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Provider-Led Intervention for Overweight or Obese African American Women Ages 18-65 with a BMI 25 KG/ M_2

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PROVIDER-LED INTERVENTION FOR OVERWEIGHT OR OBESE AFRICAN AMERICAN WOMEN AGES 18-65 WITH A BMI 25 KG/ M2

by

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DEDICATION

This project is dedicated to my family and friends for their support during this process. These last couple of years proved to be the most challenging times of my life I've ever imagined. I am thankful for my village of supporters that encouraged and prayed for me to keep going, even when I wanted to give up. To my mother with her unfailing love and wisdom you are definitely my strength. In memory of my father who passed away last year I know he was so proud of me! Without my village and extended family I could've made it through this process. I am truly humbled by God's grace and mercy that literally pulled me through this process. I thank God for strengthening me to endure the challenges I've faced. I am truly humbled by this experience as God literally took me through this journey to increase my faith and trust in him. I am nothing without him.

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TABLE OF CONTENTS

Chapter Page

LIST OF TABLES

Tables

ABSTRACT

Provider Led Weight Loss Program for Obese African American Women

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Overweight and obese African American women tend to suffer most from the impacts of diseases, health disparities, disabilities, and decreased qualities of life (Sutton et al., 2016). Most weight loss programs are not culturally specific, despite the benefits of dietary changes and increased physical activity for all groups. The purpose of this EBP project was to implement a provider-led program including lifestyle, dietary, and activity components to decrease weight, BMI, waist circumference and blood pressure in African American women. The Iowa Model of Evidence-Based Practice to promote quality care was used to guide the EBP project, aimed to address obesity in a family practice located in an underserved community in Northwest Indiana. Fifteen overweight or obese African American women were identified as they presented for routine medical care. The intervention for this EBP project consisted of a 12-week provider-led weight loss program that included lifestyle changes that targeted nutrition, physical activity, behavioral self-management, and follow-up appointments. A one-way repeated measure ANOVA were calculated comparing means of weight, BMI, waist circumference and secondary measure blood pressures at four different intervals: baseline, 4, 8 and 12 weeks. Significant effect was found at baseline weight to 12 weeks weight ($F(3,42)=5.77$, $p<.05$), baseline BMI to 12 weeks BMI ($F(3,42)= 5.65$, $p<.05$, baseline WC to week 8 WC and baseline WC to 12 weeks WC ($F(3,42)=6.868$, $p<.05$). A paired-samples *t* test were calculated to further compare the mean at six different intervals. There were significant difference at baseline weight to week 12 weight ($t(14)= 2.54$, $p<.0083$), baseline BMI to 12-week BMI ($t(14)=3.216$, $p<.0083$), baseline WC to week 8 WC ($t(14)=3.076$, $p<.0083$) and baseline WC to 12-weeks WC ($t(14)=4.305$, $p<.0083$). Secondary outcomes: no significant difference existed for systolic blood pressure ($F(3,42)=.021$, $p>.05$ or for diastolic blood pressure ($F(3,42)=.210$, $p>.05$). These findings demonstrated that a provider-led intervention improved weight reduction for African American women.

CHAPTER 1

INTRODUCTION

Obesity causes significant cardiovascular disease, diabetes, and hypertension, and increases overall morbidity and mortality in the United States (Srivastava et al., 2018). The prevalence of overweight and obesity in African American females has increased from 63% to 80% over the last four to five decades, compared to an all population increase of 42% to 64% (Dodgen & Spence-Almaquer, 2017; Sutton, Magwood, Nemeth & Jenkins, 2017). Though the U.S. population as a whole has challenges with weight, there is a racial divide of great disproportion (Brennan & Williams, 2013; Burton, White, & Knowlden, 2017; Sutton et al., 2017). More than one-third of adults in the U.S. are considered overweight or obese (Franklin & Arena, 2016; Tussings-Humpheys, Fitzgibbons, Kong & Odoms-Young, 2013). Prevalence data revealed that 65.4% of African Americans considered themselves at risk for health problems related to being overweight in comparison with 56% of Whites (Walker-Sterling, 2005). According to the Centers for Disease Control and Prevention (CDC, 2018), obesity results from a combination of causes and contributing factors, including individual factors such as behavior and genetics. African American women are the least active demographic group in the United States with only 36% meeting the national physical activity recommendations (Joseph et al., 2016). Most weight loss programs are generic and exclude culturally specific factors that are influenced by individual experience and body image perception (James, Pobee, Oxidine, Brown & Joshi, 2012). The impact of obesity on African American women is complex.

Background

Obesity is defined as a condition characterized by excess body fat, which normally accounts for approximately 25% of weight in females and 18% in males (Tilghman, 2003). Obesity is often a result of behavioral and environmental factors that are difficult to control with dieting alone. An expert panel report, (National Heart, Lung, and Blood Institute [NHLBI], 2014) defines obesity as a body mass index (BMI) of 25 to 29.9 kg/m_2 and obesity as a BMI of > 30 kg/m_2. BMI is the most commonly used measurement for calculating body fat by dividing an individual's weight in kilograms by the square of height in meters. According to the World Health Organization (WHO) (2018), overweight and obesity are viewed as abnormal or excessive body fat accumulation that may impair health.

The primary cause of obesity or overweight is an energy imbalance between calories consumed and calories expended with extra calories stored as fat (WHO, 2018). Energy imbalance in individuals affected by obesity are often attributed to genetics, behavior, and environment (CDC, 2018). Changes in dietary and physical activity patterns are often the result of environmental and societal changes associated with development and lack of supportive policies in sectors such as health, agriculture, transport, urban planning, environment, food processing, distribution, marketing, and education (WHO, 2018). Environmental barriers are key indicators for obesity and are associated with the lack of access to exercise facilities and healthy foods.

Several factors have been cited for contributing to increased rates of obesity among African American women. Namely, overeating has been considered a means of coping with stressors associated with poverty (Walker & Gordon, 2014). Studies suggest that compared to other racial/ ethnic groups, African American women are more accepting of larger body sizes and views them as more attractive and healthier (Walker & Gordon, 2014). The acceptance of obesity can affect weight reduction programs for African American women, if a larger body size is perceived as beauty (Harris, Strayhorn, Moore, Goldman & Martin, 2016). Research reveals that although obese African American women report a desire to lose weight, overweight women voice a preference for maintaining their size and perceive current guidelines as unrealistic (Harris et al., 2016). Many African American women who maintain busy lifestyles that result from family, work, or church obligations perceive themselves, as being physically active (Walker & Gordon, 2014).

Lastly, another contributing factor to the prevalence of obesity and overweight among African American women is poor supermarket access. Often poorer communities do not have access to affordable, and healthy food sources. Nutritional food distribution is inadequate in predominantly Black neighborhoods, which disproportionately impacts access to healthier food choices (Walker & Gordon, 2014). Persistent barriers and disparities of care among racial or ethnic minorities exist likely due to a combination of social, economic, biological, and environmental factors. Medical professionals in the United States are not adequately trained at addressing the complexity of care for this population (Srivastava et al., 2018). However, it is imperative to incorporate lifestyle changes and physical activity with improved dietary and nutritional interventions among this group.

Statement of the Problem

Obesity is a complex health issue to address. Behaviors contributing to the issue include dietary patterns, physical activity, inactivity, medication use, and other exposures (CDC, 2018). Obesity is a serious concern because it is associated with poorer mental health outcomes, reduced quality of life, and the leading causes of death in the U.S. and worldwide (CDC, 2018). Obesity is well documented as a major driving force behind cardiovascular disease (CVD)-related racial and ethnic health disparities (Franklin, & Arena, 2016). This is especially true for African American women who are disproportionately obese, more likely to have low-nutrient, energy dense diets, less likely to be physically active, and twice as likely to succumb to CVD (Franklin & Arena, 2016). Overweight and obese African American females tend to suffer most from the impacts of disease, having increased health disparities, disabilities, decreased quality of life, and negative socioeconomic effects (Sutton et al., 2016).

Data from the Literature Supporting Need for the Project. All demographic sectors of the United States are affected by obesity and overweight, but African American women are disproportionately burdened (Tussing et al., 2013). Obesity adversely impacts cardiovascular risk factors including hypertension, dyslipidemia, and diabetes and consequently increases the risk of death (Appel et al., 2011; Braun et al., 2016). African American women are the least active demographic group in the United States with only 36% meeting the national physical activity recommendations. Consequently, these women are associated with a myriad of chronic diseases resulting from insufficient physical activity levels (Joseph et al., 2016). This disproportionate obesity burden is a public health concern.

The National Health and Nutrition Examination survey (NHANES) conducted a study from 2009-2012 that concluded approximately 81.9% of African American women were overweight or obese compared with 61.2% of White women (Braun et al., 2016). African American women have the highest rates of being overweight or obese compared to other groups in the U.S. (CDC, 2016). Four out of five African American women are overweight or obese (CDC, 2016). Obesity causes significant CVD, diabetes, hypertension, and overall morbidity and mortality in the United States (Srivastava et al., 2018). The implications for obesity are multifactorial and complex especially among African American women. The National Center for Health Statistics reports a higher prevalence of obesity among non-Hispanic Blacks than non-Hispanic Whites (Hales, Carroll, Fryar & Ogden, 2016). In 2008, an estimated $147 billion were spent on health care costs for obese individuals (Burton et al., 2017). Leading causes of death among Black females are heart disease, cancer, stroke, and diabetes (CDC, 2016). High obesity rates are influenced by biological, individual, environmental, social, and economic determinants (Sutherland, 2013). Black women are particularly affected by diseases related to insulin resistance. These diseases result in high rates of CVD, high blood pressure, type II diabetes, stroke, physical inactivity, obesity, and death from hypertension-related complications (Jenkins, Jenkins, Gregoski & Magwood, 2017; Sutherland, 2013).

Strategies to engage these high-risk women in weight loss treatments are of significant public health importance (Banerjee et al., 2018). Weight loss of 5-10% by consuming fewer calories and increasing physical activity decrease the health risk and diseases, while increasing quality of life and longevity (Sutton et al., 2017). Compared with all other race/gender groups, African American women have the highest prevalence of hypertension (45.7%), as well as high incidences of diagnosed diabetes (13.1%) and hypercholesterolemia (10.8%) (Harris et al., 2016). Furthermore, as compared to White women, African American women are three times more likely to die from complications related to hypertension and type II diabetes, and 1.4 times more likely to die from complications related to CVD (Sutherland, 2013).

Data from the Clinical Agency Supporting Need for the Project. The Methodist Physician Group Internal Medicine clinic is a subsidiary of Methodist Hospitals, Incorporated. The clinic is located at 3195 Broadway in Gary, Indiana and provides comprehensive medical care for all age groups, genders and nationalities including children. The clinic staff consists of an office manager, two certified medical assistants, two nurse practitioners and one physician.

Methodist Hospital conducted a community health needs assessment in 2013 by examining the health issues within the vicinity of Methodist Hospital Northlake Gary campus and service area. More than 38.7% of participants reported obesity as a perceived community health problem. In the city of Gary 54% of the population is female. Approximately 52% of all Gary residents have a diagnosis of obesity which increases for ages 45 to 64. Among females, 55% are obese. The clinic provides visits and services for approximately 150 patients per week.

Approximately 52.2% of the community perceive nutrition, physical activity and weight as major problems. Lifestyle changes, difficulty overcoming lifelong patterns of bad decision making, overeating, lack of exercise, dangerous behaviors, lack of healthy food options, lack of shopping options, lack of private gyms, and lack of safe or convenient areas to exercise were all identified as factors contributing to these major problems. These barriers have made it difficult for residents to practice healthy behaviors.

This health assessment found that 36% of Lake County residents are obese, compared with 31% in Indiana as a whole. Obesity is cited by 39% of survey participants who lived near the Northlake campus area as a major health problem. Additionally, 74% identified weight as a problem in their household. Compared with state of Indiana and Lake County as a whole, residents near the Northlake campus service area are more likely to be younger, female, less educated, and lower income. In Gary, the population is 85% Black. A one month assessment of the clinic was conducted by the project leader, and out of 156 African American women patients, 95 (60.9%) had a BMI > 25 kg/m^2. The average BMI was 36 kg/m^2 among this group. Currently, all patients who are obese or overweight are instructed on the need for weight loss, especially for those associated with any co-morbidities. Patients are currently given sample menus, referrals to dieticians, instructed on calorie control diets and exercise. A small percentage of patients without medical contraindications are given a weight loss drug like Adipex for assistance with difficult weight loss. Elderly patients' weight loss management is dependent on physical function and the ability to tolerate dietary changes and exercise. The dietary instructions given are not patient specific, but general for all patients who are obese.

According to the community needs assessment, 54% of the residents surveyed in Gary are female. Approximately 70% of these residents have been diagnosed with two or more chronic diseases. The residents surveyed acknowledged difficulties maintaining a healthy weight. The top barriers to weight control identified included bad eating habits (66%), cost and lack of healthy foods (35.6%), lack of safety to exercise (31.5%), and deficiency of fruits and vegetables. Culturally influenced weight loss programs are needed to address barriers that impede successful weight reduction (Burton et al., 2017). Cultural factors are often ignored, but should be considered to explain perceptions, attitudes and experiences about weight or obesity.

Purpose of the Evidence-Based Practice Project

The purpose of this EBP project was to implement a patient centered program including lifestyle, dietary, and activity components to decrease weight, and BMI in African American women. Body mass index (BMI) is widely used in medical practices, health promotion programs, and research as a measure of health because it is easy to calculate and involves no costly procedures (Dodgen & Almaguer, 2017). Using BMI reduces the complexities of health to one primary indicator and its accompanying solution, weight loss (Dodgen & Almaguer, 2017). The specific aim of this EBP project was to change behaviors in diet and exercise that will impact weight and BMI.

Compelling clinical questions. This EBP project addressed the PICOT question “In African American women with BMI >25 kg/m$_2$, what is the effect of a provider-led program that includes culturally tailored strategies on weight, BMI, and waist circumference over a 12 week period?” The PICOT question was formulated to demonstrate the components of this EBP project. Provider-led, culturally tailored weight management interventions for African American women are needed to promote successful lifestyle changes that lead to BMI and weight reduction in underserved communities.

According to Banerjee et al. (2018), women who were advised to lose weight by their physician were more successful in weight reduction and increased physical activity. Women that participated in a provider-led weight loss intervention were successful in achieving increased physical activity that led to weight loss over a 3 month period (Conroy et al., 2014). Provider-led behavioral and lifestyle modification for African American women is an essential approach to weight loss, by improving adherence to a physical activity program through accountability

(Walker & Gordon, 2014). Weight management through behavioral lifestyle intervention is key for the reduction of cardiovascular disease-related health disparities in African American women (Franklin & Arena, 2016).

Significance of the EBP Project

Obesity is clearly associated with increased morbidity and mortality. There is a strong indication that weight loss in overweight and obese individuals will reduce potential risks for diabetes and CVD (National Heart, Lung, and Blood Institute, 2014). Due to the disproportion of obesity and associated risk factors among African American women, this population must be targeted for intervention (Barnes & Kimbro, 2012; Franklin & Arena, 2016; Tussing, Fitzgibbon, Kong & Odoms, 2013; Joseph et al., 2016). The health burden is severe among African American women. Successful weight loss programs are saturated with information and/or products for the general population. However, these weight loss programs are not culturally specific despite the benefits of dietary changes, and increased physical activity for all groups.

CHAPTER 2

THEORETICAL FRAMEWORK, EBP MODEL, AND REVIEW OF LITERATURE

A comprehensive investigation of the theoretical framework, the evidence-based practice model, and the review of the literature selected to support the premise for this EBP project will be presented. The premise of the theoretical framework is to guide individuals to reach increased levels of well-being and identify the cause of health behaviors. The EBP model will assist healthcare providers in integrating best evidence into clinical practice (Brown, 2014). In the review of literature, evidence will be analyzed and synthesized to determine best practice recommendations.

Theoretical Framework

Pender's Health Promotion Model (HPM) was used as the theoretical framework for the EBP project. This framework is often used to explain why individuals exhibit certain health behaviors. Nola J. Pender developed the HPM in 1975 to encourage patients to prevent illness through their behavior and make specific changes to improve knowledge and maintain health. The HPM encompasses two phases, a decision-making phase and an action phase. The model emphasizes seven cognitive and perceptual factors that compose motivational mechanisms for acquiring and maintaining health-promoting behaviors and five modifying factors that indirectly influence patterns of health behavior (Polit & Beck, 2004).

The model is based on the premise that characteristics and experiences of the individual actions are specific to behaviors and affect outcomes specific to behavior. Health promotion is defined as behavior motivated by the individual desire to change and improve well-being (Green & Kreuter, 1991). The HPM is based on social cognitive theory that identifies perceived benefits, barriers and self-efficacy by improving healthy behaviors.

Individual Characteristics and Experiences

The HPM identifies the most important variables that target a specific behavior in a particular population. These behaviors of individual characteristics and experiences include both prior related behavior and personal factors (Pender, Murdaugh & Parsons, 2015). Each person is identified as an individual with different personalities and experiences that will ultimately affect the outcome through their perceptions of health (Pender et al., 2015).

Prior related health behaviors. The best predictor of behavior is the frequency of recurring behavior from the past (George, 2011; Pender et al., 2015). Prior behavior is proposed to have direct and indirect effects on the likelihood of engaging in health-promoting behaviors (George, 2011; Pender et al., 2015). Prior behavior directly strengthens habit formation as a result of repetitive behaviors. These behaviors are often predictive and shaped by the environment. Both inherited and acquired characteristics influence beliefs and depict health-promoting behavior (George, 2011).

Personal factors: biological, psychological and socio-cultural. Personal factors are predictive of certain behaviors. These behaviors are shaped by the nature of the target behavior (George, 2011; Pender et al., 2015). These personal factors can be biological, psychological, and sociocultural. Biological factors can include age, body mass index, or menopause state. Psychological factor examples are self-esteem, motivation, and perceived health. Sociocultural factors include race, ethnicity, education, and socioeconomic status (George, 2011; Pender et al., 2015). According to Pender, personal factors should be limited to those that are theoretically relevant to explain or predict behaviors.

Behavioral-Specific Cognition and Affect

Behavioral-specific variables are regarded as significant factors that are the most amenable to change (George, 2011; Pender et al., 2015). According to Pender's model, behavior outcomes are influenced by a person's sense of commitment to the plan of action with identified specific strategies (Friedman, Bowden & Jones, 2003). The outcome of this model is to promote positive health experience throughout the person's lifetime (Friedman et al., 2003). According to Pender et al. (2015) these variables include: a) perceived benefits of action, b) perceived barriers to action, c) perceived self-efficacy, d) activity-related affect, e) interpersonal influences, and f) situational influences. These variables can be modified by the individual becoming aware of the learned behavior.

Perceived benefits of action. Perceived benefits of action are intellectual responses to the external factors. They are reinforced by the positive consequences of a behavior (George, 2011; Pender et al., 2015). A positive benefit suggests that an individual's expectation to engage in a particular behavior is dependent on the anticipated benefits or reward (George, 2011; Pender et al., 2015). The commitment to the plan of action is motivated by perceived benefits both directly and indirectly (George, 2011; Pender et al., 2015).

Perceived barriers to action. Barriers consist of perceptions about the unavailability, inconvenience, expense, difficulty, or time-consuming nature of a particular action (Pender et al., 2015). These barriers are viewed as mental blocks, hurdles, and personal cost of taking on a particular behavior (Pender et al., 2015). Anticipated barriers affect intentions to engage in a certain behavior and arouse avoidance in particular situations (Pender et al., 2015). For instance, loss of satisfaction in giving up a negative behavior such as smoking or eating a high calorie meal is indicative of a barrier. When individuals have a low readiness to participate in healthy behavior and barriers are high, the likelihood of action is unlikely to occur (Pender et al., 2015).

Perceived self-efficacy. Self-efficacy is the judgment of personal capability to organize and carry out a particular course of action (Pender et al., 2015). Often people feel overwhelmed when confronted to make behavioral changes to improve health outcomes. This can lead to ambivalence (Hollis, Williams, Collins & Morgan, 2013). As participants identify specific behaviors that hinder their goals, the result is successful outcomes as the behavior that led to the unhealthy lifestyle is changed (Walker & Gordon, 2014). Self-efficacy is influenced by perception of barriers to action, and motivates health-promoting behavior (Pender et al., 2015).

Activity-related affect. Activity-related affect consists of three components: emotional arousal to the act itself (act-related), the self-acting (self-related), and the environments in which the action takes place (Pender et al., 2015). Repetitive behaviors lead to change of behavior or continuance of the behavior that is dependent upon this affect (George, 2011). Specific triggers that lead to certain behaviors are implicated as factors that precipitate life-altering changes. When these conditions are identified with the patient, a conscious decision is made to approach the problem in a positive or negative manner, and ultimately lead to modifying the behavior (George, 2011). The activity-related affect is proposed to influence health behavior directly as well as indirectly through self-efficacy and commitment to a plan of action (Pender et al., 2015).

Interpersonal influences. Interpersonal influences are cognitions involving the behaviors, beliefs, and attitudes of others (Pender et al., 2015). These cognitions may not be a reality or may be influenced by family, peers, or health care providers (George, 2011). Cultural factors associated with family, community, environment, and economy can account for beliefs and practices that influence health promoting behaviors (George, 2011). Health care providers can determine strategies to implement recommendations for behavior change to occur by tailoring interventions to their individual patients (Burton et al., 2017). Cultural tailoring includes strategies intended to reach a specific group. Providers must share an understanding of cultural differences (Burton et al., 2017). Some cultures place more emphasis on interpersonal influence to encourage individuals to engage in a particular behavior for the good of the family rather than for personal gain (Pender et al., 2015).

Situational influences. Personal perceptions and cognitions of any situation or context can facilitate or hinder behavior (Pender et al., 2015). Patients may or may not participate in the behavioral change based on the significance of the influence. Situational influences on health-promoting behavior encompass perceptions of options, demand characteristics, and environmental characteristics in which a behavior is proposed to take place (Pender et al., 2015). Outside elements that may influence behavior include: family structure, financial burdens or security or environmental factors. Pender states that cognitive and particular variables can help determine health-promoting behaviors (Green & Kreuter, 1991).

Behavioral outcomes

The last concept, behavioral outcomes, is influenced by an individual's sense of commitment to a plan of action with identified strategies, and the capacity of the individual to prevent competing challenges or temptations (Friedman et al., 2003). These strategies include a) health-promoting behavior, b) commitment to plan of action, and c) immediate coping demands. These aspects of behavioral outcomes are influenced by a person's desire to change current lifestyle practices.

Health-promoting behavior. Health-promoting behavior is the outcome in the HPM or desired behavior (Pender et al., 2015). The purpose of this health-promoting behavior is for the client to realize positive health outcomes like improved quality of life and functional ability, and to replace unhealthy behaviors (Pender et al., 2015).

Commitment to plan of action. The commitment to a plan of action initiates a behavioral change (Pender et al., 2015). The premise of the cognitive processes is the commitment to complete a specific action at a particular time, with a specified person or alone, regardless of competing factors and the identification of strategies for carrying out and reinforcing the behavior (George, 2011). Planning strategies used with implementing behaviors increase the likelihood of success of the plan of action (George, 2011; Pender et al., 2015).

Immediate competing demands. Immediate competing demands and preferences are alternative behaviors that are unwelcomed into consciousness as possible courses of action immediately prior to the intended occurrence of a planned health-promoting behavior (George, 2011). It is the preferences of the individual that can overcome the intended behavior. Strong commitment to the plan of action, with exercise of self-regulation and control, will help deter immediate competing demands and preferences from overturning the plan of action (George, 2011). Exhibiting self-control against competing factors allows the individual to make clear choices and to change behavior. It is important that providers impart their influence on patients and change unhealthy behavioral practices.

Application of Theory to Evidence-Based Practice Project

The HPM was chosen for this EBP project to explain the need for individual change to promote healthy behaviors, reduce weight, and reduce comorbidities (i.e. hypertension, diabetes, dyslipidemia). The HPM explains individual knowledge and beliefs that motivate African American women to accept or reject healthy behaviors that lead to weight reduction. Individual characteristics and backgrounds of African American women are important for identifying predictive behaviors in this group.

The HPM is appropriate to use for this EPB project to motivate obese or overweight African American women to lose weight, by promoting individualized dietary changes and increase physical activity. The provider will emphasize health-promoting behaviors that will ultimately improve nutritional behaviors and encourage those that lead to weight loss outcomes. An extensive approach to address the health behaviors associated with obesity in African American women will be addressed. During a 15-20-minute office visit, healthcare providers may find it challenging to identify these behaviors in obese patients and explain in detail the advantages of weight loss and lifestyle changes, especially if a patient is not receptive to the change. Personal factors influence the probability of African American women participating in health-promoting behavior; however, it is not guaranteed that personal characteristics change (Friedman et al., 2003). The impact of obesity is often associated with cultural beliefs and practices in the African American community. This indication determines future health consequences and risk factors for other comorbidities. Cultural influences and causal pathways that influence obesity (e.g. neighborhood stability, discrimination, family, poverty, access to healthcare) lead to disproportionate levels of obesity and comorbidities among African American women (Kong, Tussing, Young, Stolley & Fitzgibbon, 2014).

Specifically, the HPM guides the provider to develop culturally appropriate weight loss strategies and, identify certain risk factors, and health related behaviors associated with obesity among this population. The provider identified the patient's perception of previous life experiences that influenced behavior and knowledge related to health. Personal predictors of behaviors were established by acknowledging relevant biological, psychological and sociocultural factors that strongly influenced unhealthy behaviors. The provider influenced the patient's commitment to change by identifying specific strategies that promote positive outcome and weight reduction. The perception of benefits was reinforced by educating women on effective nutrition and exercise interventions. Therefore, the HPM was useful in improving individual commitment to a healthy diet, physical activity, and chronic disease prevention. The provider discussed barriers with patients that created obstacles or failure associated with weight loss. There must be a clear plan of action when barriers arise based on individual needs of the patient. Perceived self-efficacy allowed participants the ability to identify behaviors that lead to unhealthy lifestyles. A culturally tailored weight loss program improved weight loss success by using positive reinforcement and acknowledging behavioral changes in African American women (James et al., 2012). Activity-related affects were influenced by repetitive behaviors and the commitment to change behavior. The HPM was used to reiterate the importance of making lifestyle changes, by improving nutritional choices and exercise at each visit. Materials were provided to participants regarding menu planning and exercise regimens to enhance and maintain weight loss. The goal of this EBP project was to encourage lifestyle and behavioral changes with the support of family and community to decrease obesity in African American women. These cultural influences are grounded by personal beliefs and practices. By discussing safety, finances, and other barriers that influence behavior, the provider addressed environmental factors that may ultimately determine if the participant will be able to meet the constraints of the EBP project.

The participant's commitment to the plan of action was identified by specific strategies that will improve success. Obesity has many negative effects on the total well-being of human beings. The positive effects of physical activity creates a balance of improved health outcomes by decreasing weight, and reducing the incidence of severe chronic diseases and mortality risks. Individual motivation to make lifestyle changes are influenced by one's ability to effectively lose weight. African American women's perception of ability to lose weight successfully can be determined by positive feedback from others (George, 2011). People are likely to perform healthy nutritional behaviors when they have the support of family and friends encouraging the healthy behaviors (Khodaveisi, Omidi, Farokhi & Soltanian, 2017). Predictors for successful, significant long-term weight loss in African American women are self-motivation, general efficacy, and autonomy (Tussing, Fitzgibbon, Kong & Odoms, 2013).

It is expected that participants will experience barriers associated with personal, social, cultural, economic, and environmental factors that increase the risk of morbidity and mortality (Franklin & Arena, 2016). The action to exercise or change lifestyle behaviors are influenced by the commitment to lose weight (George, 2011). According to Franklin and Arena (2016), and

Walker and Gordon (2014), the commitment to lose weight can indirectly diminished these competing demands:

- Limited knowledge about nutrition, physical activity and exercise
- Physical and economic constraints (i.e., lack of access to supermarkets with fresh produce and/or costs of healthier food)
- Scarcity of environmental resources to support physical activity (i.e., lack of sidewalks, safe parks or recreational facilities)
- Time constraints related to work, family, primary caretaker or single parenting
- Lack of social support from friends or family
- Lack of motivation
- Awareness of being stigmatize as obese

African American women are often the head of families or “breadwinners.” Working various shifts to care for family creates a disruption in circadian rhythms. It is associated with fewer hours of sleep and is a risk factor for overweight and obesity (Walker & Gordon, 2014). The absence of culturally appropriate programs that include lifestyle and behavior modification, are factors for failure of obesity interventions in African American women (Walker & Gordon, 2014).

Making conscience decisions to modify lifestyle and behavior are important in assisting obese patients to identify foods or triggers that sabotage weight loss, activity level, and cognition surrounding health habits that exacerbate excess weight (Walker & Gordon, 2014). Intervention strategies that promote physical activity in African American women are essential to reduce the risk of preventable health conditions and to reduce health disparities (Jenkins, Jenkins, Gregoski & Magwood, 2017).

Strengths and Limitations

The HPM has a strong theoretical foundation in research. It has been used in evidence-based practice by providing a more meaningful and solid foundation for improving outcomes. The HPM supports research by providing a holistic approach that promotes healthy behaviors and disease prevention. The various components of the HPM can be implemented in clinical practice using the principles to influence health-promoting behaviors. In a study by Khodaveisi et al. (2017), the HPM was used to improve the nutritional behavior in overweight and obese women. The use of the HPM revealed a positive effect on improving nutrition by promoting healthy behaviors. The support of family and friends encouraged people to perform healthy behaviors. The HPM proposes improving health by influencing behaviors through positive motivation. The more people adhered to healthier nutritional behaviors, the more successful they were at meeting weight loss goals. One of the greatest strengths of the HPM is the ability to examine multiple variables, and influence outcomes by motivating individuals to achieve higher levels of well-being. The HPM improved outcomes and facilitated the development of weight loss programs that change behaviors associated with obesity. Researchers found using the HPM for behavioral intervention programs motivate participants to achieve optimal health outcomes by modifying risk factors (Cera &Twiss, 2018). Positive results improve self-esteem, motivation, adherence, and commitment to healthy behaviors.

A limitation of this model is that it assumes a person’s health behavior will be influenced to change after gaining knowledge of consequences of the perceived threat. There is a limit to the extent that environmental, social, or personal factors influence health behaviors in this population. According to Khodaveisi et al. (2017), barriers associated with perceived self-efficacy can affect the intention to change behavior.

Evidence-Based Practice Model

The Iowa Model of Evidence-Based Practice to Promote Quality Care (Iowa model) was used to guide the EBP project. The Iowa model was developed by Marita G. Titler and colleagues in 1994 (Dontje, 2007). The Iowa model is a systematic method that explains how organizations change practice (Melnyk &Fineout-Overholt, 2015). The purpose of the Iowa model is to translate research findings of the EBP project into clinical practice. Originally a research utilization model was updated to include emphasis on EBP to promote quality care (Melnyk & Fineout-Overholt, 2015). The Iowa model facilitates the EBP project by identifying a problem in clinical practice and incorporates evidence to improve patient outcomes.

A trigger is a stimulus that initiates the EBP process (Polit & Beck, 2004). In this initial step of the Iowa model, a problem-focused trigger or knowledge-focused trigger prompts a change in practice (Brown, 2014). Knowledge-focused triggers may be new research findings or a new practice guideline, and emerge from awareness of innovative research findings (Dontje, 2007). The problem-focus trigger is rooted in either clinical or organizational problems or could be a risk management issue. The background data prompted the EBP project. The model includes key components of critical decision making. The first point is determining whether the problem is a sufficient priority for the organization to explore possible changes. There must be an agreement to proceed with the project or consider a new trigger. If there is a sufficient research base the innovation is piloted in the practice setting. Otherwise, the team would search for another source of evidence. If practice change is appropriate it should be instituted or continue to evaluate quality of care and search for new knowledge (Polit & Beck, 2004).

Factors that must be considered when deciding if a practice change is warranted include the priority and the size of the problem, its application to the practice, its contribution to improving care, the availability of data and evidence in the problem area, and the commitment of staff (Doody & Doody, 2011). Once the research topic is accepted by the office team and identified as a priority for the organization, a multidisciplinary team approach is established to promote organizational change. Prior to implementing the EBP change the project investigator and team members must identify outcomes to monitor. These outcomes will determine if the intervention has been effective.

The team is dedicated and responsible for developing, implementing, and evaluating the chosen topic. The team “stakeholders” are directed by the evidence-based guidelines to change current practice procedures and policies. When organizational factors impede or hinder progression with the application of research findings, they need to be identified prior to the application of the EBP project (Doody & Doody, 2011). Stakeholders may provide input, support, and discuss the feasibility of implementing guidelines (Doody & Doody, 2011). The research data are critiqued and synthesized for use in practice to determine if there is a sufficient research base to continue the change in practice (Polit & Beck, 2004). The review of the literature may provide the background for implementing a new study. Gaps in current practice and best practice will be identified. The team develops recommendations after critiquing the literature.

When assessing the appropriateness of an EBP project, all aspects must be evaluated for its strengths and benefits to the desired population. This can be achieved through a pilot study to evaluate feasibility of the project. If the EBP pilot is successful, the practice change will be implemented throughout the organization. After implementation of practice change the team will continue to monitor and evaluate the change in practice. The intervention will continue to be evaluated for deviation in practice or change in the outcomes (Brown, 2014). Evaluation is essential to seeing the value and contribution of the evidence into practice; therefore, evaluation should be monitored throughout the intervention (Doody & Doody, 2011).

Application of EBP Model to EBP Project

The Iowa model guided the EBP project by assisting the healthcare team translate research findings into clinical practice. The problem-focused trigger was identified in the primary care clinic by the nurse practitioner as large numbers of African American women presented with a BMI >25kg/m^2. These high levels of obesity in African American women also contributed to comorbidities like hypertension, diabetes and dyslipidemia. Obesity and weight related co-morbidities were catalysts for igniting change to improve care of overweight and obese patients.

Knowledge-focused triggers. The high rates of obesity with this population prompted the need for this EBP project. According to the American Association of Clinical Endocrinologists and American College of Endocrinology (AACE/ACE) (2016), a structured lifestyle intervention program designed for weight loss, consisting of a healthy meal plan, physical activity, and behavioral interventions is needed for patients who are overweight or obese.

Organizational priority and team formation. It was determined that obesity is a priority that needs to be explored for change in the organization. A team was formed, and all relevant data were collected. Multiple databases were searched and critiqued to determine if sufficient data were available to support practice change. Significant literature was readily available regarding co-morbidities associated with obesity among African American women. A search was completed with the assistance of the Valparaiso University librarian. The search revealed an appropriate intervention to support a provider-led weight loss program. A systematic search was conducted to review the quality and consistencies in literature. The articles were appraised and synthesized to identify the relevance of research findings for practice change. The team members assisted in developing and implementing the EBP project.

Evidence and research critique. Sufficient research existed to implement practice change. There were consistent findings in the research data to support a change in clinical practice consisting of a provider-led weight loss program for African American women. Ten publications were retrieved. All articles were good quality and consisted of systematic reviews, randomized control trials, and qualitative studies. The literature was analyzed and synthesized.

Change in practice. Patients were identified as they presented to clinic for routine health care. Out of 156 African American women seen in the clinical setting over a one-month period, 95 (60.9%) women had a BMI > 25 kg/m_2 with an average BMI of 36 kg/m_2. This analysis was the trigger to initiate the EBP project. The socioeconomic status was considered in this impoverished community in order to create an efficient program promoting weight loss. IRB approval was not needed to conduct this weight loss intervention. The patients were assessed at the first visit, and the EBP project leader evaluated the weight, BMI, and waist circumference, and monitored African American women over a 90-day period. Additionally, dietary and physical activity was self-reported by the patients. The collected data were evaluated to determine the outcome of the provider guided weight loss program**.** Outcomes were measured by reduction in weight, BMI and waist circumference. The provider addressed barriers to weight loss, and a tailored program was developed according to age, physical ability, comorbidities, mental stability, and socioeconomic status of the patient.

Implementation. The practice facilitator, office manager, and medical assistants recognized the importance of the EBP project to this community, and were favorable to the idea of practice change. Therefore, the provider-led weight loss intervention was implemented for practice change. The outcomes were evaluated for desired results and effectiveness of the intervention.

Strengths and limitations. The Iowa model has many strengths. In particular it uses an interdisciplinary team approach to develop EBP guidelines and guide the delivery of care.

According to Doody and Doody (2011), effectiveness of the Iowa model is influenced by clinicians actively engaged in reading, critiquing, and grading the evidence used to change practice. The use of the Iowa model helps stakeholders organize and provide a step by step approach to change practice (Brown, 2014). The Iowa model was used by Banasiak (2018) to implement a screening tool to improve asthma control. The researchers used the step by step approach of the Iowa model to identify important obstacles before implementing practice changes (Banasiak, 2018).

The limitations of the Iowa model are dependent on the strategic goals of the organization, magnitude of the problem, number of people interested in the topic, organizational support, cost, and potential barriers to change (Titler et al., 2001). According to Banasiak (2018), several unanticipated limitations include the lack of participation and knowledge of staff members before the EBP project started. Making changes in an organization may be difficult to implement due to lack of sufficient research. Individual barriers may also exist making outcomes difficult to predict.

Literature Search

The most relevant literature related to reducing weight in obese African American women was sought. A thorough search of the following databases was conducted (a) Cumulative Index to Nursing and Allied Health Literature (CINAHL), (b) Cochrane, (c) Medline via EBSCO, (d) Joanna Briggs Institute (JBI), (e) PsychInfo, and (f) Pubmed. The following keywords were searched: obese, obesity, overweight, weight loss, weight reduction or, lose weight, and African American, black, women, woman, or female. The same keywords and phrases were used for all databases for consistency. References of previous published work were also searched. Inclusion criteria consisted of evidence that was peer reviewed, published between 2012 -2018, included an abstract, written in English language, and focused on adult females over 18 years of age. Studies were excluded that included children, pregnant or breastfeeding women, non-black participants, interventions used in hospitals, inpatient settings, or nursing homes, animal subjects, and settings outside of the USA.

Search Results

Databases were searched and yielded significant results. CINAHL yielded 76 articles; eight were selected for full review, and four were accepted for inclusion. Cochrane yielded 94 results; 30 articles were reviewed, and none were accepted for inclusion. Medline resulted in 310 articles, of which five were duplicates. After abstract review, 13 were selected for full review, and two articles were accepted for inclusion. PsychInfo yielded 79 results with two duplicates, and two articles were included for this project. JBI revealed 14 results; two articles were reviewed, and one article was accepted. Pubmed yielded 273 articles with eight duplicates;11 articles were reviewed, and one article was accepted. A total of 10 articles were accepted to support this EBP project. Search results from all databases are noted in Table 2.1.

Appraisal of Relevant Evidence

According to Melnyk and Fineout-Overholt (2015) evidence is examined using an evidence hierarchy to make recommendations about practice changes. The Johns Hopkins Nursing Evidence-based Practice (JHNEBP) appraisal tools, evidence levels, and quality ratings were used to guide the appraisal of evidence. This appraisal tool provides a systematic approach for analyzing the quality based on the research design, and provides a problem-solving approach to appraise all levels of evidence. The level of evidence is determined based on the type of study and given a level I, II, or III. Next, the quality of the research study is evaluated according to the study design and directs the appraiser to rate the research as A, high quality; B, good quality; or C, low quality. These reporting guidelines are included to ensure the clarity, completeness, and transparency of the EBP project. Summary of levels of evidence is noted in Table 2.2.

Table 2.1

Database search

Database	Yielded	Duplicates	Abstracts	Articles accepted
CINAHL	76	1	8	4
Cochrane	94	0	30	0
Medline	310	5	13	2
Psychinfo	79	2	5	2
JBI	14	0	2	1
Pubmed	273	8	11	1
Citation chasing	2	0	0	0
Total				10

Table 2.2

Summary of Levels of Evidence

Evidence Hierarcy	
Level I	Experimental studies, randomized controlled trials (RCTs), systematic reviews of randomized control trials, with or without meta-analysis
Level II	Quasi-experimental studies and systematic review of RCTs, and quasi-experimental studies only, with or without meta-analysis
Level III	Systematic review of combination of RCTs, quasi-experimental and non-experimental, or non-experimental studies only, with or without meta-analysis, and qualitative studies

Note. Adapted from Dang and Dearholt (2017, p.237).

Each publication accepted for review was critically appraised. The following is a description of the appraisals. A summary of the evidence is depicted in Appendix A.

Level I Evidence. Appel et al. (2011) conducted a randomized control trial that included three groups to determine if in-person contact contributed to more effective weight loss. The control group received brief advice and no intervention. Obesity and associated co-morbidities are clearly identified by the researcher as a public health concern. Researchers identified gaps in the research and the need for more intensive studies to accomplish weight loss in the primary care setting. Participants were recruited from participating primary care settings in the Baltimore area over 12 months. There were 415 persons randomly assigned to one of three groups. Group 1 was an in-person group that included face-to-face and individual intervention. Group 2 received remote weight loss support only via telephone, internet, or email. The control group was self-directed and without intervention. The sample size was adequate and included 415 randomly selected individuals over the age of 18 years; mean BMI was 36.6kg/m2; 63.6% were women, and 41.0% were African American. Participants were recruited from primary care offices by physician referral, brochures, and targeted mailings. After randomization, in-person follow-up visits were established for six,12, and 24 months. During the in-person visit, each participant was weighed using a calibrated digital scale, wearing light clothing, and no shoes. Other measurements included, height, blood pressure, waist circumference, cholesterol, and fasting blood glucose.

The main purpose of the study was to change baseline weight to weight loss post-intervention at 24 months. Participants were weighed at baseline, 12 and 24-months. The results indicated there were 366 participants (88.2%) below baseline at six months, 355 (85.5%) at 12 months, and 392 (94.5%) at 24 months. At the time of data collection visits, there were 48 participants hospitalized, and one participant lost to attrition, after being assaulted while exercising. The participant's mean weight loss at 6 months was -1.4± 0.4 kg for the control group, -6.1± 0.5 kg for the remote group, and -5.8 ± 0.6 kg for the in-person support group. The mean weight loss at 24 months was -0.8± 0.6 kg in the control group, -4.6±0.7 kg in the remote group, and -5.1± 0.8 kg in the in-person group (Appel et al, 2011). Participants who experienced weight change thresholds at six and 24 months were identified in the control group at 24 months. The percentage of weight loss was 52.3% lower than baseline (Appel et al., 2011). Comparatively, weight loss for participants receiving in-person support was 74.4% lower than baseline and 77.1% lower than baseline in the remote support group (Appel et al., 2011). Data were consistently reported in the tables and narrative findings. Researchers identified limitations of the study as the need for longer studies for weight-loss trials, difficulty assessing PCP reinforcement and support, and the lack of a clear relationship between weight loss and provider contact. Improvements in blood pressure, lipids, and glucose levels were identified. Weight loss was substantial in both groups, but greater in the remote group than the in-person group. Behavioral modifications are suggested for incorporation in weight loss intervention programs. These outcomes are based on the study findings. The quality rating was grade A based on the JHNEBP appraisal tool. The study provided a comprehensive review of the literature with consistent recommendations and findings.

Collins et al. (2013) performed a systematic review to assess the effectiveness of weight loss maintenance interventions that included a diet specific strategy for prevention of obesity. The database search included studies with participants >18 years of age and BMI > 24.9 kg/m^2 prior to weight loss, written in English, conducted between 1970 and 2012, and published and unpublished. The authors identified search terms and searched 12 databases. Studies were excluded that included participants with major medical problems or psychological issues. The data included prescribed diets, guidelines, and advice or support for weight loss maintenance. Only RCT study designs were considered for this systematic review. There were 1,534 articles identified, and 64 articles included for review. The study dates ranged from 1990 to 2012. Most studies were conducted in the United States. The studies included 10,111 participants with both male and female subjects. According to the authors all studies were critically appraised, and all were deemed appropriate for study inclusion. The interventions were completed over four to 130 weeks. The weight loss intervention studies were grouped in categories and included (a) diet intervention (b) meal replacements (c) re-feeding based on weight status and (d) dietary support. The data were synthesized to extract information of interventions on weight outcomes. The studies encouraged the need for behavioral and motivational counseling either by face-to-face individual or group counseling to maintain weight loss.

Forty-three studies (76.8%) reported weight loss. Pre and post-weight was reported in 13 studies (23.2%) studies, and 22 (39.3%) reported weight change. Dietary changes were associated with weight loss following diet counseling and dietary restrictions in 27 studies, whereas 15 studies included counseling during the weight loss maintenance program. Another study included follow-up after completing the program (Collins et al., 2013). According to the JHNEBP tool, the researchers met the criteria for well-defined studies using a rigorous approach, resulting in consistent findings with reliable and valid measures. The researchers included the details of the studies they reviewed. Researchers concluded that weight loss maintenance interventions lack effectiveness maintaining initial weight loss of greater than 5%, and suggest long-term maintenance is needed for weight loss with health professionals facilitating the maintenance by advising patients of a specific weight loss strategy. This study is rated as an A due to high quality.

Conroy et al. (2014) conducted a randomized control trial using 99 women ages 45-65 years old with a BMI >25 kg/m^2 from three primary care centers. The purpose of the study was to identify the effects of an interventionist-led physical activity and weight loss program on decreasing weight and improving physical activity, compared to a self-guided three and 12 month program. The researchers identified obesity and physical inactivity in women as factors for many health-related comorbidities. Previous research had not adequately identified women in primary care intervention studies. A total of 182 women were assessed for study enrollment; 83 were excluded due to lack of interest or not meeting the criteria (Conroy et al., 2014). Women were recruited as they presented to one of three PCP offices. The office staff alerted the PCP via EMR when a potential participant met the criteria. These participants were deemed physically inactive. The participants were randomly assigned to either the intervention group or the self-guided group by drawing a sealed envelope (Conroy et al., 2014). The data collection was clearly described with the use of reliable instruments.

In the physician-led group (intervention group) participants were provided information on diet, exercise, and psychological stress. Specific dietary changes were implemented along with logs for monitoring exercise activity and calorie counting. Participants in the self-guided group received a manual from the American Heart Association (AHA), a calorie count book and a pedometer. Assessments were made at three and 12 months after baseline. Participants were compensated with $25 after completing 12 months of the program (Conroy et al., 2014).

The data were collected by trained office staff measuring weight using a standard balance beam scale, and physical activity was tracked using a one-month version Modifiable Activity Questionnaire (MAQ).This tool is reliable and valid. It is used to track leisure activity estimates and calculate duration and frequency of physical activity (Conroy et al., 2014).

The primary outcomes of this research resulted in increased physical activity and weight loss. Secondary outcomes included reduced BMI, waist circumference, and lowered blood pressure due to the physical activity and weight loss intervention (Conroy et al., 2014). Other variables such as race, education, marital status and co-morbidities were assessed at baseline and then at 12 months (Conroy et al., 2014). Descriptive statistics were used to measure the outcome data at baseline, three months and 12 months. The tables in the study were consistent with the narrative.

The results were clearly documented. The randomized groups included 50 self-guided women participants, and the provider-led group had 49 women participants. Overall, at three months 76% returned for follow up, and 86% at 12 months. In the provider-led group 90% returned for follow-up at three months, and 96% at 12 months. In the self-led group, 63% returned at three months and 76% at 12 months (Conroy et al., 2014).

At three months, the intervention group showed a significant increase in physical activity of 7.5 MET-hour/ week, compared to the self-led group's 1.9 MET-hour/ week (p=0.02) (Conroy et al., 2014). Weight loss in both groups was modest showing no significant difference (p=0.41) (Conroy et al., 2014). At 12 months the intervention group reported an increase in physical activity of 4.7 MET-hour/week over baseline which was not significant compared to the self-guided group (p=0.38). Weight loss was very similar in both groups with a mean loss of -1.4 kg. Secondary changes in BMI and waist circumference for both groups were modest at three months and 12 months. Race was stratified, however, there was a higher increase in physical activity in both white and non-white women in the physician-led group compared to the self-guided group, and results for white women at 3 months were significant (Conroy et al., 2014).

Mixed model analysis showed significance in primary outcomes in physical activity between the intervention group and the self-guided group (p=0.048). The intervention group had higher physical activity compared to the self-guided group (Conroy et al., 2014). There was no significant difference at 12 months between groups. In the short-term, the intervention was successful for increasing activity levels, but no significant weight changes were reported.

The limitations were identified and addressed by the researchers. There was a smaller than expected follow-up in the self-led group compared to the intervention group. The intervention was led by highly trained professionals, which may limit generalizability in other primary care settings (Conroy et al., 2014). Some of the findings may be biased by the participants' ability to recall data when self-reporting. All conclusions were based on the study findings. Women who participated in the physician-led group were successful in increasing physical activity in three months, but not significant at 12 months (Conroy et al., 2014).

Goodpaster et al. (2010) conducted a one year randomized control trial consisting of diet and physical activity intervention with 130 severely obese participants (37% African American). The study included adults ages 30 through 55 with severe obesity and BMI between 35 and 39.9 kg/m2. The purpose of this study was to examine whether physical activity programs in addition to dietary intervention would promote additional weight loss compared to diet alone in severely obese adults. This study also compared the differences related to sex and race. The researcher identified the gaps in literature by suggesting the lack of published clinical trials and lifestyle interventions studies for morbidly obese patients (Goodpaster et al., 2010).

Primary outcomes included weight, height, and waist circumference. These were measured at baseline and six months. Computerized tomography was performed at baseline and six months to check adipose tissue and liver fat; body fat and fat-free mass were determined by dual-energy X-ray absorptiometry in patients that exceeded weight capacity for the scanner (Goodpaster et al., 2010). Secondary outcomes included blood pressure, blood glucose levels, liver enzymes, and lipid levels (Goodpaster et al., 2010). Participants wore multisensory physical activity monitors between seven and 11 consecutive days and were tracked at baseline, six months, and 12 months to provide an objective measurement of physical activity (Goodpaster et al., 2010).

The data were collected as participants were randomly recruited by television, newspaper, and mailings. The variables were analyzed by chi-square testing, with intention to treat primary and secondary outcomes using the Software and Solutions software (SAS) with type I error rate fixed at .05 (2-tailed) (Goodpaster et al., 2010). The instruments used were valid and reliable. The researcher suggested in the review of literature that diet alone only reduces weight by 2% or 3%, compared to diet and exercise which reduces weight by 6.5% in the initial group and 9% in the delayed group. The participants were randomized into groups with one group receiving diet and exercise for 12 months, and the other group receiving delayed physical activity for six months, but identical dietary intervention. The objective was to determine if the efficacy of physical activity and diet intervention on adverse health risks associated with obesity were met. In the primary physical activity group, there was no significant difference (p=.49) compared to the delayed group who completed the total program. There was not significant weight loss in 12 months, but greater weight loss at six months in the initial group compared to the delayed group (Goodpaster et al., 2010). The secondary analysis showed 80% of the initial group compared to 60% of the delayed group lost more than 5% of initial weight at six months (Goodpaster et al., 2010). In comparison, there was significant weight loss reported in obese class III participants compared to obese class II participants. The researchers reported weight reduction as 78% in the initial group compared to 65% in the delayed group at 12 months. The initial group had significant weight reductions compared to the delayed group who had similar results for reported physical activity, body composition and waist circumference (Goodpaster et al., 2010).

All results were clearly identified and reported throughout the study. The narratives were consistent with the presented tables. Since the study was primarily women participants, it was difficult to accurately interpret gender-specific responses. Also, Goodpaster et al. (2010) recommended additional intensive intervention studies on obesity in correlation to hypertension or dyslipidemia long term. Overall, this RCT study provided consistent data with sufficient sample size for a study design based on comprehensive literature sources and met criteria for a quality report. The article provided consistent, generalizable results with adequate sample size. Recommendations were consistent based on comprehensive review of the literature. Therefore, quality A rating is given based on the quality appraisal.

Level II Evidence. Osei-Assibey and Boachie (2011) conducted a systematic review evaluating diet interventions with and without lifestyle changes in African Americans. A comprehensive search strategy with key words using various databases, and inclusion/ exclusion criteria were clearly stated in the article. Eighteen studies met inclusion criteria out of 35 studies. Studies were a combination of both randomized and non-randomized controlled trials and systematic reviews with meta-analysis. These studies included lifestyle and dietary interventions that lasted three months or more. The researchers clearly identified the purpose and problem in the introduction. The prevalence of obesity is a major health threat in the United States, particularly among African Americans. The literature search included data from 1990 through 2009. Studies were conducted in clinics, community-based, or church-based settings. Quality of Reporting of Meta-analysis (QUOROM) was used to describe the studies identified and eliminated after review. The details of the studies were incomplete. The design, sample size, and methodology were not adequately described. The strength or level of the evidence was not identified in the reviews. All the studies in the review were conducted in the United States with at least 50% of included trials having less than 100 participants (Osei-Assibey & Boachie, 2011). All the studies reported dietary, lifestyle or behavior modification. Results were reported and interpreted as a positive treatment effect based on weight (Osei-Assibey & Boachie, 2011). The conclusions were logically based on the findings and interpretation by the researcher. Some of the limitations of the studies were small sample size, lack of power to detect changes or high attrition rates (Osei-Assibey & Boachie, 2011). The researchers recommend further research for people of African ancestry to examine behavior, social, and environmental factors, as well as health belief. More research is needed to address the gap in developing effective weight management programs for African Americans to show improvement in cardiovascular risk factors. According to the JHEBP tool, this article showed reasonable consistent results, conclusions and recommendations based on the comprehensive literature review, and is given a quality rating of B.

Tussing-Humphreys, Fitzgibbons, Kong and Odoms-Young (2013) performed a systematic review of weight loss maintenance behavioral lifestyle intervention in African American women. The purpose was to evaluate the effectiveness of these behavioral lifestyle interventions on weight loss maintenance in African American women. The sample sizes varied from 21 to 2,921. The participants were mainly African American women, ages 40-60, obese or overweight. The randomized and nonrandomized studies were published in English, peer reviewed, included behavioral lifestyle interventions, and conducted in the US. Weight loss was the primary outcome. The researcher clearly stated the purpose in a clear comprehensive approach, and a reproducible search strategy. The article included key words, databases, and inclusion and exclusion criteria that were clearly identified in the literature review. Some studies included participants with hypertension, diabetes, and hyperlipidemia (Tussing-Humphreys et al., 2013).

The study design, methodology, results, outcomes, strengths, and limitations were described in detail. The researchers used an appraisal tool for assessing the strength of the evidence of all the studies included in the systematic review. The researchers used a ranking system for study quality, developed by Whitt-Glover and Kumanyika designed to evaluate randomized and nonrandomized studies (Tussing-Humphreys et al., 2013).

The studies extended from 12 to 36 months in duration. The limitations included small sample size in some of the studies, inadequate duration of some studies, and differing study designs and interventions. Many of the studies failed to identify specific strategies used in their intervention. Weight loss outcomes after intervention in 17 studies showed weight changes for African American women ranged from +0.5 to -8.5 kg. The conclusion was that the use of culturally appropriate programs may result in more favorable weight maintenance outcomes for African American women and is consistent with existing literature. The quality rating for this study was given a grade A based on the JHNEBP tool. The sample size was adequate.

Conclusions were thorough with consistent findings. A comprehensive review of the literature was adequately defined.

Level III Evidence. Banerjee et al. (2018) conducted a mixed method study using grounded theory to evaluate PCP counseling regarding weight and weight related medical conditions in patients with a diagnosis of obesity. Data were collected through the EMR, surveys, and interviews. The documentation of obesity in the EMR was visible to the primary care provider after office staff identified patients that met criteria for dietary counseling and weight-related medical problems. Additionally, this prompt in the EMR led the provider to counsel patients on weight loss and diet.

According to Banerjee et al. (2018), the gaps in literature show there is little evidence regarding the best approach for providers to counsel African American women on weight. Most sources were within the last five years of the research publication date. The sample size included 161 women for the positive deviance group, a research method to identify solutions to a problem, and 602 women in the control group (Banerjee et al., 2018).This concept identifies people in a certain population with similar resources and culture that may exhibit behaviors or characteristics better than expected. Studying these groups leads to solutions in high risk populations.

Data were collected from a family medicine clinic to identify positive deviant cases. EMR-confirmed weight loss of at least 10% of patient maximum weight between 2007 and 2012 with maintenance loss for at least six months (Banerjee et al., 2018). The inclusion criteria included: age 18-64 years, African American, female, low income, and BMI >30 kg/m^2. There were 35 positive deviant and 36 control group patients surveyed in person or by mail. These positive deviant predictors included a patient report of receiving advice from a PCP to lose weight, or inability to lose weight due to health. Twenty in-depth interviews were conducted with positive deviant participants until thematic saturation was reached (Banerjee et al., 2018). The control group was identified as people who have not lost significant weight in over 6 months (Banerjee et al., 2018). The characteristics and demographics were the same for both groups. Only one clinical setting was used for the study.

Data were collected from the EMR and analyzed using Statistical Package for the Social Sciences (SPSS). Baseline demographics, differences between groups using t-test for continuous variables, and chi-square analysis for binary categories variables was used to analyze the data (Banerjee et al.,2018). A coding framework was developed from the research team to store conducted interviews until thematic saturation was met. The stored data were analyzed using NVivo qualitative data analysis software (Banerjee et al., 2018).

The qualitative and quantitative data were both analyzed and presented clearly. Average weight loss was 41.9 pounds (18% of maximum weight). EMR documentation of counseling and having weight-related diagnosis were significant predictors for inclusion in the study (Banerjee et al., 2018). Five themes emerged from interaction between participants in the positive deviance group (1) framing the problem of obesity in the context of other health problems provided motivation, (2) having a full discussion about weight management was important, (3) an ongoing conversation and relationship was valuable, (4) celebrating small successes was beneficial for ongoing motivation, and (5) advice was helpful but self-motivated was required in order to make change. The strength of this study was the use of the positive deviance methodology (Banerjee et al., 2018). This approach is based on the observation of the community and enables the researcher to find better strategies to the problem. The study limitations are mainly due to the small amount of people surveyed, which resulted in low statistical power (Banerjee et al 2018). Other factors include generalizability to only African American women, low income, and limited use to EMR. The review of the literature is recent, and there is sufficient data with reasonable consistency. The quality rating for this research is a grade B.

Burton et al. (2017) performed a systematic review examining culturally tailored interventions aimed at reducing obesity in African American adults. The inclusion criteria and databases were identified by the authors. The researchers clearly identify the problem and gaps in research. The study purpose was to investigate studies using culturally tailored interventions aimed at reducing obesity among African American adults (Burton et al., 2017). Previous research suggests the necessity for culturally tailored approaches to address health disparities in this population. The review of literature included up to date RCTs as well as, intervention, quasi-experimental, and mixed methods studies. The sample size was reported as 685 participants. Eight studies ranged from three, six, or 12 months. The researcher identified control groups in the studies. The majority of these studies took place in community churches, local health centers, and universities in low income communities with African American populations. The results for each study were presented clearly. Weight loss was identified as a primary outcome for all the nine studies. Significant environmental factors impacted obesity in the study participants, namely access to healthy, affordable food, and access to safe places to exercise (Burton et al., 2017). The researcher identified the need for more long-term cultural intervention studies by tailoring programs to the African American community in various settings. The limitations were addressed. Some of the limitations of this study were small sample size, lack of meta-analysis studies. Conclusions were definitive and based on the findings. Results were fairly consistent for the study design. The review of the literature was consistent across the studies. The quality rating based on the appraisal was given a grade B supported by the findings, results, sample size, and literature review.

James (2013) conducted a descriptive study using a convenience sample of 413 African American women. The gap in literature identified by the researcher was a lack of weight loss strategies for African American women. The purpose of this study was to examine current weight loss strategies of African American women and determine if those strategies varied according to weight status (James, 2013). Participants identified specific emotional issues that led to overeating. The participants were recruited from beauty shops, churches, and four sororities. The participants were weighed barefoot using a professional digital scale and measured using a portable stadiometer. A $5 gift card incentive was given for participation.

Using a cross-sectional design, a self-administered survey was administered over a six-month period in 2009.The validity of the survey was clearly discussed by the researcher. The survey included self-reported data that were collected based on demographics, medical history, psycho-social history, eating habits, weight loss, and exercise within a six-month period. Participants were asked to identify weight loss methods. All data were collected on site at the participating location. Surveys were scanned electronically into a database to ensure proper coding. Range and consistency were checked for accuracy, and analyzed using SAS (James, 2013).

BMI measurements were examined with *t*-test and a chi-square test used to determine the differences in BMI classifications. The strategies for weight loss, emotional eating, physical activity, and information needed for weight loss were examined (James, 2013). Odds ratio determined the strength of BMI classifications were statistically significant at $p < 0.05$ (James, 2013). Fifty-nine percent of the participants tried to lose weight using healthy practices including: (a) cutting back on fried foods (53%), (b) cutting back on sweets (51%) and, (c) increasing physical activity (47%). Obese women were more likely to fast and use diet pills than overweight women ($p < 0.001$). Obese women were more likely to ask for information on weight loss programs and stress management ($p < 0.001$), and how to increase self-esteem ($p < 0.001$).

The review of the literature was current and up-to-date. All data collection was clearly defined in the study. The sample size was adequate for the study. However, larger studies are recommended for tailored programs that aim to prevent obesity in this group. Findings suggested that weight loss programs should be specifically developed for obese women. These programs should be initiated by health providers with referrals to dieticians as necessary. Limitations of the study included use of a convenience sample of participants who were basically healthy and motivated to complete the questionnaire. It may not be a true representation of the population and limits generalizability. The literature recommended weight management counseling programs and protocols specifically tailored for obese African American women compared to overweight and normal weight women. The overall appraisal of this study included consistent findings with generalizable results. The need for further research in this population was clearly identified. The literature was critically appraised and given a grade B based on the criteria of the JHEBP appraisal tool.

A systematic review was conducted by Walker and Gordon (2014) to identify lifestyle and behavioral modification approaches to weight loss in African American women. Participants in these review studies were primarily African American or “Black” obese women. There were 195 articles identified and 28 articles selected for inclusion. Search strategy was comprehensive, but not reproducible. The study included the various stages of intervention studies using a lifestyle and behavioral modification (Walker & Gordon, 2014). The researcher did not provide specific search criteria only including what was excluded. The databases were clearly identified. The flow chart did provide a clearer understanding of the study elimination at each level. More specifically the summary of evidence included: 17 RCTs, two randomized pilot, six quasi-experimental, one grounded theory, one current analysis, and one prospective pilot. Sample size ranged from 16 to 1,162 participants. The study design, sample size, intervention, duration and study outcomes were clearly stated for each study. The interventions comprised 11 components for promoting lifestyle and behavioral modification for black women (Walker & Gordon, 2014).The interventions needed for successful weight loss in African American women are: (a) nutritional counseling, (b) goal setting, (c) encouraging healthy habits and behaviors, (d) physical activity counseling, (e) development of an action plan, (f) promotion of social support, (g) identification of barriers to weight loss, (h) assessment of individual readiness to change, (i) post-intervention maintenance, and (k) motivational interviewing.

This study successfully identified lifestyle and behavioral interventions for African American women. Walker and Gordon (2014) identified the need for more meta-analysis and intervention studies that promote effective weight loss in this population. Conclusions were based on the findings of the study. All tables and chart results corresponded to the narrative using consistent content. The data presented were good quality and reasonable with consistent results and conclusions. This systematic review provided good quality support of interventions necessary for African American women to succeed at weight loss. Therefore, an appraisal grade of B was assigned based on the JHEBP ranking system.

Construction of Evidence-based Practice

Synthesis of Critically Appraised Literature

The literature was synthesized to identify the major recommendations that will guide the intervention for this EBP project. The evidence supports the use of BMI for measurement as an indicator of weight and implementation of a guided weight loss program for African American women. The use of provider-led support for overweight or obese African American was implemented for weight loss. The catalyst for obese women to become aware of their weight status and improved effectiveness of weight loss are intensive weight loss interventions guided by the provider. This approach improves behavioral principles such as self-monitoring and goal-setting by the participant (Conroy et al., 2014). The most common approach to obesity treatment for African American women includes lifestyle interventions that target both diet and physical activity, as well as behavioral self-management (Appel et al.,2011; Burton et al., 2017; Tussing et al., 2013; Walker & Gordon, 2014). Cultural preferences, behavioral management strategies, and follow up appointments must be included for successful weight loss (Tussing et al., 2013).

Provider support. It is recommended that clinicians offer intensive counseling and behavioral support to their obese patients. Practicing providers lack effective models of treatment to guide their efforts in helping obese patients lose weight (Appel et al., 2011). Patients who were advised by a clinician about obesity were more likely to attempt to lose weight and increase physical activity (Appel et al., 2011; Banerjee et al., 2018; James et al., 2012; Walker & Gordon, 2014). Particularly, African American women felt that one-on-one provider counseling, nutrition referrals, weight loss classes, and provider discussion of the adverse effects of obesity were significantly important in promoting weight loss (Banerjee et al., 2018; Burton et al., 2017). A provider-led weight loss intervention must consider social and ethnic beliefs about weight and body image (James et al., 2012). Women that participated in an interventionist-led physical activity and weight loss program were able to successfully increase their physical activity in three months or more (Conroy et al., 2014; Goodpaster et al., 2010). Access to healthy, affordable foods and safe places to be physically active should be considered when designing a program (Burton et al., 2017). Evaluating the effectiveness of weight loss management interventions varied across studies. However, the face-to-face contact and, individual or group counseling sessions, either weekly or monthly, were shown to maintain weight loss that lasted 18 to 30 months (Collins et al., 2013).

The research shows weight loss is a goal, but modifying the behaviors associated with obesity are equally important. The findings show that interventions focused entirely on weight loss have a greater short-term impact; however, appropriate post-intervention weight maintenance is sustained over a longer period when lifestyle change approaches are taken (Walker & Gordon, 2014). Interventions conducted in primary care settings are effective for promoting weight loss (Conroy et al., 2014). Emerging evidence supports the efficacy of counseling, either face to face or via telephone, to support weight loss that provides personalized feedback by clinician or nutritionist (Banerjee et al., 2017; Walker & Gordon, 2014). The provider must provide guidance and motivation to their patients to reduce caloric intake and increase physical activity (Appel et al., 2011).

Nutrition counseling. Most of the literature suggests dietary changes to promote weight loss. Increasing fruits, vegetables, and water consumption are necessary strategies for weight reduction (Burton et al., 2017; Walker & Gordon, 2014). Specific components are needed for effective adherence to dietary modification and weight loss (e.g. calorie control, fat and carbohydrate restriction, increased fiber intake, eliminating complex carbohydrates) (Tussing et al., 2013). Diet modification includes goal setting, food diaries, and identifying stimulus or stressors that increase unhealthy eating (Appel et al., 2011; Collins et al., 2013; Tussing et al., 2013).

Behavioral lifestyle. Intensive behavioral interventions result in significant weight loss improvements and continued efforts post-intervention in obese people (Goodpaster et al., 2010; Tussing-Humphreys et al., 2013; Walker & Gordon, 2014). Successful weight management is associated with self-weighing, meal planning, monitoring food intake, and limiting fast food intake, soft drinks and sugar-sweetened beverages, and limiting TV viewing, (Tussing-Humphreys et al., 2013). African American obese or overweight women who are motivated to lose weight need encouragement to sustain weight loss goals (James et al., 2012; Walker & Gordon, 2014). The participant must be engaged during the intervention to set realistic and achievable short-term goals (Walker & Gordon, 2014). The implementation of weight loss counseling and referral to a nutritionist or dietician are indicated (James et al., 2012). A plan of action requires the participant’s input to identify activities that will create a successful outcome (Walker & Gordon, 2014). Family and friends are sources of support for the participant and strengthens adherence (Walker & Gordon, 2014).

Physical activity. Self-reporting measures of physical activity were commonly used and revealed a favorable outcome in many of the studies. Health professionals must place an increased emphasis on the benefits of physical activity (James et al., 2012). Participants that engaged in strengthening activities, walking three times a week, increasing heart rate, use of pedometers, or measuring steps showed significant weight loss based on BMI and weight (Burton et al., 2017). According to Osei-Assibey and Boachie(2011), self-reported physical activity provides significant weight loss based on BMI and/ or weight with improved secondary outcomes related to risks for hypertension, diabetes, and CVD. In order to have a successful weight loss, physical activity is required, especially among sedentary obese African American women (James et al., 2012; Walker & Gordon, 2014).

Culturally based interventions. A systematic review of behavioral and lifestyle intervention reported that African American women lost more weight when cultural adaptations were implemented and were more favorable for weight maintenance outcomes (Burton et al., 2017; Tussings-Humphreys et al., 2013). Providers must consider social, ethnic, and cultural beliefs that women have about their weight, body image, and size for long term weight loss (James et al., 2012). African American women were more successful at losing weight when reporting various dietary and physical activity strategies through counseling or use of a formal program (Burton et al., 2017). Culturally tailored obesity interventions resulted in improvement in physical activity, decreased blood pressures, but no significant weight loss (Burton et al., 2017).

Barriers. Access to healthy, affordable foods and safe places to exercise, along with the reduction of less nutritious food sources need to be considered when implementing intervention programs (Burton et al., 2017). Individual motivation when making lifestyle changes may be hindered by inability to physically exercise, make dietary changes, or the exacerbation of chronic medical conditions. Sustained behavioral changes may be difficult to maintain, if the community is not supportive of the weight reduction in these individuals (Osei-Assibey &

Boachie, 2011; Walker & Gordon, 2014). This includes the support of family and friends. African American women are more accepting of larger body sizes as a cultural norm (Walker & Gordon, 2014). This belief may increase the risk of chronic disease outcomes.

Best practice model recommendation. According to the literature the best practice model recommendation for this EBP project is for primary care clinicians to implement individualized weight loss programs for African American women. Many of the studies addressed individualized provider support by guiding the participant to increase physical activity and make dietary and behavioral changes. The intervention allowed the participants to set achievable goals to promote weight loss and reduce secondary risk factors associated with obesity such as, hypertension, diabetes, and dyslipidemia in 12 weeks. The provider addressed social, environmental, and cultural barriers that hinder weight reduction. The use of face-to-face and telephone contact are necessary to provide support, education, and guidance to the participant. The participant self-monitored physical activity. The goal of this EBP program was to reduce weight and BMI while improving overall health.

CHAPTER 3

IMPLEMENTATION OF PRACTICE CHANGE

The purpose of the EBP project was to evaluate the effectiveness of a provider-led weight loss program for African American women at an internal medicine practice in Gary, Indiana. The EBP project involved translating the evidence found in the literature to the clinical practice setting. Using the theoretical frameworks of the Healthcare Promotion model (HPM) and the Iowa model, the project addressed obese and overweight African American woman in the clinic setting. The outcomes, intervention, planning, measures, data collection, analysis of data, and protection of human rights are described in this chapter.

Participants and Setting

Setting

The setting for this EBP project was an internal medicine practice located in a medically underserved, urban community in Northwest Indiana. The clinic is a walk-in facility with an office manager, two medical assistants, one nurse practitioner, and one physician. The clinic serves approximately 150 patients weekly and 7,800 patients annually. The facility provides comprehensive medical services to all age groups including infants, children, adults, and senior citizens, and all races, genders and nationalities. The location is easily accessible by car, bus, and public transportation.

Participants

The participants were mainly established patients from all socioeconomic backgrounds throughout surrounding communities in Northwest Indiana. Ninety percent of the participants were African American with varying chronic health concerns (i.e. hypertension, diabetes, dyslipidemia, chronic kidney disease, and obesity). Participants were recruited for enrollment in the EBP project from October 15, 2019 through November 15, 2019, as they presented to the clinic for routine medical care. Participants who met the inclusion criteria were: a) African American, b) female, c) aged 18 to 65, d) BMI>25 kg/m^2, e) waist circumference >88 cm (>35 in), f) English speaking, g) non-pregnant or breast-feeding, and h) lived in Northwest Indiana. Consistent with exclusion criteria found in the supportive evidence, the following characteristics disqualified participants for inclusion in this EBP project: a) non-black, b) physically and/or mentally disabled, c) pregnant, d) non-English speaking, e) age < 18 or >65, and f) males.

Intervention

The intervention for this EBP project consisted of a 12-week provider-led weight loss program that included lifestyle changes that targeted nutrition, physical activity, behavioral self-management, and follow up appointments. Additionally, these behavioral strategies included both self-monitoring and goal setting. This EBP project was implemented after review of the literature identified evidence supporting the use of BMI as a measure of weight, and a guided weight loss program for African American women. The HPM guided the project leader (PL) to motivate obese or overweight patients to lose weight by identifying health behaviors and improving their knowledge regarding nutrition and exercise. The Iowa model helped the PL facilitate the EBP project by identifying the problem, providing a solution based on the evidence, and incorporating the evidence into practice. According to the evidence presented in Chapter 2, self-awareness of obesity was a catalyst for an effective weight loss intervention guided by a provider (Conroy et al., 2013). Therefore, individual face to face encounters with a provider were recommended at initial visit, and every 4 weeks for 12 weeks for a successful weight reduction program. The PL gave an in-service to all clinic employees detailing the EBP project and responsibilities.

Baseline Visit

Measures. As patients presented to the clinic for routine health visits with their health care provider, they were evaluated for inclusion in the provider-led weight loss program. According to the clinic protocol, the medical assistant (MA) was responsible for measuring blood pressure, weight, and height, and entering these data in the electronic medical record (EMR). The BMI was automatically calculated when the MA entered the height and weight in the EMR. The PL measured waist circumference and documented co-morbidities, medications, and laboratory results in the EMR. An invitation letter (see Appendix A) detailing the intervention and purpose of the EBP project was given to patients who met inclusion criteria by the MA. A demographic questionnaire (see Appendix B) that included age, marital status, education, income, and employment status was completed by each participant. After introduction, the PL thoroughly reviewed the details and benefits of participating in the EBP project with each participant. The PL answered all questions, and obtained a commitment from the participant to follow the guidelines of the EBP project. The participant was made aware of weight status by the PL and committed to change. According to HPM, an individual's desire to change and improve well-being is motivated by experiences and perceived benefits (George & Kreuter, 1991). The baseline visit lasted approximately 30 minutes for each participant.

Diet counseling. The participant was instructed and counseled on diet, total daily caloric intake, and water intake. It was recommended that each participant complete a daily food log (see Appendix C), documenting breakfast, lunch, dinner, and snacks within a 24-hour period. Daily food logs facilitate healthy food choices and prevent overeating or binge eating. The PL gave each participant specific handouts that included sample menus, grocery lists, and dietary instructions. These recommendations were provided according to diagnosis or risk factors e.g. hypertension, diabetes, coronary artery disease, or dyslipidemia. The appropriate diet according to each participant's co-morbid conditions were reviewed. Diet examples included reduced calorie, low sodium, DASH, fat and carbohydrate restriction, low cholesterol, or vegetarian options. Specific caloric intakes ranged from 1200 to 1800 calories and were based on dietary needs and requirements. All participants were asked to avoid artificial sweeteners, sugary drinks, and sodas and to limit fast food intake.

Physical activity. Physical activity was encouraged based on physical ability, and recommended for long term weight loss. At the initial visit, the PL identified all physical limitations during the physical exam. The PL recommended low aerobic activity, three times a week, for at least 30 minutes, and strength training to preserve muscle tone according to individual needs and ability (Burton et al., 2017). Participants were expected to gradually increase physical activity weekly to 45 minutes by 4 weeks. The participants were given a physical activity log (see Appendix D) by the PL to record all exercise activity daily. The physical activity log allowed the participant to measure progress by tracking improvements over time.

Barriers. During the baseline visit the participant discussed possible barriers that may hinder weight loss goals with the PL. According to the literature review, access to supermarkets with fresh produce or healthier food choices, scarcity of environmental resources to support physical activity, limited knowledge about nutrition and physical activity, time constraints, and lack of family support or motivation were identified as barriers to weight loss. These perceived barriers were considered in the implementation of this EBP project. Therefore, a tailored weight loss program was developed according to individual circumstances and needs of the participant. All participants were given the office hours, and the clinic number for additional support.

Referrals. Lifestyle and behavioral modification were key in assisting obese patients to identify triggers that sabotage weight loss. Referrals to nutritionists or therapists were suggested for participants that may have difficulty meeting future weight loss goals. These recommendations were strictly voluntary and were the sole decision of the participant. An after visit summary (AVS) was printed from the EMR detailing the purpose of visit, plan of care, current blood pressure, weight, BMI, waist circumference, office hours, phone numbers, and next appointment in 4 weeks.

4-Week Visit

Measures. The participant's weight, blood pressure, and waist circumference were obtained and entered in the EMR. The PL then analyzed weight, BMI and waist circumference. The 4-week visit was 15-20 minutes.

Diet counseling. Each participant was counseled by the PL to reinforce dietary goals identified during the baseline visit. The PL reviewed the food log with each participant to identify diet compliance over the last 4 weeks. Diets were adjusted as appropriate based on progress of the participant. Supplemental information was provided to participants based on their need. Meal prepping, how to read food labels, serving size, sample menus, dining out, and food exchange lists were some additional information provided. Easily accessible local grocery stores that provided less expensive or organic foods were identified for participants.

Physical activity. The physical activity log was reviewed by PL to measure the participant's progress after 4 weeks. The PL encouraged regular physical activity such as, walking three times a week. Additionally, using pedometers or the Fitness Pal app on their phone or computer was discussed to facilitate tracking of activity. Gradually, increasing cardio or aerobic activity according to physical ability was recommended.

Barriers. It was anticipated that participants might become discouraged by lack of progress with weight loss or have difficulty adhering to diet and exercise plans at this stage. The PL provided motivation and encouragement by celebrating victories such as weight loss, inches lost, and blood pressure reduced with each participant. The support of family and friends such as exercising or making dietary changes along with the participant helped strengthen adherence. Motivational and psychological support was provided to assist participants to change behaviors hindering weight loss progress. The participant was encouraged to identify activities that provided successful outcomes during the 4 weeks. The PL encouraged each participant to set realistic goals. Participants were motivated and redirected to continue the weight loss program.

Referrals. As participants experienced failures, they were offered additional support and referrals to a nutritionist or psychotherapist. The participant was given their AVS and scheduled for an 8-week follow up appointment.

8-Week Visit

Measures. During the week 8 visit, the PL evaluated weight, BMI, and waist circumference, and blood pressure measures. The 8-week visit was 15-20 minutes for each participant.

Diet counseling. The self-reported data from diet logs were reviewed to identify how well the participant was following the individualized plan. Healthy eating, caloric intake, portion control, fluid intake, setting goals, and setbacks were discussed as needed. Behavioral interventions and lifestyle changes were reinforced by providing positive feedback and encouragement.

Physical activity. The physical activity log was reviewed by the PL to assess for improvement in exercise time. The participant's physical activity level was expected to increase to 45 minutes, 3 or 4 times per week according to individual physical ability. It was recommended that moderate to vigorous physical activity and muscle strengthening were included. Participants with physical challenges were expected to be as active as their abilities or chronic conditions allowed.

Barriers. The PL assisted participants in identifying barriers that were hindering weight loss progression. It was anticipated that participants might be discouraged by little or no weight loss and diet and exercise failures at this stage. The PL evaluated if participants' motivations were hindered by lifestyle changes associated with chronic medical conditions, inability to physically exercise or not adhering to dietary changes. Behaviors that led to lack of weight loss or "plateaus" were identified to avoid for long term weight loss.

Referrals. Participants whose weight loss goals were not met at this stage were given referrals to nutritionists and/or therapists. Participants were scheduled for their 12-week visit and AVS was provided at this time.

12-Week Visit

Measures. At week 12, participants' final measurements of weight, BMI, waist circumference, and blood pressure were obtained and documented in the EMR. The PL reviewed individual results with participants. The participants were encouraged to continue to utilize the strategies and tools learned during the intervention for long-term management of obesity.

Dietary. All self-reported diet logs were reviewed with participants. The PL identified specific strategies that influenced the participant's commitment to dietary changes. The benefits of lifestyle and behavioral modification were reiterated.

Physical activity. Each participant's physical activity log was evaluated. The importance of exercise was reiterated to each participant, and they were encouraged to maintain healthy lifestyle changes long term.

Barriers. The PL discussed barriers that caused obstacles or weight loss failure over the 12-week period. The PL discussed personal, economic and environmental factors that hindered the commitment to lose weight with each participant.

Comparison

Enrollment of participants in the 12-week provider-led weight loss program began on October 15, 2019 and continued through November 15, 2019. Participants were followed for 12 weeks after their baseline visit. Participants' weight, BMI, and waist circumference were measured at 4, 8, and 12 weeks post intervention and compared to baseline measures. The demographic information and secondary outcome measure of blood pressure were also examined.

Outcomes

The primary outcomes measured in this EBP project were weight, BMI and waist circumference. Additionally, a secondary outcome of blood pressure was measured.

Measures, Reliability, and Validity

To ensure reliability of measures, the MA used a consistent approach to obtain the weight, BMI, and blood pressure measurements. Additionally, the PL obtained the waist circumference using a consistent approach.

Collection

Height was measured in inches at baseline only, using an adjustable height rod on the digital standing scale. The weight was measured in pounds at each visit using a consistent digital standing scale. The participant was weighed without shoes and wearing light weight clothing. The BMI was calculated automatically in the EMR when the MA entered the height and weight in each participant's chart. Waist circumference was measured in centimeters with the participant standing. The PL measured from the top of the hip bone, around the back of body level with the umbilicus. Blood pressure measurement was taken with the participant sitting quietly with both feet on the ground, with raised sleeve, appropriate cuff size and placement, and arm level using a consistent automatic blood pressure monitor. All participant outcome data were documented in the EMR.

Analysis

Statistical Package for the Social Sciences (SPSS), a specialized software package (10th edition, New York, NY), was used to conduct statistical analysis to determine, if a provider guided intervention led to significant reduction in weight, BMI, and waist circumference in African American women. One way Analysis of Variance (ANOVA) was used to determine if significant differences in primary outcomes (weight, BMI, and waist circumference) and secondary outcome (blood pressure) occurred from baseline to 4, 8, and 12 weeks post baseline. Four measurements for each outcome were recorded and compared, to track reductions over a 12-week period.

Time

The project was implemented over a 12-week period. A rolling enrollment was initiated from October 15, 2019 to November 15, 2019. Participants completed the program 12 weeks following their enrollment date.

Protection of Human Subjects

The Institutional Review Board (IRB) training was completed from the Collaborative Institutional Training Initiative (CITI) program prior to project implementation. A questionnaire from Valparaiso IRB was completed and revealed that the project did not qualify as research and thus no IRB oversight was required. Permission for conducting the EBP project was obtained from both the clinic physician and project advisor in the fall of 2019.

All information obtained for this EBP project was strictly confidential. Data that included identifiable information were available only to the PL and MA. The demographic records completed by participants during the baseline visit were stored in a locked cabinet in the PL's private office. All outcome data were stored in the EMR, a computerized and restricted database. The EMR database requires a secured code to gain access and protects the privacy of patients.

CHAPTER 4

The purpose of this EBP project was to evaluate the effectiveness of a provider-led weight loss intervention for overweight and obese African American women in an Internal Medicine clinic setting in Northwest Indiana. The EBP project addressed the PICOT question: In African American women with a BMI $>25m^2$, what is the effect of a provider-led program that includes culturally tailored strategies on weight, BMI, and waist circumference, over a 12-week period? This weight loss intervention consisted of improving behavioral and lifestyle modification by adhering to a diet and physical activity program, to reduce primary measures weight, BMI, and waist circumference, and secondary measures, of systolic and diastolic blood pressure levels over a 12-weeks period. The results of this EBP project are described in this chapter.

Participants

Size and Characteristics

Participants of this project utilized a Northwest Indiana clinic located in an underserved community that is predominately African American. This EBP project was implemented as patients presented for routine medical care at the primary care clinic. During the 12-week weight loss intervention 23 patients were enrolled. At weeks 4 and 8 eight participants were lost to attrition. Seven of these participants known as the dropout group were lost at follow-up, due to time constraints and work schedules. One participant withdrew from the study at week 8 when she became pregnant. There were 15 patients identified as the participant group that remained in the EBP intervention over a 12-week period. These participants were monitored at 4, 8 and 12 weeks for weight, BMI, and the waist circumference measurements. Secondary measures of systolic and diastolic blood pressure were measured. Descriptive analysis of demographics was performed to provide a summary of the participants characteristics.

Participant Group Characteristics. Age, marital status, education, income, and employment data were collected and analyzed using descriptive statistics. The age range of the participant group (n=15) was 27 to 59 years with a mean of 46.73 years (*SD*=9.21). In the participant group, three (20%) were married; seven (46.7%) had never been married; one (6.7%) was separated; three were (20%) divorced; and one (6.7%) was widowed. Two (13.3%) participants had less than a high school education; two (13.3%) were high school graduates or had a GED; five (33.3%) had some college; and six (40%) had bachelor degrees or above. In regards to income level, four (26.7%) participants' income levels were <$10,000; one (6.7%) was $10,000-$19,000; three (20%) were $20,000-$39,000; one (6.7%) was $40,000-$59,000; and six (40%) had incomes >$60,000. In the participant group, 11(73%) were employed and four (26.7%) were unemployed.

Dropout Group Characteristics. The participants in the dropout group were those lost to attrition (n=8). This group ranged in age from 19 to 60 years and had an average age of 38.62 years (*SD*=13.28). In this dropout group, two (25%) were married; five (62.5%) had never been married; none were separated; one (12.5%) was divorced; and none were widowed. In this group, no participants had less than high school education; five (62.5%) were high school graduates or earned a GED; three (37.5%) had some college: and none had a bachelor's degree or higher. One (12.5%) group member's income level was <$10,000; no members were at the $10,000-$19,000 level; four (50%) had incomes of $20,000-$39,000; one (12.5%) had an income of $40,000-$59,000; and two (25%) had incomes of >$60,000 respectively. In this group, six (75%) were employed and two (25%) were unemployed.

Group comparisons. All members of both groups, participant and dropout, were African American females,19 to 60 years of age (*M*=43.91, *SD*=11.21) with BMI >25m2. An independent *t*-test was performed to compare age between the participant group (n=15) and the dropout group (n=8). There was a significant difference between the mean age of the two groups (*t*

(21)= -1.724, $p<0.5$). The mean age of the participant group (M=46.7, SD=9.21) was significantly older than the mean age of the drop out group (M=38.62, SD=13.28). A chi-square test of independence was calculated to compare differences in marital status, education, income and employment. There were no significant differences between the groups for marital status (x^2 (4)=1.54, $p>.05$), income (x^2 (4)=3.100, $p>.05$), or employment (x^2 (1)=.008, $p>.05$). There was a significant difference in education between groups (x^2 (3)=8.437, $p<.05$). The participant group had a higher proportion of members in the "some college" and "BS degree or above" categories. The demographic characteristics of participants are summarized in Table 4.1.

Changes in Outcomes

Statistical Testing and Significance

The IBM SPSS Statistics Version 24 was used to analyze the data. A one way repeated-measures ANOVA was calculated comparing the weight, BMI, and waist circumference of participants at six different intervals: baseline to 4 weeks, baseline to 8 weeks, baseline to 12 weeks, 4 to 8 weeks, 4 to 8 weeks, and 8 to 12 weeks. Significant effects were found for all three outcomes; therefore, post-hoc analysis for within-subjects factors was performed by conducting six paired *t*-test to test for significance of the findings. The significance level of .0083 (.05/6) was used instead of .05 to control for inflation of Type I error rate. Table 4.2 summarizes the primary outcome data.

For weight, a significant effect was found using a one way repeated-measures ANOVA ($F(3,42)=5.77$, $p<.05$). Follow-up paired sample *t*-tests were calculated to compare weights at all intervals. Weight from baseline (M=239.93, SD=45.40) to 12-weeks (M=234.92, SD-43.25) was found to be significant (t (14)= 2.54, $p<.0083$). All other intervals did not show a significant reduction in weight.

Table 4.1

Characteristics of the Groups

	Participation group(n=15)		Dropout group (n=8)		df	p value
	n	*%*	*n*	*%*		
Marital status					4	.818
					(χ^2 (4)=1.54, *p*>.05)	
Never Married	7	46.7%	5	62.5%		
Married	3	20.0%	2	25.0%		
Separated	1	6.7%	0	0.00%		
Divorced	3	20.0%	1	12.5%		
Widowed	1	6.7%	0	0.00%		
Household Income					4	.541
					(χ^2 (4)=3.100, *p*>.05	
<$10,000	4	26.7%	1	12.5%		
$10,000-$19,000	1	6.7%	0	0.00%		
$20,000-$39,000	3	20.0%	4	50.0%		
$40,000-$59,000>	1	6.7%	1	12.5%		
$>60,000	6	40.0%	2	25.0%		
Education					4	.038
					*(χ^2 (3)=8.43, *p* <.05	
Less high school	2	13.3.%	0	0.00%		
High school or GED	2	13.3%	5	62.5%		
Some college	5	33.3%	3	37.5%		
BS degree and above	6	40.0%	0	0.00%		
Employment					1	.931
					(χ^2 *(1)*=.008, *p* >.05	
Employed	11	73%	6	75%		
Unemployed	4	26.7%	2	25%		

**p<0.5*

Table 4.2

Primary Outcome Measures

Interval	*Outcomes*	*M(SD)*	*T*	*df*	*p value*
Baseline to 4 weeks	Weight	239.93 (45.4)	2.541	14	.024
	BMI	39.41(7.60)	2.577	14	.022
	Waist Circ	43.16(5.50)	1.938	14	.073
Baseline to 8 weeks	Weight	237.21(43.8)	2.541	14	.019
	BMI	38.84(7.39)	2.577	14	.018
	Waist Circ	43.33(4.96)	1.938	14	.008*
Baseline to 12 weeks	Weight	234.92(43.3)	3.309	14	.005*
	BMI	38.58(7.18)	3.216	14	.006*
	Waist Circ	43.16 (5.50)	4.305	14	.001*
4wks to 8wks	Weight	236.80 (43.2)	.322	14	.752
	BMI	38.84 (7.39)	.587	14	.567
	Waist Circ	43.33 (4.96)	1.792	14	.095
4wks to 12wks	Weight	234.92 (43.2)	1.689	14	.113
	BMI	38.58 (7.18)	1.716	14	.108
	Waist Circ	43.16 (5.50)	1.991	14	.066
8wks to 12wks	Weight	234.9 (43.3)	2.485	14	.026
	BMI	38.58 (7.18)	2.084	14	.056
	Waist Circ	43.16 (5.50)	.490	14	.632

$*p<.0083$

The mean BMI in the participant group trended downward from baseline to 12 weeks. For BMI, a significant effect was found using a one way repeated-measures ANOVA (F (3,42)= 5.65, p < .05). Paired sample t-test were calculated to compare BMI at all intervals. BMI from baseline (M=39.41, SD=7.60) to 12 weeks (M= 38.58, SD=7.18 was found to be significant (t(14)=3.216, p<*.0083*).

A significant effect for mean waist circumference was found from baseline to week 8 and baseline to week 12 using a one way repeated-measures ANOVA (F(3,42) =6.868, p<.05). A follow-up protected t tests were calculated to compare waist circumference at all intervals. Waist circumference from baseline (M =44.80, SD =5.39), to week 8 (M =43.33, SD =4.96) was found to be significant (t(14)=3.076, p< .0083. Also from baseline (M =44.80, SD =5.39) to 12 weeks (M=43.16, SD =5.50) was found to be significant (t(14)=4.305, p< .0083). All other intervals did not show a significant decrease in waist circumference.

A one way repeated-measures ANOVA was calculated comparing the systolic blood pressure scores of participants at four different times: baseline (M= 133.00, SD =11.67), 4 weeks (M =133.00, SD =12.85), 8 weeks *(M* =133.46, SD =12.67), and 12 weeks (M=132.46, SD =13.90). No significant difference was found in systolic blood pressure (F(3,42)=.021, p>.05). A one way repeated-measures ANOVA was calculated comparing the diastolic blood pressure scores of participants at four different times: baseline (M =81.33, SD =8.96), 4 weeks (M = 80.93, SD = 10.34), 8 weeks (M =81.46, SD = 10.03), and 12 weeks (M =82.2, SD =8.54). No significant difference was found for diastolic blood pressure (F(3,42)=.210, p >.05).

CHAPTER 5

DISCUSSION

The purpose of this EBP project was to reduced weight, BMI, and waist circumference in overweight and obese, African American women with BMI >25m$_2$, using a provider-led intervention over 12 weeks. The literature supports a culturally tailored provider-led intervention to reduce weight, BMI, and waist circumference over a 12-week period by adhering to a diet and physical activity program. In addition, secondary outcome measures of systolic and diastolic blood pressure were evaluated for reductions. Behavioral and lifestyle modifications were utilized to change lifelong habits by following a balanced diet and increasing physical activity to reduce obesity. This chapter explains the intervention findings, EBP framework, strengths, limitations and future implications.

Explanation of Findings

This EBP project answered the PICOT question, "In African American women with BMI >25m$_2$, what is the effect of a provider-led program that includes culturally tailored strategies on weight, BMI, and waist circumference, over a 12-week period?" The primary outcomes measured were weight, BMI, and waist circumference from October 15, 2019 through February 15, 2020 at multiple intervals from baseline, 4,8, and 12 weeks. Systolic and diastolic blood pressures as secondary measures were examined for changes during this time.

Use of a culturally appropriate program resulted in significant reductions in weight, BMI, and waist circumference. Lifestyle modifications including dietary and physical activity changes were effective strategies used in this EBP intervention which is consistent with findings by other researchers (Osei-Assibey et al, 2011; Tussing-Humphreys et al, 2013; Walker et al, 2014). This intervention was specific to African American women and emphasized one-on-one provider counseling. The PL influenced the participant's commitment to change behavior. Reiterating the importance of making lifestyle changes at each visit was shown to be an effective strategy.

Several participants reported significant weight reduction after following recommendations by the PL to make dietary changes and increase physical activity. Participants were cooking healthier meals that included green leafy vegetables, baked chicken or fish at least 3 to 4 times a week. They also reported improving physical activity by taking the stairs and encouraging friends and family to walk around local parks or tracks at least twice a week. The self-reported food and physical activity logs were found to be helpful in monitoring daily dietary intake and physical activity. Participants expressed the use of both food and physical activity logs helped them identify eating habits (both good and bad), foods eaten on a regular basis, and helped them keep track of exercise patterns (Collins et al, 2013; Tussing-Humphreys et al, 2013; James, 2013).

Anticipation of barriers and discussion regarding how to address barriers facilitated participants' compliance with the program. Surprisingly, secondary outcome measures were not statistically significant for systolic or diastolic blood pressures. This was not a consistent finding from other studies (Appel et al, 2011; Osei-Assibey et al, 2011); however, the timeframes were significantly longer than the 12 weeks used in this project. Had this intervention spanned a longer period of time, reduction in blood pressure may have been evident.

Strengths and Limitations of the DNP Project

Strengths

The participants were all patients at the clinic where the intervention took place. Therefore, provider-patient rapport was already established and made it effortless for participants to enroll in the EBP project. This established trust promoted active participation and improved outcomes for the patient. The office manager and staff were supportive to the project. There was no additional work required by the medical assistant, other than giving patients an invitation to participate in the intervention when they met inclusion criteria. The Iowa model was used as a guide for this project. The benefit of using the Iowa model helped provide a systematic approach to translate this EBP project into practice.

Participants acknowledged the need to lose weight by changing behavior and committed to a structured program. The participants were receptive to work with the provider to achieve successful weight loss. The participant’s trust in the provider helped improve adherence, and contributed to reductions in weight, BMI and waist circumference.

The provider used positive reinforcement to motivate participants to make lifestyle changes. Weight loss victories were celebrated by giving participants small wrapped gifts donated by staff (i.e. miniature lotion, body spray, lip gloss, etc.). The positive impact of the tailored intervention empowered participants to continue to lose weight. Many participants commented that the comprehensive program was simple to follow and provided specific instructions. Each visit with the provider included reflections of the dietary and physical activity logs which held participants accountable in decision making and choices. This provided an opportunity to discuss hindrances or problems experienced by participants when goals were not met. Participants were encouraged to start over when they gained weight or experienced setbacks throughout the intervention. During these setbacks, participants were guided to refocus, eat frequent small meals to avoid overeating, exercise at shorter intervals, and avoid stress.

Additionally, the provider and PL was a nurse practitioner within the hospital-based clinic. Implementing this change in this clinic was an added benefit by being privileged to organizational structure. Potential obstacles and challenges were easily identified to prevent problems. The PL was able to prepare employees prior to implementing change to help mitigate challenges. This provider-led intervention can lead to changing practice for managing obese and overweight African American women throughout this organization.

Limitations

Limitations of this EBP project were adherence, accessibility to community resources, single parenting, time, and financial constraints. The intervention was 12 weeks and required follow up visits every 4 weeks. There were 23 participants enrolled in the EBP project with 8 participants who did not return at 4 and 8 week follow up visits. Those participants that did not return for follow up were called and reported reasons for drop out as previously stated. The results of small sample size may be inadequate to represent the target population. Enrollment in this intervention was strictly voluntary and withdrawal was at the discretion of the participant. However, many did not meet inclusion criteria or refused to participate. The literature recommended using larger sample size and longer interventions ideally 12 to18 months to have lasting and significant results (Appel et al., 2011; Burton et al., 2017; Goodpaster et al., 2010; Osei-Assibey et al., 2011). This project took place in the fall and winter with several holidays including Halloween, Thanksgiving, Christmas, New Years and Valentine's day. Unfortunately, adherence was difficult for many of the participants.

This EBP intervention was specific to African American women from various demographic backgrounds, including age, socioeconomic class, and education. There were significant demographic differences between the two groups (participants and drop outs) that impacted participation in this weight loss program. Those that participated were older and more educated compared to those that dropped out. The lack of understanding of the weight loss program components was a clear factor associated with program attrition. Furthermore, despite the familiarity of the participants to the provider, it was not a reason to remain in the program for those in the dropout group.

Reduction of secondary measures of systolic and diastolic blood pressures were not achieved, despite following dietary recommendations and increasing physical activity. Blood pressures were monitored at each visit. According to the literature (Appel et al., 2011; Goodpaster et al., 2010; Osei-Assibey & Boachie, 2011; Walker & Gordon, 2014) a provider-led program that included, lifestyle modification and weight loss were associated with decreased blood pressures. Losing weight is typically the best way to improve blood pressure. Many patients did not make the lifestyle change necessary to decrease blood pressure, including taking prescribed medications. Ideally, more structured, longer programs that include referrals to nutritionists, and psychologists are needed to help individuals bring blood pressure to a healthy level.

Implications for the Future

The practice of APNs is growing and evolving rapidly. As the role of nurses change, so does the demand for more evidenced-based projects to transform practice. Therefore, it is meaningful for the APN to identify problems and change old practices. The future of implementing evidence is essential for providing a systematic approach to improving outcomes. This section will address the implications for practice, theory, research and education.

Practice

The APN has a critical role in the management of overweight and obese clients. The APN must implement weight loss programs that involve complicated environmental and behavioral components. Strategies must include an individualized, patient-centered approach to improve obesity management in African American women. Weight management programs must be established, to motivate patients who are not ready to lose weight. APNs that use this intervention should be familiar with community resources available like local gyms, grocery stores, safe places to walk, parks, swimming pools, and transportation. The access to healthy and affordable foods must be identified prior to developing a weight loss program. This will assist the provider in individualizing the program based on food preferences, budget, and time.

Results of this EBP project support the need to improve strategies and treatment options for African American women who are overweight and obese providing the clinical diagnosis of obesity with actual BMI, identifying weight status in the EMR and plan of care, referring to higher levels of care when appropriate (i.e. bariatric clinic, nutritionist, psychologist or psychiatry). Clinical practice guidelines must be established specifically for this group who face even higher mortality and morbidity rates than the population at large.

Face to face programs must be established to target obesity as a health problem in clinical practice. A significant advantage of a provider face to face approach is the ability to set specific goals for patients. The APN can develop and organize forums to educate peers and the community about this problem. By implementing obesity prevention care protocols and treatment strategies will allow for expanded treatment options and can lead to healthier lives.

Theory

The APN is crucial in driving change in healthcare by optimizing outcomes guided by evidence-based practice models. The HPM influenced this EBP project by providing a meaningful approach to improve outcomes. Health behaviors were influenced by motivating African American women to adhere to a weight loss program. The HPM is fundamental in changing behavior by addressing unhealthy health practices and determining the participant's readiness to change. The HPM guided the project to motivate overweight and obese patients to lose weight, identify health behaviors and improve knowledge. Future projects should emphasize preventive health behaviors and the benefits of improving patient outcomes. The utilization of this framework in practice can provide a more structured approach to integrate change.

The Iowa model guided the EBP project by identifying challenges, creating solutions, and implementing change. This process was useful in changing practice as the findings were disseminated to the stakeholders. It is necessary to develop a plan of action by predicting barriers based on the EBP findings. This framework involves initiating a practice change that will significantly impact clinical practice. As future implications are considered, clinicians must explore EBP interventions to reduce barriers and prevent obesity.

Research

The EBP intervention was successful in terms of meeting primary outcomes. However, longer studies over 1-2 years are needed to identify the effects of a provider-led weight loss program for African American women on a larger scale. Additionally, researchers must identify the benefits of obesity program adherence to influence compliance and overcome barriers. The effectiveness of these programs can be evaluated by weight loss, increased physical activity and behavioral change, as well as improvements in cardiovascular disease risk factors.

Based on the EBP intervention, future programs should focus on goal setting and problem solving to improve participation and sustainability. Often African American women are the heads of households and their understanding of nutritional foods impacts their families. Future nutritional studies should be considered to demonstrate knowledge of healthy food choices and to improve outcomes long term.

Education

The nurse educator's role is key to helping patients improve risk factors and combat obesity. This EBP project identified areas where APNs can support patients by discussing obesity confidently. However, APNs must be educated on how to implement weight loss programs that offer strategies to prevent health disparities. Future nursing programs should focus on evidence-based practice that promote problem solving and outcome improvement. It is essential that APNs be educated on specific diet, exercise, and behavioral changes to combat obesity.

Education has evolved for the APN. Nurse educators can influence change, improve the delivery of healthcare and serve patient interest by providing resources and set standards of care. DNP programs require a higher level of nursing knowledge that ultimately improves the delivery of healthcare. Education at the DNP level is essential to providing a structured approach to implement research findings into practice and improve health outcomes.

Conclusion

Implementing a provider-led weight loss intervention coincided with the literature with significant results shown by reductions in weight, BMI, and waist circumference in African American women. Participants were given weekly logs to track both eating habits and physical activity. Additionally, participants were educated on portion control, reducing fat intake, and eliminating sugary foods and drinks and fast foods. They were also provided supplemental menus, and meal plans. Participants were encouraged to increase physical activity to several times a week to increase weight loss. The understanding of this information was demonstrated by the participants’ ability to make better food choices and increased physical activity on the food and exercise logs. More studies are needed to promote effective weight loss and examine factors that impact behavior in this community.

Expected reductions for systolic and diastolic blood pressure were not found. This may be a result of failure to adhere to strategies established by PL. Other factors such as lack of access to supermarkets or healthy food sources, time constraints, medication noncompliance, lack of motivation or family support may have acted as barriers to reductions in blood pressures. Knowledge of cultural and environmental resources must be considered for future programs.

Additionally, larger sample sizes and long-term studies are needed to examine the effects of intensive lifestyle interventions for improved blood pressures and long-term weight loss.

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AUTOBIOGRAPHICAL STATEMENT

Tonya A. Harvey

Mrs. Harvey graduated from Valparaiso University in 1993 with a Bachelor of Science in Nursing. She has worked in various capacities from 1992 to now as a nurse extern, Registered Nurse and Family Nurse Practitioner at Methodist Hospitals located in Gary and Merrillville. Tonya became the first radiology nurse at these facilities, and has worked over 15 years in medical surgical, oncology and critical care. Mrs. Harvey returned to school and earned a Master of Science degree at Purdue University Northwest (formerly known as Purdue University Calumet) in the Family Nurse Practitioner program in 2009. Tonya is certified by the American Academy of Nurse Practitioners. She is a member of Sigma Theta Tau-Mu Omega Chapter International Nursing Honor Society. Over the last 10 years Tonya has worked as a Family Nurse Practitioner in the internal medicine, gastroenterology, and infectious disease. She currently works in a hospital-based clinic for Methodist Physician Group, managing high risk patients of an underserved community. Mrs. Harvey enjoys partnering with community organizations like P.O.P. on Youth Violence and ASW Foundation, Incorporated that provide a viable alternative in education and unity for the youth of Northwest Indiana and Chicagoland areas. She is the Vice President of NP-PA Unite, a medical association dedicated to strengthening relationships among nurse practitioners and physician assistants by improving communication, promoting cohesiveness and bridging the gap among providers. Presently, she is enrolled in the Valparaiso University Doctor of Nursing Practice program and will graduate in May 2020. Tonya will present her EBP poster board on a provider-led weight loss program for African American women with a BMI greater than 25 kg/m_2 at a nurse practitioner conference in Keystone, Colorado in July 2020.

Appendix A

Summary of the Evidence

Citation/Level/Design	Purpose	Sample/Setting	Measurement	Results/Limitations	Recommendations
Appel, L.J., Clark, J.M.,Yeh,H., Wang, N., Coughlin, J.W., Daumit, G.,Louis, T.A., Brancati, F.L. (2011). Comparative effectiveness of weight-loss interventions in clinical practice. *The New England Journal of Medicine*. 365(21), 1959-1967. doi: 10.1056/NEJMoal.108660 Level I RCT	To determine the effectiveness of face to face contact with a provider compared to a person without in-person contact will contribute to more effective weight loss.	Participants (n=415); BMI 36.6kg/m_2 Female 264 (63.6%) AA 41% (170) Control (n=138) Remote Support only (n=139) In-Person support (n=138) Recruited from multiple primary care practice settings.	Baseline data and group assignment done during in-patient visits. In-person visits at 6, 12 and 24 months to collect data: weight, BP, waist circumference, glucose and lipids.	The percentage of weight loss was 52.3% lower than baseline at 24 months in the control group compared to 74.4% in the in-person group and 77.1% in the remote support group. In-person group had more weight loss over 24 months compared to the remote group. Weight loss was substantial in both face to face group and remote group. Some of the limitations included:	Behavioral modification programs are suggested for weight loss changes. Longer studies are needed

				Lack of weight loss trials Difficult to assess PCP reinforcement. Lack of clear relationship between weight loss and changes in BP, glucose and lipid levels.	
Banerjee,E.S., Herring, S.J., Hurley, K.E., Puskartz, K., & Lanoue, M. (2018). Overcoming obesity: A mixed methods study of the impact of primary care physician counseling on low income African American women who successfully lost weight. *American Journal of Health Promotion*. 32(2), 374-380.doi: 10.1177/0890117117690853 Level III Mixed methods	To determine if PCP counseling for patients with weight-related medical diagnosis is a predictive indicator to promote weight loss.	Obese AA women ages 18-64 years old. Patients with weight related diagnosis (positive variance group) (n=161) Control group (n=602) Mean age 40 BMI 36.4 Medical diagnosis of obesity on the problem list.	Identify positive variant cases 10% confirmed weight loss over six months and at 12 months. Documentation of dietary counseling and weight-related problems i.e. diabetes, hypertension, dyslipidemia by PCP, and diagnosis of overweight , obesity or morbid obesity on problem list.	Positive deviant group lost an average 41.9 lbs=18% max weight. Documented counseling and obesity diagnosis were significant predictors of positive deviant or weight-related diagnosis. Five themes emerged between participants in the positive deviance group.	PCP counseling may be a factor to promote weight loss in low income AA women. PCP must examine the connections between obesity and weight-related conditions. PCP enhance motivation interviewing and offer specific guidance or referrals as warranted.

			Self-reported weight-related diagnosis and discussion with PCP on weight loss. EMR data analyzed using SPSS. T-test for continuous variables. Qualitative data analyzed using NVivo.	1.Participants felt motivated to lose weight if PCP discussed the impact of weight on health problems. 2. Full discussion around weight was important to participants. 3. Ongoing communication and relationships was valuable. 4. Reward small successes for ongoing motivation. 5. Advice was helpful, but motivation was key to encourage change.	
Burton,W.M., White, A.N., & Knowlden, A.P. (2017). A systematic review of culturally tailored obesity interventions among African American adults. *American Journal of Health Education.* 48(3), 185-197. doi: 10.1080/19325037.2017.1292876	Compare culturally tailored interventions across studies aimed at reducing obesity among AA adults.	Participants (n=685) AA Obese adults, mainly female Mean age 46. Participants were recruited from community churches, local	Body fat composition BMI Weight and height Weekly log Pedometer Waist circumference Scale Self-reported physical activity	Participants identified barriers that inhibit motivation and physical activity. Most participants had sedentary lifestyles and at least 1 chronic disease.	More long term cultural appropriate interventions and strategies are needed. Suggests RCTs are gold standard for scientific evidence for understanding obesity and the

Level III SR Included 8 articles, intervention studies, quasi-experimental, mixed methods and convenience sample.		health centers and Universities.		Culturally tailored programs that included: individual and group informational sessions focused on portion control, reducing fat intake, elimination sugary beverages and fast foods resulted in weight loss. Weekly logs use of pedometers, self-reported physical activities were indicators for improving weight reduction. Limitations Saturation Only 7 databases were used Covered only 10 year span of data	relevance to the social epidemic.
Collins, C., Neve, M., Morgan, P., Fletcher, K., Williams, R., Young, M. & Callister, R. (2013). Effectiveness of	To evaluate if a Interventionalist-led, physical activity (PA) and weight loss	Participants (n= 10,111) 56 studies	43 studies (76.8%) reported weight change, 13 (23.2%) reported pre- and post-	Health care providers must advise patients of specific weight loss maintenance	High intensity interventions are effective in promoting weight loss.

interventions with dietary components on weight loss maintenance: Systematic review. *JBI Database of Systematic Review & Implementation Reports*. 11(8), 317-414. Level I SR Only RCT designs	intervention would increase PA levels and promote weight loss compared to self-guided.	diet intervention (n=27) meal replacements (n=11) support delivery (n=16) male and female over the age 18, overweight or obese participants with existing co-morbidities and BMI 24.9kg/m2. Length of studies ranged from 4-130 weeks.	weight, 22 (39.3%) reported weight change. Participants reported weight loss of >5% at the end of intervention or >10%.compared to baseline. Meta-analysis studies show no significance between groups. High protein and low fat diets were effective for weight loss. Limited number of interventions. Meta-analysis studies no significance between groups. Only a few interventions were deemed effective.	strategies following weight loss. Calorie reduction are most effective for weight loss. Weight loss maintenance interventions lack effectiveness maintaining >5% of initial weight loss and long term maintenance is needed. Face to face support including behavioral or motivational counseling programs are more beneficial for successful weight loss maintenance.	Must determine best way to improve physical activity in primary care setting.

Conroy, M.B., Sward, K.L., Spadaro, K.C., Tudorasco, D., Karpov, I., Jones, B.L.,…Kapoor, W.N. (2014). Effectiveness of a physical activity and weight loss intervention for middle aged women: Healthy bodies, healthy hearts randomized trial. *Journal of General Internal Medicine*. 30(2), 207-13. doi: 10.1007/s11606-014-3077-5 RCT Level I	The purpose of this study was to compare physical activity programs to dietary interventions to promote additional weight loss than diet alone in obese adults.	Patients (n=99) women; ages 45-65 with a BMI>25kg/m2. Average age 53.9 and BMI 34.7. Participants were recruited from 3 primary care clinics. Physician-led group (n= 49) given information on diet and exercise and psychological stress log book. Control group/ self-reporting (n=50) The group received manuals from AHA, calorie count book and pedometer.	Baseline assessment MAQ questionnaire. 12 weekly provider-led 30 minutes of moderate PA; versus self-guided program. Monitored at 3 and 12 mo. Height Weight using standard scale BMI The data was analyzed with t-test or Wilcoxon rank-sum test. Mixed models were used to analyze the data.	Increased physical activity and weight loss was met in both groups at 3 and 12 months. Statistically significant differences in physical activity were detected in both groups at 3 months, the provider led group had greater physical activity. None at 12 months. The provider-led intervention was successful in increasing the PA levels of obese women; no significant weight changes were observed. Self-reporting group loss to follow up.	High intensity interventions are effective in promoting weight loss. Must determine best way to improve physical activity in primary care setting.

				Possible bias with self-reported data. MAQ used for self-report measurement is subject to bias.	
Goodpaster, B.H., Delany,J.P., Otto, A.D., Kuller, L., Vockley, J.,South-Paul, …Jakicic, J.M. (2010). Effects of diet and physical activity interventions on weight loss and cardiometabolic risk factors in severely obese adults. *Journal of American Medical Association*. 304(16), 1795-1802. Doi: 10.1001/jama.2010.1505 Level I RCT	The purpose of the study was to determine the efficacy of an intensive lifestyle intervention on weight loss in obese adults.	Participants =130 African American women (n=48) men (n=15) ages 30-55 years BMI 35-39.9 kg/m_2. Participants recruited by mass mailing, television and advertisements. Group 1 (n=67) randomized to diet and exercise for 12 month. Group 2 (n=63) randomized to diet and delayed physical activity for 6 months.	Changes in weight BMI, weight, height, waist circumference using standard protocols. Body fat analysis was measured by xray absorptiometry or by air displacement plethysmography for participants that exceeded the weight capacity scanner. CT scanner performed at baseline to and 6 months to quantify abdominal adipose tissue and hepatic fat. Physical activity was	101 (78%) of the participants completed the 12-month intervention. 30% participants achieved 10% weight loss; 10% achieved 20% at 12 months. Significant weight loss was reported in both groups, but more in first group overweight and obese participants have increased weight loss with addition of PA. Limitations	Intensive lifestyle interventions and behavioral changes improve weight loss and cardiovascular risk factors in obese people. Additional studies needed to examine the effects of intensive lifestyle intervention on long term weight loss for obese individuals and antihypertensive and lipid lowering medications.

		During months 1 through 6 participants received 3 group meetings and 1 individual meeting per month. Months 7 through 12 participants received two group sessions and two telephone calls per month. 1200-2100 calorie diet	measured by self-monitoring. Secondary outcomes measurements included: blood pressure, glucose, lipids, liver enzymes.	Mostly women, randomized by sex Unable to determine sex-specific responses.	
James, D.C.(2012**)**. Weight loss strategies used by African American women: possible implications for tailored messages. *Journal of Human Nutrition and Dietetics*. *26*, 71-77. doi: 10.1111/j.1365-277X.2012.01268x Level III Descriptive study Convenience sampling	The purpose of this study is to identify weight loss strategies used by AA women, and specific emotional issues that may lead to compulsive eating, and manage weight that will lead to long term weight loss.	Participants (n=413) AA women recruited from beauty shops, churches, sororities. Mean age 35.63 mostly single, worked full-time, various educational backgrounds, home owners. BMI 29.60 kg/m^2	A self-administered survey that took 15 minutes to complete was used to collect data over a 6 month period. All data was collected on site at participating organizations. Each participant was weighted barefoot with indoor clothing on a professional	37% of participants were told to lose weight by physician within the last six months. Obese women attempted to lose more weight. 60% attempted to lose weight by following healthy practices by cutting back on unhealthy food.	Increased efforts to promote effective weight loss strategies for both overweight and obese women. More tailored weight loss programs are needed for this population.

		25% overweight 41% obese with BMI >30 kg/m2.	digital scale, height was measured by portable stadiometer. BMI calculated by measurements of participants. t-test and chi-squared used to analyze differences in the BMI and weight loss strategies. Odd ratio was used to measure the strength of association for significance chi-squared variables, $p < 0.05$ was considered consistently significant. Surveys were scanned into a computerized database using SAS to analyze data.	65% overeat due to depression, fatigue or anger. Physical activity was insignificant. Limitations Convenience sampling not representative of population.	
Osei-Assibey, G. & Boachie, C.(2011). Dietary interventions for weight loss and cardiovascular risk reduction in people of	Identify the effect of dietary interventions and lifestyle changes	Participants (n= 25 to 404) AA obese adults with diagnosis of diabetes,	Weight and BMI change and at least 1 change in the following: waist circumference,	Improvement in CVD in all studies.	More studies are needed to examine environment, health beliefs and social factors that impact

African ancestry (blacks): a systematic review. *Public Health Nutrition*. 15(1), 110-115. doi: 10.1017/S1368980011001121 Level II SR 18 studies included both RCT and nonrandomized.	to reduce weight in AA or blacks.	cardiovascular disease or hypertension who received dietary intervention with or without behavior change or physical activity. Participants were recruited from clinic community and church-based facilities.	systolic and diastolic blood pressures, glucose levels, HbA1c or lipid level >3 months. QUOROM quality of reporting of meta-analysis was used to describe how studies were processed.	Changes in diet and lifestyle improved weight reduction and cardiovascular risk factors. Positive treatment effect on weight change between interventions. Improved waist circumference, blood pressure, cholesterol. Limitations Some studies had small sample sizes and high attrition rates.	behavior change in this community. Cultural adaptation studies involving black providers in community setting and cultural foods and activity.
Tussing, L.M., Fitzgibbons, M.L. & Odoms-Young, A. (2013). Weight loss maintenance in African American women: Systematic review of the behavioral lifestyle intervention literature. *Journal of Obesity.* 2-31.	To evaluate the effectiveness of behavioral lifestyle interventions on weight loss maintenance in African American women	Participants (n= 21 to 2921) African American women, ages 40-60, obese or overweight. Academic medical centers, University, and	Weight loss was the primary outcome, by increasing physical activity and improving dietary quality in AA women compared to Caucasian women.	Weight changes for AA women ranged from +0.5 to -8.5 kg. AA women lost less weight and maintained a lower percentage of their weight loss compared to	Ongoing adherence to behavioral modification strategies by monitoring weight, dietary intake, physical exercise, setting goals, problem solving and relapse prevention.

doi.org/10.1155/2013/437369 Level II SR 17 articles Randomized nonrandomized, and randomized pilot.	community based clinics. Studies lasted from 12 to 36 months.	Weight was measured at baseline, during maintenance and intensive phases. Using theoretical framework, cultural adaptations self-reported physical activity, food intake, and individualized nutrition consultations, goals, problem solving, relapse prevention. Groups and individual clinic meetings bi-weekly, monthly, individual sessions, mail contact, web access, printed material.	Caucasian women. Small sample size in some of the studies, duration of some studies was inadequate, study designs and interventions differed across studies Many studies included theoretical frameworks, and cultural adaptations relevant to AA including diet and physical activity modifications, religion preferences, community access to grocery stores. Limitations Specific weight loss strategies used to measure weight reduction	Self-monitoring, tracking physical activity, dietary intake and diaries for journaling.

				were not described and adherence making it difficult to identify interventions associated with better weight outcomes.	
Walker, R.E. & Gordon, M. (2014). The use of lifestyle and behavioral modification for black women: a literature review. *Health Education & Behavior*. 4(3), 242-258. doi:10.1177/1090198113492768 Level III SR =28 articles 17 RCT 2 random, pilot, 6 quasi-experimental 1 grounded theory 1 current analysis 1 prospective pilot	To identify successful lifestyle and behavioral modification approaches to weight loss in AA women and reduce chronic disease	Participants (n= 16 to 1162) primarily AA women. Participants were recruited from churches, community organizations and primary care centers using face to face, motivational interviewing, phone calls, email, text messaging to insure adherence.	Study outcomes included self-efficacy, body weight changes, physical activity changes, diet, and health outcomes Studies ranged from <6 months to >18 months. Lifestyle and behavioral components geared and personalized for each participant placed in 11 categories: Nutrition counseling Goal setting Healthy behaviors and encouragement	The findings support the use of lifestyle and behavioral modification to improve physical activity among sedentary obese AA women. Best practices identified improving successful weight loss by influencing health behavior and motivation including self-efficacy, realistic short-term goal setting, action planning, relationship support and continuing post	Additional lifestyle and behavioral research is needed to identify the most effective intervention to addressing obesity in black women. Postintervention maintenance long term

		Physical activity Action plan Social support Barriers Individual readiness Self-efficacy Post Intervention maintenance Motivational interviewing	intervention support. Dietary changes along with physical activity improve risk factors associated with obesity i.e. blood pressure, cholesterol, and blood glucose. Identified cultural norms for overweight or obese making it difficult for enrollment in weight intervention programs. Improving self-efficacy empowered the participant to have greater weight loss. Limitations Difficulty recruiting AA women.

Appendix B

Participation invitation letter

Dear Invitee,

My name is Tonya Harvey I am a doctoral student at Valparaiso University's Doctorate of Nursing Practice Program. I am requesting your participation in a doctoral intervention project that I am conducting titled: A Provider Guided Weight Loss Program for African American Women with a BMI >25 kg/m2. The intention is to implement a patient centered program including: lifestyle, dietary and activity components to decrease weight, BMI and waist circumference in African American women over 12 weeks.

This intervention involves the participant completing basic demographic information, face to face intensive nutritional counseling, recording food intake, physical activity log, counseling, goal setting, behavioral support, identifying barriers, reduced caloric intake, reduced portion sizes, participant weigh-ins, measure waist circumference, and blood pressure readings at 4 weeks, 8 weeks and 12 weeks after initial consultation.

Participation is completely voluntary and you may withdraw from the intervention at any time. Please allow15 minutes following your routine visit to meet with the project leader. This intervention is completely anonymous; therefore, it does not require you to provide your name or any identifying information. If you would like to participate in this intervention please sign below as your commitment to the weight loss journey.

Thank you for time and participation,

Sincerely,

Tonya Harvey, M.S. FNP-C, Doctorate of Nursing Practice Student Participant:

______________________________yes, I will participate in the intervention

Appendix C

Demographic information

Demographic Information 001 **Medical record #** 1565 **Date of Birth** ___________

Age:

- 18-20
- 21-29
- 30-39
- 40-49
- 50-59
- 60 or older

Marital status:

- Married
- Widowed
- Divorced
- Separated
- Never married

Household Income:

- $0-$9999
- 10,000-$19,999
- $20,000-$29000
- $30,000-$39,000
- $40,000-$49,000
- $50,000-$59,000
- $60,000-$69,000
- $70,000-$79,000
- $80,000-$89,000
- $90,000-$99,999
- $100,000 or more

Education level

- Less than high school degree
- High school graduate or equivalent (e.g. GED)
- Some college
- Associate degree
- Bachelor degree
- Graduate degree

Employment

- Employed
- Unemployed
- Retired

Appendix D

Food journal

Week________________________

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Calories
Breakfast								
Mid-morning snack								
Lunch								
Mid-afternoon snack								
Dinner								

Appendix E

Physical Activity chart

Week____________________

Day of week	Activity (ex. walk, bike, swim, exercise, other)	Time	Notes
Sunday			
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			

Appendix F

Supplemental Handouts

Cornerstones 4 Care (2013). *Your 1200-calorie meal plan*. Novo Nordisk, USA

Cornerstones 4 Care (2013). *Your 1500-calorie meal plan*. Novo Nordisk, USA

Cornerstones 4 Care (2013). *Your 1800-calorie meal plan*. Novo Nordisk, USA

Cornerstones 4 Care (2013). *Dining out with diabetes*. Novo Nordisk, USA

Lilly (2015). *Nutrition in the Fast Lane. Fast facts about fast foods*. Franklin, IN

Merck (2016). *The diabetes portion for a Southern meal.* Merck & Co, Inc.

Sanofi (2016). *Using the plate method for a balanced meal plan*. Sanofi-Aventis, USA

ACRONYM LIST

ANA: American Nurses Association

APA: American Psychological Association

APN: Advanced Practice Nurse

BMI: Body Mass Index

CDC: Centers for Disease Control

CVD: Cardiovascular Diseases

DBP: Diastolic blood pressure

DF: Degrees of freedom

EBP: Evidence-based project

EMR: Electronic Medical Record

HPM: Health Promotion Model

JHNEBP: John Hopkins Nursing Evidence-Based Practice

MA: Medical Assistant

NHANES: The National Health and Nutrition Examination survey

NHLBI: National Heart, Lung, and Blood Institute

PL: Project Leader

RCT: Randomized control trial

SD: Standard deviation

SBP: Systolic blood pressure

SPSS: Statistical Package for the Social Science