI exceeding 30 kg/m^2 (Christakis & Fowler, 2007). Close associations with obese individuals inspire obesity similar to an infectious epidemic. Statistics reveal that an individual's chances of being obese is 57% if they have an obese friend, 40% if they have an obese sibling, and 37% if they have an obese mate (Christakis & Fowler, 2007). According to these statistical facts, the influence of peers is substantial since obesity is most "contagious" among female same sex friendships. While Bartle (2012) has argued that genetics play a stronger role in obesity, the maintenance of obesity clearly has a strong biosociocultural element (Christakis & Fowler, 2007).

Food consumption is a learned behavior taught during childhood with the goal to enhance survival by obtaining energy enriched meals. Being raised in a household and a community that consumes high levels of fatty, salty, and sugary foods not only prompts weight gain, but also develops a heightened sensitivity, and a lower threshold to both sucrose and sodium chloride (Pasquet et al., 2007). These characteristics are similar to having a dependency on an illicit drug where more sugar and salt will be necessary for these individuals to reach their hedonic level during consumption. Foods can provide stimulation initiating high levels of mesolimbic dopamine activity. The role of dopamine, a pleasure sensor neurotransmitter within the brain, affects cognitive, emotional, motivational, and reward-related behaviors (Forbes et al., 2009). This neurochemical messenger releases in the nucleus accumbens, interacts, and exchanges information with other neurotransmitters within various areas of the brain that includes the involvement of the learning and memory systems (McKim & Hancock, 2013). An example of the function of dopamine is when the body experiences hunger, within the

midbrain. The ventral tegmental activates the nucleus accumbens, which releases dopamine through the mesolimbic pathway to retrieve memory from the amygdala and the hippocampus (McKim & Hancock, 2013). Obtaining past associative experiences on satiating the body occurs. The higher the effects of dopamine from certain foods, the more powerful the cravings will be that can instill addictive behaviors as food is associated with pleasure and comfort (Czermak et al., 2004; Lynch, Chang, Ford, & Ibrahim, 2007). Children reared in an environment where their staple diet is high in unhealthy fats, salts, and sugar will likely develop emotional and physical dependency that will increase as these children become adults.

The labyrinth of social relationships, regardless of how few, if primarily consisting of obese individuals, can instill an obesogenic environment. Functioning within an obesogenic environment elevates tolerance for weight gain and overweight maintenance, thus reducing motivation for weight loss. In addition, the shared social behaviors related to weight gain, and maintaining that weight, may hold priority over a healthy weight. Lynch et al. (2007) found that obese African American women are less likely to seek bariatric surgery because they fear losing the social connection with other obese individuals within their circle, including immediate family members. In the study by Lynch et al. (2007), the study participants "indicated that mirroring the body type of female relatives fostered a sense of belonging within their family unit" (p. 912). Further, obese African American associate thinness with illness, infertility, misfortune, failure, malnutrition, and frailness, attitudes that may lead to a thin individual being ostracized and ridiculed by family and peers (Brewis, 2011).

This association between obesity and social belonging supports satisfaction with large body sizes among younger African American girls during their tweens and adolescence stages, reducing their concern for excessive weight, even if they are aware of obesity intervention programs (Chen & Wang, 2012). A qualitative study revealed that having a larger body size allows young females to identify with their elder female family members. This was indicated in some of the participants' responses such as, "in my family, every woman easily weighed over 200 pounds.... I waited to grow so I could look like my grandmother and my mother and be in sync with the family" (Lynch et al., 2007, p. 910). Further, obese African American women actually perceive themselves to be smaller than they actually are (Paeratakul et al., 2002), especially when they remain primarily within African American social networks.

This self-perception, however, changes when an obese African American woman interacts with other cultures that do not share the same view about obesity, and is surrounded by fewer obese individuals. These interactions with thin individuals become uncomfortable (Christakis & Fowler, 2007), and there is motivation to follow the approved body size identity by the dominant culture (Guan et al., 2012). In this situation, obese African American women will experience a decline in body satisfaction, and will be motivated to modify their behaviors to appear slimmer, perhaps by wearing baggy clothes, and will be motivated to eat differently to appear to be on a calorie restricted diet to appease the slim ideal environment (Handelzalts & Ben-Artzy-Cohen, 2014). However, when returning to their obesogenic approved social environment, their body satisfaction will rise again, and their obesogenic behaviors will resume (Christakis & Fowler, 2007).

In sum, there is evidence to suggest that social networks generate power to drive eating and other health-related behaviors that can affect large groups of individuals. One motivation behind conformity to social group norms is acceptance and belonging among family and friends. However, more research is required to understand how social networks relate to body image as well as other social expectations, in particular a subcomponent of social network, which is the perception of African American males' attitudes towards large women, and motivation for weight loss among African American women.

Beliefs About African American Men's Perception of Oversize Women and Attractiveness

Beyond acceptance by family and friends, another critical dimension of social influences on African American women is men’s acceptance to their body size. Traditionally, in cultures where excessive adiposity is an attractive mating feature, rituals support individuals taking extreme measures to succeed in attaining this goal. Illustrating this fact is the Azawagh Arab population, located in Niger, West Africa, where obesity among women is essential for finding a mate. This community starts their fattening process for young girls at the age of five (Brewis, 2011). Ideal anatomical features for this population's females are to obtain large buttocks, multiple rolls around the waist area, double chins, stretch marks, and jiggly thighs by their reproductive stage, adolescence. The extreme measures of force feeding young girls large amounts of high-dense caloric meals fits within their parameter of producing desirable, soft, feminine young ladies to complement and appeal to their muscular males (Brewis, 2011).

Although the African American culture is not this extreme, fat idealism does exist and influences obesity-supportive activities to secure a mate for young African American females. The African American cultural customs are under 300 years and combine heritage of African, West Indian, Caribbean, Native American, and European America; whereas the establishment of the African heritages that practiced fat-idealism rituals, occurred thousands of years ago (Airhihenbuwa et al., 1996). In addition to following established rituals, this population also had to establish its own consumption survival tactics as American slaves, in order to sustain a large group of individuals with minimal resources.

There is a paucity of research regarding the physical attractiveness of full figured women among heterosexual African American men. Among these studies, most authors indicated that African American men accepted and preferred larger silhouette women than their Caucasian American counterparts (Dannelly et al., 2005; Freedman et al., 2007; Freedman et al., 2004; Poran, 2006). The reason for this phenomenon could be due to numerous factors. Some factors were highlighted earlier within the culture section of this chapter, for example how the transferring of African customs of admiring large women occurred during the African slave migration to America (Johnson & Broadnax, 2003). However, practices during slavery also influenced this phenomenon, for instance when Caucasian male slave owners would inadvertently reassure the sexual attractiveness of large female body sizes among their African American male slaves. Since slavery was a business, the plantations that housed and controlled many slaves were more successful. Therefore, slave owners could own many slaves by simply having the slaves breed among each other. Specifically, purchasing large voluptuous women for breeding was

frequently practiced (Johnson & Broadnax, 2003). The primary function of these women was to bear as many children as possible as these women were given to African American male slaves as a sexual reward for good behavior or reaching workload goals.

As with other cultural practices, procedures regarding mating customs are learned and observed. Young African American females witnessed their older obese female family members establish relationships with the opposite sex, and learned important mating customs that incorporated weight as part of the factor in securing a mate. This impression, embedded from childhood, arouses the desire for 25% of normal size African American young females to gain weight (Dannelly et al., 2005). Chen and Wang (2012) confirmed that African American adolescents with high BMIs believed that a large silhouette body frame is healthier than a small silhouette body frame.

One explanation as to why oversize African American women have high body satisfaction is due to the definition of beauty within "Black Culture," which accepts women with varying body sizes, especially full figures with large buttocks, hips, and thighs (Poran, 2006). Guan et al. (2012) proposed that the African American woman's idea of beauty is based on the African American men's standards. If African American men preferred heavy women, then this female population will oblige by working toward gaining weight, if needed. There is indication that African American men do desire heavy women, and in fact, this preference for large women is noted even among African American boys (Chen & Wang, 2012; Grabe & Hyde, 2006).

The image of African American women is further reinforced through terminology found in music, videos, movies, and other social media outlets. The following terms are embedded in the African American culture, and are often used by African American

males to refer to their women. These terms include phrases such as "you need some meat on your bones," "she will make a fine wife because she has thick breeding thighs," "the way to a man's heart is through his stomach," "only a dog wants a bone (bone referring to thin women)," "she's a brick house," and "voluptuous body." Newly formed terms to refer to an African American woman's large and appealing buttocks are "badonkadonks," or "bootylicious." Women hearing these terms internalize them to mean that larger women who can cook hearty meals are more appealing to African American men.

A qualitative study by Poran (2006) was designed to better understand why African American women associate having a large body size to attracting a mate. One college student, aware of how American society promotes the Barbie doll figure as the ideal female body image, expressed how this image is not appealing to African American men. "...Black men don't want that (referring to the Barbie doll look), they want like the big butt and the big breast..." (Poran, 2006, p. 745). Another college student stated that her current African American boyfriend of 6 years is attracted to her large body frame (Poran, 2006). The term that she used to describe her overdeveloped body, which was already formed from the age of 12, was “chunky.” She also explained how she was aware of her boyfriend's preference to large females as she surveyed the women he dated prior to her, which she referred to as "pretty thick girls" (Poran, 2006, p. 745).

African American women, including those who are obese, are attentive to their appearance. An example is the amount of money spent on African American females' hair care that is a $700 million industry. African American women spend hundreds of dollars weekly to accentuate their beauty, primarily to attract men (Hall, 1995; Robinson, 2011). This population will easily spend money, energy, and time to improve the

appearance of common hair texture that is tightly curled, often referred to as "kinky". These weekly rituals that transform "bad hair" (relating to hair in its natural form) to "good hair" (relating to Eurocentric paradigms; Robinson, 2011), requires the use of costly chemicals. All this effort is made with the hope that the hair will hold its style for several days, or possibly a week. However, if the hair gets wet it will revert to its original form. Consequently, avoiding activities that will cause the hair to become damp is critical. These activities include swimming in a pool, taking a shower without a shower cap, and exercising, or any physical activity that involves sweating. The irony is that these activities, swimming, exercising and other forms of activity that would benefit an obese individual, is avoided in order to maintain African American female hair styles.

Indeed, there is some suggestion that African American men who preferred oversize women are more likely to discourage the participation of weight loss activities for their oversize women. This involves not assisting these women with childcare responsibilities or household chores to allow these women free time to participate in exercising activities (Siceloff et al., 2013). Requesting their women to prepare late night meals, and unhealthy fatty cuisines reduces any opportunity to start or stick with a healthy diet plan. If these women do successfully lose weight, it is greeted with opposition, and they are explicitly or implicitly encouraged to gain the weight back (Thomas et al., 2009). Poran (2006) found that another reason why African American men sabotage their obese mates' weight loss is due to the men's insecurities and concern that their women would become appealing to other men if they lose weight. This concept is referred to as the "Black men's conflict;" which referred to how these men claim ownership to their oversize women's body (Poran, 2006). This ownership does not allow

the women to improve their health by losing weight, but encourages them to continue to gain weight, to become handicap with the excessive fat, its related diseases, and the impression that no other man will want them.

The cause of African American men's sexual attractiveness to large body frames, or ascertaining the preference level for large women, was not a part of this study. Instead, this study examined how African American women's assumption about African American men's preference for larger female body sizes relates to their decisions to practice an obesogenic lifestyle. In conclusion, results from previous research suggests that the real or imagined preferences of African American men for larger women appears to influence African American women's own attitudes and behaviors related to their weight. To investigate this further, Question 5 within the Body Image Measurement Scale instrument helped determine the participant's assumption regarding African American men's preference for various body shapes and sizes among African American women, how that relates to her own actual self-body image, and how this relates to their motivation to lose weight.

Motivation to Lose Weight

Ironically, while African American women are less likely than any other American racial and ethnic group to participate in weight reduction programs and to lose weight, Clark et al. (2001), McTigue et al. (2003), and Wing and Anglin (1996) found that a majority (two-thirds) of urban obese African American women said that they wanted to lose weight and were attempting to do so. These seemingly inconsistent findings suggest that there are other variables that affect motivation to lose weight. As has been suggested earlier, some combination of genetic, environmental, psychological,

behavioral, and biosociocultural factors may be needed to help explain these apparent contradictions.

The review of biosociocultural factors suggests that obese African American women may perceive a greater social cost for weight loss, possibly in loss of supportive networks or loss of attractiveness from African American men. Further, if, as the review of the literature suggests, they have relatively positive body images, and underestimate their own physical size, so motivation to lose weight may be too low to sustain effort, and adopt a weight reduction plan (Befort et al., 2006).

Motivation to lose weight due to fat stigmas is less likely to apply to the African American female population (Poran, 2006). In fact, there is suggestion that among African American women, there is little correlation between motivation to lose weight and appearance; however, survival from life-threatening obesity-related diseases (e.g., diabetes and hypertension) was a key motivator among a sample of menopausal African American women who were successful in weight loss (Setse et al., 2008). Thus, it seems that obese African American females' motivation to lose weight may reach sufficient levels to adhere to obesity intervention treatments when they develop deadly illnesses, which are more likely to occur when they get older.

Further, some obese individuals will develop a reduction in motivation to lose weight by feeling stigmatized, uncomfortable, or pressured to lose weight by loved ones (Gray et al., 2011). Results from a qualitative study conducted by Gray et al. (2011) suggest that friendly terms, such as "unhealthy BMI," "high BMI," and "unhealthy high body weight," can be used to increase the motivation level to lose weight. On the other hand, Befort et al. (2008) found that when motivational interviewing was added to a

culturally-relevant behavioral weight loss program for African American women, no gains were found in attendance, dietary intake, or physical activity. In fact, there were decreases, both in motivation and reported self-efficacy.

This reduction in self-efficacy among African American women during weight loss programs has been noted elsewhere, even though African American women had relatively high self-efficacy scores at the beginning of the program (e.g., Wilbur, Michaels, Chandler, & McDevitt, 2003). One possibility for these kinds of findings is that these women came to experience role conflicts between their weight loss activities, and membership in their key social support networks (Diaz, Mainous, & Pope, 2007; Quist et al., 2013). That is, these women may perceive themselves losing social support at a time when they need more support to cope with the stress of dieting and exercising (Elfhag & Rossner, 2005).

Thus, it would appear even more important to understand how biosociocultural factors impact African American women's motivation for weight loss. That was the focus of this study, with particular attention to the relative strength of BMI, internalized body image, and social network characteristics that included perceived preferences of African American men in predicting motivation for weight loss among obese African American women.

Theoretical Framework

The basis for the design of a study relating to altering unhealthy behaviors should be through ideas, viewpoints, and explanations on a system of reliable theories. Theories should be the platform of knowledge to address the acceptance of obesity among African American women. The framework of theories is used to reinforce construct interactions

within the study by providing "an understanding of how detrimental behavior develops as well as how undesirable behaviors can be modified or eliminated" (Zaparanick & Wodarski, 2004, p. 1). Theories offer substantial knowledge that can be used in the analysis of the study's results.

Three suitable theories were the focus of this study; these theories are self-determination theory (SDT), objectification Theory (OT), and social learning theory (SLT). Harmoniously, the three theories utilized each of their strengths, while avoiding redundancy, and conceptual overlapping. Collectively, the integration of these three theories guided the study to comprehend unhealthy obesity-related behaviors that are inspired by biosociocultural factors, while directing solutions to motivate participation in a healthy lifestyle (Chavis, 2012; Emm, Gillison, & Juszczyk, 2013; Szymanski, 2007).

Self-Determination Theory

SDT (Sweet et al., 2012) provides an accepted framework for explaining and studying motivation to lose weight. SDT gained respect within the past 15 years as it relates to weight management and various health issues (Deci & Ryan, 2012). The benefit of SDT is how it addresses modifications of unhealthy behaviors. According to Deci and Ryan (2012), positive outcomes of behavioral changes will occur when individuals are autonomously motivated to make a commitment to change. More specifically, "SDT offers to explain the type of motivation that is most likely to initiate and maintain a behavioral change through internalization and behavioral regulation" (Hwang & Kim, 2013, p. 107). Researchers frequently apply SDT to comprehend unhealthy obesity-related behaviors while guiding resolution through modification techniques (Deci & Ryan, 2008; Sweet et al., 2012). When using SDT, Deci & Ryan

(2008) pose two primary sources of motivation, autonomous and controlled. Autonomous motivation is similar to intrinsic motivation where one engages in an activity because it is inherently interesting, appealing, or satisfying. By contrast, controlled or extrinsic motivation relates to outcomes and consequences of behaviors that are tangible and comes from sources outside the individual, such as rewards provided by social support, tangible incentives, or environments that foster a particular choice.

Deci and Ryan (2008) note the importance of interpersonal climates in intrinsic motivation. "Social climates that feel pressuring and controlling undermine intrinsic motivation, whereas those that feel supportive and informative enhance intrinsic motivation" (p. 15). Further, the more one perceives to have choice regarding a behavior, the more one feels autonomous. The more spontaneous a behavior is, the more rewarding the behavior is in of itself. Thus, extrinsic motivators can lead to experiences that are seemingly autonomous. According to SDT, there are three types of internalized *extrinsic* motivation: introjection, identification, and integration. Through the process of socialization, individuals begin to internalize externally controlled and rewarded behavior patterns as if inspired by their own internal motivations (Hwang & Kim, 2013). However, this socially mediated motivation is still extrinsic because "it remains instrumental to some other outcome, whereas with intrinsic motivation the activity itself is interesting and enjoyable" (Deci & Ryan, 2008, p. 16).

Applying this to body weight, individuals socialized within certain cultures, such as African American, can come to value being overweight and obese; thus, one might predict less intrinsic or extrinsic motivation for weight loss, and more motivation to meet social expectations (Yampolsky & Amiot, 2013). Meeting social expectations related to

cultural standards leads to satisfaction (reward) or displeasure (punishment), which then affects intentions and behaviors (Verstuyf, Patrick, Vansteenkiste, & Teixeira, 2012). Indicators of extrinsic motivational forces may be membership and acceptance within social groups, and increased attractiveness to potential sex partners. The avoidance of negative social consequences or isolation ignites an invisible driving force (motivation) towards practice of socially acceptable norms, such as obesity, regardless of the health risk.

Interestingly, body image, a component of the personal self-concept (Capodilupo & Suah, 2014), can function somewhat more independently of cultural norms. Researchers from the Center for Obesity Research and Education (CORE) found that "overweight or obese children can still be unhappy with his or her body, despite acceptance from within their ethnic group" (Science Daily, 2007, para 1). SDT provides a framework on the development of each predictor, intrinsic and internal constructs (BMI and body image) or extrinsic and external construct (social networks that included the subcomponent of the beliefs about African American men's preference for full figured women over smaller women; Verstuyf et al., 2012).

Objectification Theory

An aspiration for every species is to survive by searching for an appropriate mate with the goal of increasing reproductive success by breeding healthy offspring. Appearance of the opposite sex is a strong factor in mate selection. Koehler, Rhodes, Simmons, and Zebrowitz (2006) revealed that women use the symmetry and attractiveness of a man's face to determine if he has quality genes that can assist in reproducing healthy and intelligent children. Men typically dictate the foundation of

family structures and size, which included the need to have sons to continue the family line successfully. The value of women was related to their attractiveness and their reproductive health. Therefore, social standards ascribe great significance and value on the attractiveness of women (Calogero, Tantleff-Dunn, & Thompson, 2011).

The concept of how women are judged by their appearance has led to the development of the OT. Fredrickson and Roberts (1997) established OT in 1997 to address the consequences of being female in a culture that sexually objectifies the female body. OT is flexible as it has the capacity to address both sexes during various stages of an individual's life, although this theory is most appropriate for women during their reproductive stage. This theory shows the impact of women's perception of themselves on a sexual level, and how it can progress to the extent that it results in physical, emotional, and mental dysfunctions. (Fredrickson & Roberts, 1997).

Society defines a woman's body as an object designed to sexually please men, hence the adage, the oldest profession is prostitution. Unfortunately, among the African American population there is a plethora of sexual exploited images in music, music videos, television programs, social media, and movies (Cox, Zunker, Wingo, Thomas, & Ard, 2010). This exploitation places additional pressure upon women who experience rejection as they discover that their bodies do not fit within the biosociocultural physical standards of attractiveness. Internalizing rejections lead to an increase of negative body images as family members and trusted peers validate the inadequateness of an individual's appearance (McCabe & Ricciardelli, 2001). Constant reminders of physical inadequacy can develop into emotional and cognitive dysfunctions including depression, anxiety, body dysmorphia, and low self-worth (Pruzinsky, 2001). A current study reveals

that African American women experience more sexual objectification stereotypes then their Caucasian counterparts (Watson, Marszalek, Dispenza, & Davids, 2015). OT applied to this study based on the concern that African American women experience the difficult biosociocultural norm of having the perfect physical physique, even if the norm is to have a large body frame.

Social Learning Theory

For many, obesity is a self-inflicted disease that occurs as a result of an obesogenic lifestyle. The choice, as an adult, to participate in obesity-enhancing activities while understanding its negative outcomes is the sole responsibility of the individual. Nevertheless, even though the obese person is responsible for her conduct, the learned lifestyle, and the resultant obesity-related behaviors that were developed over many years, can be extremely difficult to modify. I used SLT as the third theory in this study to establish a perspective about human behaviors, attitudes, and emotional reactions that are practiced, entrenched, and validated through biosociocultural standards (Chavis, 2012).

SLT models its approach through imitation and observation, which was built by Burgess and Akers to address deviant behaviors from previously formed behavioral concepts (Brauer & Tittle, 2012). An individual can learn by watching others who appear to benefit from the behavior. The methods of imitation and observation are not the most suitable and reliable methods of learning as many deviant activities are taught through these methods, such as poor consumption patterns.

The SLT models also includes the behaviorism operant conditioning concept of responses to reward and punishment (Randall et al., 2011). When an individual receives

rewards for their behavior, that behavior will most likely be repeated. Conversely, when punishment is inflicted, that behavior is more likely to be changed, or at least modified. These reward and punishment responses come through social and cultural norms. Approvals are received through praise and acceptance, while disapprovals are received through isolation and rejection. It matters not if the behavior, attitude, and emotional reactions are positive or negative, SLT determines how these actions were learned, and how they can be properly modified or unlearned. Therefore, behaviors can be modified and effectively changed through anticipation of a particular response, which can be in the form of either a reward, punishment or combination of both reward and punishment (Brauer & Tittle, 2012).

Oversize African American women may continue to participate in obesity-supportive activities based on acceptance as a perceived reward, and may therefore interpret their actions as normal due to the biosociocultural sanction and standards that have been established in their obesity network. Having a social network of a group of obese individuals who tend to share the same norms relating to an obesogenic lifestyle can reinforce the behavior, and can be viewed as a reward for that behavior (Bartle, 2012). These social networks can include family, peers, coworkers, mates, and community members. SLT theory suggests that obese activities that are connected to a supportive system will be reinforced through the reward of approval and inclusion among the social network, regardless of harmful effects produced by this disease.

In addition to SLT's concern for social influences, the practice of unhealthy consumption patterns due to palatable satisfaction was also this study’s interest. Palatable satisfaction from consumption of sugar, sodium, and unhealthy fats stimulates

reward signals as hedonic values are increased through neurochemical messengers such as serotonin (Zald, 2009). Emotional responses are triggered when certain foods that are consumed release happy associations. These associations provide instant gratifications that can reduce the emotions of stress, insecurities, and other distressful moments (Stein, 2008). Many of the foods that provide hedonic values are categorized as low-grade quality meals that will elevate body fat if consumed excessively. Individuals residing within food desert communities primarily have access to unhealthy meals, which, unfortunately, are all too common in many African American communities (James et al., 2006). The African American female population used emotionally gratifying meals to assist in dealing with stressors which are very common among this target group.

Commitment to continuing obesity-related behaviors are reinforced since there is no apparent punishment, and the rewards are maximized through social acceptance and approval. The SLT theory therefore assisted in the understanding of the cognitive learning process related to the development of behaviors and attitudes within the female African American population. The use of SLT was most appropriate to enhance behavioral therapies for health issues relating to the African American population that relies greatly on their culture to shape their activities (Chavis, 2012).

Gaps in Previous Research

The global pandemic of obesity sparked a plethora of studies to reach solutions to eradicate this disease. These studies' common denominators included health practitioners' struggle and concern for the lack of success in reducing the obesity rate (The, Suchindran, North, Popkin, & Gordon-Larsen, 2010). Most of the obesity-related research is filled with insightful information as researchers concentrate on various causes

and potential resolutions. Searching through the abundance of obesity-related studies, a majority of these documents focused on the effects that obesity has on the mainstream population. However, there are insufficient attention to the largest affected American population, African American women (CDC, 2012). The paucity of research continues to limit our understanding of the tolerance of obesity by African American women, and how this impacts motivation and success in weight management. The continued challenge is to explore biological, social and cultural variables that are embedded within African American women's lifestyles.

Unfortunately, the environment of African American women reinforces the desire to maintain unhealthy excessive weight, and there are social conflicts and barriers that inhibit the desire to lose weight (Barnett & Praetorius, 2015). These three, strong obesity-related factors, biological, cultural and societal, that impact the high obesity rate among African American women were the core of this study. The study was designed to fill in the gaps in literature relating to the obesity phenomenon experienced by African American women. The data collected from this research can assist health practitioners in developing programs to effectively guide this population into making lifestyle changes to live healthier, and hopefully longer lives. Further, this study can also be used as a resource for follow up research on this relevant topic.

Research Questions

This study used online surveys to test hypothesized relationships between three general constructs (BMI, components of internalized body image, and social networks) and one criterion variable, defined as motivation to lose weight, among nonpregnant obese African American females. The following research questions guided the study:

RQ1: To what extent is BMI among nonpregnant obese African American women (as measured by self-reports on the Demographic Questionnaire and calculated based on height and weight) related to motivation to lose weight (as measured by Diet Readiness Test)?

RQ2: To what extent are components of internalized body image among nonpregnant obese African American women (as measured by the Body Image Measurement Scale) related to motivation to lose weight (as measured by the Diet Readiness Test)?

RQ3: To what extent are influences from one's social network among nonpregnant obese African American women (as measured by the Social Support for Eating Habits Survey) related to motivation to lose weight (as measured by Diet Readiness Test)?

RQ4: What proportion of the total variance in motivation to lose weight among a sample of nonpregnant obese African American women is explained by simultaneous consideration of BMI, components of internalized body image, and social network as predictors?

Conclusion

Obesity has been recognized as one of the most complex diseases to treat among African American women. Since there are many varying factors related to the cause of this disease, one obese individual's motivation to lose weight might be significantly different from another. This complexity makes it difficult to resolve within this community, especially since each obese individual may require their own customized obesity intervention treatment.

Addressing a highly affected population with a developed tolerance for the disease, obese African American females will require an obesity intervention protocol that includes reducing the acceptance of the disease, possibly facing ostracism by loved ones, and willingness to institute practices that are unfamiliar, and perhaps even uncomfortable. Therefore, modifying this population's lifestyle, which will include altering behavior, practices, and attitudes that have existed all their lives, is challenging (Deci & Ryan, 2012).

Developing programs that will motivate this population to commit to modifying unhealthy obesity-supportive behaviors require learning much more about the biosociocultural dynamics of African American women as it relates to this disease, and then using this knowledge along with reliable theories to assist them in altering their lifestyles. These constructs addressed in this study included obtaining BMI levels, body image perception, and connection to a social obesity cluster that promoted obesity-supportive behaviors. These powerful biosociocultural factors were measured as predictors against the motivation level to lose weight, which will be further discussed in Chapter 3.

Chapter 3: Methodology

Introduction

Obesity's negative effects go far beyond appearance, as this disease has the capacity to reduce the quality of an individual's life in physical, social, psychological, emotional, and economic areas. Due to this risk, it is important for obesity to be addressed by health officials as a deadly pandemic that requires immediate resolution. Obesity is a disease that can be treated through modification of an obesogenic lifestyle. Generally, obesity-related behaviors can be modified if environmental influences that stimulate unhealthy activities are removed (Horn et al., 2015; Schneiderman et al., 2010). However, efforts to make food environments healthier and to improve people's socioeconomic levels will not be effective if an individual is uninterested in losing weight due to biosociocultural or individual variables that support acceptance of being oversized.

A study of a complicated disease such as obesity would benefit from obtaining most of its data from participants who are experiencing this phenomenon firsthand. By comprehending participants' attitudes, concerns, opinions, and desires through analysis of statistical data, it is possible to develop beneficial improvements to address the ongoing rise in obesity rates, especially among highly affected groups such as the African American female population. An appropriate research method must contain a deductive approach that provides a clear premise for the study while presenting opportunities to test the hypotheses. Through the quantitative research method, this study established and validated the relationships between the variables, attaining clear results.

This study focused on developing a better understanding of biosociocultural factors related to obesity as well as designing effective prevention and intervention

programs for obese African American females. This was done by examining the relationship between three biosociocultural constructs and one dependent variable. Overall, this study was designed to evaluate how the three biosociocultural constructs influence obesity tolerance.

Primary sections of Chapter 3 are as follows: Introduction, Research Design and Rationale, Methodology, Population, Sampling, Procedures for Recruitment of Participants and Data Collection, Instruments, Planned Data Analyses**,** Threats to Validity, Ethnical Concerns, and Conclusion.

Research Design and Rationale

This research was conducted using a quantitative, correlational, cross-sectional methodology, with data collected through online surveys from a sample of nonpregnant obese African American heterosexual or bisexual women who preferred to date and mate with African American men. The participants were recruited as volunteers, primarily from African American megachurches. The constructs were defined as BMI, components of internalized body image, and social networks. The criterion variable was motivation to lose weight among nonpregnant obese African American females. Specifically, the research question relating to this study was as follows: To what extent do the investigated constructs (BMI, internalized body image, or social networks) help to explain motivation for weight loss among nonpregnant obese African American heterosexual or bisexual women who prefer to date and mate with African American men? The design explored how well the three constructs explain the variance of the dependent variable, as well as the relative strength of each construct as a predictor. The

study was analyzed using multiple regression analysis. The following research questions and hypotheses guided the study:

RQ1: To what extent is BMI among nonpregnant obese African American women (as measured by self-reports on the Demographic Questionnaire and calculated based on height and weight) related to motivation to lose weight (as measured by Diet Readiness Test)?

$H1_0$: There is no relationship between BMI and motivation to lose weight.

$H1_1$: There is a statistically significant relationship between BMI and motivation to lose weight.

RQ2: To what extent are components of internalized body image among nonpregnant obese African American women (as measured by the Body Image Measurement Scale) related to motivation to lose weight (as measured by the Diet Readiness Test)?

$H2_0$: There is no relationship between the four components of internalized body image and motivation to lose weight.

$H2_1$: There is a statistically significant relationship between the four components of internalized body image and motivation to lose weight.

RQ3: To what extent are influences from one's social network among nonpregnant obese African American women (as measured by the Social Support for Eating Habits Survey) related to motivation to lose weight (as measured by the Diet Readiness Test)?

$H3_0$: There is no relationship between the four components of social network and motivation to lose weight.

$H3_1$: There is a statistically significant relationship between the four components of social network and motivation to lose weight.

RQ4: What proportion of the total variance in motivation to lose weight among a sample of nonpregnant obese African American women is explained by simultaneous consideration of BMI, components of internalized body image, and social network as predictors?

$H4_0$: There is no appreciable proportion of the total variance in motivation to lose weight among a sample of nonpregnant obese African American women that is explained by simultaneous consideration of BMI, components of internalized body image, and social networking as predictors.

$H4_1$: A statistically significant proportion of the total variance in motivation to lose weight among a sample of nonpregnant obese African American women is explained by simultaneous consideration of BMI, components of internalized body image, and social networking as predictors.

In service to these research questions, I collected reliable data on volunteers' BMIs; attitudes, perceptions, and beliefs regarding their bodies; social influences; and level of motivation for weight loss. A correlational, cross-sectional survey design made it possible to better understand relationships between the variables without being able to infer cause and effect (Lappe, 2000; Mann, 2003). As Frankfort-Nachmias and Nachnias

(2008) noted, a correlational, cross-sectional, quantitative method provides an effective blueprint within the discipline of social science to reveal “the pattern of relation between variables” (p. 116).

Surveys are a quantitative technique that involves obtaining information through questionnaires, which then can be translated into data for testing research hypotheses (Weiten, 2008). Considered a trustworthy method, survey research is respected within the scientific community; it has been used for years by reputable (government) agencies to obtain dependable information that, in turn, has influenced positive changes. "Surveys are one of the most commonly used method in the social science to understand the ways societies work and to test theories of behaviors" (Groves et al., 2009, p. 3).

Limitations of receiving inadequate data from using this research method can result from poorly written or unclear questions that are incomprehensible or confusing for the participants. To reduce invalid responses due to unclear and complicated questions, this study used an online survey that contained validated instruments that had been approved and tested, that was written in clear language relating to the sample demographics, and that used primarily closed-ended questions. Closed-ended questions are designed with a multiple-choice format (Groves et al., 2009). Only eligible participants were invited to participate in the online survey, which required them to self-report their BMIs by supplying their weight and height in the demographic section.

Methodology

The methodology used to gather data for this study was a quantitative correlational cross-sectional method. Specifically, the tool used was an online survey, through with I gathered and interpret data to establish an understanding of

biosociocultural influences that may predict motivation for weight management among nonpregnant obese African American heterosexual or bisexual women who prefer to date and mate with African American men. Using this procedure, I was able to answer each research question as all biosociocultural variables were examined.

Population

The target population for this study was nonpregnant obese African American heterosexual or bisexual adult females who preferred to date and mate with African American men. The setting for this study was a metropolitan area in the southeastern United States (Atlanta, Georgia). The state of Georgia's estimated population in 2013 was 9,992,167, with approximately one-third (30.5%) of this population represented by African Americans (U.S. Census Bureau, 2014). According to the CDC (2014), except for Florida, all of the southeastern states (including Georgia) have the highest obesity prevalence of 35% or greater among African Americans (see Figure 3). Specifically, 37.2% (95% CI 35.3, 39.0) of Georgia's African Americans are reported to be obese (CDC, 2014). Within the city of Atlanta, the overall population is estimated at 447,841, with over half (54.0%) of residents being African American (U.S. Census Bureau, 2014). Among approximately 242,000 African American individuals who reside within the city of Atlanta, it is estimated that 90,000 (37.2%) are obese.

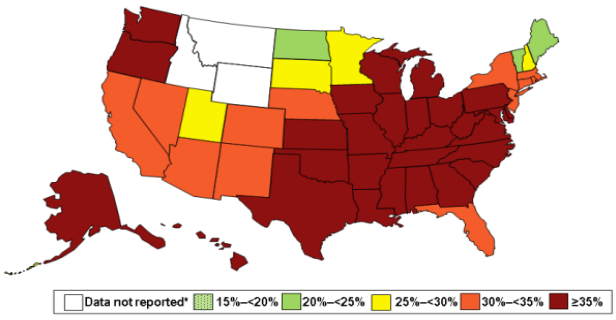

Figure 3. Rates of self-reported obesity by state. "From Prevalence of Self-Reported Obesity Among Non-Hispanic Black Adults by State, BRFSS, 2011-2013," by Centers for Disease Control and Prevention, 2014 (https://www.cdc.gov/obesity/data/prevalence-maps.html). In the public domain.

Sampling

The original plan for this study was to collect data from a minimum of 111 volunteer adult nonpregnant African American women with BMI $\geq$ 30 kg/m^2 who self-described as heterosexual or bisexual and preferred to date and mate with African American men. To ensure that I collected a suitable amount of useable data, I intended to survey at least 139 participants (minimum needed plus 25%). Data from participants who had a lower than obese BMI, who were pregnant, who were homosexual, or who were uninterested in dating and mating with African American men were not included in the study.

The minimum sample size was determined by a priori power analyses (*G**Power 3; Faul, Erdfelder, Lang, & Buchner, 2007) for a fixed factor multiple regression with up to eight predictors (BMI, components of internalized body image, and social network subdimensions) of motivation for weight loss. The power analysis for a linear multiple regression, fixed model, assessing R^2 increase (alpha = .05, power = .80, and medium effect size (f^2 = .15) and up to eight predictors indicated the need for a minimum sample

size of 111 participants with useable data to meet minimum power criteria. However, a sample of size of 139 (minimum + 25%) could be targeted to accomplish the goal of obtaining 111 women who met the eligibility criteria and provided complete data sets.

Procedures for Recruitment, Participation, and Data Collection

The participants were recruited as volunteers from predominantly African American "mega" churches. For generations, churches have been the backbones of many African American communities; predominantly African American churches have provided spiritual guidance as well as social and health assistance (Levin, 1984). Churches have become the principal locations for culturally sensitive wellness interventions for African American populations, including interventions that address weight management (Cowart et al., 2010; Seale et al., 2013).

The first recruitment location, and the facility that I anticipated would provide the majority of volunteers, was Megachurch A. Megachurch A had 1,200 active enrolled members, 70% (over 800) of whom were women. Megachurch A was a traditional Baptist church. According to a church member and office administrative assistant, over half of the female congregants were obese and had middle-class income status (L. Watson, personal communication, November 21, 2015). This church, as my community research partner, agreed to assist in participant recruitment and provided me with a letter of cooperation (see Appendix D).

To accelerate the data collecting process, a second local megachurch (Megachurch B) was approached for recruitment. Megachurch B had approximately 6,000 middle-class members, 97% of whom were African American and 75% of whom were female (R. Fleming, personal communication, November 21, 2015). Megachurch B

was a nondenominational Christian church. Flyers were also used to recruit volunteers. Both megachurches supplied a suitable sampling frame for this study.

Following approval of the proposal by the Walden University Institutional Review Board (IRB), notification of Megachurch A occurred. Recruitment activities included visiting the church and passing out flyers, as well as having the church administrators hang up flyers and send announcements through newsletters and emails to church members to invite qualified volunteers. The flyers, newsletters, and emails included a BMI chart that did not contain definitions of the BMI levels but did include instructions on how to determine BMI level and, if an individual qualified for the study, how to participate in it. Specifically, these items provided information about the study, participation criteria (BMI chart included), and how to reach me. Only eligible participants were invited to participate in the online survey, which required them to self-report their BMI by supplying their weight and height in the demographic section. As the researcher, I calculated and confirmed participants' BMIs. This activity was not similar to any of the church's activities. My request for volunteers was not associated with the church's existing health-related or spiritual functions.

This research posed minimal risks to the participants because their privacy was protected. Personal information such as height, weight, and sexual preference were supplied by the participants on the demographic portion of the survey. I kept all appropriate congregations' affiliated stakeholders informed regarding the study's activities that pertained to them; however, the information shared did not include the identities of the volunteers. Volunteers received the details of the study through the informed consent that was available as the first page once participants linked into the

survey website. Information on the study, as well as the participants' right to exit the survey at any point without any consequences, was presented in this section.

As noted, the survey was available online to volunteers who fit the study's criteria. On a weekly basis, I visited Megachurch A to distribute flyers. I also had on hand two Internet access tablets for participants who wished to take the survey onsite. However, most volunteers were recruited from flyers, newsletters, and emails that were distributed by church administrators to their congregations. These recruitment tools informed potential volunteers of how to contact me or Walden University if they needed to learn more about the study or had any concerns. Directions indicating how to link into the survey's website were also available on these promotional tools.

Instruments

This study involved three constructs that were conceptualized to be predictive of motivation for weight loss. These predictors were BMI, three components of internalized body image, and four components of social network. Each of the variables was operationally defined as follows through assessment tools that were included in the online survey package.

The demographic questionnaire and three instruments were combined into one survey packet. The final packet presented a total of 38 questions to complete. The anticipated time frame to complete this questionnaire was 15 minutes. However, the timeframe to complete the survey process, including signing the consent form, did not exceed 20 minutes per participant.

BMI and other demographics. The Demographic Questionnaire (see Appendix A) presented 10 questions on the following demographic variables: weight, height,

gender identity, age, marital status, sexual preferences, ethnicity, dating and mating ethnicity preference, educational level, and pregnancy status (*yes*/*no*). Using self-reported height in feet and inches and weight in pounds obtained from participants, I calculated their BMIs.

Raw BMI scores fall on a continuous scale. Raw BMI scores were used to identify individuals who met inclusion criteria (i.e., BMI $\geq$ 30 kg/m^2) and the necessary scores for analyzing to test research hypotheses. For descriptive purposes, participants were classified by their BMI scores using accepted medical conventions (Stevens, 1958) in their respective weight group. These results were reported along with other descriptions and demographic variables of the final sample that were assessed.

Body image. To measure dimensions of the participant's body image, I used a culturally competent body image scale and questionnaire designed and created by Dr. Kimberly Pulvers. This instrument, the Pulvers's Culturally Relevant Body Image Scale and Questionnaire, was developed as a tool to enhance the understanding of African Americans' concept of obesity within their culture (Pulvers et al., 2004). The questionnaire consisted of five closed-ended questions that recorded the respondents' body perception through an image silhouette measuring scale; however, for this study I originally planned to only measure Questions 1, 2, 3, and 5 (see Appendix A).

The silhouette scale identified body weights via pictures and associated letters; this scale contained nine different female body sizes that represented the smallest (A) to the largest (I). The body sizes of the images were consistent with BMIs; Figures A – C were with the normal BMI range (BMI < 25 kg/m^2), Figure D was consistent with the overweight BMI range (BMI > 25 and < 30), while Figure E was Obese I, Figure F was

Obese II, and Figures G – I are Obese III (Pulvers et al., 2013). Each figure on the scale was three BMI values from the adjacent figure (Pulvers et al., 2004).

Each of the five questions within the questionnaire were intended to allow the participants to write the letter that best answered the question. These questions were as follows: 1) Which figure do you think looks the most like you now? (actual). 2) Which of these figures most closely resembles how you would like to look? (ideal). 3) Which figure do you think looks like most women your age? (peer). 4) Which figure do you think most closely resembles how most other women your age would like to look? (peer ideal). 5) Which female figure do you think men your age finds most attractive? (opposite sex ideal). See Figure 4 below and Appendix A.

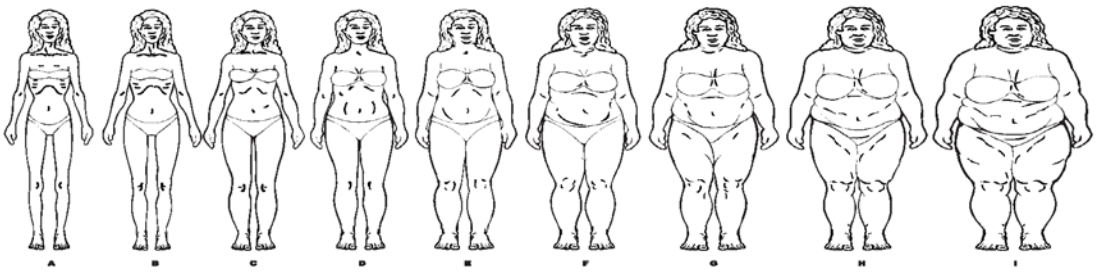

Figure 4. Body image measuring scale. From "BMI-Based Norms for a Culturally Relevant Body Image Scale Among African Americans," by K. Pulvers, J. Bachand, N. Nollen, H. Guo, and J. S. Ahluwalia, 2013, *Eating Behaviors*, *14*(4), p. 437-440. Copyright © 2013 Elsevier Ltd. Reprinted with permission

This instrument is appropriate for African American female participants, as it has successfully been used in several studies. Specifically, the content validity for consistency between the body image figures and the BMI classification has been established and is very high at $r = .91$ and Cronbach's $\alpha = .99$ (Pulvers et al., 2004). This

scale was developed using a group of urban African Americans that consisted of 75% females within the mean age group = 44 years (Pulvers et al., 2004). Research by Cox et al. (2011) also found good internal consistency across all subscale items (Cronbach's α = .76 to .95). Using this instrument for this population was therefore most appropriate as the target population was also female African Americans.

I received permission to use the Pulvers's Culturally Relevant Body Image Scale and Questionnaire via email; a copy of the email correspondence from Dr. Pulvers is attached as Appendix B. Dr. Pulvers also provided instructions to convert the body image scale and another version of the body image scale, a jumbled version. The jumbled version was used if any of the participants needed to retake the survey; this was to avoid biased responses. The jumbled version has the figures placed in random order, not in size order starting from smallest to largest like the original scale (see Appendix C).

Four scores were derived from administration of this instrument for the purpose of this study. Each was considered a component of body image that may have particular importance for predicting motivation to lose weight.

Image of actual self ($BI_{current}$***).*** The participant's selection in response to Question 1 was the operational definition of how the woman perceived her actual body shape and size.

Body satisfaction or dissatisfaction (BS or D). While Question 1 asked the participant to indicate which figure aligns with her perception of her actual body shape and size, Question 2 asked her to indicate which figure aligns with her ideal body shape and size (BI_{ideal}). Following previous research, body satisfaction or dissatisfaction was operationalized as the difference between the rating for perceived actual body shape and

size ($BI_{current}$) and rating for ideal body size (BI_{ideal}): BS or D = BIcurrent - BI_{ideal} (Carter-Edwards et al., 2010; Cox et al., 2011; Fitzgibbon, Blackman, & Avellone, 2000). The greater the difference from the ideal, the greater the dissatisfaction. Greater actual-ideal discrepancies have been found to be related to unhealthier eating behaviors (Anotn, Perri, & Riley, 2000).

Body satisfaction or dissatisfaction—peer comparisons (BS or D – P). As BS or D considered the discrepancy between one's perceptions of actual versus personal ideal body images, this variable considered the discrepancy between one's perceptions of actual body image and the perceived normative body shape and size of African American female peers (BI_{peer}). This was an indicator of body image relative to social comparison, a critical element of body image, and social and cultural prototypes upon which these kinds of cognitive comparisons are based (Strahan, Wilson, Cressman, & Buote, 2006). Previous researchers suggested that body satisfaction among African American women may be greater than that among Caucasian women because of socialization within a community where larger body size among female peers are more the norm (e.g., Hebl & Heatherton, 1998). This body satisfaction or dissatisfaction score was computed as follows: BS or D – P = $BI_{current} - BI_{peer.}$

Body satisfaction or dissatisfaction—males (BS or D – M). While BS or D – P considered how one's actual self-body image compared with perceived norms of female peers, this component evaluated how one's actual self-body image compared with perceived ideals of attractiveness among male peers (BI_{males}). Previous researchers using similar figure assessments with primarily Caucasian female samples found that ideal self was highly correlated with assumed male ideal (Hildebrandt & Walker, 2006). It was not

clear if this would be true for African American women, and using a racially-sensitive instrument. As before, the body satisfaction or dissatisfaction score was computed as follows: BS or D – M = $BI_{current}$ - $BI_{males.}$

Social network. The Social Support for Eating Habits Survey (Sallis *et al.*, 2003) measured social networking. Using this instrument, I gathered data about the interrelationship between the participants and their families and friends related to eating habits, a major factor in losing weight, staying fit, or becoming obese. This instrument contains 10 questions that were presented on a 6-point rating Likert scale, ranging from "*None"* to "*Very Often."* A response option of "*Does Not Apply"* is available (Sallis *et al.,* 2003). Each question must be answered twice, once in the "family" column and the second time in the "friends" column, allowing for the simultaneous yet separate collection of data on the influence of participants' friends and family within the last three months. The first five questions (1 – 5) measured the family and friends' encouragement influences on healthy consumption and the last five questions (6 – 10) measured the family and friends' discouragement influences on healthy consumption. The scoring for this instrument was measured separately on a continuous scale relating to family and friends' influences, with encouragement sum Items 1 – 5 and discouragement sum Items 6 – 10. This instrument produced four subscale scores. See Appendix A for survey.

The Social Support for Eating Habit Survey was developed in 1987 by Sallis, Grossman, Pinski, Patterson, and Nader (Baughman et al., 2003). To obtain the 10 questions that this instrument uses, Sallis et al. (1987) conducted extensive interviews among 40 participants (80% were women) relating to experiencing verbal and nonverbal dietary behavioral influences. Once the questions were created it was administered

among 171 participants (75% were women) to be tested and retested. Test-retest reliability and consistencies with these questions were stable; test-retest reliability estimates were within an acceptable range (r = .55 – .86; Sallis et al., 1987). Using the same instrument in a 2003 study, the researchers found that the Cronbach α = .87 and .88 for positive support for healthy eating from family and friends, respectively, and Cronbach α = .75 and .76 was observed, respectively, for discouragement for healthy eating from family and friends (Baughman et al., 2003). Sallis et al. (1987) also created the Social Support for Exercise Survey; however, the exercise survey was not used for this study. For numerous reasons including hair care concerns, research has shown that African American women have the lowest participation rate in exercising compared to any other racial and ethnic female group (Versey, 2014). Requesting information from my target population on exercising was not necessary.

The Sallis et al. (1987) Social Support for Eating Habits surveyed participants ranging from adolescents to adults within various ethnic backgrounds, making this survey applicable for this study on African American women. With the reliability and validity of this tool receiving acceptable consistency in providing data related to self-reporting dietary habits, this instrument was most appropriate for this study (Baughman et al., 2003; Sallis et al., 1987). Results from these questions provided data relating to the effects of social influences on consumption habits. Permission to use the Social Support for Eating Habits Survey for this study was received from Dr. James F. Sallis. A copy of the email correspondence from Dr. Sallis is in Appendix B.

Motivation to lose weight. The instrument used to measure the criterion variable, motivation to lose weight, was the Dieting Readiness Test (DRT; Teixeira et al., 2002).

DRT, developed in 1990 by Kelly Brownell, captured the study participant's motivation level to lose weight based on their commitment and life circumstances (Walker, 1999). Because obesity is a disease that is controlled by an individual's behavior, an individual's readiness to lose weight is a major factor in the success or failure of any weight loss treatment. Although DRT is recommended by several medical institutions, this 23-item scale has been criticized for its inability to predict the success of weight loss treatments (Fontaine et al., 1997; Martin, O'Neil, & Binks, 2002). DRT's lack of weight loss treatments' predictive validity was not a concern for this study as this study was interested in determining if the target population's motivation level (high or low) to lose weight was related to biosociocultural influences.

DRT has six weight subscales that consist of goals and attitudes (six items which focus on motivation on weight loss; e.g., "Compared to previous attempts, how motivated to lose weight are you this time?"); hunger and eating cues (three items which focus on thoughts or environmental cues on food; e.g., "How often do you eat because of physical hunger?"); control over eating (three items which addresses external pressures on control over eating; e.g., "You 'break' your diet by eating a fattening or 'forbidden' food."); binge eating and purging (four items that address eating disorders; e.g., "Aside from holiday feasts, have you ever eaten a large amount of food rapidly and felt afterward that this eating incident was excessive and out of control?"); emotion eating (three items that address if there are emotional influences on consumption; e.g., "Do you eat more than you would like to when you have negative feelings such as anxiety, depression, anger or loneliness?"), and the last subscale is on exercise patterns and attitudes (four items focus

on attitudes on exercise; e.g., “When you think about exercise, do you develop a positive or negative picture in your mind?”:Fontaine et al., 1997). See Appendix A for survey.

As only the first subscale was related more directly to motivational attitudes and goals, only the score for this scale was considered for the dependent variable in this study. The entire instrument did not appear on the survey. The participants only saw and answered the 6 relevant items for this variable.

DRT is a multidimensional assessment tool, administered in a 5-point Likert format, which has been used in numerous studies on a mixed demographic that included African American women (Walcott-McQuigg et al., 2002). As previous studies used this instrument on the same target audience, the DRT was appropriate for this study. Cronbach’s alpha reliability coefficients were used to establish the internal consistency of the instrument, which was measured acceptable as reliability ranged from $\alpha = .61$ to .80; the 6 subscales consist of $\alpha = .79$ for goals and attitudes; .34 for hunger and eating cues; .69 for control over eating; .69 for binge eating and purging; .87 for emotional eating; and .80 for exercise patterns and attitudes (Fontaine et al., 1997). In a study conducted with African American women, the reliability range was slightly lower, ranging from $\alpha = .50$ to .79; however, the hunger and eating cue was significantly higher, $\alpha = .73$ (Walcott-McQuigg et al., 2002). Permission to use DRT for this study was received from Dean Kelly Brownell. A copy of the email correspondence from Dean Brownell is attached in Appendix B.

Planned Data Analyses

Cleaning and screening data. All data was analyzed using the IBM SPSS 21.0. After data entry, the first requirement was to clean and screen the data. Data was

inspected for incorrect data entries and missing values. Data entry errors were corrected based on original responses in the survey packets.

Next, I conducted analyses using SPSS to screen the data for missing values, univariate outliers, assumptions of the planned statistical analyses, and multivariate outliers (Meyers, Gamst, & Guarino, 2013). I then considered common options for handling missing values (e.g., substitution with the mean) and outliers. Outliers become especially problematic when they are associated with nonnormality of the distribution of the scores (both univariate and multivariate). Outliers frequently affect the assumption of normality for using parametric statistical analyses. The more extreme the deviation from normality, the less sensitive the statistical test becomes for accurately detecting whether the null hypothesis should be retained or rejected (Mertler & Vannatta, 2005). If the data deviates substantially from normal, I considered transforming the data using the most appropriate method for the nature of the deviation (e.g., square root transformation for a distribution with moderate positive skewness, or log transformation where there is more extreme positive skewness; reflection would be used for negatively skewed distributions; Mertler & Vannatta, 2005, p. 32). If the data was not brought into normality through transformations, I explored changing the continuous variable to a discrete variable, such as through the median split or using other percentile groupings to create classifications of scores. Other assumptions of the planned parametric statistical test also had to be evaluated, including linearity in correlation (that is, there is a straight line relationship between two variables) and homoscedasticity (that is, the variance in the dependent variable is roughly equivalent to the variance in the independent variable). As long as a predictor variable is either continuous or discrete, a multiple linear regression may be

performed. However, if the dependent variable is discrete, a logistic regression would need to be used where the multiple linear regression had been planned. It is also important that the data should not show deviation from multivariate normality, mulicollinearity**,** nor heteroscedasticity. Where there is a problem with multicollinearity, I considered running analyses without one or more of the variables that may be highly correlated with the other predictors. Other assumptions for multiple regression analysis that was evaluated included evaluating for outliers (Mahalanobis distance) and inspection of residuals' scatterplots for a second assessment of assumptions of linearity, normality, and homoscedasticity that may be used in the multiple regression analysis (Mertler & Vannatta, 2005).

Reporting demographic characteristics. In order to report the characteristics of the research sample, descriptive statistics was computed for each of the demographic variables. Frequencies and proportions of occurrence of participants within response categories were reported for discrete demographic variables (gender identity, marital status, sexual preferences, ethnicity, dating and mating ethnicity preference, and educational level). Number, mean, standard deviation, skewness, and kurtosis were reported for the continuous variables (age, weight, height, and the resulting BMI values which were calculated from weight and height).

Testing the research hypotheses. Planned analyses were described in conjunction with each of the research hypotheses.

$H1_1$: There is a statistically significant relationship between BMI and motivation to lose weight. A separate linear regression analysis was performed to

evaluate the relationship between the one predictor variable, BMI score, and the score for motivation to lose weight.

$H2_1$: There is a statistically significant relationship between the three components of internalized body image and motivation to lose weight. I examined the three components of body image: body satisfaction or dissatisfaction per ideal body image, body satisfaction or dissatisfaction per image of female peers, and body satisfaction or dissatisfaction per assumed preferences of African American males. I tested this hypothesis by running a linear regression with these three body image scores as the predictor variables for motivation to lose weight as the dependent variable.

$H3_1$: There is a statistically significant relationship between the four components of social network and motivation to lose weight. A separate linear regression analysis was performed to evaluate the relationship between the four scores for social network dimension and the criterion variable, motivation to lose weight.

$H4_1$: A statistically significant proportion of the total variance in motivation to lose weight among a sample of nonpregnant obese African American women is explained by simultaneous consideration of BMI, components of internalized body image, and social networking as predictors of motivation to lose weight. This hypothesis was tested using a multiple regression analysis with all predictor scores entered simultaneously to predict motivation to lose weight.

Multiple regression is a statistical technique that analyzes prediction models containing one dependent variable and more than one independent variable; this analysis is an extension of the simple linear regression (Field, 2009). The multiple regression model is most appropriate for this study as its basis is simplistic and credible as long as

the assumptions are met (Gravetter & Wallnau, 2009). Assumptions, when met, validate the accuracy of the analysis.

As the primary researcher, I was the only person with access to all completed questionnaires prior to entering the data into SPSS for analysis. The questionnaires that contained a large amount of missing data were not entered for analysis. They were considered inconclusive and shredded to reduce sampling errors (Ordonez, 2011). I sought additional participants until the desired sample selection of 111 qualified participants was met. Once I tabulated the data using SPSS, I worked very closely with my dissertation chairman to confirm that all data were analyzed correctly.

Threats to Validity

Threats to validity are significant concerns for every researcher as the reliability of accurate results is an essential factor to the study. Most common among experimental studies, threats to validity have two types of category that can affect a study, internal and external. Concern for this study's internal threats to validity included instrumentation and selection bias, while concerns for external validity included unrelated responsiveness of measurements (Green, 2010). For this study three instruments were used, it was important to create a reliable research environment that assisted in reducing these threats, such as validation and Walden University's approved collecting data tools. Instrumentation is a justifiable concern as unreliable instruments may contaminate scores, reducing it truthfulness that can alter the conclusion of the study (Haladyna & Amrein-Beardsley, 2009).

Selection bias was also a concern as inaccurate participant selection reduces the ability in using a sample group that best represents the desired population. Unrelated

responsiveness of measurement could increase the false interpretation due to transforming incorrect data. Concerns were valid as these threats to validity could cause interference with the relationship between the independent and the dependent variables (Frankfort-Nachmias & Nachmias, 2008).

To reduce the possibility of selecting unqualified participants, I used the purposive sampling approach as one of the sampling strategies. Purposive sampling provides every individual within the volunteer population possible opportunity to be selected based on the researcher's judgment (Groves et al., 2009). To address the measuring concern, I collaborated with my dissertation chairman to ensure accurate analysis of the data.

Various internal threats to validity are common among experimental studies (e.g., attrition, history, mortality, maturation, and testing; Aussems, Boomsma, & Snijders, 2011; Frankfort-Nachmias & Nachmias, 2008). However, this was not an experiment where data collection was completed at one point in time. The surveys were selected to be relatively easy to read and respond to, and it was not believed that either fatigue or carryover effects from one test to the next was a particular threat.

Ethical Concerns

Ethical practices were a priority for the study. To confirm proper practice of ethical standards, this study took precautionary steps to avoid conflicts or violations. This occurred by obtaining Walden University Institutional Review Board (IRB) approval prior to starting the study. There were minimal ethical risks as the participants were not considered a vulnerable population (e.g., children, persons with a disability) Although there were minimal risks, and the sample remained anonymous, I still applied

the Rest's Four-Component Ethical Decision Making Model to maintain proper ethical choices (Bersoff, 2008). The model was appropriate as it addressed the sensitive issues of the topic matter of obesity while enforcing the practice of integrity and confidentiality.

This study depended on participants' responses to generate efficient data. Data from the participants did require for them to volunteer their time to complete the required consent form and questionnaires. Prior to approaching the participants, I received approval to conduct research by all affiliated stakeholders, this included Walden University's assigned dissertation Chairman, Community Member, and IRB members; this also included church administrators who provided a letter of corporation. Upon approval of the proposal, permission was obtained from the churches to get volunteers to participate in the study. Participants were informed of their rights to discontinue filling out the questionnaire at any time, and the right to refuse to answer any questions. The surveys were not available to the participants until they signed their informed consent form.

Potential ethical challenges in this study related to the following areas of the research: data collection process, participants' selection, or participants' experiencing unintentional distress. To avoid data collection and participants' selection concerns, methods previously discussed in the Threats of Validity section was practiced. Providing valid instruments and informing the participants of their rights to cease if deemed necessary prevented participants experiencing any unintentional distress.

Conclusion

To summarize Chapter 3, details explained the important task of conducting a deductive method consisting of a quantitative, correlational, cross-sectional design.

Through the process of providing over 139 participants a questionnaire consisting of 38 questions, this study had sufficient statistical power connecting the variables by confirming or rebutting the hypotheses. This chapter detailed the research design, participants and setting, sampling, instrumentation, procedure, and data planned analysis. Also included in this chapter are avoidances of threats to validity and unethical issues, ensuring for a quality research study. Results from the collected data will be discussed in Chapter 4.

Chapter 4: Results

Introduction

This study's purpose was to develop a better understanding of what biosociocultural factors influence nonpregnant obese African American women's level of motivation to lose weight. Do any of the three constructs under study (BMI, body image, social network influences) increase the understanding of this population's motivation to lose weight or explain their acceptance of obesity? Online surveys were used to gather and interpret the data. Major sections of this chapter are as follows: Introduction, Data Collection, Participant Demographics, Results, Evaluating Assumptions for Planned Analyses, Hypotheses Testing, and the Summary.

Data Collection

I recruited and collected data from January 27, 2017 to April 23, 2017. By the third month of the study, I had collected 222 responses, 183 of which qualified for inclusion in the study. At that point, data collection ended.

The participants were recruited from two large southeastern predominantly African American churches. These churches, in agreeing to be community partners in this study, granted permission to recruit their obese female congregants. These religious facilities allowed various recruitment activities to occur, including the display of research flyers with links to the online study on bulletin boards (the first church for the duration of 3 months and the second church for the remaining 2 months), sending email announcements of my study with the online survey linked to 30 affiliated ministries and associated outreach facilities, and allowing me to visit their establishments (first church only) during food drives, festivals, women's bible

study groups, children's bible study groups, and Sunday morning services to promote the study. While visiting the first church at the various functions, I handed out flyers and had two computer tablets available with Internet connections for interested respondents who were willing to participate onsite. This method of providing the participants immediate access to the online survey was very effective, specifically during visits to the first church for women's bible study groups and Sunday morning services. Attending this church's functions stimulated an increase in the response rate that lasted for several days. During the recruitment process, appropriate measures were taken to ensure that offensive terms such as *obese*, *big*, *fat*, and *large* were not used. Prospective participants were asked to consult the BMI chart to determine whether they qualified for the study. The BMI chart did not contain the definitions of BMI levels; it simply indicated how to determine BMI category.

As previously discussed, an online survey was used to gather data. To ensure that this study posed minimal risk to the participants, all volunteers' privacy and confidentiality were protected. This was achieved by requesting and collecting unidentifiable demographic information from the participants. The online survey service that this study used also honored the participants' privacy, in that the devices that the participants used to respond were not identified.

Participant Demographics

A total of 222 women provided information on the surveys. Of these, 183 women met all qualifications for the study, in that they self-reported as adult nonpregnant African American women with BMIs $\geq$ 30 kg/m^2 and self-reported as heterosexual or bisexual women who preferred to date and mate with African American men. The 39

women who did not qualify were removed from the sample for the following reasons: Two were not African American (one was Latino and one was Native American), one was pregnant, nine had BMIs lower than 30 kg/m^2, and 27 did not complete over 50% of the questionnaire. With over 82% of the total participants qualifying with complete entries, this study had enough data to test the hypotheses.

All of the 183 qualifying participants were adult nonpregnant African American women with BMI $\geq$ 30 kg/m^2. The sample was composed primarily of heterosexual women (93.4%), with the remainder indicating bisexual preferences. The age distribution of the respondents ranged from 18 to 77 years, with a mean of 40.76 years (*SD* = 12.83) and a median of 41.00. The majority of the women (65%) were not currently married. Overall, this group was well educated (63.4% had completed at least an associate's degree, with 21.3% completing a graduate or professional degree; see Table 1).

Table 1

Participant Demographics

	Frequency	Percent
Marital status		
Single	77	42.1
Married	64	35.0
Separated	13	7.1
Widowed	9	4.9
Divorced	20	10.9
Total	183	100.0
Level of education		
Less than high school	1	.5
High school	25	13.7
Some college	41	22.4
Associate's degree	30	16.4
Bachelor's degree	47	25.7
Master's degree	32	17.5
PhD	1	.5
Graduate or professional degree	6	3.3
Total	183	100.0

Results

I transferred the numerical data collected from the online survey site (freeonlinesurveys.com) and organized the data into an Excel spreadsheet. I then downloaded the data into an SPSS data file (Version 21). After being downloaded into the SPSS data file, the variables were labeled, categorical information was coded, and the data were cleaned and explored for missing values (no missing values were found).

Assessments of Internal Reliability of Research Measures

Prior to computing scale scores for research variables, I conducted analyses for internal reliability for the current sample. Although all measures had been selected because they had been reported to have acceptable internal reliabilities (Cronbach's alpha $\geq .70$) for the general population, it was important to make sure that the scales would also be reliable for the current sample. This confirmation was especially important for the Dieting Readiness Test (DRT), the measure of motivation to lose weight, because it was not designed specifically for African Americans and Walcott-McQuigg et al. (2002) reported that it had demonstrated lower reliability, ranging from $\alpha = .50$ to .79, among African Americans. Cronbach's alphas for the responses of this sample for the items in each of the research scales are summarized in Table 2. Any scores with Cronbach's alpha values of .70 or higher were considered acceptable for internal reliability. All scales' estimates met this requirement except the DRT scale (alpha = .61; see Table 2 for details). This lower estimate of internal reliability seemed to mirror Walcott-McQuigg and colleagues' findings. My first observation was that, at face value, the questions asked in Items 1-4 appeared to relate to one theme (i.e., beliefs about losing weight), while the questions asked in Items 5-6 pertained to another theme (i.e., reactions while dieting). I

computed item-item correlations: The last two items ("While dieting, do you fantasize about eating a lot of your favorite foods?" and "While dieting, do you feel deprived, angry, and/or upset?") were correlated significantly with each other but had low relationships ($r \leq .16$) with the other four items on the scale, with these remaining four items significantly related to each other. Further, I conducted a principal axis factor analysis to evaluate whether there was more than one dimension being evaluated in the six items. The results of the principal axis factor analysis confirmed the presence of two distinct factors, one defined by Items 1-4 (Factor 1; 40.55% of the total variance) and the second dimension defined by Items 5-6 (Factor 2; 28.1% of the total variance). The Cronbach's alpha for the four items in Factor 1 was computed to be alpha = .78 (see Table 2).

Table 2

Internal Reliabilities for Research Scales

Scale tested	Cronbach's alpha	Number of items
DRT—Scale 1	.61	6
DRT—Scale corrected*	.78	4
Social Support for Eating Habits Survey		
Family encouragement	.88	5
Friends encouragement	.91	5
Family discouragement	.86	5
Friends discouragement	.83	5

*Scale modified to ensure highest internal reliability; Items 1-4 only. Research scale scores computed from these items.

Computed Research Scale Scores

BMI. I converted the self-reported information from participants on their height (cm) and weight (kg) into the metric system to calculate BMI (kg/m^2; Kim et al., 2017).

Body image indicators. I computed each of the body image indicators from respondents' responses on Pulvers's Culturally Relevant Body Image Scale and Questionnaire (Pulvers et al., 2004). I used the respondents' actual body image (image of actual body shape/size; $BI_{current}$) as the anchor against which to compare their other body image ratings. The other body image indicators were the differences between image of actual self with (a) image of one's own ideal body shape/size ($BI_{actual\text{-}ideal}$; $BI_{current} - BI_{ideal}$), (b) image of peers' body shape/size ($BI_{actual\text{-}peer}$; $BI_{current} - BI_{peer}$), and (c) males' ideal female body shape/size ($BI_{actual\text{-}male\ ideal}$; $BI_{current} - BI_{male.}$).

Social network. Four indicators of social network were computed from ratings on the four subscales of the Social Support for Eating Habits Survey (Sallis et al., 2003). Respondents rated each of the first five items (encouragement statements), once when considering family members and once when considering friends. Similarly, respondents rated each of the second five items (discouragement statements) when considering family members and then when considering friends. The mean rating for each set of five responses was computed as the raw scale score.

Motivation to lose weight. The motivation to lose weight score was defined as the mean rating of Items 1 through 4 from the DRT (Fontaine et al., 1997). Descriptive statistics for the research variables are summarized in Table 3. The respondents' mean rating for the original six items was 3.19 (*SD* = .63), and 3.11 (*SD* = .86) for the revised scale with four items.

Table 3

Descriptive Statistics for Research Variables

Research variable	Mean	*SD*	Skewness	Kurtosis
BMI	35.04	5.20	1.76	3.04
Body image				
$BI_{actual\text{-}ideal}$	1.70	1.28	.30	.78
$BI_{actual\text{-}peer}$	.48	1.54	.09	.29
$BI_{actual\text{-}male\ ideal}$	1.72	1.53	.05	.99
Social network				
Family encouragement	2.49	.89	.16	-.45
Friend encouragement	2.51	.95	- .05	-.91
Family discouragement	2.49	.89	.47	-.05
Friend discouragement	2.25	.87	.53	-.50
Motivation to lose weight*	3.11	.87	.06	-.17

Note. $N = 183$.
*4-item scale from Dieting Readiness Test.

Evaluating Assumptions for Planned Analyses

This research examined BMI, components of internalized body image, and influences of social networks as predictors of motivation to lose weight. The plan was to use multiple linear regression to test the hypotheses. Before testing hypotheses, I examined the distributions of each of the variables (Meyers, Gamst, & Guarino, 2013).

Dependent variable—Motivation to lose weight. I began my assessments by focusing on the dependent variable, that is, scores on the DRT (four items). I used the SPSS Explore function to produce the plots of the distribution of scores for motivation to lose weight: histogram, q-q plots, and box plots (see Appendix E. I also consulted the skewness and kurtosis values (see Table 3) and the Shapiro-Wilk test of normality (see Appendix F). No outliers were identified. Although the Shapiro-Wilk test was statistically significant, examination of the histogram and q-q plot, and skewness and kurtosis values did not alert me to any major departures from normality (Mertler & Vannatta, 2005).

Predictor variables. I then evaluated the characteristics of the predictor variables (BMI scores, three scores for body image, and four scores for social network indicators), employing the same methods as described for motivation to lose weight. Unlike the dependent variable, there were multiple outliers, primarily above the mean, for these distributions (see histograms, *q-q* plots, and box plots in Appendix G). As I had no reason to believe that these outlier data points were not meaningful and not representative of individuals in the population who might be more extreme on the variable, I did not want to delete them out of hand. Instead, I reduced each outlier to the next lowest value that was not an outlier (Mertler & Vannatta, 2005).

Nonnormality. Although none of the skewness or kurtosis values reported in Table 3 for the predictor variables are outside of acceptable normality range (i.e., skewness less than absolute value of 2 and kurtosis less than the absolute value of 6), the Shapiro-Wilk tests of normality indicated that each of these distributions was not normal. Closer examination of the histograms suggested that the distributions may have had more

than one mode: the highest around the mean and median, but a smaller one to the right of the mean and median (see Appendices E, G, and H). Unfortunately, I was not able to achieve normality with these variables. I tried square root and log transformations for the high numbers, but these did not improve normality. This possible nonlinearity might explain the difficulty reaching normality even with transformations.

Transforming data to create ordinal variables. Because of the unusual characteristics of the distributions of the predictor variables, data were collapsed to create ordinal variables with roughly even proportions of respondents in each category. The planned analyses for my study, multiple regression analyses, were correlational in nature. Thus, it was important to consider the viability of these kinds of ordinal transformations for correlations. Norman (2010) compared correlation coefficients for ordinal variables where the original number of possible ratings (10 points on a Likert scale) was retained, where the original 10 ratings were collapsed to a 5-point scale, or where the original 10-point scale responses were transformed to 4-point scales by combining some combinations of point values. Comparisons of the Pearson correlation coefficients with those of Spearman correlation of ranks for the three score sets, including the one that was the result of transformation to 4-point scales, "yielded virtually identical values, even in conditions of manifestly non-normal, skewed data" (Norman, 2010, p. 630). I transformed my predictor variables using the SPSS frequency distribution tool to establish the best cutting points to distribute the scores as evenly as possible. See Appendix I to view bar charts of the original raw scores and the transformed scores of all the predictors.

BMI scores. Raw BMI scores ranged from 30.02 to 55.49 kg/m^2. Categories were created that divided the observed values in distribution into roughly equivalent proportions: 30 – 31.99 kg/m^2 (62; 33.9%); 32 – 34.99 kg/m^2 (58; 31.7%); 35 kg/m^2 or higher (63; 34.4%). The majority of the participants fell into obesity level I (BMIs of 30 to 34.9 kg/m^2), with approximately a third falling into obesity levels II and III.

Three body image scores. Raw body image $BI_{actual\text{-}ideal}$ scores ranged from -2 to 6, $BI_{actual\text{-}peer}$ scores ranged from -5 to 5, and $BI_{actual\text{-}male\ ideal}$ scores ranged from -2 to 7. Categories were created that divided each of the three observed values in distribution into roughly four equivalent proportions: $BI_{actual\text{-}ideal}$ -2 – 0 = more positive body image or a weaker desire to lose weight (28; 15.3%); 1= positive body image (50; 27.3%); 2 = negative body image (66; 36.1%); and 3 – 6 = more negative body image or a stronger desire to lose weight (39; 21.3%; email communication, K. Pulvers, 2017). Within the participants' comparison of how they look to their ideal look, the majority of them fell into the negative body image category. Regarding $BI_{actual\text{-}peer}$ -5 – -1 = more positive body image or a weaker desire to lose weight (52; 28.4%); 0 = positive body image (40; 21.9%); 1 = negative body image (48; 26.2%); and 2 – 5 = more negative body image or a stronger desire to lose weight (43; 23.5%; K. Pulvers, email communication, July 10, 2017). Within the participants' comparison of how they look to how their peers look, the majority of them fell into the more positive body image category. $BI_{actual\text{-}male\ ideal}$ -3 – 0 = more positive body image or a weaker desire to lose weight (35; 19.1%), 1 = positive body image (45; 24.6%); 2 = negative body image (54; 29.5%); and 3 – 7 = more negative body image or a stronger desire to lose weight (49; 26.8%; K. Pulvers, email communication, July 10, 2017). Within the participants' comparison of how they look to

what they believe the ideal body image is for the opposite sex, the majority of them fell into the negative body image category.

Four social network scores. Raw social network encouragement family's scores ranged from 1.0 to 5.0, encouragement friends' scores ranged from 1.0 to 4.8, discouragement family's scores ranged from 1.0 to 4.8, and discouragement friends' scores ranged from 1.0 to 4.6. Categories were created that divided each of the four observed values in distribution into roughly three equivalent proportions; the categories that were encouragement from family were: 1.0 – 2.0 = low encouragement from family (63; 34.4%); 2.2 – 2.8 = moderate encouragement from family (63; 34.43%); 3.0 – 5.0 = high encouragement from family (57; 31.1%). With respect to encouragement from friends, 1.0 – 2.0 = low encouragement from friends (66; 36.1%); 2.2 – 3.0 = moderate encouragement from friends (54; 29.5%); 3.2 – 4.8 = high encouragement from friends (63; 34.4%). Categories for discouragement from family were: 1.0 – 2.0 = low encouragement from family (60; 32.8%); 2.2 – 2.6 = moderate discouragement from family (57; 31.1%); 2.8 – 4.8 = high discouragement from family (66; 36.1%). Discouragement from friends' groups were: 1.0 – 1.6 = low discouragement from friends (60; 32.8%); 1.8 – 2.4 = moderate discouragement from friends (57; 31.1%); 2.6 – 4.6 = high discouragement from friends (66; 36.1%).

Hypotheses Testing

Research Question 1

To what extent was BMI among nonpregnant obese African American women (as measured by self-reports on the Demographic Questionnaire and calculated based on

height and weight) related to motivation to lose weight (as measured by Diet Readiness Test)?

A linear regression analysis with one ordinal predictor variable, BMI, as predictor of DRT score indicated no relationship between BMI and motivation to lose weight, F (1, 181) = 0.432, n.s.; R^2 = .002. Thus, the null hypothesis was not rejected.

Research Question 2

To what extent were components of internalized body image among nonpregnant obese African American women (as measured by the Body Image Measurement Scale) related to motivation to lose weight (as measured by the Diet Readiness Test)?

The internalized body image factor included measures of three dimensions of body image: $BI_{actual\text{-}ideal}$, $BI_{actual\text{-}peer}$, and $BI_{actual\text{-}male\ ideal}$. A multiple linear regression was conducted to evaluate the three indicators of body image as predictors of motivation to lose weight. Assumptions for use of multiple linear regression for this analysis were met: the predictors had a linear relationship with the dependent variable, showed no signs of multicollinearity; in addition, there were no significant multivariate outliers and no homoscedasticity (Gravetter & Wallnau, 2009). Specifically, no value for Tolerance level was smaller than .40 and no VIF higher than 10 (Meyers et al., 2013). The scatterplots and the P-P plot indicated that the predictor variables for body image were linearly related to the dependent variable, DRT. There was no sign of significant multivariate outliers: Cook's Distance, *D*, was less than 1, and values for Mahalanobis distance did not exceed the Chi Square critical value for p = .001 with df = 3 (i.e., 16.27; Meyers et al., 2013). Review Appendix J for details.

Results of the multiple linear regression indicated that the three dimensions of body image accounted for a statistically significant proportion (11.3%) of the variance in DRT, F (3, 179) = 7.59, p = .000; R^2 = .113. The strongest predictor of motivation to lose weight was the $BI_{actual\text{-}peer}$ discrepancy (p = .001). The actual $BI_{actual\text{-}male\ ideal}$ discrepancy also was a statistically significant predictor (p = .043) and the $BI_{actual\text{-}ideal}$ discrepancy showed a strong trend (p = .058).

Controlling for $BI_{actual\text{-}ideal}$, and $BI_{actual\text{-}male\ ideal}$, the regression coefficient, B = -.843, 95% C.I. (-1.349, -.337), p = .001, associated with $BI_{actual\text{-}peer}$ suggests that with each additional increase in $BI_{actual\text{-}peer}$, the motivation to lose weight decreases by approximately .84 units. Similar results were found for $BI_{actual\text{-}male\ ideal}$. Controlling for $BI_{actual\text{-}ideal}$, and $BI_{actual\text{-}peer}$, the regression coefficient, B = .716, 95% C.I. (.024, 1.407), p = .043, associated with $BI_{actual\text{-}male\ ideal}$ suggests that with each additional increase in $BI_{actual\text{-}male\ ideal}$, the motivation to lose weight increases by approximately .72 units. Coefficient values are presented in Table 4.

Table 4

Coefficients for Multiple Regression Analysis with Three Components of Internalized Body Image as Predictors of Motivation to Lose Weight

	Unstandardized coefficients		Standardized coefficients		
Predictor	*B*	*SE*	β	*t*	*P*
Constant	10.674	.476		22.418	.000
$BI_{actual\text{-}deal}$	.530	.277	.201	1.910	.058
$BI_{actual\text{-}peer}$	-.843	.256	-.277	-3.286	.001
$BI_{actual\text{-}male\ ideal}$	.716	.350	.222	2.042	.043

The null hypothesis for Research Question 2 is rejected. As predicted, results generally indicated that internalized body image was related to motivation to lose weight. There was an inverse relationship between $BI_{actual\text{-}ideal}$ discrepancy and motivation to lose weight, but positive relationships between $BI_{actual\text{-}peer}$ and $BI_{actual\text{-}male\ ideal}$ discrepancies and motivation to lose weight.

Research Question 3

To what extent were influences from one's social network among nonpregnant obese African American women (as measured by the Social Support for Eating Habits Survey) related to motivation to lose weight (as measured by Diet Readiness Test)?

The social network factor included measures of four dimensions of social support: encouragement from family for healthy behaviors, encouragement from friends for

healthy behaviors, discouragement from family for healthy behaviors, and discouragement from friends for healthy behaviors. A multiple linear regression was performed to evaluate the four indicators of social network as predictors to motivation to lose weight. To assure that proper use of this statistical analyses method, statistical assumptions for multiple regression analysis were tested in the same manner as described for Research Question 2. All assumptions were met. Results are found in Appendix J.

Collectively this construct which included all four dimensions of social network accounted for a statistically significant proportion, but only 5.9%, of the variance in the outcome variable, F (4, 178) = 2.812, p = .027; R^2 = .059. Although the social network construct was statistically significant to motivation to lose weight, the coefficients revealed that only one predictor, family encouragement, was significantly related to motivation to lose weight (p = .033).

Controlling for encouragement from friends, discouragement from family, and discouragement from friends, the regression coefficient, B = .848, 95% C.I. (.067, 1.628) p = .033, associated with encouragement from family suggests that with each additional increase in encouragement from family, the motivation to lose weight increases by approximately .85 units. Coefficient values are presented in Table 5.

Table 5

Coefficients for Multiple Regression Analysis with Four Components of Social Network Influences as Predictors of Motivation to Lose Weight

	Unstandardized coefficients		Standardized coefficients		
Predictor	*B*	*SE*	*B*	*t*	*P*
Constant	10.026	.912		10.988	.000
Family encouragement	.848	.396	.199	2.143	.033
Friend encouragement	.012	.360	.003	.035	.972
Family discouragement	-.075	.393	-.018	-.190	.849
Friends discouragement	.434	.394	.104	1.101	.273

In review, the null hypothesis for Research Question 3 was rejected, with the caveat that only family encouragement was a statistically significant predictor of motivation to lose weight: those with higher family encouragement expressed higher motivation to lose weight.

Research Question 4

What proportion of the total variance in motivation to lose weight among a sample of nonpregnant obese African American women was explained by simultaneous consideration of BMI, components of internalized body image, and social network as predictors?

As before, the same procedures were used to assure that the assumptions for multiple linear regression were satisfied for this analysis. Results of these assessments are found in Appendix J.

To approach Research Question 4, a hierarchical linear regression analysis was performed to test all of the predictors against the outcome variable: Step 1 entered ratings for BMI, Step 2 for body image's three predictors, and Step 3 for social network's four predictors. Only one predictor (Model 2) was statistically significantly related to motivation to lose weight: body image, F (3, 178) = 7.464, p = .000; R^2 = .114. The results of the first block hierarchical linear regression analysis revealed the model not to be statistically significant (p = .512). The results for the third block linear regression analysis also revealed a model that was not statistically significant (p = .114).

By contrast, the results of the second block hierarchical linear regression analysis revealed a model to be statistically significant (p <.001). That is, a prediction model with internalized body image, specifically $BI_{actual\text{-}peer}$ and $BI_{actual\text{-}male\ ideal}$ as predictors accounted for a significant amount of variance in DRT scores. Controlling for BMI and two of the three body image's predictors, the regression coefficient for $BI_{actual\text{-}peer}$, B = -.799, 95% C.I. (-1.340, -.259), p = .004, associated with $BI_{actual\text{-}peer}$ suggests that with each additional increase of $BI_{actual\text{-}peer}$, the motivation to lose weight decreases by approximately .80 units. Controlling for BMI and two of the three body image's predictors, the regression coefficient for $BI_{actual\text{-}male\ ideal}$, B = .713, 95% C.I. (.020, 1.406), p = .044, associated with $BI_{actual\text{-}male\ ideal}$ suggests that with each additional unit of $BI_{actual\text{-}male\ ideal}$, the motivation to lose weight increases by approximately .71 units.

Overall, the results indicated that the two indicators of body image were the statistically significant predictors of motivation to lose weight, while BMI and family encouragement did not survive to the final prediction model. Table 6 presents the model summaries, followed by Table 7 with ANOVA results, and Table 8 with the prediction coefficients.

Table 6

Model Summary for Hierarchical Regression to Evaluate BMI, Body Image Components, and Social Network Components as Predictors of Motivation to Lose Weight

Model	*R*	R^2	Standard error of estimate	R^2 change	*F* change	*df*1	*df*2	*p*
1	.049	.002	3.464	.002	.432	1	181	.512
2	.337	.114	3.292	.111	7.464	3	178	.000
3	.388	.151	3.260	.037	1.894	4	174	.114

Note. Model 1: BMI only. Model 2: BMI and three body image components. Model 3: BMI, three body image components, and four social network components.

Table 7

Analyses of Variance (ANOVA) to Evaluate Amount of Variance Accounted for in the Dependent Variable, Motivation to Lose Weight, by Predictive Models

	Model	Sum of square	*df*	Mean square	*F*
1	Regression	5.18	1	5.18	.43
	Residual	2172.08	181	12.00	
	Total	2177.26	182		
2	Regression	247.89	4	61.97	5.72
	Residual	1929.37	178	10.84	
	Total	2177.26	182		
3	Regression	328.37	8	41.05	3.86
	Residual	1848.89	174	10.63	
	Total	2177.26	182		

Table 8

Coefficients for Hierarchical Regression Analysis With BMI, Three Indicators of Body Image, and Four Indicators of Social Network Influence as Predictors of Motivation to Lose Weight

	Unstandardized coefficients		Standardized coefficients		
Model/predictor	*B*	*SE*	β	*t*	*p*
Model 1					
Constant	12.86	.67		19.13	.000
BMI	-.20	.31	-.05	-.66	.512
Model 2					
Constant	10.95	.77		14.31	.000
BMI	-.15	.32	-.04	-.46	.647
$BI_{actual\text{-}deal}$	.53	.28	.20	1.92	.056
$BI_{actual\text{-}peer}$	-.80	.27	-.27	-2.92	.004
$BI_{actual\text{-}male\ ideal}$	.71	.35	.22	2.03	.044
Model 3					
Constant	9.23	1.07		8.67	.000
BMI	-.19	.33	-.05	-.57	.568
$BI_{actual\text{-}deal}$	.44	.28	.17	1.59	.114
$BI_{actual\text{-}peer}$	-.73	.28	-.24	-2.60	.010
$BI_{actual\text{-}male\ ideal}$	.71	.36	.22	2.00	.047
Family encouragement	.65	.38	.15	1.68	.094
Friend encouragement	-.11	.35	-.03	-.32	.747
Family discouragement	.11	.39	.03	.29	.769
Friend discouragement	.32	.38	.08	.84	.400

Summary

Through this study, I evaluated three principal factors (BMI, Body Image, and Social Network Influences) as predictors of motivation to lose weight among a sample of 183 African American women who met medical criteria as obese, using BMI as the indicator (BMI $\geq$ 30 kg/m^2). Data were collected from two large predominately African American churches within an urban area in southeast United States through an online survey. Specifically, the predictive factors included actual body size (BMI), body image components (Actual Self – Ideal Self, Actual Self – Peer, Actual Self – Males' Ideal Body Size/Shape), and components of social network influence (family and friends' encouragement and family and friends' discouragement of healthy consumption behaviors).

Results from analyses for Research Questions 2 and 3 indicated that at least one or more of the indicators of internalized body image and social network influence were statistically significant predictors of motivation to lose weight (DRT scores). Once all predictors were combined (RQ4), only one factor (internalized body image) emerged as a reliable predictor of motivation to lose weight. These findings, and their implications, will be discussed further in Chapter 5. Particular attention will be given to how these results integrate with previous research in this area, limitations of this study, and recommendations for future studies into acceptance of obesity and motivation to lose weight among African American women. Part of the recommendations for future studies included addressing the body image silhouette that was used.

Chapter 5: Conclusions and Recommendations

Introduction

Using urban terms such as *thick*, *curvy*, *healthy*, and *BBW* (*big beautiful woman*) has given obesity a glamorous twist for the African American female population. This phenomenon inspired me to conduct this study on the biosociocultural factors that may affect motivation to lose weight among obese African American women. Addressing the glamorization of a disease that can cause numerous deadly ailments should be accorded high priority, especially among the U.S. population group most affected by obesity. Fifty-eight percent of African American women are obese, with the highest concentration living in the southeastern region (Sterling, Bertrand, Judd, & Baskin, 2016). The data collection process was a labor of love, conducted in the hope that the results, by indicating what inspires motivation to lose weight, may contribute to reducing obesity among female African Americans. I sought answers to the following research questions:

1. To what extent is BMI among nonpregnant obese African American women (as measured by self-reports on the demographic questionnaire and calculated based on height and weight) related to motivation to lose weight (as measured by the Diet Readiness Test)?
2. To what extent are components of internalized body image among nonpregnant obese African American women (as measured by the Body Image Measurement Scale) related to motivation to lose weight (as measured by the Diet Readiness Test)?
3. To what extent are influences from one's social network among nonpregnant obese African American women (as measured by the Social Support for

Eating Habits Survey) related to motivation to lose weight (as measured by the Diet Readiness Test)?

4. What proportion of the total variance in motivation to lose weight among a sample of nonpregnant obese African American women is explained by simultaneous consideration of BMI, components of internalized body image, and social network as predictors?

These questions were answered by collecting 183 responses from a sample of eligible African American women who were recruited from two southeastern predominantly African American churches. Through an online survey that contained a culturally relevant questionnaire, the participants were allowed to provide self-described demographic information (including height and weight, which were converted into one of the predictors, BMI), internalized body image level, and social network influence. Internalized body image was measured by comparing what the participants believed they looked like to what they wished they looked like, what they believed their friends looked like, as well as what they thought men's image of the ideal woman looked like. The social network instrument directed its attention to diet patterns relating to how friends and family can encourage or discourage healthy eating habits. Key findings are discussed within the next section.

Interpretation of Findings

Obesity's relationship to motivation to lose weight has been demonstrated as a complex concept in need of further examination. Research has suggested that the complexity of obesity's association with motivation to lose weight is connected to various variables (Clark et al., 2001; McTigue et al., 2003; Wing & Anglin, 1996),

which directed this study's conceptual framework model to include a person's BMI level, internalized body image, and social network (see Figure 5). Informed by research detailed in the literature review, a multiple linear regression was conducted for association of the delineated variables to assess which were better predictors of motivation to lose weight within an obese African American female population.

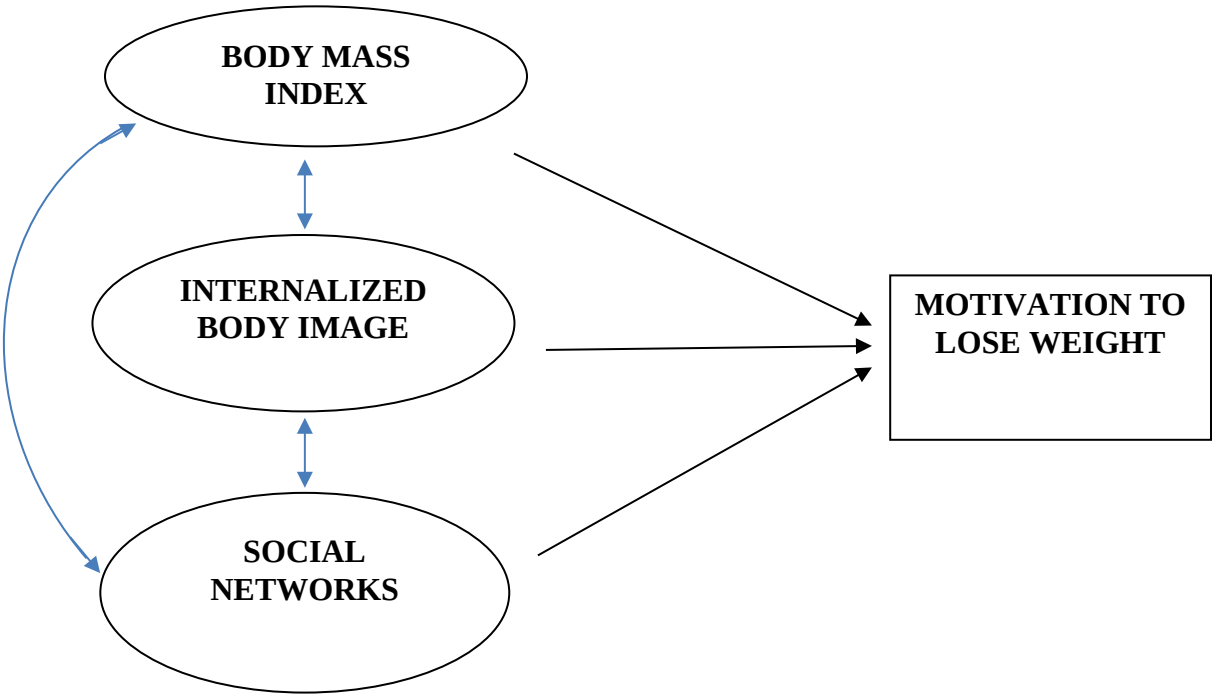

Figure 5. Biosociocultural variables that are constructs of motivation to lose weight among African American women.

Multiple linear regression analyses were employed to test the research hypotheses. Separate analyses for each of the three predictive factors (BMI, internalized body image, social network influence) of motivation to lose weight revealed that BMI was not a predictor of motivation to lose weight. Two indicators of body image emerged as significant predictors of motivation to lose weight: comparison of actual self-body

image with perceived body image of female peers ($BI_{actual\text{-}peer,}$ p = .001) and comparison of actual self-body image with perceived ideal female body images among African American males ($BI_{actual\text{-}male\ ideal,\ p}$ = .043). One measure on the social network factor, family encouragement for healthy eating (p = .033), significantly predicted motivation to lose weight. However, the final hierarchical linear regression that tested all indicators on all three factors as predictors of motivation indicated that the internalized body image factor that was the most reliable construct to predict motivation to lose weight among this sample of obese African American women ($p < .001$).

Research Question 1

BMI was the predictor that was measured against the dependent variable in Research Question 1. This predictor's raw scores were transformed into a discrete scale using three equal proportions to eliminate normality issues. BMI's original raw scores were collected as self-reported information from participants on their height (cm) and weight (kg) and then converted into the metric system to calculate the BMI (kg/m^2; Kim et al., 2017). There was no statistically significant relationship between BMI and motivation to lose weight (p = .512); thus, the null hypothesis was not rejected. BMI had no relationship to the outcome but was an important construct as one of the most effective methods for evaluating the population's weight (Passos, Cintra, Branco, Machado, & Fisberg, 2010).

Research Question 2 and 4

Perceptions of body image were gathered using a pictorial measure, Pulvers's Culturally Relevant Body Image Questionnaire. Questions asked participants to select the image that best represented their perceptions of actual self-body image, ideal self-

body image, body image of peers, and body image of males' ideal female. Difference scores (actual self-image – comparison) were computed to operationally define internalized body image in relation to self-reported perceptions of ideal self, peer, and male ideal body images. When one's actual self-image is larger than that of the comparison, it generally is assumed that there will be more dissatisfaction with one's actual body size or shape (K. Pulvers, email communication, July 10, 2017).

It was predicted that the more dissatisfaction an individual indicated with actual self-body image, the higher the individual's motivation would be to lose weight. Internalized body image emerged as a reliable predictor of motivation to lose weight in analyses for Research Questions 2 and 4. Collectively, the factor of internalized body image was a statistically significant predictor of motivation to lose weight (RQ2). However, when construct component variables were reviewed separately, it was revealed that two out of the three accounted for the reliable relationship with motivation to lose weight: $BI_{actual\text{-}peer}$ and $BI_{actual\text{-}male\ ideal}$.

The strongest predictor of motivation to lose weight was the $BI_{actual\text{-}peer}$ discrepancy ($p = .001$). This predictor involved how women compared their own actual body image with their perception of the body size of their peers. Results indicated a significant negative relationship between predictor and motivation: The larger that women saw themselves as being relative to their peers (positive discrepancy), the lower their motivation to lose weight. This result is consistent with previous findings that African American females are relatively comfortable, at least among female peers, with obese status. As expected, this is contrary to the norms of their dominant Caucasian American counterparts regarding emphasis on thinness and the desire to lose weight

(Chen & Wang, 2012; Hall, 1995; Kronenfeld et al., 2010; Lóp et al., 2014; Paeratakul et al., 2002; Schuler et al., 2008).

The $BI_{actual\text{-}male\ ideal}$ discrepancy also was a statistically significant predictor (p = .043), but was not as powerful as comparison with female peers. This predictor revealed its significance to the outcome relating to how the participants compared their body size to what they believed the ideal body image is for the opposite sex. Almost one-third (30%) of the women in this sample demonstrated a larger discrepancy—that is, they described their actual body size as bigger than what they considered the African American male's ideal. Here, unlike when they compared themselves with female peers, the greater their perceived size relative to their perceptions of the male ideal, the greater their motivation to lose weight. This finding is interesting, in that it may be more consistent with relationships between self-perceptions concerning body size and expected attractiveness to males among Caucasian women. However, while African American women's idea of beauty is based on African American men's standards (Guan et al., 2012), previous research has documented that African American men prefer heavy women (Chen & Wang, 2012; Grabe & Hyde, 2006). Perhaps the inconsistency in the current findings is limited, in that levels of motivation to lose weight among my sample only reached moderate levels, even when there was a significant relationship between the discrepancy and motivation to lose weight. Perhaps high motivation to lose weight is less frequent among African American women in general or the findings in this area were related to the specific characteristics of my sample (e.g., age, church affiliation).

Regarding the last BI variable, $BI_{actual\text{-}ideal}$, it was not statistically significant, even though it showed a strong trend (p = .058) with a positive relationship between the

discrepancy and motivation to lose weight (B = .53). That is, the larger the perception of actual body size relative to ideal, the greater the motivation to lose weight. This finding suggests a possible general relationship among African American women between actual and ideal body image and motivation to lose weight that is similar to that generally observed among Caucasian women (Guan, Lee, & Cole, 2012).

Research Question 3

When social network influence was reviewed as a predictor of motivation to lose weight, only one of the four indicators of social influence was statistically significantly related to motivation to lose weight. This statistically significant predictor of social network was family encouragement (p = 033).

This dimension of social network explored whether there was encouragement by family members to participate in healthy consumption activities. My observation of a positive relationship between family encouragement and motivation to lose weight is consistent with previous studies that have demonstrated the importance of family in reinforcing behaviors, such as consumption habits, that relate to obesity (Dannelly et al., 2005; Lóp et al., 2014). For my sample, being encouraged by family members to practice healthy consumption habits was more reliable in motivating weight loss than if family members were discouraging or if friends were encouraging or discouraging.

Theoretical Framework's Interpretation

I incorporated three theories, self-determination theory (SDT), objectification theory (OT), and social learning theory (SLT), as the basis for the three factors I chose to study as predictors of motivation to lose weight. SLT (Chavis, 2012) was integral in proposing that individuals within a specific culture, such as African American women,

learn and behave according to social norms and social reward systems within that culture. Further, SLT proposed that social norms are related to learned schema that guide one's interpretations of prototypes for ideals and acceptability within a social group (Brauer & Tittle, 2012. Social motivation, then, may be influenced by one's perceptions of deviation from social norms and ideals, as well as related expectations regarding social rewards or costs for social compliance or deviance. Further, the role of others in influencing social functioning through encouragement or discouragement is related to these kinds of reward systems. SDT (Emm et al., 2013) is helpful in understanding whether one perceives oneself as an agent who can effect change when desired. Finally, OT (Szymanski, 2007) helps to emphasize the social self as both an agent and an object of social evaluation, especially related to body features.

First, it is noteworthy that there was *not* a significant relationship between BMI and self-description on Pulvers's Culturally Relevant Body Image Questionnaire. This discrepancy supports SLT's proposal that social self, including physical self, is a cognitive creation, and not necessarily a direct indication of "objective" reality. The ability for women to self-describe using images of body shapes also seems to be an indicator of awareness of the objectified self. On the other hand, there may be some issues related to the images presented in Pulvers's Culturally Relevant Body Image Questionnaire. I discuss these further in the section on limitations.

Results of this study for the internalized body image factor further support predictions of SLT and OT regarding the power of social prototypes and self-objectification in processes related to motivation to lose weight: Participants' motivation to lose weight appeared to rest upon comparison of self-body image with their

perceptions of female peers and with what they believed to be the ideal for African American males. However, the direction of the influence was directly opposite: Seeing yourself as being larger than female peers was related to lower motivation to lose weight, whereas seeing yourself as larger than the male ideal was related to higher motivation to lose weight. These divergent results may be interpreted as indicators of expected social reward systems among African American women: Female peers are more accepting, while males are less accepting of larger physical size.

Regarding SDT, all three statistically significant predictors, $BI_{actual\text{-}peer}$, $BI_{actual\text{-}male\ ideal}$, and social network's family encouragement, can be seen as related to extrinsic sources of outcomes (positive or negative) in relation to social norms and social supports (Deci & Ryan, 2008). The SLT model showed that imitation and observation of social networks was also an influence on behavioral changes as this sample group was impacted by how others within their social circle viewed them (Brauer & Tittle, 2012).

The model applied OT to this study's concern regarding the influence that African American men had on this sample's body image predictor, $BI_{actual\text{-}male\ ideal}$. This theory pertains to women's perception of themselves on a sexual level, and how it can influence behavioral changes to alter body frame—in the case of this study, to gain or lose weight to become more sexually appealing to the African American men (Fredrickson & Roberts, 1997). With sexual objectification stereotypes heightened among the African American female population over their Caucasian counterparts, studies such as this are necessary to develop understanding to address obesity tolerance (Watson, Marszalek, Dispenza, & Davids, 2015). Overall, this study revealed that the sample had a positive body image relating to comparing themselves to their peers, had a slightly negative body

image relating to what they thought African American males desired in the female anatomy, and were encouraged to participate in a healthy diet by family members; all of these indicate direct influences from outside sources to be motivated to make behavioral changes (Sweet et al., 2012).

Limitations and Recommendations

Some of the limitations of this study included those that were anticipated and discussed in Chapter 1. In particular, I used a convenience sample, recruiting participants from a limited geographic area and only including African American women who also were involved in church communities. These factors limit the possible generalization of results to other obese African American women.

However, other unanticipated limitations emerged. First, the data for the predictor variables did not meet the assumptions of continuous measurement. Having to transform data for the predictors to discrete levels of measurement always presents the risk of losing some details (Seaman & Allen, 2014), which then can affect the interpretation of the results. Perhaps a larger sample size would have allowed for better approximation of a normal distribution.

I also found discrepancies between the participants' BMI levels and the silhouette body image measuring scale levels. The BMI levels were much higher than the body images that the participants chose. It was apparent that the participants either perceived themselves as smaller than their actual size or could not see the images on the scale that this study used as a reflection of themselves. This discrepancy may be due primarily to how the participants viewed themselves as being smaller, which, according to Paeratakul et al. (2002), is common among obese African American women who interact closely

within their social networks. However, my concern was that the participants did not see the body image measuring scale as a good representation of how they looked. To make this study more effective, I believe I needed a more culturally competent set of images. I believe that Pulvers's Culturally Relevant Body Image Scale and Questionnaire (Pulvers et al., 2004) is a very effective instrument, especially since it measured the most reliable construct; however, I would prefer that the images be more ethnically appropriate for African American women to improve data collection procedure. Figure 6 is an image that I created to reflect the look of the African American women that I would prefer to use (this image is still in development).

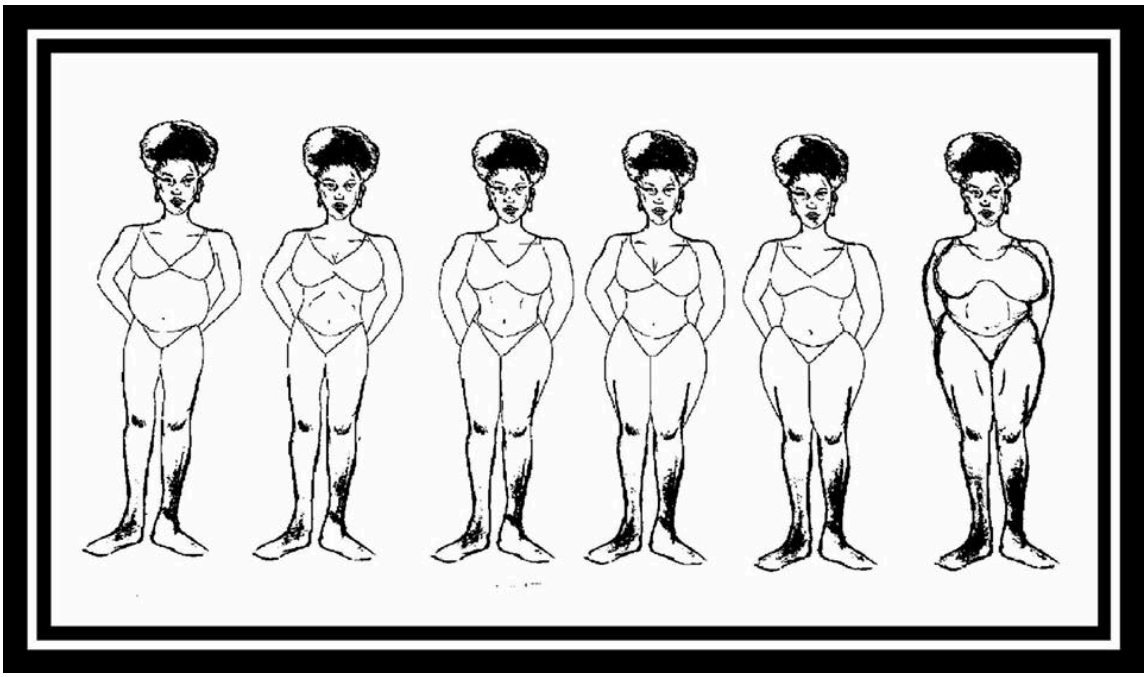

Figure 6. Russell's Ethnic Body Image Scale to measure African American women's body size.

The other limitation was the lack of questions in this survey that could provide a better understanding on how African American males influence this populations'

perception of their body size. Based on the study purpose and instruments selected, I did not have enough questions to properly measure how African American men influence this population's size perception. I believe the lack of these type of questions limited my ability to reveal how African American males' behaviors and actions can influence this African American females' acceptance of their sizes. I recommend that the following types of questions are considered for future studies: 1) Does your mate ask you to cook unhealthy meals for him? 2) Does your mate ask you to cook for him after 10 pm? 3) Does your mate bring home or eat unhealthy foods in front of you? 4) Does your mate discourage you to lose weight while dieting? and 5) Does your mate sabotage you from going to the gym or sticking to your diet? I believe that asking these types of questions would allow for stronger connections to be made relating to African American men's influencing weight lost decisions among obese African American women.

Finally, my evaluation of the internal consistency for the original six items on the DRT for my sample of African American women supports earlier observations (Walcott-McQuigg et al., 2002) that this measure may not be reliable for use with African Americans. Instead, it would appear that four of the six items were reliable as they resulted in an acceptable value for Cronbach's alpha, but this is based only on this one sample. Further work is needed to develop a culturally relevant measure of motivation for dieting and weight loss among African Americans.

Implications

The complication of obesity is heightened when the disease is considered a normal physical characteristic to the female anatomy among the African American culture, with its relating diseases such as diabetes and hypertension being considered a

normal part of the culture's aging process. Additionally, African American women have a high probability to produce offspring that are predisposed to obesity especially since they are dealing with a culture that instills an invisible conflict between aspiring to lose weight for health and the desire to be acceptable and desirable to their social network by maintaining their large size (Christakis & Fowler, 2007; Lynch et al., 2007). The potential impact for positive social change is to alter the thinking of a population that has little concern in being compliant to implementing a weight lost program. This was the goal of this study- to first bring attention to the problem. The next step was exploring biosociocultural variables, to try to reveal specific targets for solutions which may address the problem. For example, this study highlighted the role of internalized body image in motivation to lose weight among obese African American women. This study also highlighted the possible shortcomings of current instruments to assess body image and social network influences among obese African American women. These suggestions can guide the reliability and validity of further assessments and research. As internalized body image emerged as the strongest predictor of motivation to lose weight, these findings supported the critical role of internal, psychological, and social cognitive factors. Thus, it may not be enough to achieve consistent healthy behavior by modifying the individual's environment without addressing key components of the individual's cognitive schema, attitudes, and beliefs within an obesogenic environment system (Yampolsky & Amiot, 2013).

There are a wide variety of obesity intervention approaches used to assist in reducing the obesity epidemic, which, unfortunately, are not effective (Meekums, 2005). However, the results of this dissertation study indicated that programs intended to help

reduce the obesity rates within African American communities, must incorporate a biosociocultural understanding that includes physical, social, and cultural influences that originally inspire unhealthy lifestyles. Through understanding these important factors, we can implement a culturally proper and effective methodological approach that will include a customized culturally competent intervention, counseling, and advisory programs that are designed to alter deep seated belief systems.

Conclusion

Studying acceptance of obesity among African American women for 7 years has allowed me to develop a strong understanding of why obesity is one of the hardest diseases to eradicate, especially among this population. However, regardless of how difficult it is to eradicate the disease of obesity, especially for the highest affected population in America, I believed that the results of this study would discover some profound solution that could lead to significant improvements in public health among minority communities. In retrospect, the closer this study came to its completion stage, the more I realized that additional research is required as it's going to take a unique understanding, and improved research methods, to find the magic potion to address this serious issue. One thing that became clear with the understanding of this phenomena is that there are many factors of causation to obesity, that is, each individual's cause to obesity is different from another. With this being the case, the prevention and intervention process to eliminate this disease won't be from one source of resolution (Schneiderman et al., 2010). In order words, there needs to be more than one solution to address this issue. Although I do believe that each obese individual needs to be assessed personally to determine what can activate motivation triggers to alter unhealthy lifestyle

choices; however, for African Americans, health care professionals first must include changing the mindset on a population level of cultural connections to the acceptance of the disease. With a person's behavior heavily affected by how their body image is perceived through their social network's viewpoint, it's important to develop an obesity intervention program that involves the population's mindset as a whole. I plan to continue my research, especially seeking to develop more culturally competent, reliable, and valid measures for this population, so that my work can join with other scholars to begin to push towards positive health among African American women.

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Appendix A: Sample Survey

"Real Talk—It's About You" Demographic Survey

Fill in the correct answers.

WEIGHT: _____

HEIGHT: _____

What is your gender identity?

- Female
- Male
- Transgender female-to-male
- Transgender male-to-female
- Prefer to self-describe: _____

What is your age in years? _____

What is your Marital Status?

- Single (never married)
- Married
- Separated
- Widowed
- Divorced

What is your sexual preference?

- Heterosexual
- Homosexual
- Bisexual

What Is Your Ethnicity/Race?

- Black or African American
- White
- Hispanic or Latino
- Asian or Pacific Islander
- Native American or American Indian
- Other _____

What is your primary dating/mating ethnicity/racial preference?

- Black or African American
- White
- Hispanic or Latino
- Asian or Pacific Islander
- Native American or American Indian
- Other _____

What is the highest degree or level of education you have completed?

- Less than high school
- High school graduate (includes equivalency)
- Some college, no degree
- Associate's degree
- Bachelor's degree
- Master's degree
- Ph.D.
- Graduate or professional degree

Are you pregnant?

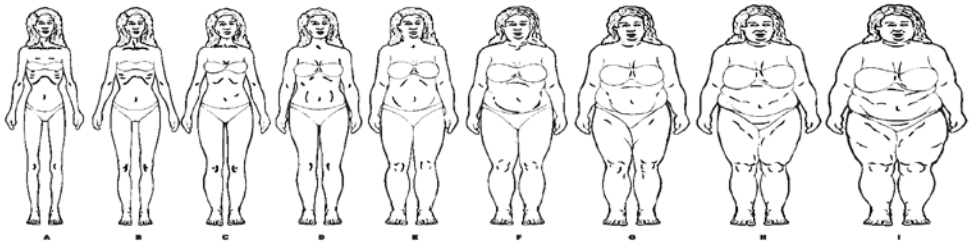
- Yes
- No

Pulvers' Culturally Relevant Body Image Questionnaire

Please answer this questionnaire honestly. Refer to the body images in the plastic sheet protector when answering the following question. Only choose one figure for each question. Mark on the line the letter that corresponds with the figure you select.

1. Which figure do you think looks the most like you now? _____
2. Which of these figures most closely resembles how you would like to look?

   _____
3. Which figure do you think looks like most women your age? _____
4. Which figure do you think most closely resembles how most other women your age like to look? _____
5. Which figure do you think men your age find the most attractive? _____



SOCIAL SUPPORT AND EATING HABITS SURVEY

Below is a list of things people might do or say to someone who is trying to improve their eating habits. We are interested in high fat and high salt (or high sodium) foods. If you are not trying to make any of these dietary changes, then some of the questions may not apply to you, but please read and give an answer to every question.

Please rate each question *twice*. Under *family*, rate how often anyone living in your household has said or done what is described during the last three months. Under *friends*, rate how often your friends, acquaintances, or coworkers have said or done what is described during the last three months.

Please write one number from the following rating scale in each space:

SAMPLE:

	Family	Friends
A. If my family *rarely makes fun of the foods I eat, and my friends very often* do, I would answer like this:		
A. Made fun of the foods I eat	A. 2	A. 5

---

none	rarely	a few times	often	very often	does not apply
1	2	3	4	5	8

During the past three months, my family (or members of my household) or friends:

	Family	Friends
1. Encouraged me not to eat "unhealthy foods" (cake, salted chips) when I'm tempted to do so.	1.	1.
2. Discussed my eating habit. changes with me (asked me how I'm doing with my eating changes).	2.	2.
3. Reminded me not to eat high fat, high salt foods.	3.	3.
4. Complimented me on changing my eating habits ("Keep it up", "We are proud of you ") .	4.	4.
5. Commented if I went back to my old eating habits.	5.	5.
6. Ate high fat or high salt foods in front of me.	6.	6.
7. Refused to eat the same foods I eat.	7.	7.
8. Brought home foods I'm trying not to eat.	8.	8.
9. Got angry when I encouraged them to eat low salt, low fat foods.	9.	9.
10. Offered me food I'm trying not to eat.	10.	10.

OBESITY TREATMENT CENTER MEDICAL GROUP
DIET READINESS
QUESTIONNAIRE

For each question, circle the answer that best describes how you feel.

Section 1: Goals and Attitudes

1. Compared to previous attempts, how motivated to lose weight are you this time?

1	2	3	4	5
Not At All Motivated	Slightly Motivated	Somewhat Motivated	Quite Motivated	Extremely Motivated

2. How certain are you that you will stay committed to a weight loss program for the time it will take to reach your goal?

1	2	3	4	5
Not At All Certain	Slightly Certain	Somewhat Certain	Quite Certain	Extremely Certain

3. Consider all outside factors at this time in your life (the stress you're feeling at work, your family obligations, etc.). To what extent can you tolerate the effort required to stick to a diet?

1	2	3	4	5
Cannot Tolerate	Can Tolerate Somewhat	Uncertain	Can Tolerate Well	Can Tolerate Easily

4. Think honestly about how much weight you hope to lose and how quickly you hope to lose it. Figuring a weight loss of 1 to 2 pounds per week, how realistic is your expectation?

1	2	3	4	5
Very Unrealistic	Somewhat Unrealistic	Moderately Unrealistic	Somewhat Realistic	Very Realistic

5. While dieting, do you fantasize about eating a lot of your favorite foods?

1	2	3	4	5
Always	Frequently	Occasionally	Rarely	Never

6. While dieting, do you feel deprived, angry and/or upset?

1	2	3	4	5
Always	Frequently	Occasionally	Rarely	Never

Section 1 - TOTAL Score _____

6 - 16
17 - 23
24 - 30

Appendix B: Permission Correspondence

Correspondence from Dr. K. Pulvers

July 27, 2017

Hi Odette,

I've attached the PDF of female instrument and recoding key for the jumbled version 1. You have our permission to use the instrument provided that you cite the "Development of a Culturally Relevant Body Image Instrument Among Urban African Americans", article in your work.

Best wishes with your study!

Dr. Pulvers

July 27, 2017

Hi Odette,

The "mediator" article wasn't written by me, so it's possible they used their own questions. But what they describe match #1 and #2 below, from the dissertation questions, which are items that I've used before. Variations on these questions have been used in other studies and would be acceptable.

Thanks,

Dr. Pulvers

November 13, 2017

Yes, you have permission provided the citation appears with it.

Dr. Pulvers

Correspondence from Dr. Sallis

February 7, 2016

Ms. Russell

Thanks for your interest in this measure. You have my permission to use the Social Support and Eating Habits survey in your study. In fact, you are welcome to use any of the measures posted on my website. The website has the actual survey and scoring instructions in the "measures" section.

Best wishes

Dr. Sallis

Correspondence from Dean Brownell

February 4, 2017

Permission granted.

Dean Brownell

Appendix C: Instrument Scoring Instructions

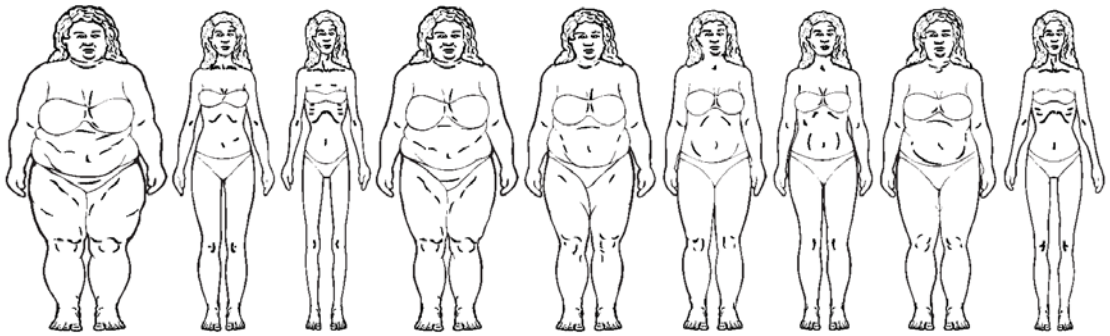
Body Image Instrument Conversion Instructions

To minimize the possibility of response bias, participants are administered a different, jumbled version of the body image instrument at different timepoints Though the drawings are the same, the order in which the drawings are presented is different as determined by random number tables. Thus, there are three versions of the body image instrument.

The images in the original, unjumbled version of the body image instrument were identified by letters; the second “unjumbled” column converts the letters to numbers. The third column converts Version 1 to the Unjumbled instrument values; the fourth column converts Version 2 to the Unjumbled instrument values; and the fifth column converts Version 3 to the Unjumbled instrument values.

Adult Female

Jumbled Adult Female



Unjumbled	Unjumbled	Version 1	Version 2	Version 3
A	1	3	3	4
B	2	9	1	8
C	3	2	5	9
D	4	7	8	3
E	5	6	7	2
F	6	8	9	6
G	7	5	2	1
H	8	4	4	7
I	9	1	6	5

July 10, 2017

To calculate body image discrepancy, subtract ideal size from current size. Positive values indicate a desire for a smaller size, whereas negative values indicate a desire for a larger size. See examples below

Examples:

Current size = 8 and Ideal Size = 4. Discrepancy: +4

Current size = 5 and Ideal Size = 5. Discrepancy: 0

Current size = 2 and Ideal Size = 3. Discrepancy: -1

Kim Pulvers, PhD, MPH

OBESITY TREATMENT CENTER MEDICAL GROUP
THE DIET READINESS TEST
SCORING GUIDE
(For use with the Diet Readiness Test)

After the patient completes each of the six sections, add the numbers of answers and compare them with the scoring guide below:

Section 1: Goals and Attitudes

TOTAL Score _____

If you scored:

6 to 16: This may not be a good time for you to start a weight loss program. Inadequate motivation and commitment together with unrealistic goals could block your progress. Think about those things that contribute to this, and consider changing them before undertaking a diet program.

17 to 23: You may be close to being ready to begin a program but should think about ways to boost your preparedness before you begin.

24 to 30: The path is clear with respect to goals and attitudes.

Appendix D: Letters of Cooperation

Minister
Megachurch A

December 23, 2016

Dear Odette Russell

Based on my review of your research proposal, I give permission for you to conduct the study entitled Biosociocultural Factors and Motivation to Lose Weight Among Obese African American Women, which will use an online survey called "Real Talk – It's About You", within the Megachurch A. I also had the opportunity to view the flyer, inform consent, and survey questions. As part of this study, I authorize you to recruit for volunteers through flyers within Megachurch A. These flyers will be distributed to members after IRB approval. Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibilities include: distribution of flyers to church members and sending online survey link through mass emails. However, we reserve the right to withdraw from the study at any time if our circumstances change.

The student will be responsible for complying with our site's research policies and requirements, including not pressuring members to participate, informing members that this activity is not a church activity, and will keep me informed on all levels of interaction.

I confirm that I am authorized to approve research in this setting and that this plan complies with the organization's policies.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty/staff without permission from the Walden University IRB.

Sincerely,

Minister

Reverend XXX
Megachurch B
02/06/2017

Dear Odette Russell,

Based on my review of your research proposal, I give permission for you to conduct the study entitled Biosociocultural Factors and Motivation to Lose Weight Among Obese African American Women, which will use an online survey called "Real Talk – It's About You", within the Megachurch B. I also had the opportunity to view the flyer, inform consent, and survey questions. As part of this study, I authorize you to recruit for volunteers through flyers within Megachurch B. These flyers will be distributed to members after IRB's approval. Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibilities include: distribution of flyers to church members. However, we reserve the right to withdraw from the study at any time if our circumstances change.

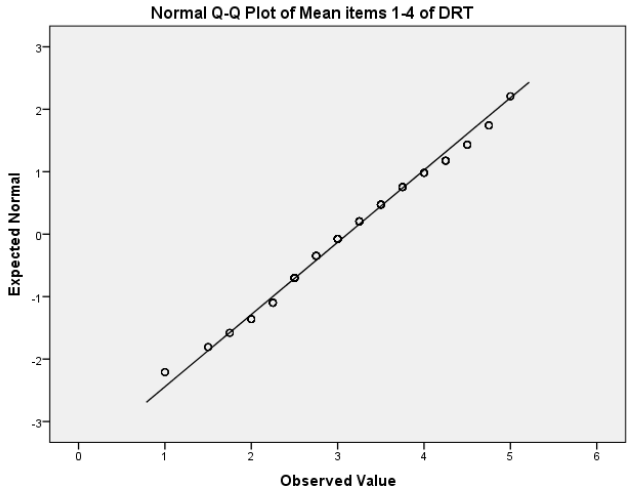
The student will be responsible for complying with our site's research policies and requirements, including not pressuring members to participate, informing members that this activity is not a church activity, and will keep me informed on all levels of interaction.

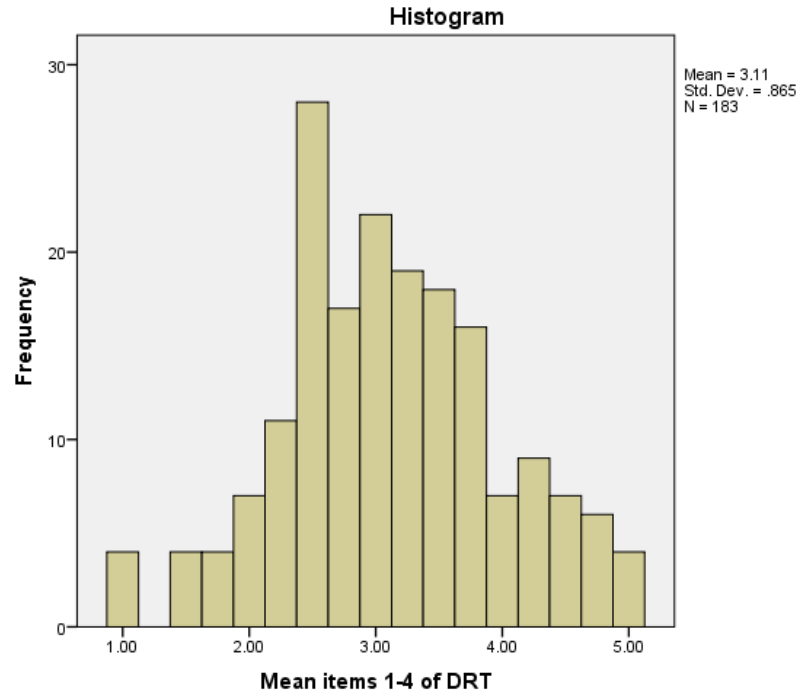
I confirm that I am authorized to approve research in this setting and that this plan complies with the organization's policies.

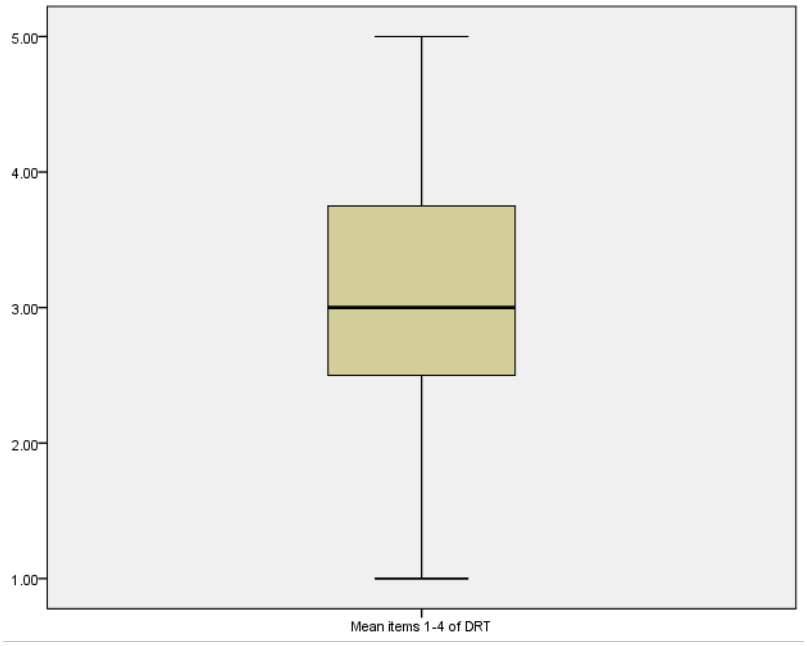
I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty/staff without permission from the Walden University IRB.

Sincerely,
Senior Pastor

Appendix E: Plots for Raw Values of Dieting Readiness Test (Items 1-4)






5.00
4.00
3.00
2.00
1.00
Mean items 1-4 of DRT

Appendix F: Table with Shapiro-Wilk Test Results

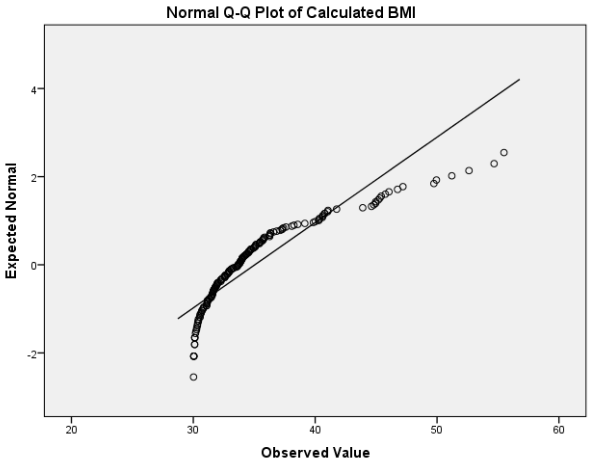
Tests of Normality on the Raw Data for Predictor and Dependent Variables

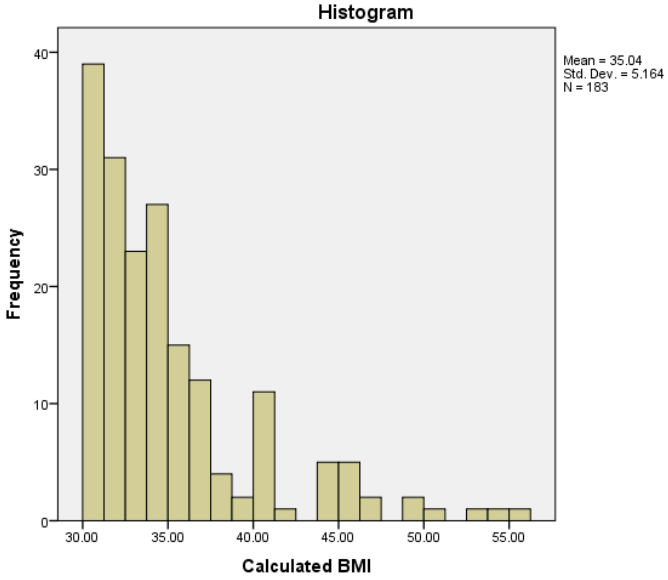
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
BMI	.177	183	.000	.808	183	.000
Body Image						
$BI_{actual-ideal}$	.195	183	.000	.937	183	.000
$BI_{actual-peer}$	.132	183	.000	.955	183	.000
$BI_{actual-male\ ideal}$	.158	183	.000	.952	183	.000
Social Network						
Family Encouragement	.061	183	.093	.974	183	.002
Friend Encouragement	.129	183	.000	.953	183	.000
Family Discouragement	.125	183	.000	.964	183	.000
Friend Discouragement	.116	183	.000	.952	183	.000
Motivation to Lose Weight	.110	183	.000	.982	183	.017
Corrected Motivation to Lose Weight w/ four items	.082	183	.005	.982	183	.016

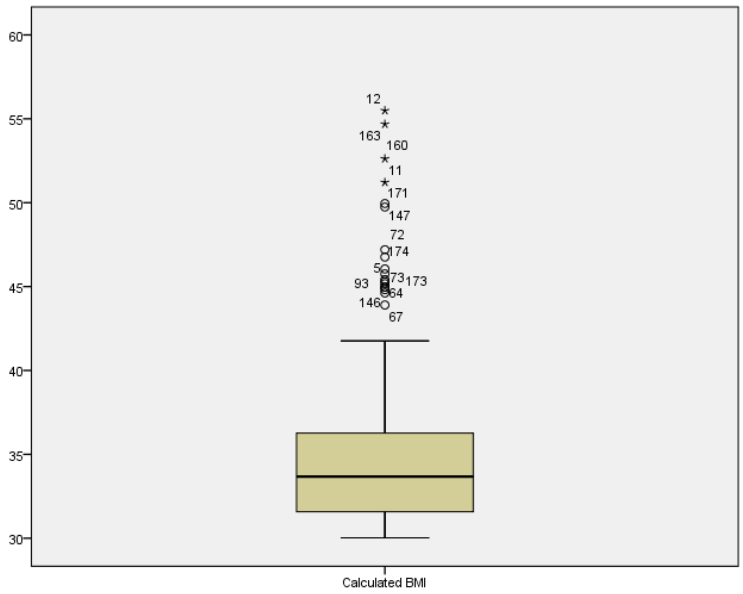
a. Lilliefors Significance Correction

Appendix G: Predictors' Histograms of Raw Scores

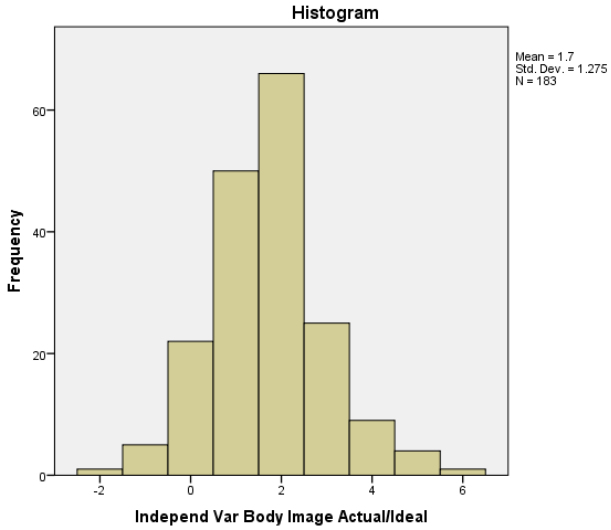
1) BMI

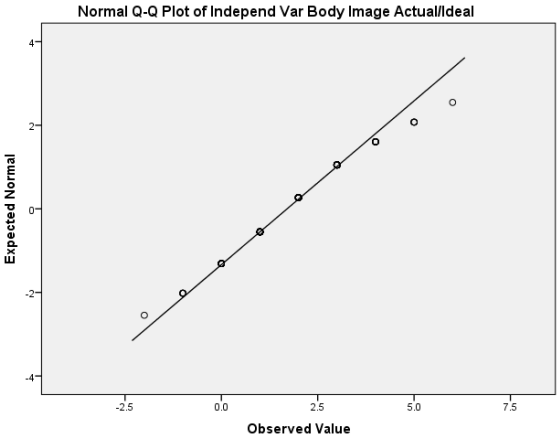


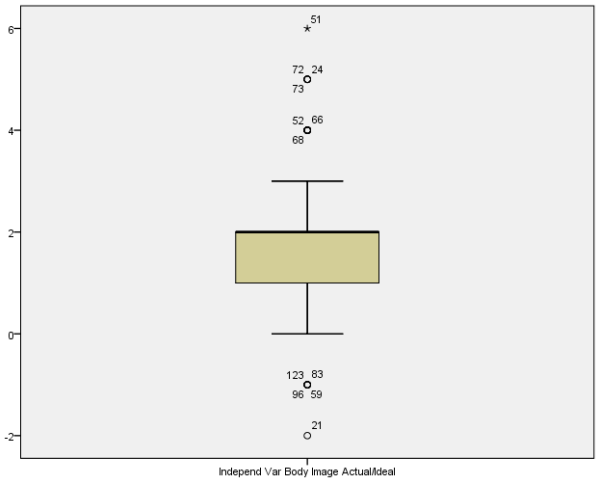



60
55
50
45
40
35
30
12
163
160
11
171
147
72
174
93
173
146
67
Calculated BMI

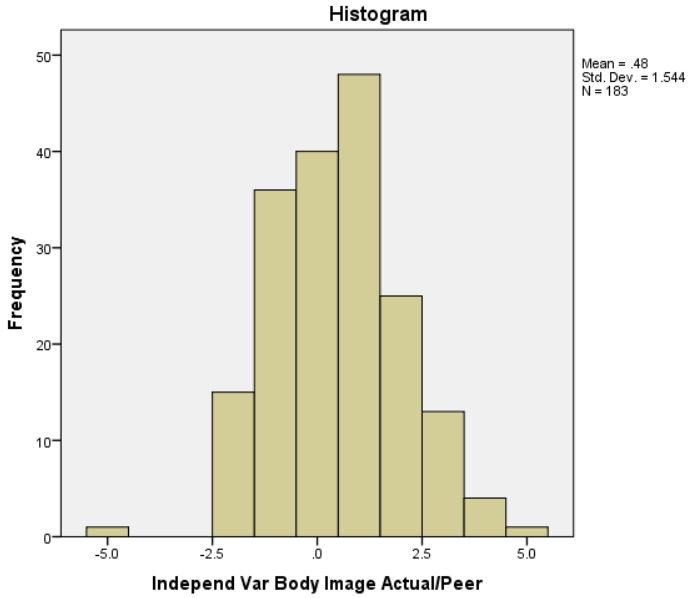
2) IV – Body Image – Actual/Ideal

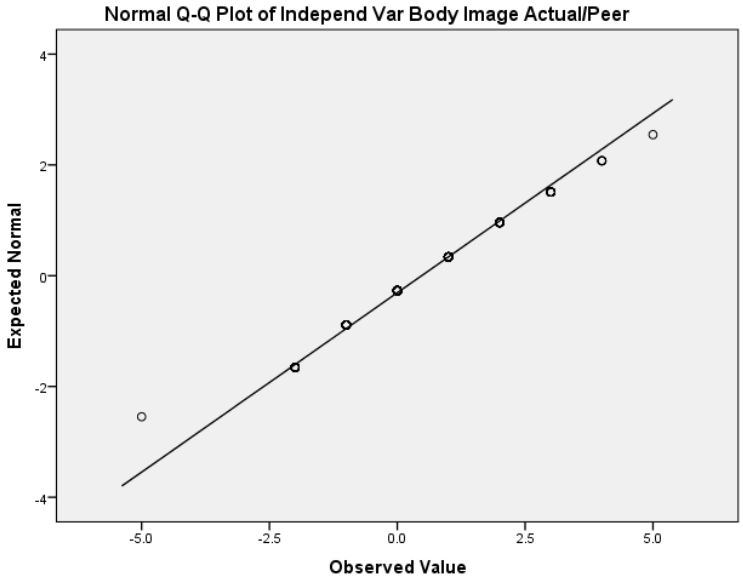


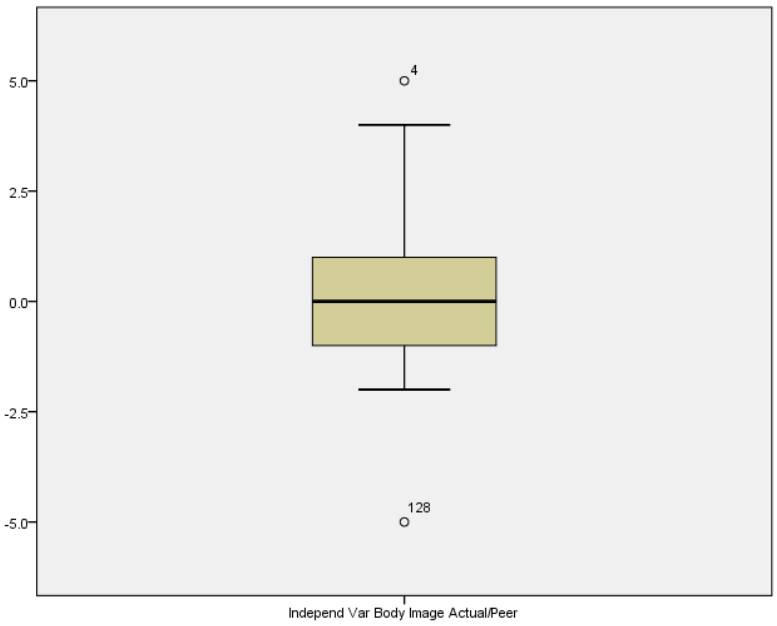



6
4
2
0
-2
51
72
24
73
52
66
68
123
83
96
59
21
Independ Var Body Image Actual/Ideal

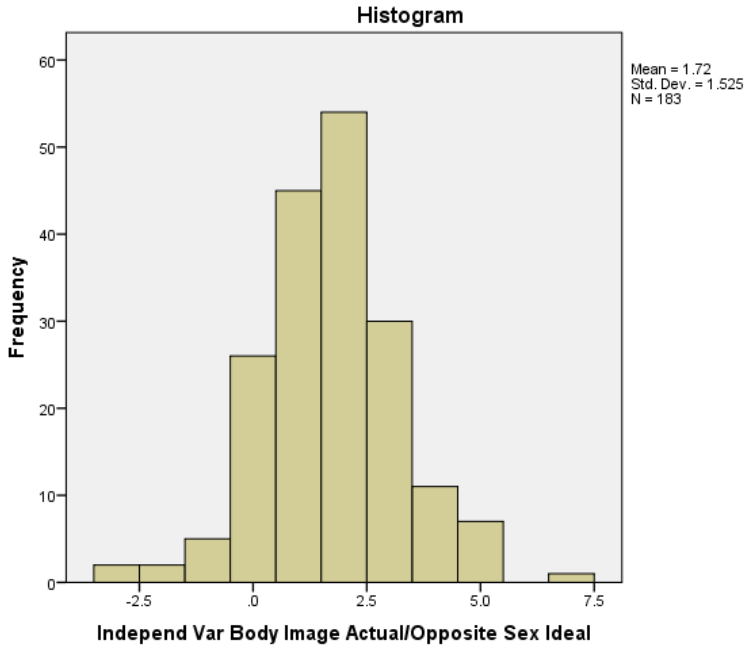
3) IV - Body Images – Actual/Peer

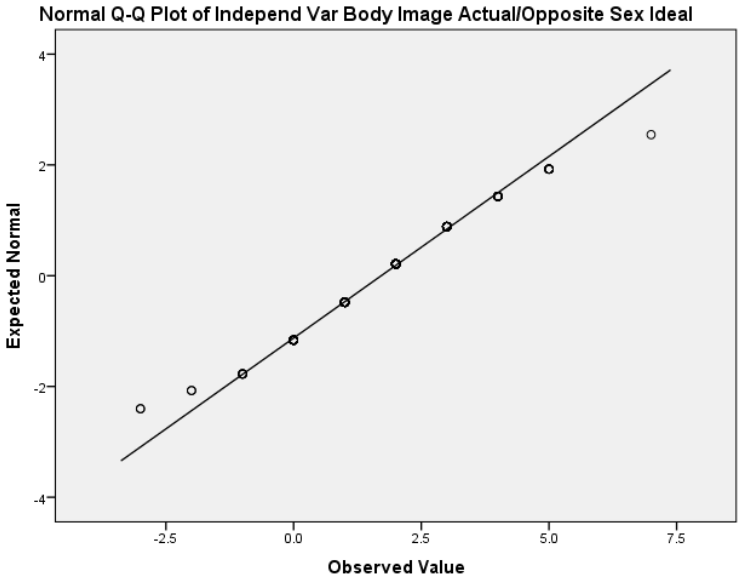


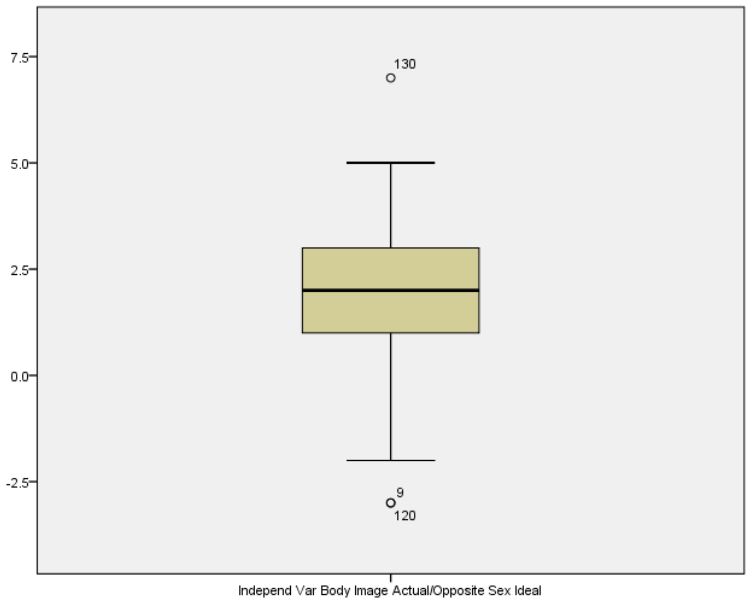



5.0
2.5
0.0
-2.5
-5.0
4
128
Independ Var Body Image Actual/Peer

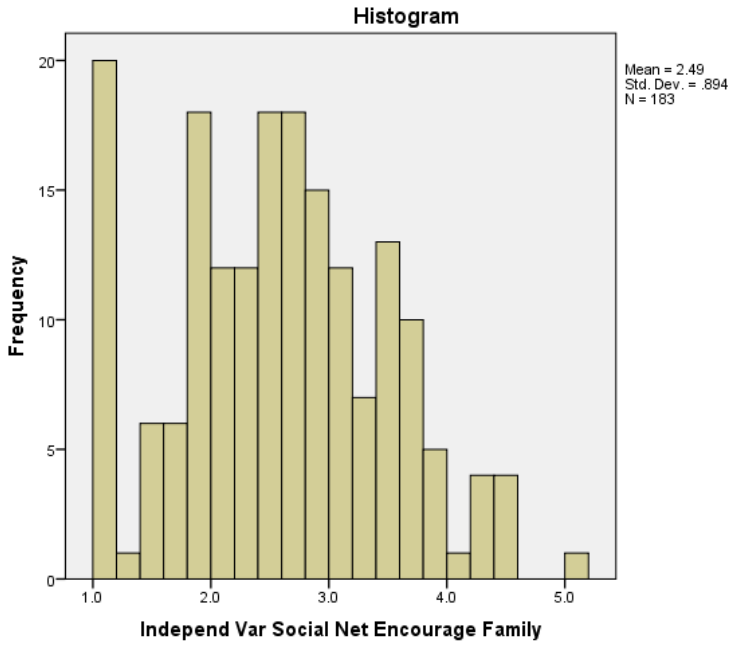
4) IV - Body Images – Actual/Men Ideal

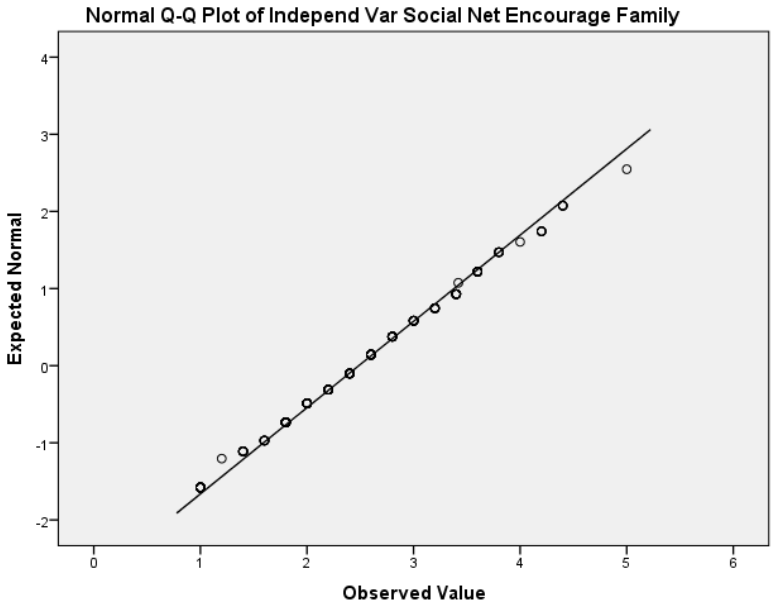





7.5
5.0
2.5
0.0
-2.5
130
9
120
Independ Var Body Image Actual/Opposite Sex Ideal

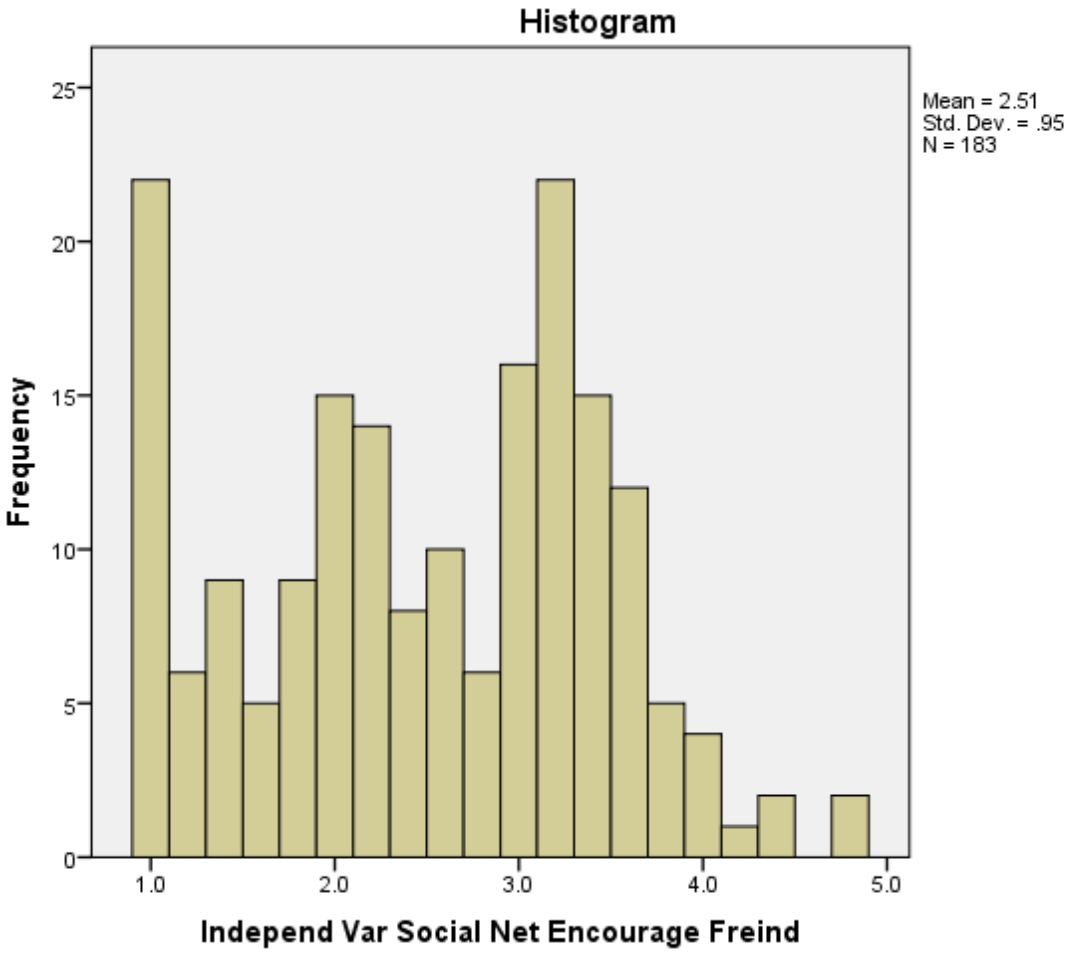
5) IV – Social Network – Encourage Family

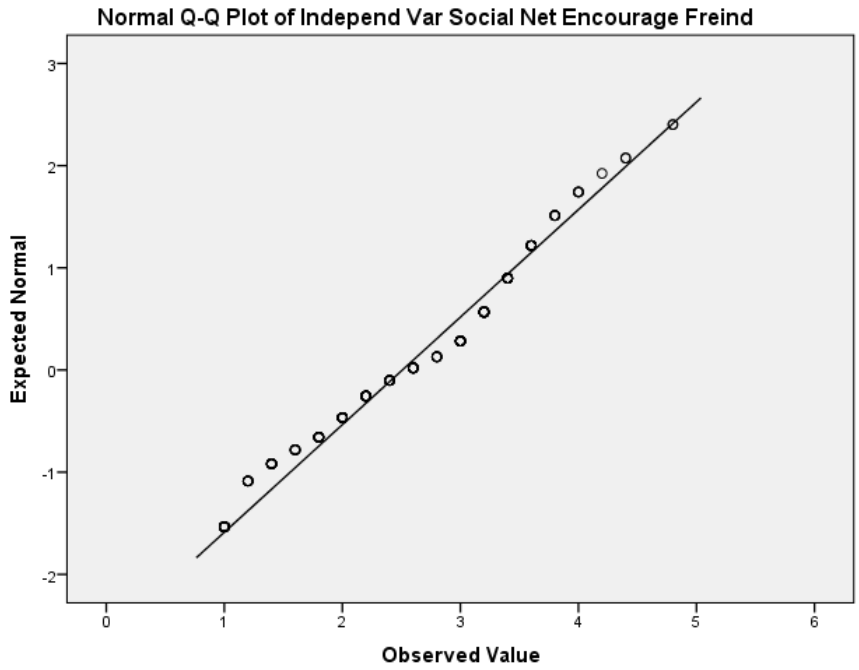


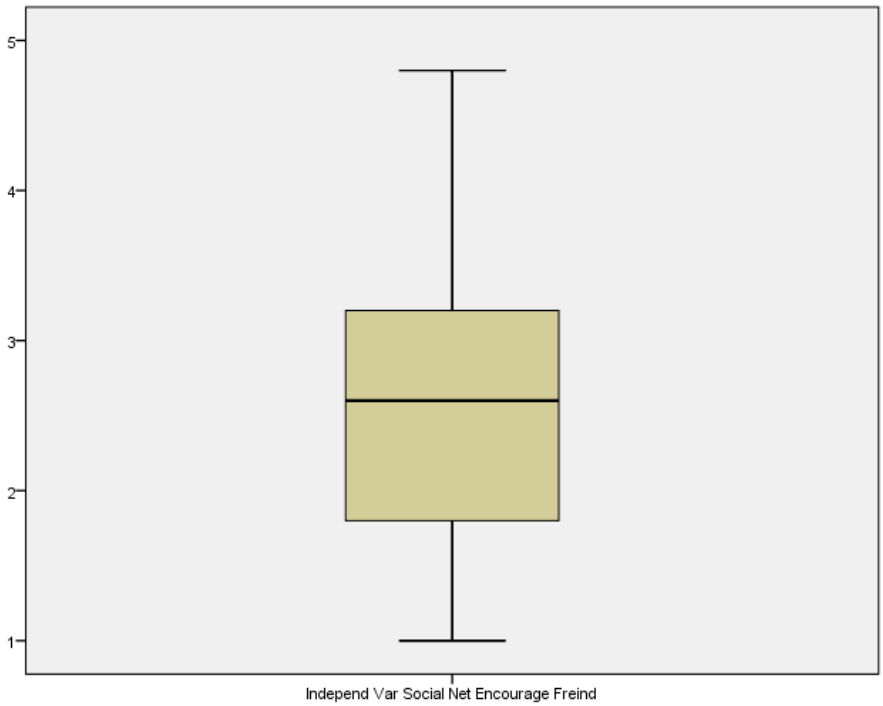



99
5
4
3
2
1
Independ Var Social Net Encourage Family

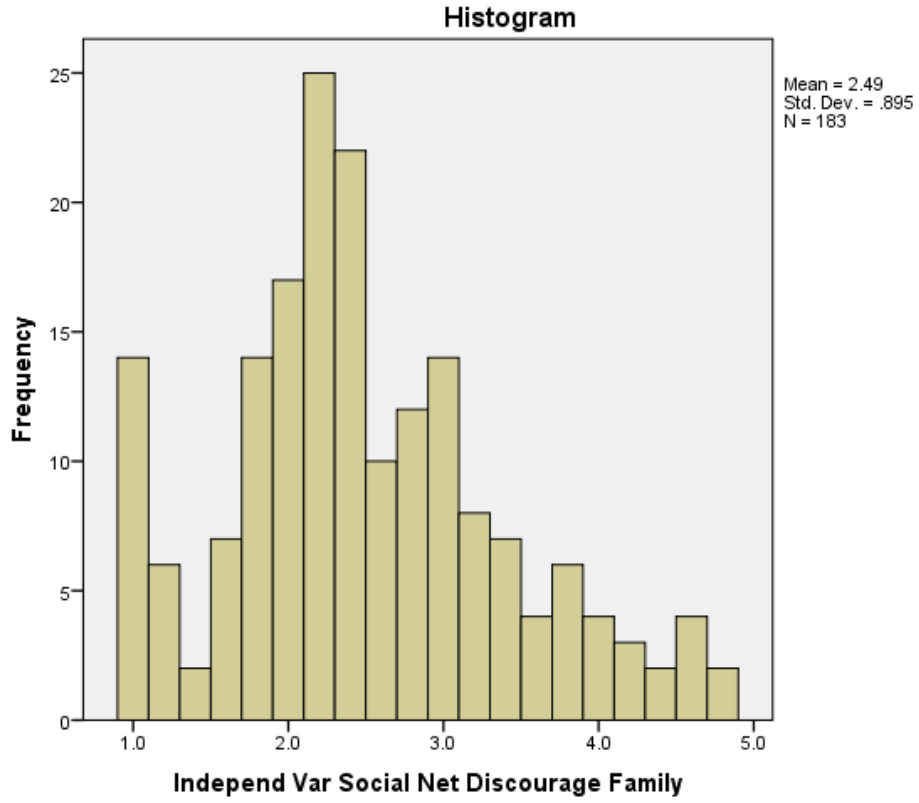
6) IV – Social Network – Encourage Friends

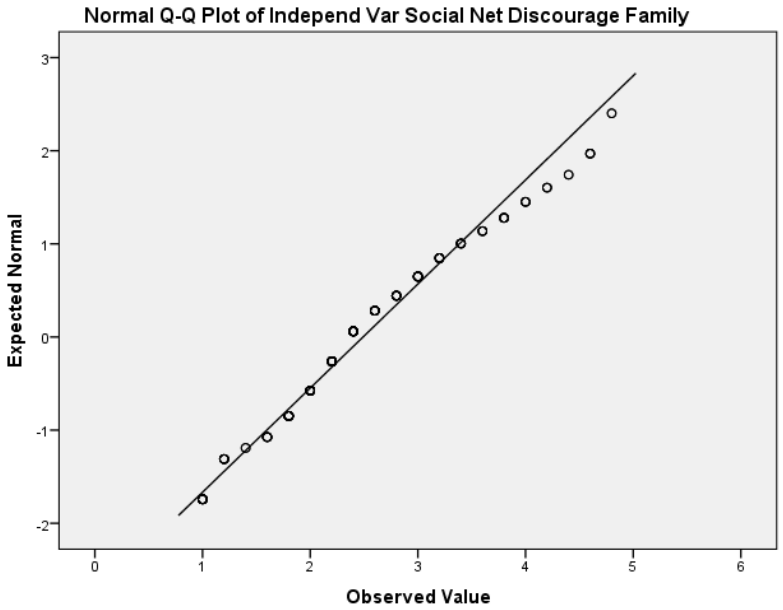


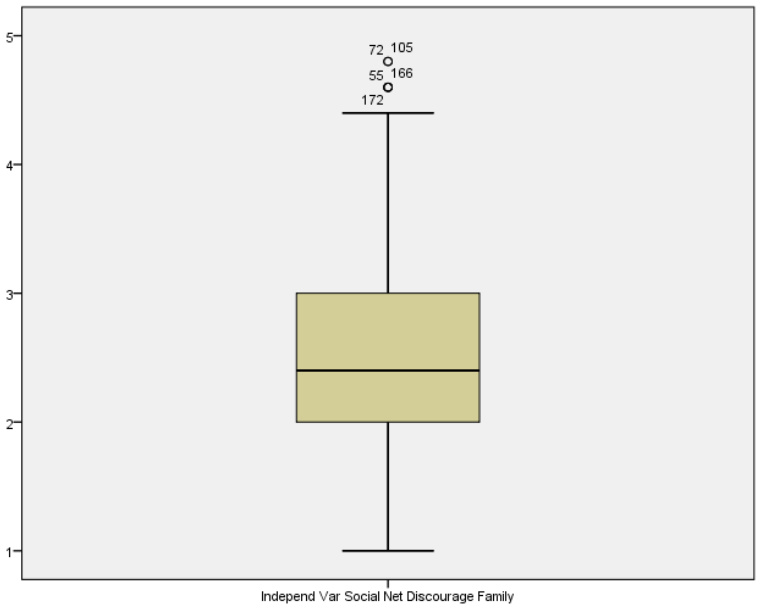

Normal Q-Q Plot of Independ Var Social Net Encourage Freind
Expected Normal
Observed Value
3
2
1
0
-1
-2
0
1
2
3
4
5
6


5
4
3
2
1
Independ Var Social Net Encourage Freind

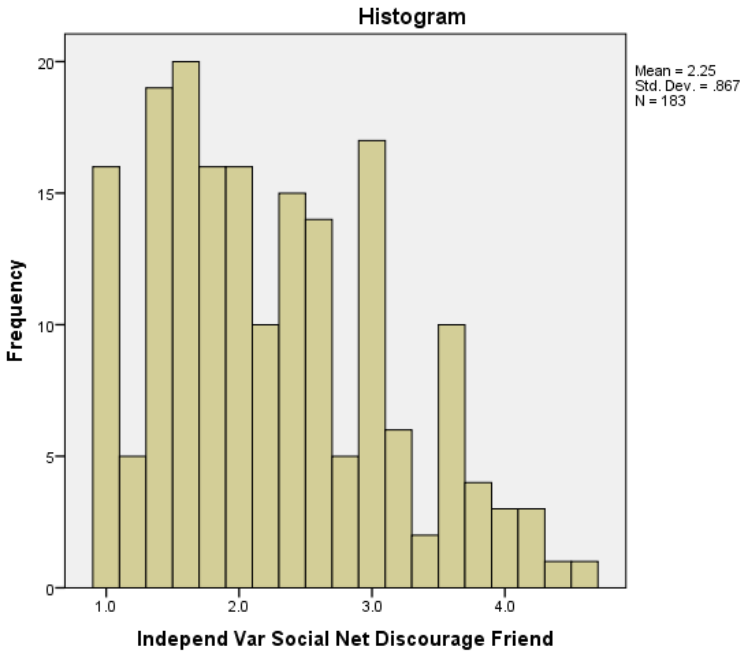
7) IV – Social Network – Discourage Family

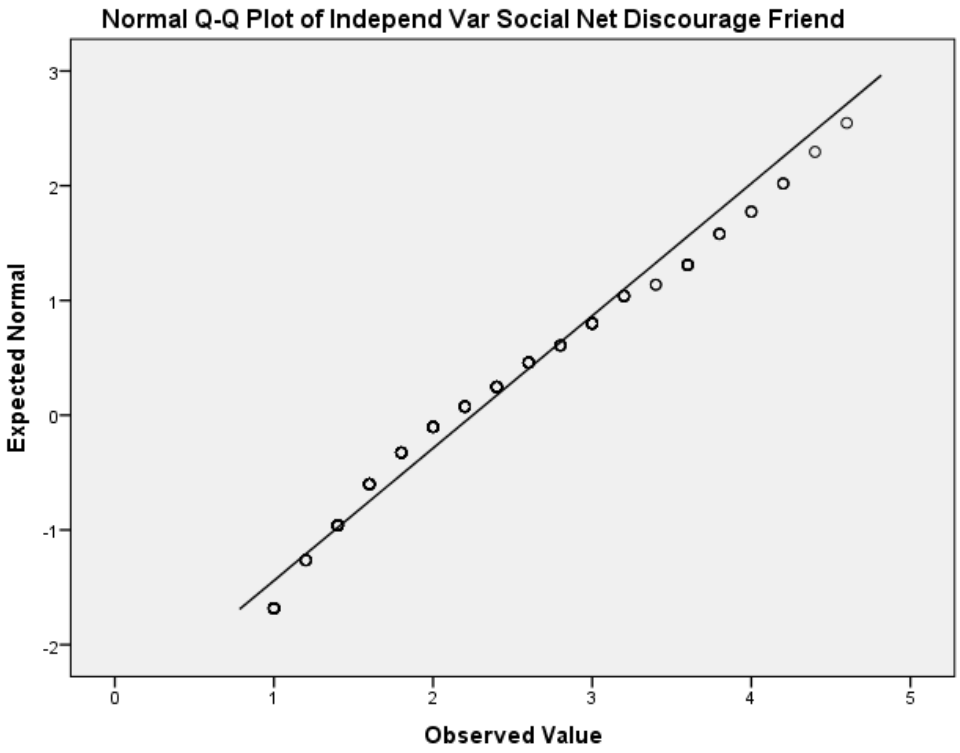





5
4
3
2
1
72
105
55
166
172
Independ Var Social Net Discourage Family

8) IV – Social Network – Discourage Friends

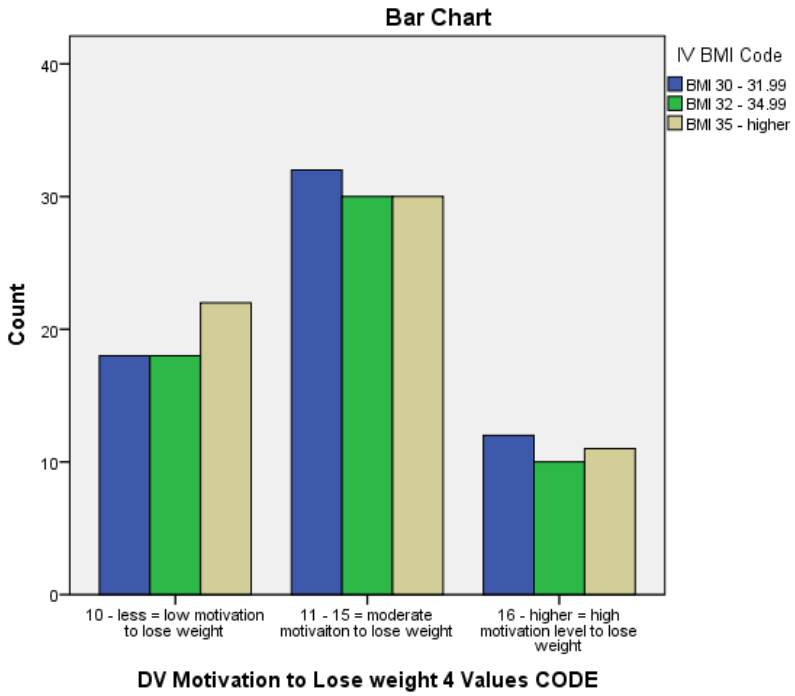



Normal Q-Q Plot of Independ Var Social Net Discourage Friend
Expected Normal
Observed Value
3
2
1
0
-1
-2
0
1
2
3
4
5

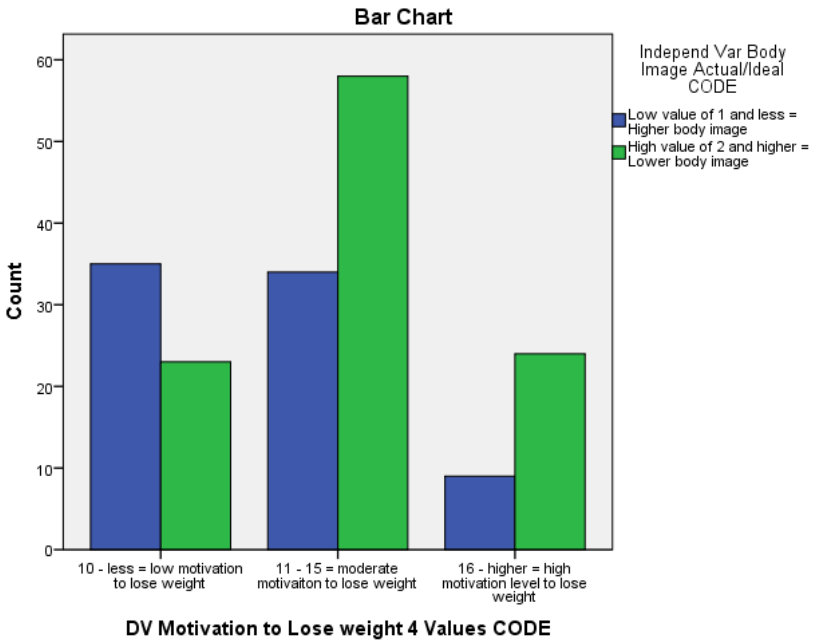

5
4
3
2
1
Independ Var Social Net Discourage Friend

Appendix H: Predictors' Bar Charts Linearly Related Log Odds

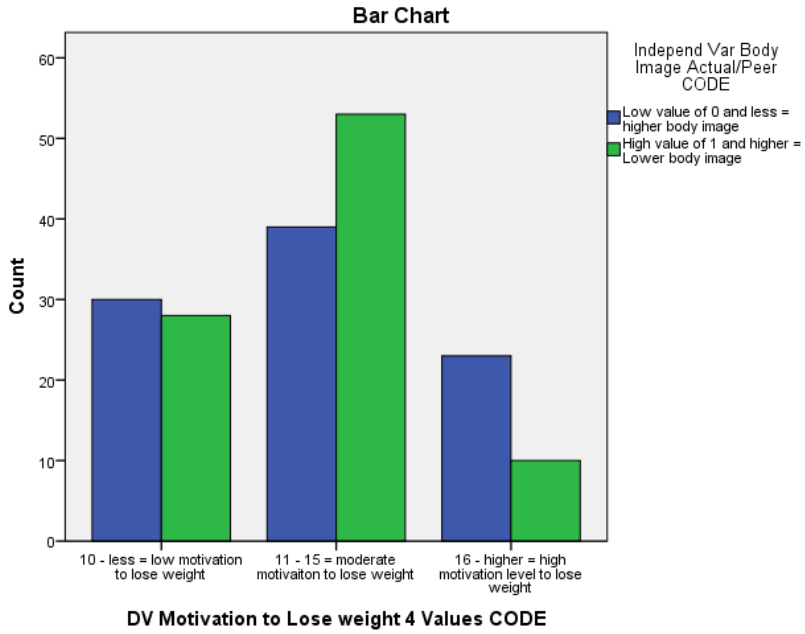
1) IV BMI CODE



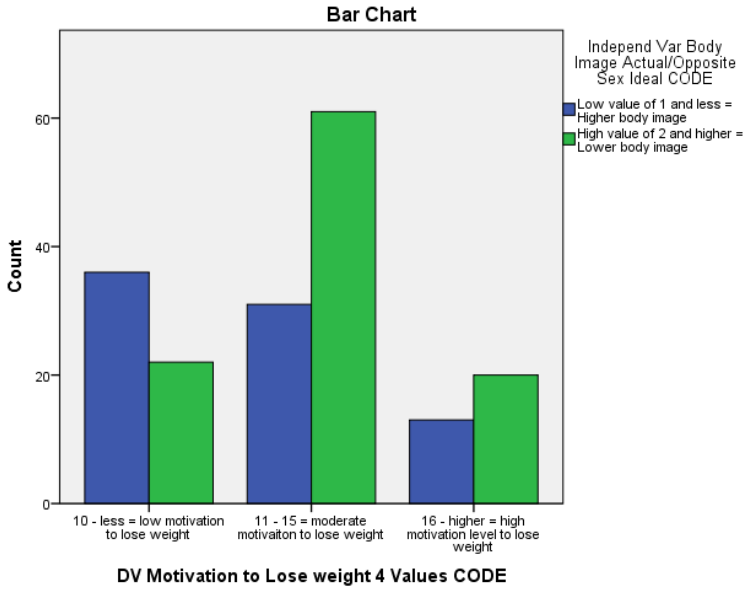
2) IV Body Image - Actual self/Ideal self



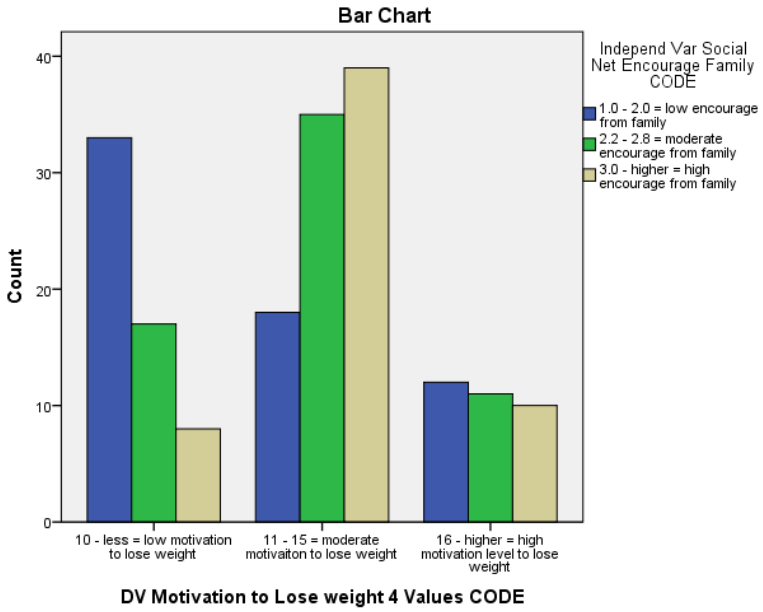
IV Body Image - Actual self/Peer



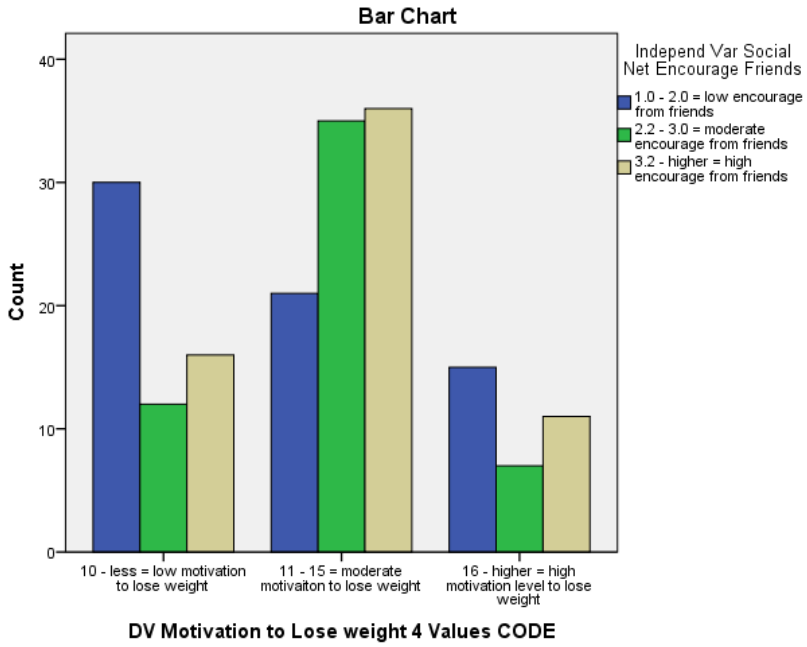
3) IV Body Image - Actual self/Opposite Sex Ideal



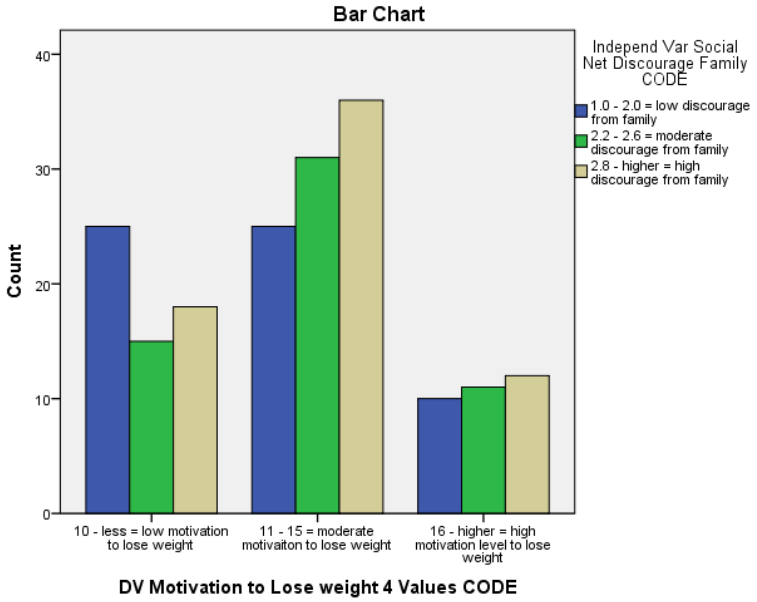
4) IV Social Network - Encourage Family



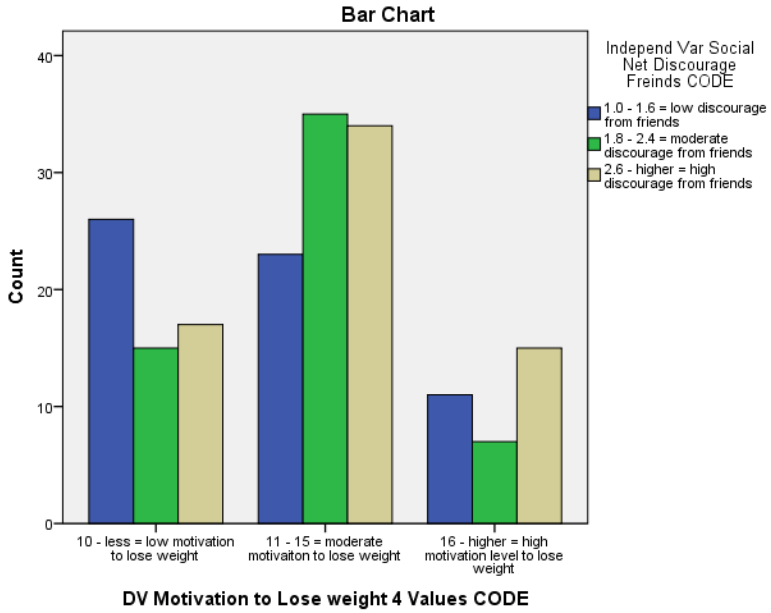
5) IV Social Network - Encourage Friends



6) IV Social Network - Discourage Family

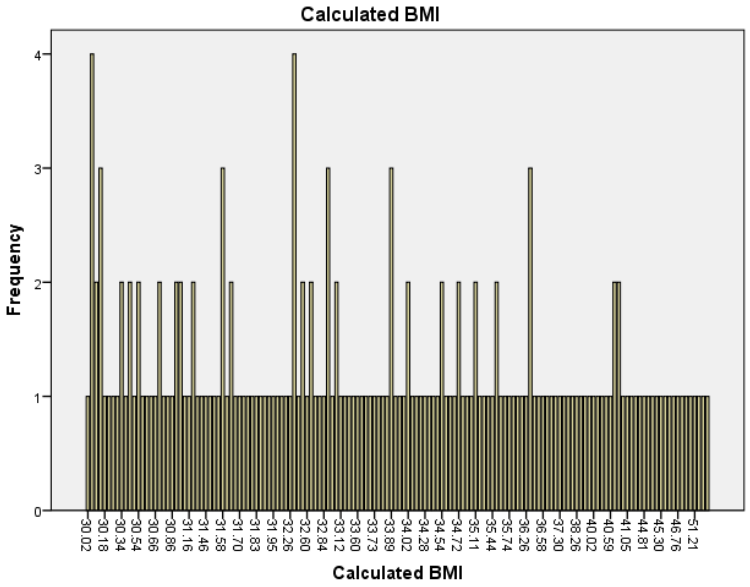


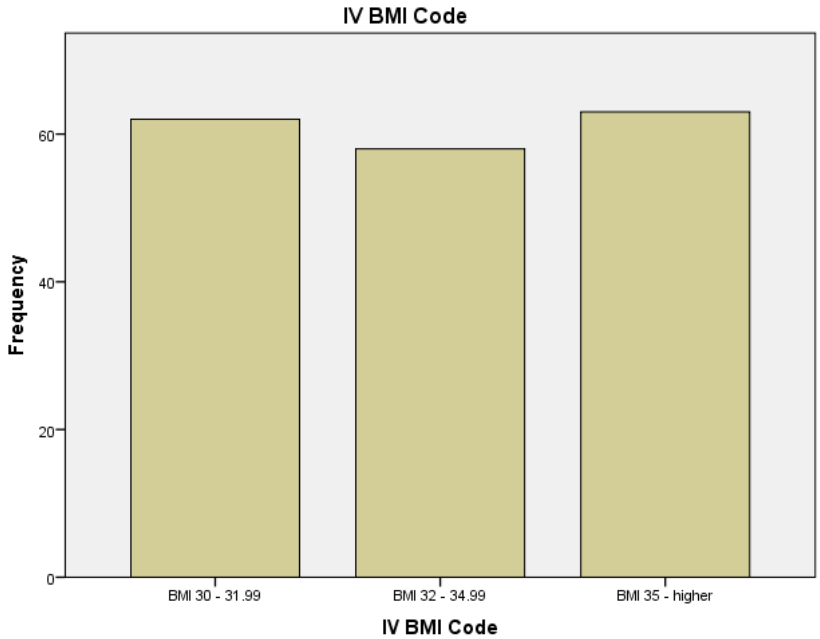
7) IV Social Network - Encourage Friends



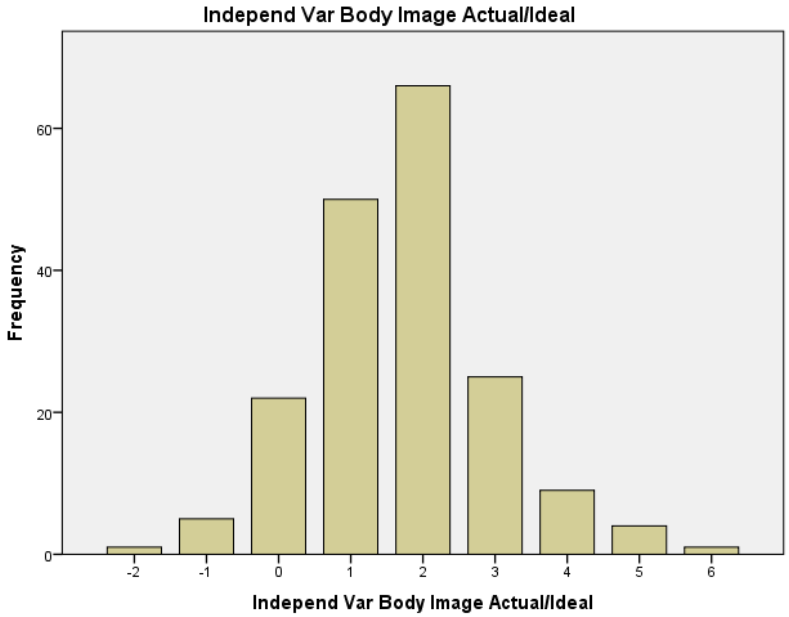
Appendix I: Predictors' Original Scores & Coded Scores

1) Independent Variable BMI



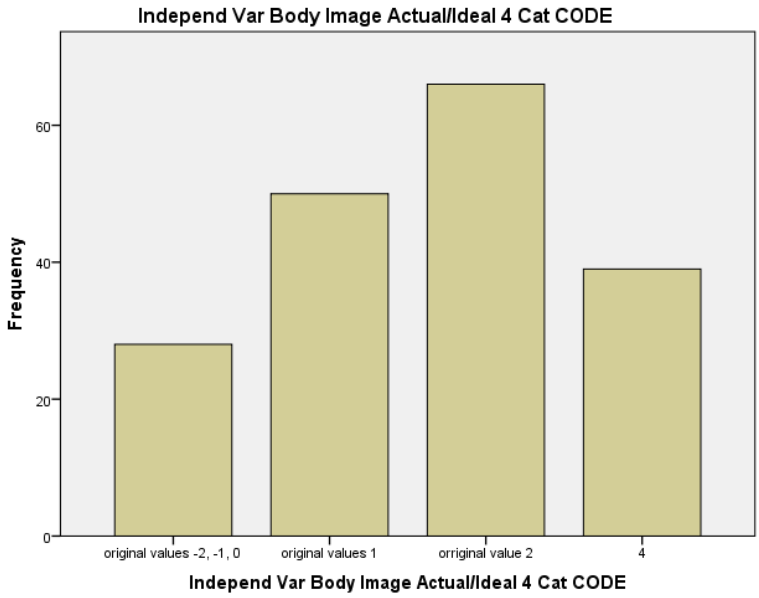


2) IV - Body Images – Actual/Ideal

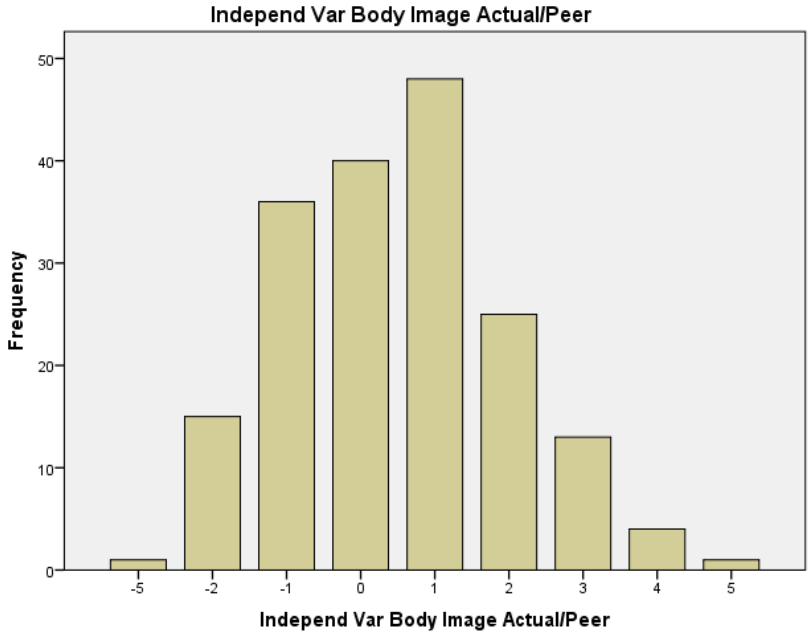


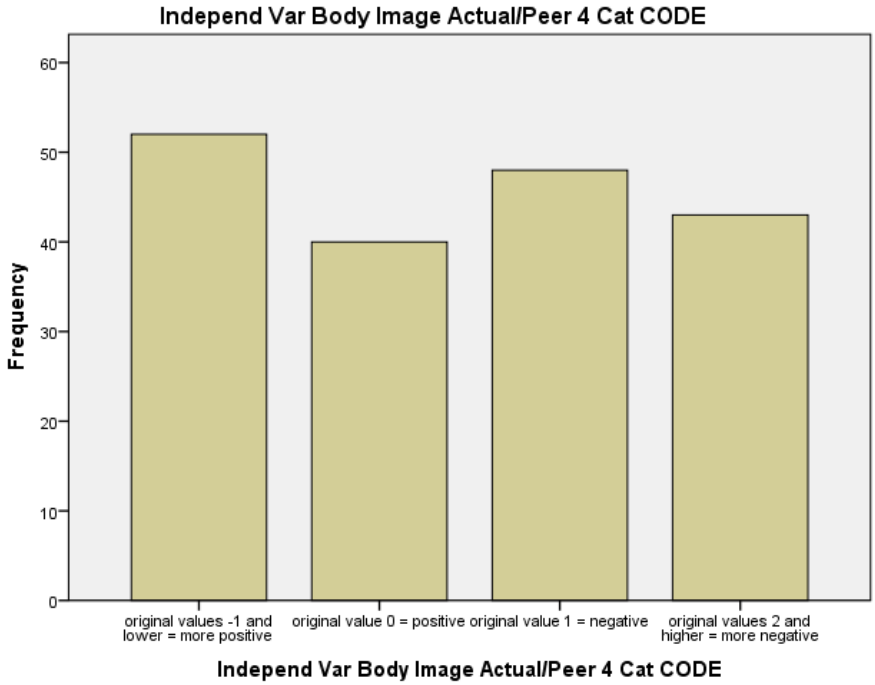
Independ Var Body Image Actual/Ideal

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-2	1	.5	.5	.5
	-1	5	2.7	2.7	3.3
	0	22	12.0	12.0	15.3
	1	50	27.3	27.3	42.6
	2	66	36.1	36.1	78.7
	3	25	13.7	13.7	92.3
	4	9	4.9	4.9	97.3
	5	4	2.2	2.2	99.5
	6	1	.5	.5	100.0
	Total	183	100.0	100.0	

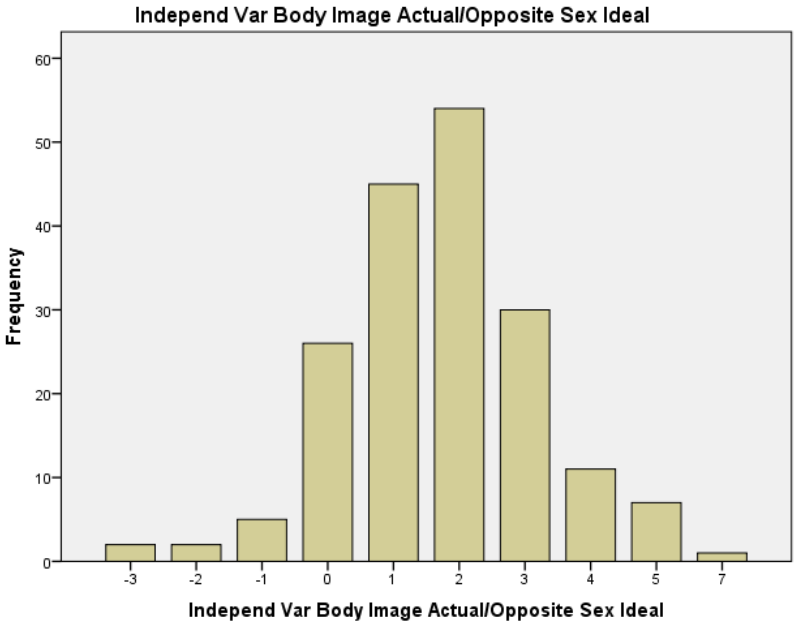


3) IV - Body Images – Actual/Peer



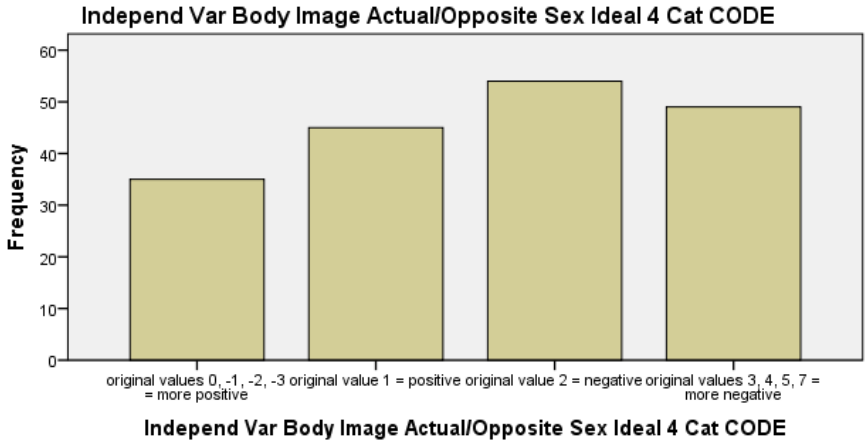


4) IV - Body Images – Actual/Men Ideal

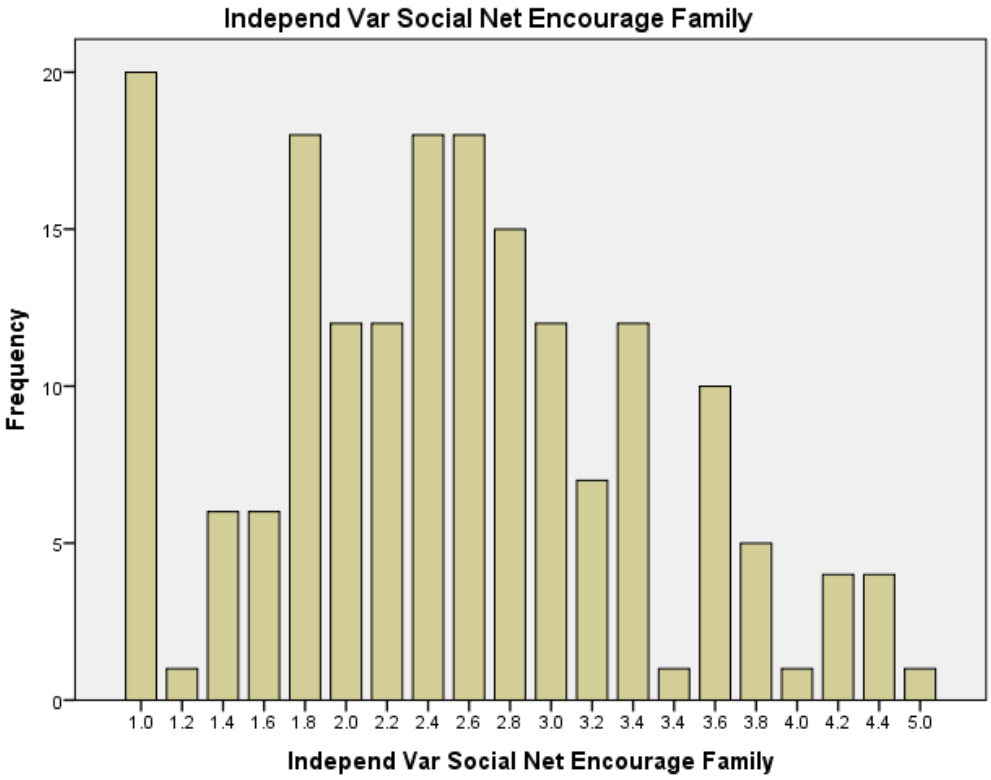


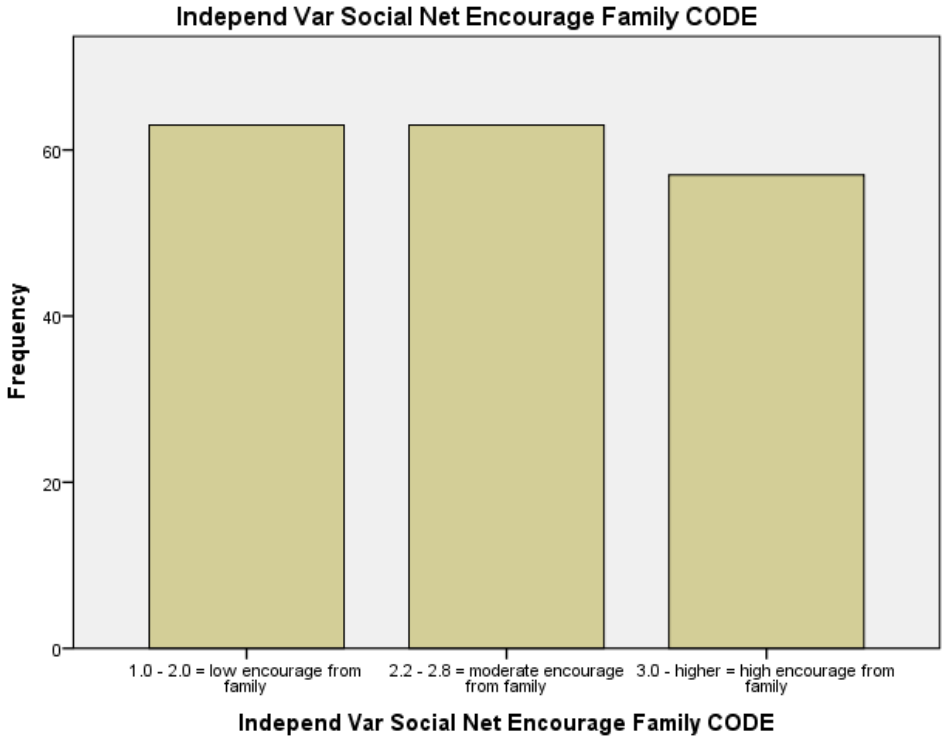
Independ Var Body Image Actual/Opposite Sex Ideal

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	-3	2	1.1	1.1	1.1
	-2	2	1.1	1.1	2.2
	-1	5	2.7	2.7	4.9
	0	26	14.2	14.2	19.1
	1	45	24.6	24.6	43.7
	2	54	29.5	29.5	73.2
	3	30	16.4	16.4	89.6
	4	11	6.0	6.0	95.6
	5	7	3.8	3.8	99.5
	7	1	.5	.5	100.0
	Total	183	100.0	100.0	

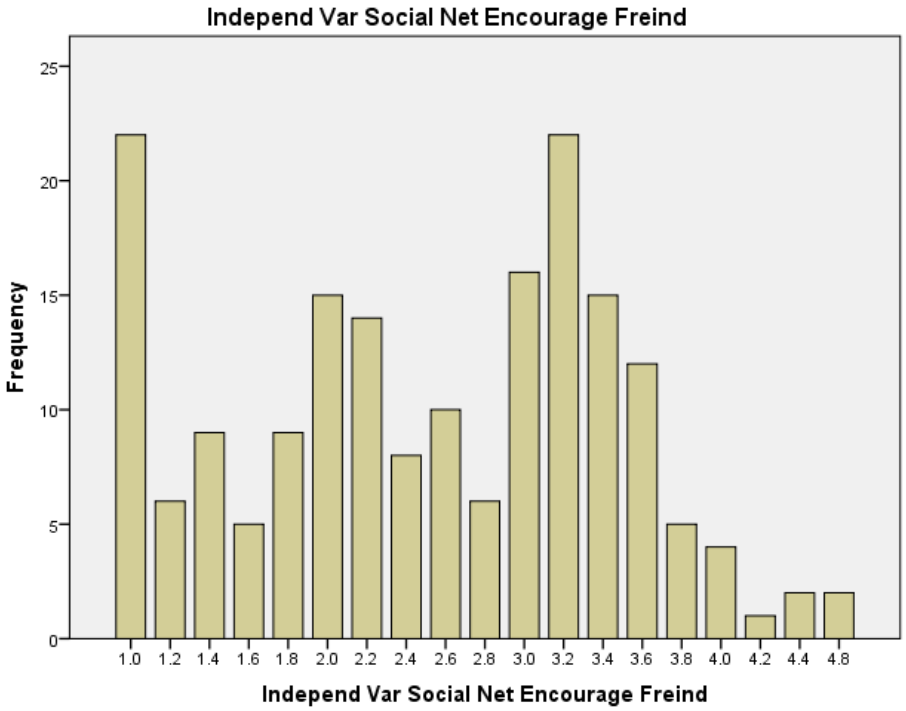


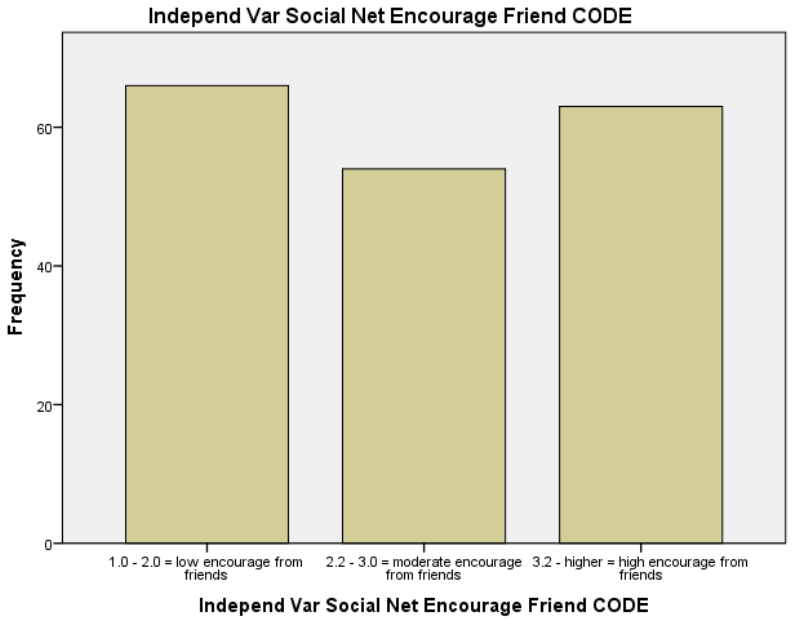
5) IV – Social Network – Encourage Family



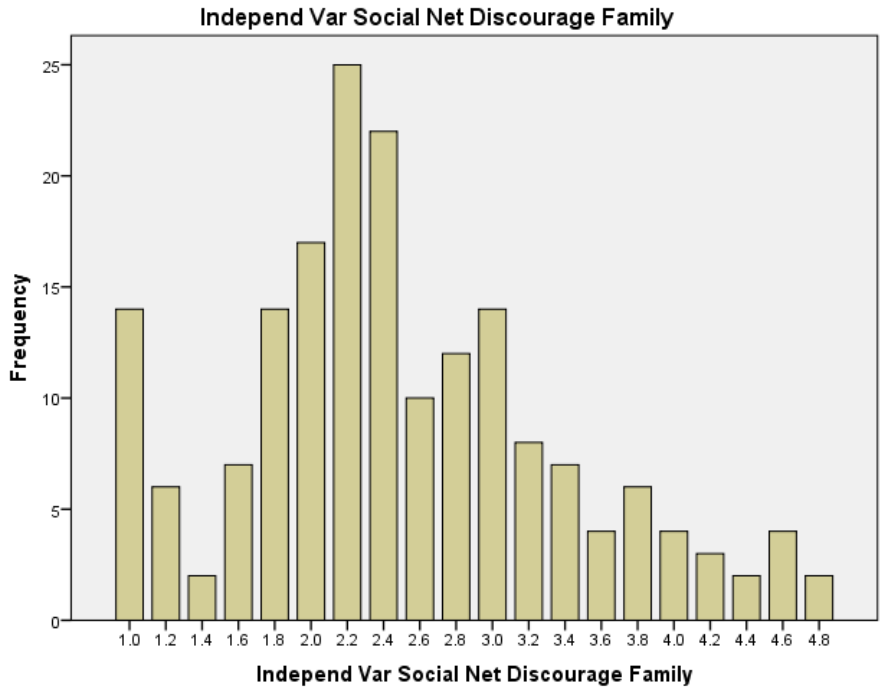


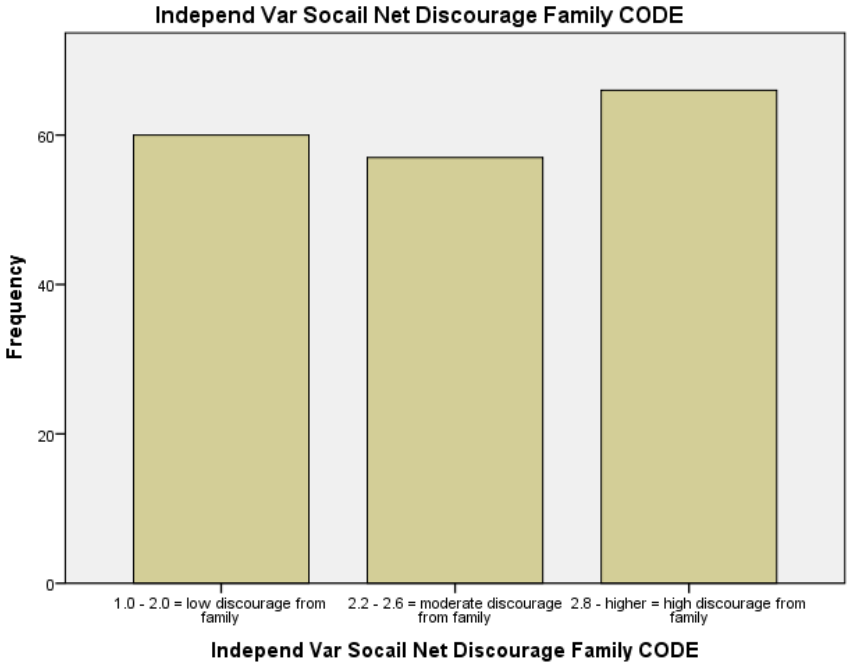
6) IV – Social Network – Encourage Friends



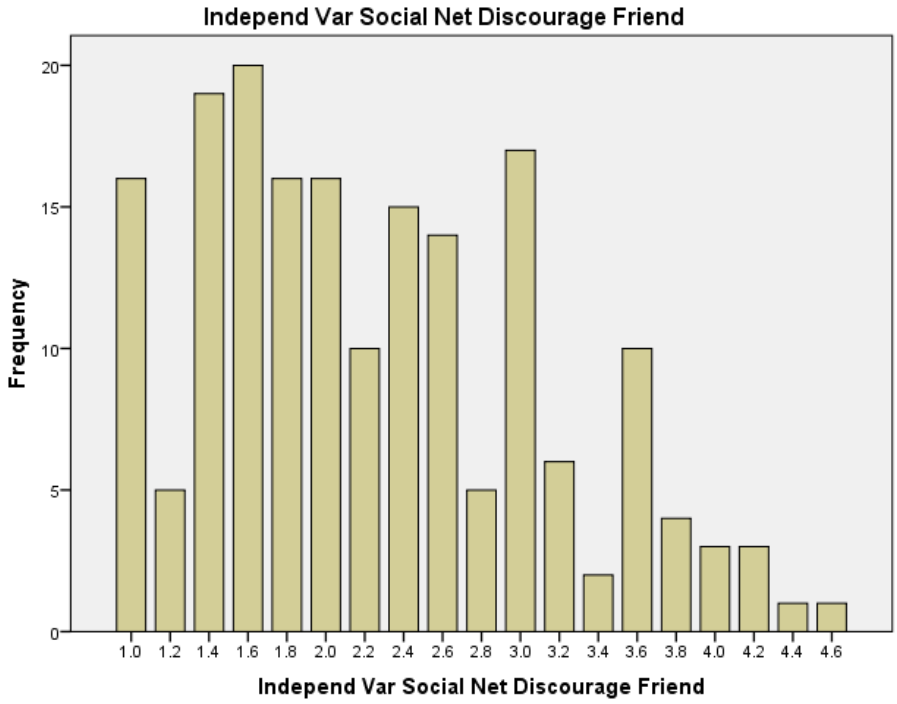


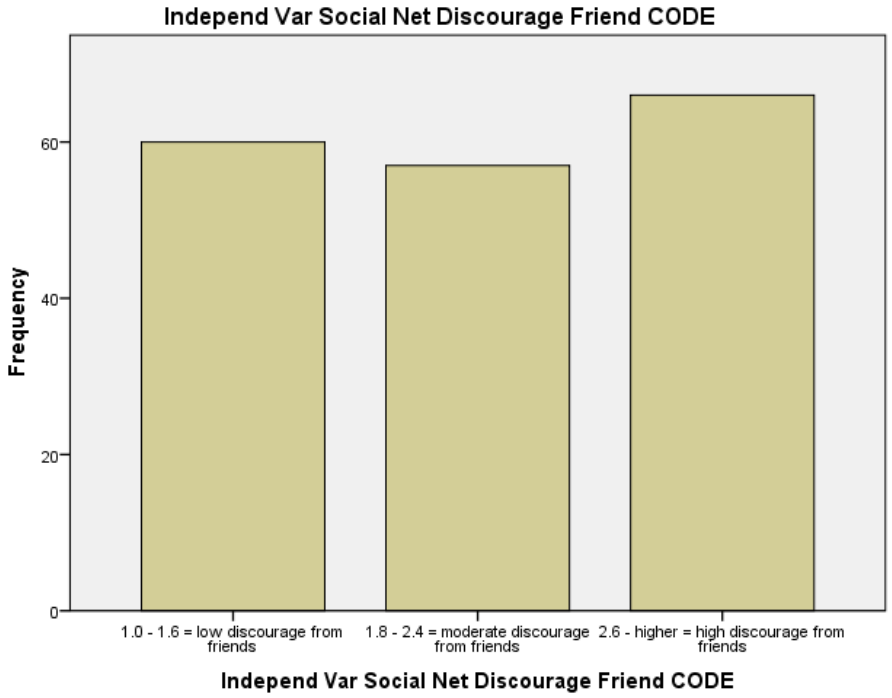
7) IV – Social Network – Discourage Family





8) IV – Social Network – Discourage Friends




Independ Var Social Net Discourage Friend CODE
Frequency
60
40
20
0
1.0 - 1.6 = low discourage from friends
1.8 - 2.4 = moderate discourage from friends
2.6 - higher = high discourage from friends
Independ Var Social Net Discourage Friend CODE

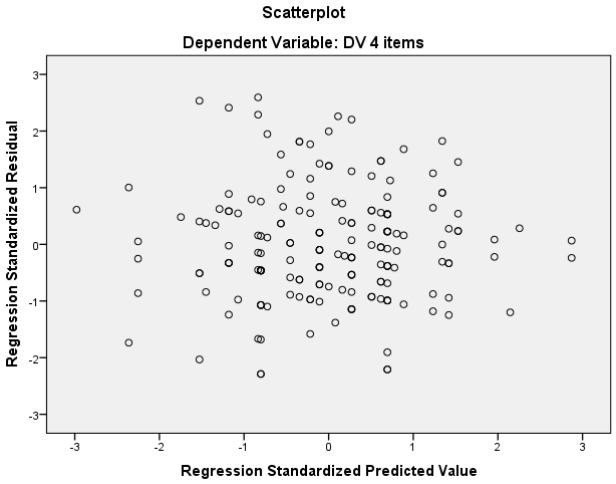
Appendix J: Predictors' Assumptions on Multivariate Level

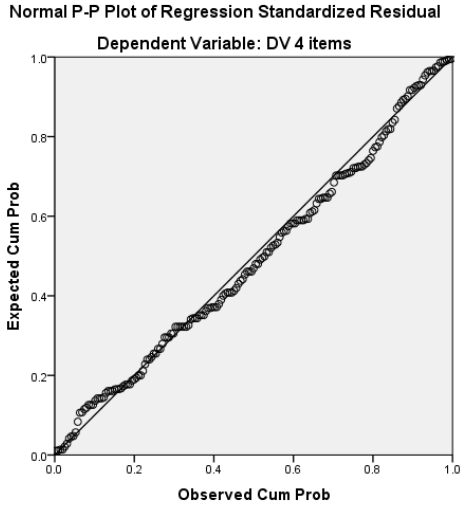
1) Research Question 2

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	10.674	.476		22.418	.000		
	Independ Var Body Image Actual/Ideal 4 Cat CODE	.530	.277	.201	1.910	.058	.447	2.237
	Independ Var Body Image Actual/Peer 4 Cat CODE	-.843	.256	-.277	-3.286	.001	.697	1.434
	Independ Var Body Image Actual/Opposite Sex Ideal 4 Cat CODE	.716	.350	.222	2.042	.043	.418	2.393

a. Dependent Variable: DV 4 items





Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	8.99	15.78	12.45	1.162	183
Std. Predicted Value	-2.979	2.871	.000	1.000	183
Standard Error of Predicted Value	.278	.880	.470	.121	183
Adjusted Predicted Value	8.86	15.83	12.45	1.165	183
Residual	-7.517	8.521	.000	3.258	183
Std. Residual	-2.288	2.594	.000	.992	183
Stud. Residual	-2.312	2.617	.000	1.002	183
Deleted Residual	-7.674	8.676	.001	3.329	183
Stud. Deleted Residual	-2.341	2.661	.001	1.008	183
Mahal. Distance	.308	12.058	2.984	2.113	183
Cook's Distance	.000	.056	.005	.009	183
Centered Leverage Value	.002	.066	.016	.012	183

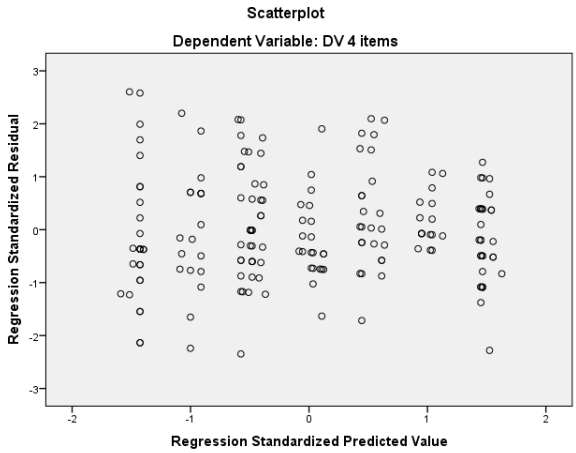
a. Dependent Variable: DV 4 items

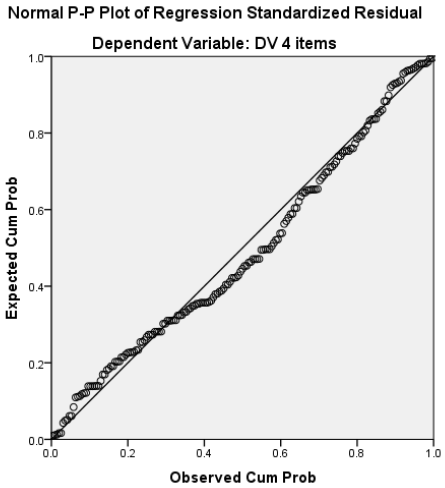
2) Research Question 3

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	10.026	.912		10.988	.000		
	Independ Var Social Net Encourage Family CODE	.848	.396	.199	2.143	.033	.614	1.629
	Independ Var Social Net Encourage Friends	.012	.360	.003	.035	.972	.688	1.453
	Independ Var Social Net Discourage Family CODE	-.075	.393	-.018	-.190	.849	.591	1.691
	Independ Var Social Net Discourage Freinds CODE	.434	.394	.104	1.101	.273	.588	1.699

a. Dependent Variable: DV 4 items





Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	11.11	13.82	12.45	.843	183
Std. Predicted Value	-1.589	1.628	.000	1.000	183
Standard Error of Predicted Value	.251	1.009	.548	.118	183
Adjusted Predicted Value	10.92	14.15	12.45	.851	183
Residual	-7.963	8.830	.000	3.354	183
Std. Residual	-2.348	2.603	.000	.989	183
Stud. Residual	-2.386	2.640	.000	1.004	183
Deleted Residual	-8.226	9.080	.002	3.457	183
Stud. Deleted Residual	-2.418	2.686	.001	1.010	183
Mahal. Distance	.005	15.124	3.978	2.231	183
Cook's Distance	.000	.061	.006	.011	183
Centered Leverage Value	.000	.083	.022	.012	183

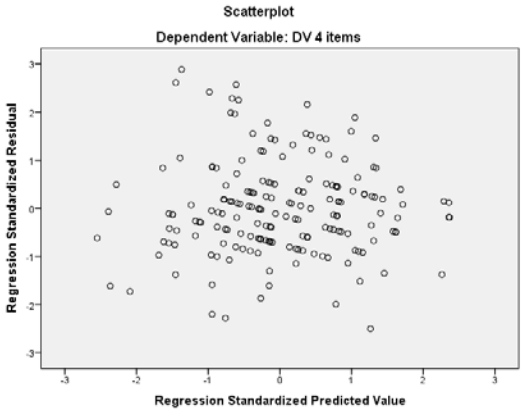
a. Dependent Variable: DV 4 items

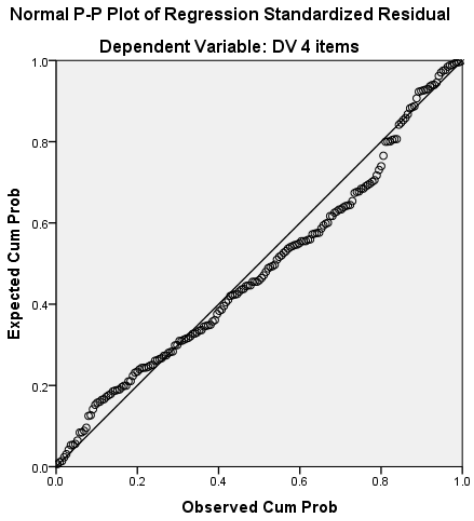
3) Research Question 4

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	9.230	1.065		8.665	.000		
	Independ Var Social Net Encourage Family CODE	.647	.384	.152	1.683	.094	.600	1.666
	Independ Var Social Net Encourage Friends	-.114	.354	-.028	-.323	.747	.658	1.520
	Independ Var Social Net Discourage Family CODE	.113	.385	.027	.294	.769	.570	1.753
	Independ Var Social Net Discourage Freinds CODE	.324	.384	.078	.844	.400	.574	1.742
	IV BMI Code	-.187	.327	-.045	-.572	.568	.797	1.255
	Independ Var Body Image Actual/Ideal 4 Cat CODE	.443	.279	.168	1.589	.114	.435	2.299
	Independ Var Body Image Actual/Peer 4 Cat CODE	-.727	.280	-.239	-2.600	.010	.577	1.732
	Independ Var Body Image Actual/Opposite Sex Ideal 4 Cat CODE	.711	.355	.221	2.000	.047	.401	2.496

a. Dependent Variable: DV 4 items





Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	9.02	15.63	12.45	1.343	183
Std. Predicted Value	-2.549	2.366	.000	1.000	183
Standard Error of Predicted Value	.387	1.154	.711	.130	183
Adjusted Predicted Value	9.21	15.73	12.44	1.354	183
Residual	-8.145	9.394	.000	3.187	183
Std. Residual	-2.499	2.882	.000	.978	183
Stud. Residual	-2.587	2.941	.001	1.003	183
Deleted Residual	-8.729	9.785	.004	3.356	183
Stud. Deleted Residual	-2.630	3.008	.002	1.011	183
Mahal. Distance	1.567	21.807	7.956	3.293	183
Cook's Distance	.000	.054	.006	.010	183
Centered Leverage Value	.009	.120	.044	.018	183

a. Dependent Variable: DV 4 items