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School of Public Health

SPIRITUALITY, RELIGIOSITY, AND WEIGHT MANAGEMENT IN BLACK WOMEN

By

Shené L. Bowie, MPH, ACSM-HFS

A Dissertation in Partial Fulfillment of the Requirements for the

Degree of Doctor of Public Health in Health Education

October 2010

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Shené Lynette Bowie, MPH, ACSM-HFS

Each person whose signature appears below certifies that this dissertation, in her opinion, is adequate in the scope and quality as a dissertation for the degree of Doctor of Public Health.

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ABSTRACT OF DISSERTATION

Spirituality, Religiosity, and Weight Management in Black Women

by

Shené L. Bowie, MPH, ACSM-HFS

Doctor of Public Health Candidate in Health Education

Loma Linda University, Loma Linda, California, 2010

Helen Hopp Marshak, PhD, CHES, Chair

Background

Obesity is a major concern in the United States and Black Americans are among those with the highest rates of overweight, obesity, and related co- morbidities. While weight loss among Black women has been studied within the context of a faith-based setting, there is little information about the relationship between spirituality, or relationship with the transcendent, and self-efficacy in the achievement and maintenance of a healthy weight.

Purpose

The purpose of this study was to analyze the relationships among spirituality, self-efficacy for physical activity and healthy eating, and body composition measures among Black women over the period of participation in an existing weight management program.

Method

Participants were a convenience sample of 83 overweight or obese Black women (M age = 46, SD=11.6) enrolled in one of five participating 7-week *Curves for Women* weight management classes offered in California. Spirituality was assessed at baseline, while self-efficacy, behavior, and body composition measurements were collected at baseline, 4 and 7 weeks.

Analyses

Baseline self-efficacy was significantly positively correlated with spiritual experiences (r=.43, p<.001) and congregational support through love and care (r=.28, p=.02). Baseline self-efficacy and daily spiritual experiences independently explained end-of-program self-efficacy for physical activity (R^2=.53, β=.218, p=.03) and eating variables (R^2=.35, β=.270, p=.01), controlling for age. Self-efficacy to overcome exercise barriers (72.2 vs. 44.6, p<.001) and to continue exercise (87.8 vs. 61.7, p=.03) was significantly higher among those who met physical activity recommendations during the program, indicating that self-efficacy was related to behavior.

Conclusion and Significance to Health Education

Interventions with a spiritual component that appeal to Black women for whom spirituality is important, have the potential to be more effective than basic weight management programs without such a component. This study supports the hypothesis that spirituality affects self-efficacy for exercise and eating behaviors, which may ultimately translate into more effective weight management outcomes. Further research is needed to test whether the addition of spirituality as a component of culturally sensitive health education and behavior change programs and practices involving Black women is effective in improving weight loss.

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ACKNOWLEDGEMENTS

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It takes (took) a village…..

I love you all! - *Shené*

CHAPTER 1

INTRODUCTION

A. Statement of the Problem

While there are recognized health differences among sub-groups of Black Americans, the term "Black" will be used to include individuals living in America who have an African heritage, as well as those who have Caribbean, Central, and South American heritages (Read, Emerson, & Tarlov, 2005). Most of the early literature refers to Blacks as African Americans and it is unclear as to whether or not those with multiple heritages are included. Note, however, that the terminology of the reference articles will not be changed in the literature review section of this paper to accurately reflect usage by those authors.

Overweight and obesity are, together, leading indicators of preventable deaths in the United States (Kealy, 2003; Brown, Fujioka, Wilson, & Woodward, 2009). Over the past few decades, the rates of overweight and obesity have grown by epidemic proportions. Data from the Center for Disease Control and Prevention's Behavioral Risk Factor Surveillance System (BRFSS) show that in 1995 there were only four states in the U.S. with an obesity prevalence rate of 15-19% and none with 20% or more. However, in 2005 only four states had prevalence rates of less than 20%, while 17 states had rates of 25% or greater. In addition to commonly known conditions such as diabetes mellitus and cardiovascular disease that are associated with excess fat, there are also other associated conditions which have the potential to lead to early morbidity and mortality (Brown, Fujioka, Wilson, & Woodward, 2009). These conditions include certain types of cancer,

stroke, arthritis, muscle disorders, breathing problems, and psychological disorders, all of which have related economic costs (Brown, Fujioka, Wilson, & Woodward, 2009).

In 1998, aggregate adult medical expenditures attributable to overweight and obesity was estimated to be $51.5 billion using Medical Expenditure Panel Survey (MEPS) data and $78.5 billion using 1998 National Health Accounts (NHA) data. For obesity alone, the estimated costs were $26.8 billion and $47.5 billion, respectively (Finkelstein, Fiebelkorn, & Wang, 2003). Data from 2001 revealed an estimated direct and indirect cost of $123 billion (Hossain, Kawar, & El Nahas, 2007). Data from 2001 revealed an estimated direct and indirect cost of $123 billion (Hossain, Kawar, & El Nahas, 2007). According to the Overweight and Obesity Statistics Report of the National Institutes of Health (http://www.win.niddk.nih.gov/publications/PDFs/stat904z.pdf, accessed June 11, 2010), annually, for each obese beneficiary:

- Medicare pays $1,723 more than it pays for normal-weight beneficiaries.
- Medicaid pays $1,021 more than it pays for normal-weight beneficiaries.
- Private insurers pay $1,140 more than they pay for normal-weight beneficiaries.

Obesity is the greatest risk factor for type II diabetes and the total annual economic cost of diabetes in 2007 was estimated to be $174 billion (http://www.diabetes.org), accessed April 3, 2009). The rise in the prevalence of overweight and obesity was one of several factors that contributed to the increase of $42 billion since 2005.

Researchers believe that the major contributor to weight gain in the United States is the vast amount of energy intake that is not balanced by energy expenditure (Blair & Nichaman, 2002). Although data are limited, review of the evidence suggests that

decreased participation in physical activity is more likely than increases in energy intake (or food consumption) to be the greatest contributor to the recent increase in obesity prevalence (Blair & Nichaman, 2002). Nevertheless, the recommendations for obesity interventions include both an increase in regular physical activity and a healthy diet to decrease caloric intake (Blair & Nichaman, 2002; Swinburn & Egger, 2002; Kealy, 2003; Lowry et al., 2000; Jakicic, Wing, & Winters-Hart, 2002; and Lombard, Deeks, & Teede, 2009).

Unhealthy eating and physical inactivity, the two primary causes of obesity, are second only to cigarette smoking as the leading cause of death in the United States (Flegal, Carroll, Ogden, & Johnson, 2002). In 2005, tobacco smoking and high blood pressure were responsible for an estimated 467,000 (95% confidence interval [CI] 436,000-500,000) and 395,000 (372, 000-414,000) deaths respectively, accounting for about one in five or six deaths in U.S. adults. Overweight-obesity (216,000; 188,000-237,000) and physical inactivity (191,000; 164,000-222,000) were each responsible for nearly 1 in 10 deaths (Danaei G, Ding EL, Mozaffarian D, Taylor B, Rehm J, Murray CJ, Ezzati M, 2009).

While chronic diseases account for five of the six leading causes of death in the United States, regular physical activity and good nutrition habits can help prevent many of these obesity-related diseases (Danaei et al., 2009). The Centers for Disease Control and Prevention (CDC) recommends that Americans eat 5 to 9 servings (or 3.5 to 6.5 cups) of fruits and vegetables every day and be physically active at least 30 minutes per day for adults and 60 minutes per day for children, to help prevent chronic disease and obesity (Kahn et al., 2002).

According to results of the 2005 *California Dietary Practices Survey*, African American adults consumed approximately 3.6 servings of fruits and vegetables a day, compared to an average of 4.4 for all adults. In addition, compared to 31% of all U.S. adults, 40% of African American adults had two or fewer servings of fruits and vegetables a day (CDPS, 2005). Results of the BRFSS also show that while the percentage of African American women who consumed fruit and/or vegetables five or more times per day increased between 1994 and 2005, it was still less than that of White women in 2005 - 27.3% vs. 29.8 (Blanck, Gillespie, Kimmons, Seymour, & Serdula, 2008).

In terms of physical activity, data from the 2009 National Health Interview Survey indicate that when all leisure-time physical activity is considered by single race and ethnicity, non-Hispanic White adults were more active than Hispanic adults or non-Hispanic Black adults. Regarding vigorous leisure-time physical activity, 51% of non-Hispanic White adults never engaged in periods of vigorous leisure-time physical activity compared with 61% of non-Hispanic Black adults and 67% of Hispanic adults. The highest prevalence rate of regular physical activity is among non-Hispanic White men (52.3%), and the lowest among non-Hispanic Black women (36.1%) (http://www.cdc.gov/MMWR/preview/mmwrhtml/mm5646a1.htm, accessed April 5, 2009).

The disparity in healthy eating and physical activity habits is a likely contributor to the health disparities related to overweight and obesity, independent of socioeconomic status. McInnis, Franklin, and Rippe (2003) report that there are no longer any serious doubts about the strong impact of physical activity on promoting health and preventing

disease, or achieving and maintaining a healthy body weight. The authors state that "physical activity has a positive effect on weight loss, total body fat, and body fat distribution, as well as favorable body weight and change in body composition" (McInnis et al, 2003, p. 1249). The high rates of overweight and obesity may reflect the low rates of physical activity participation. The California Behavioral Risk Factor Survey 2002 data indicated that almost two-thirds of African Americans in California are estimated to be at risk for health problems related to being overweight.

In 2001, more than 77% of African American women were overweight and 50.8% were obese (Flegal et al., 2002). Prevalence data from the 2003-2004 National Health and Nutrition Examination Survey (NHANES) indicate that, since 1999, the rate of overweight for Black women has increased by more than four percent (to 81.6%), compared to the relatively stable rates of 61.8% for all women and 66.3% for all adults (Ogden et al., 2006). Currently, 54% of Black women are obese and 14.7% are extremely obese, compared to 33.2% obesity and 6.9% extreme obesity for all women (Ogden et al., 2006). BRFSS data from 2009 indicate that 41.9% Black women, versus 23.3% White women, reported information about weight and height that would classify them as obese (Centers for Disease Control and Prevention [CDC], 2010). NHIS data from 2009 indicate that only 26% of non-Hispanic Black women were at a healthy weight (CDC, 2010).

Obesity data are calculated based on height and weight, and categorized into a weight health index known as the Body Mass Index (BMI). Refer to Table 1.1 for obesity classification by BMI. Obesity is also diagnosed if the waist-to-hip ratio is greater than or equal to 0.86 for women and .95 for men (ACSM, 2005).

Table 1.1 Body Mass Index (BMI) Classifications

BMI			
Normal Weight	**Overweight**	**Obese**	**Extremely Obese**
18.5 to 24.9	25.0 to 29.9	30.0 to 39.9	40.0 and higher

Source: American College of Sports Medicine, Guidelines for Exercise Testing and Prescription

There are many variables associated with weight and weight loss strategies in Black women. While certain studies indicate that the utilization of unhealthy strategies, such as severe caloric restriction, to lose weight are not uncommon in African American women (Breitkopf & Berenson, 2004; Clark et al., 2001; Lowry et al., 2000), approaches that address the barriers to successful outcomes are few and those that exist have yielded varied results (Bronner, 2002). Elements such as participant motivation and high expectations, active discovery learning, a strong team approach, behavior modification, and compatibility with culture that includes mixed modes of delivery with some personal contact, are important components of successful weight management programs for Black women, and in general (Bronner, 2002; Lombard, Deeks, Teede, 2009). These elements, combined, form a strategy that is consistent with successful behavior change and addresses culturally sensitive issues. Evidence suggests that a multidimensional weight management paradigm that is influenced by interpersonal characteristics and skills as well as the surrounding environment, will help achieve positive outcomes (Senekal, Albertse, Momberg, Groenewald, & Visser, 1999).

The constructs of Bandura's social cognitive theory (SCT) are related to many of these elements and may assist in the development of successful weight management interventions. Self-efficacy, one's confidence in their ability to complete a given task, is an important construct of the theory. Research shows that for behaviors such as physical

activity, self-efficacy may be high at the beginning of an intervention but decreases over the length of the behavior change program for participating Black women, compared to participating Caucasian women (Wilbur, Miller, Chandler, & McDevitt, 2003). This may be due to less experience with overcoming challenges in related behavior change programs like physical activity. The decrease in self-efficacy affects overall success in behavior change and is often associated with program attrition (Wilber et al, 2003). Chang, Brown, Baumann, and Nitzke (2008) also found that self-efficacies operated differently for African American women than for White women when they examined the influence of weight management and education on five types of fat reduction behaviors mediated through three task-specific domains of self-efficacy among young, low-income obese mothers.

It is possible that the spirituality of a Black woman, or the extent of her relationship with God, may positively influence her self confidence (self-efficacy) to change. According to Wilson and Miles (2001), a person's personal relationship with God can provide a source of support for a positive outcome. Research also shows that in Black women, spirituality significantly influences what they think and believe (Musgrave, Allen, & Allen, 2002; Giger, Appel, Davidhizar, & Davis, 2008).

Successful weight loss and maintenance has been found in faith-based weight reduction programs for Black women and may be associated with spirituality (Reicks, Mills, & Henry, 2004; Yanek, Becker, Moy, Gittelsohn, & Koffman, 2001). The association, however, has not been satisfactorily examined. In terms of the faith-based connection to weight management without considering ethnicity, Krukowski, Lueders, Prewitt, Williams, and West (2010) found that Catholic-tailored programs may represent

a feasible, culturally acceptable approach to weight management/maintenance in the examined faith community (98% Caucasian). In terms of faith-based programs that have focused on Black women, there have been only two published studies in the last 10 years examining the impact of spirituality on weight management.

Researchers of *Project Joy*, a faith-based cardiovascular health project, attempted to determine the impact of a standard behavioral group intervention, a spiritually supplemented intervention, and self-help strategies on cardiovascular risk profiles of the participants. The risk profile included body weight, waist circumference, and dietary intake patterns. One objective was to understand the difference between two intervention groups – one with and one without a spiritual component (scripture readings, prayer, gospel aerobics, etc.) - within a faith-based setting. The group without the spiritual supplement voluntarily added the aspect of spirituality to the program, which led to a problem with diffusion of treatment. For this reason, the researchers were unable to compare the groups in terms of the spirituality component (Yanek et al., 2001). The intervention groups were combined and compared with the self-help group.

More recently, Black women participating in a culturally sensitive weight management program suggested the addition of a spiritual component to further strengthen the program's cultural sensitivity (Fitzgibbon et al., 2005). The results of this adequately controlled trial approached statistically significant differences in weight loss and dietary fat consumption between the spiritual and non-spiritually supplemented groups. However, the study lacked adequate power due to small sample size (Fitzgibbon et al., 2005). In light of the continued increases in overweight and obesity in Black women, and the relationship to chronic disease, it is imperative that successful weight

management approaches are developed and utilized in public health and health education programs. Those interventions with a spiritual component that appeals to Black women for whom spirituality is important have the potential to be more effective.

B. Purpose of the Study

The purpose of this study was to analyze the relationships among self-efficacy for physical activity and healthy eating, spirituality, and changes in body composition among Black women over the period of participation in an existing weight management program. The study also examined the impact of a spiritually enhanced component on related outcomes of the same weight management program. Faith in or relationship with God may positively affect self-efficacy for weight management behaviors (nutrition and physical activity habits) and program adherence in Black women. The hypothesis was that the women who participate in the spiritually enhanced weight management program would have more positive outcomes than those who participate in the basic weight management program.

C. Research Questions

1. Is weight management program success, defined as decreased body mass index, and/or decreased waist-to-hip ratio, greater for Black women who are in the *Curves Weight Management* Plus (spiritually enhanced) group than for those in the *Curves Weight Management* Basic group?
2. Does weight management program success vary according to the level of spirituality and/or religiosity, as defined by baseline scores on each scale, in Black women?

3. Are spirituality and/or religiosity associated with self-efficacy for physical activity behaviors and self-efficacy for healthy eating behaviors at the beginning of the program, and the maintenance of this efficacy at the end of the program?
4. Are baseline spirituality and/or religiosity associated with program adherence, defined as the percent of program sessions attended?

D. Theoretical Justification

The framework for the intervention was based on the principles of the social cognitive theory. According to this theory, self-efficacy is the belief that one is capable of organizing and executing a course of action that will produce given levels of attainment (Bandura, 1998). Research shows that Black women often use their belief or faith in God as a source of strength, which may be useful in maintaining self-efficacy for physical activity and healthy eating (Wilson & Miles, 2001). Many Black women believe that their personal relationship with God can provide support and be a source of hope for positive outcomes in challenging situations (Wilson & Miles, 2001).

There is a passage in the King James Version of the Bible that states "I can do all things through Christ which strengtheneth me" (Philippians 4:13). The "I can do" portion of the verse signifies a sense of self-efficacy, but the "through Christ" recognizes the assistance that comes from God. It is hypothesized that for Black women, the decrease in self-efficacy - the belief that one is capable of organizing and executing a course of action – often cited in behavior change research can be minimized or avoided when prayer and scripture are practiced while attempting to attain a specific goal. Faith-based settings and programs allow for the expression of this relationship with God in addition to

the provision of social support common to successful weight management programs (Reicks et al, 2004 & Yanek et al, 2001).

Sharma et al. (2005) reported that self-efficacy and frequency of social support were significant predictors of physical activity, accounting for more than 23% of the variance. Annesi and Whitaker (2010) found that participation in a cognitive-behavioral exercise support treatment program was significantly associated with changes in measures of self-efficacy, body satisfaction and mood in obese and severely obese women. Regardless of BMI group, they found that changes in psychological factors explained 14 to 22% of the variance in exercise session attendance, and that attendance was strongly related to weight loss. Furthermore, results of qualitative and quantitative studies addressing weight loss, diabetes management, and heart health behaviors indicate that spirituality or religiosity, in terms of the words God, Jesus, Lord, church, and Bible, was frequently mentioned by participating Black women when discussing health, life satisfaction, social support, coping techniques, and stress management (McNabb, Quinn, Kerver, Cook, & Karrison, 1997; Reicks et al., 2004; Wilson & Miles, 2001; & Yanek et al, 2001). If the concepts of self-efficacy, social support (in terms of a group setting), health behavior change, and spirituality are addressed within the context of a culturally sensitive intervention, there may be greater success in weight management for Black women.

According to Bandura (1998), the beliefs that people hold about their capabilities affect the use of the skills that they possess. An individual's self-efficacy is influenced by four main sources: mastery experiences, vicarious experiences, social persuasion, and somatic and emotional states. While mastery experiences strengthen

self-efficacy through individual success, and vicarious experiences rely on social models to strengthen efficacy, social persuasion and somatic/emotional states may be more easily influenced by spirituality. Verbal encouragement of personal capabilities is a large component of social persuasion. It is possible that an individual with high levels of spirituality may structure their situations to illicit positive verbal persuasion from others, as well as from themselves. For example, although participants in the group without an organized spiritual component of *Project Joy* had social support, they created situations of positive verbal persuasion, for example, to overcome a barrier to continue with the program or class. This was done through scripture reading and prayer within the group. The same approach was utilized in the catholic faith community (Krukowski, et al., 2010).

Spirituality may also positively affect mood and stress reactions as indicated by somatic and emotional states of efficacy. Bandura (1998) refers to two levels of personal efficacy that influence human health: the ability to cope with stressors (which are associated with the physiology of health and disease), and belief in the efficacy to regulate motivation and behavior (which affects every aspect of personal change – consideration, motivation/perseverance, maintenance, and relapse prevention and restoration). There is a potential for spiritual influence at both levels. Figure 1.1 gives a graphic overview of the framework.

There is also reason to believe that spirituality may affect outcome expectations, defined as the perceived benefits and costs of performing a behavior. The belief that one's body is the "temple of the Lord" may affect their attitude about the benefits of having a healthy body and the costs of not having one. In addition, if positive outcome

expectations are decreased by barriers faced during the process of behavior change, and the ability to face these barriers is positively affected by spirituality and self-efficacy, there may be a correlation between spirituality and outcome expectations. This relationship, however, will not be addressed in the proposed study.

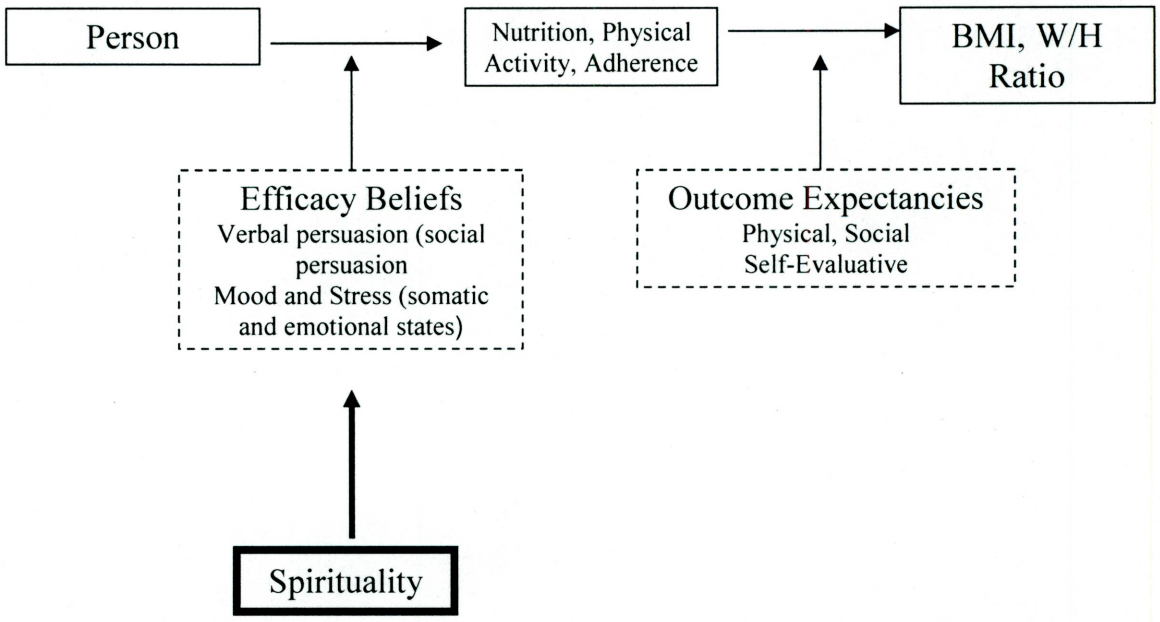

Figure 1.1 Theoretical Framework (based on Social Cognitive Theory)

E. Significance to Health Education

The influence of spirituality or faith on health is a long standing concept for those who live according to the principles of the Holy Bible. Both the general public and health practitioners have recognized that spirituality is a major contributing factor to the attitudes, beliefs, and behaviors of many individuals, particularly the influence of the African American church (Musgrave, Allen, & Allen, 2002; Giger, Appel, Davidhizar, & Davis, 2008). With the current rise in faith-based health education and promotion programs, it is important for the relationship between spirituality and health-related behavior change to be explored. Because a goal of many of these programs is to reach

Black Americans, programs should include those elements, such as spirituality, that are important to the target population. While researchers have gathered spirituality-based qualitative information from participants of faith-based programs, indicating an interest in the possible impact on program outcomes (Reicks, Mills, & Henry, 2004), formal research related to the degree of spiritual experiences and success in performing desirable weight management behavior is lacking.

Fitzgibbon et al. (2005) conducted a randomized pilot study with the goal to "estimate the effects of a culturally tailored, faith-based weight loss intervention on weight loss, dietary fat consumption, and physical activity" (p. 1394). While the culturally tailored, faith-based weight loss intervention was compared to a culturally tailored intervention with no active faith component, and the effect size suggested improved weight loss results with the addition of the faith component, results were not statistically significant. The researchers in this study suggested further research in the form of an adequately powered trial. If significant relationships are found, it would support the addition of spirituality as a component of culturally sensitive health education programs and practices involving Black women.

One goal of this study is to contribute to the growing evidence base of the *Network for a Healthy California—African American Campaign (Campaign)*. The *Campaign* is a social marketing initiative that is led by the California Department of Public Health. Its purpose is to empower low-income Black women, aged 18-54, and their families to consume the recommended amounts of fruits and vegetables and be physically active for at least 30 minutes per day. The *Campaign* uses consumer empowerment and environmental change approaches to catalyze and sustain behavior

change. The work is accomplished through faith-based community projects and *Regional Network* lead agencies in the following channels: churches, grocery stores, cultural festivals, community-based organizations, health care agencies, the media, and community collaborations. *Campaign* staff members are always looking for ways to enhance the outcomes of the projects, and cultural sensitivity of the target population is a high priority. *Campaign* objectives that would particularly benefit from the research are to:

- Identify the best ways to communicate, educate, and motivate healthy eating and physical activity behaviors in Black American communities;
- Develop strategies, provide training, and strengthen the role of groups working to promote the health and wellness of Black Americans; and
- Provide guidance in creating ethnically and culturally appropriate campaign materials, interventions, and evaluation strategies for the *Campaign*.

The research from the proposed study will add to the base of information that assists health education programs like the *Campaign* in reaching their objectives. It will also add to the general body of knowledge necessary for promoting behavior change in the Black American community.

CHAPTER 2

LITERATURE REVIEW

A. Overview

Obesity is a major concern in the United States due to the vastly increasing number of individuals who are obese, and therefore, at increased risk for co-morbidities, such as heart disease, stroke, type 2 diabetes, some cancers, and other chronic conditions (Fitzgibbon, 2008; Flegal, Carroll, Ogden, & Johnson, 2002). Black Americans are among those with the highest rates of overweight, obesity, and related co-morbidities (Blair & Nichaman, 2002; Stolley, Sharp, Oh, & Shiffer, 2009). In addition, African American women are less likely to successfully engage in strategies to reduce weight when compared to White women and other minorities (Breitkopf & Berenson, 2004; Clark et al., 2001; Lowry et al., 2000; Tsai et al., 2009). Weight loss among African American women has been studied within and outside of the context of a "spiritual" setting, usually related to community, social support and culture. These studies have not, however, investigated the relationship between spirituality and self-efficacy in the effort to achieve and maintain a healthy weight.

This literature review will discuss factors that may be related to successfully and unsuccessfully completing and/or maintaining weight loss methods and programs. The remainder of this chapter critically reviews current literature regarding 1) weight and body image as it relates to Black history; 2) general and ethnic-specific barriers to obtaining and maintaining a healthy weight, specifically among Black women; 3) the role of self-efficacy in weight management behaviors; and 4) the role of spirituality and

religiosity in the lives of Black women. The review concludes with a summary and critique of existing literature addressing spirituality and weight management in Black women, followed by a hypothesis suggested by the review and examined in the dissertation study.

B. History and Body Image as Factors of Weight

There are mixed messages when it comes to body image for Black women. The notion that Black men desire "thick" women along with the present media image of the beautiful "thin" woman was noted in the findings of Riley, Bild, Cooper, Schreiner, Smith, and Thompson (1998). The researchers found that "African American men felt that they would be less ridiculed by peers for dating a larger sized woman than did their Caucasian counterparts" (Riley et al., 1998, p 350).

Klesges, Debon, and Myers (1996) also note that racial and cultural factors, such as individual empowerment, the state of the nuclear and extended family, and level of readiness and support in the community, need to be considered in addition to the more common environmental and economic strategies for health promotion. Research by Riley, et al. (1998) indicate that the influence of environmental stressors contribute to the overeating problems of African American women. Specifically, the authors reported that stressors such as racism, sexism, poverty, and physically or sexually abusive relationships often lead to unhealthy coping mechanisms for dealing with these negative societal influences. In the same study, poorer self image was associated with a higher body mass index (BMI). The results were based on scores from the Appearance Evaluation Subscale (AES), the Body Image Satisfaction (BIS), and self reported dieting behavior. The sample consisted of 1,143 Black women aged 24-42 years from the fourth follow-up

examination (1992-1993) of the population-based, longitudinal Coronary Artery Risk Development in Young Adults (CARDIA) Study. Researchers of another study examined differences in successful and unsuccessful weight loss maintenance, in both men and women, and found that strategies for coping with weight regain were very important in avoiding relapse in patterns of overeating (Dohm, Beattie, Aibel, & Striegel-Moore, 2001). The demographics of the study, however, revealed that the sample was predominantly highly educated Caucasian men and women, indicating the need for further research that involves the low-income and Black populations.

Research indicates that body image plays a role in the choice to lose weight (Klesges, Debon, & Myers, 1996; Riley, Bild, Cooper, Schreiner, Smith, Sorlie, & Thompson, 1998). Researchers from the previously-mentioned CARDIA study found a negative correlation between prevalence of dieting behaviors and positive self-image (Riley et al., 1998). In other words, after adjusting for age, education, smoking, physical activity, and BMI , an increase in positive self image was related to decreased dieting behaviors. Klesges, Debon, and Myers (1996) study results show that although African American women are conscious of their weight, they report an absence of negative social pressure to become thin and also report relatively positive body image. Thus, there may be less of a desire for them to lose weight.

These results show that weight management concerns are mixed among Black women. If poorer self image is associated with a high body mass index and an increase in positive self image is associated with a decrease in dieting behaviors, then women who have a positive change in self image may be less likely to try to lose weight that was gained during various situations in life. In other words overweight women appear to

have a low self image. At the same time, dieting behaviors appear to decrease with increased self image. Therefore, overweight women with high self image do not attempt to lose weight. This may be especially true if the woman's perception of the Black man's desire is for a larger woman. In general, researchers postulate that feminine beauty standards differ for Black women compared to Caucasian women and may be associated with the desire (or lack of) for thinness, lower prevalence of eating disorders, and higher obesity prevalence among African American women than Caucasian women (Padgett & Biro, 2003). This tolerance for adiposity presents a challenge to health professionals when attempting to address obesity and the associated health risks (Padgett & Biro, 2003).

Recent results from a CARDIA study indicate the following among both Black and White women: 1) normal weight women who were satisfied with their body size had a lower annual BMI change than did normal weight women who perceived that they were a bit too large; 2) obese women who perceived their body size to be obese actually lost weight over the study period; 3) obese women who selected an overweight figure as an ideal body size gained weight, but gained less weight than did obese women who selected a normal weight ideal body size; and 4) obese women who perceived their body size as being much too large also gained weight, but gained less weight than did obese women who perceived their body size as only a bit too large (Lynch et al, 2009). These and other concerns should be addressed when designing weight management programs for Black women.

C. Barriers and Possible Strategies to Weight Management Success

Recent studies indicate that the utilization of unhealthy strategies to lose weight, such as severe caloric restriction, are not uncommon in African American women (Breitkopf & Berenson, 2004; Clark et al., 2001; Lowry et al., 2000; Tsai et al., 2009). This is true despite the current recommendations for increased healthy eating and physical activity. The results of a cross-sectional, self reported, telephone survey of 2,074 men and women, 75% (1,549) of which were African American, indicated that using both positive changes in diet and exercise decreased with age, and that in the middle years, there was an increased reliance on diet alone to lose weight (Arfken, & Houston, 1996). The study did not address the type of diets utilized, and the sample was predominately low-income, limiting population generalizability of the results. As previously mentioned, the recommendation for successful weight management includes physical activity and healthy eating. The diets utilized by many women, as well as programs targeted to minorities, often do not include safe (if any) amounts of physical activity and involve intense focus on limiting caloric intake (Bronner & Boyington, 2002).

Given that research indicates that, once enrolled, those most likely to complete a weight loss program are often older (usually over 40) than those who do not, it is imperative to promote physical activity as a life-long habit early in life, with the added benefit of weight control (Yanek, et al., 2001). Common barriers to success with recommended weight loss strategies (healthy eating and physical activity) for Black women include: (1) lack of transportation for low-income women, babysitting barriers, and unsafe public transportation for group-based programs; (2) difficulty in adhering to a walking program because it is not usually safe to walk during available evening hours;

and (3) difficulty in adhering to low-fat diets because of the tendency to rely on local markets which often do not have fresh fruits and vegetables or other low-fat food items (Klesges, Debon, & Myers, 2001). Other barriers include family and social obligations, poor social support, and financial limitations (Stolley et al., 2009). Family responsibilities unique to African American women, such as caring for extended family members are also cited, as well as time and motivation for well-educated African American women (Young, He, Harris, & Mabry (2002). This perceived responsibility includes unwillingness to "sacrifice" something for better health and a natural tendency to bear the burden of family at the expense of their own health (Young, et al., 2002).

The environmental influences on weight management as stated by Senekal et al., (1999) are (1) the social values developed according to the philosophy and weight-related messages of the advertising, retail, fashion and entertainment industries; (2) family values; and (3) the values and policies of surrounding organizations and places of employment (including schools and churches). Young, et al., (2002) found that in situations where there was awareness of available physical activity resources and facilities, common barriers such as time, motivation, and family needs remained in the African American women studied. This suggests that interventions should be culturally relevant to the target population of the program, rather than simply adopted from another setting with the same barriers (Young, et al., 2002; Kumanyika, Morssink, & Agurs, 1992; Wilcox, Richter, Henderson, Greaney, & Ainsworth, 2002).

Stolley, et al. (2009) found that African American women preferred programs that are practical, holistic, and considerate of both barriers and facilitators, to improve eating and physical activity habits. For these breast cancer survivors, facilitators included

religious faith, social support, and active involvement in the steps to decrease risk for reoccurrence (Stolley, et al., 2009). Izquierdo-Porrera et al. (2002) and Young et al., (2002) found that social factors in particular may be important to promoting adherence to an exercise program in African Americans, overall. This includes offering aerobics classes at the church, involving family members, offering support groups, offering competitions with rewards, and providing motivational workshops.

Senekal et al. (1999) proposed a multidimensional weight management paradigm that is influenced by interpersonal characteristics and skills as well as the surrounding environment. After examining the literature in the areas of nutrition, psychology, psychiatry, medicine, sociology, nursing, and sports, and relating the key concepts of weight management, Senekal et al. (1999) presents weight management as a continuum and identifies five prominent points. They are: (1) the formulation of reasonable goals; (2) the prevention of unnecessary weight loss or gain; (3) weight loss when necessary; (4) prevention of lapses and relapses after weight loss; and (5) acceptance of an overweight or obese physique when necessary. This last point often leads to a change in eating and exercise behaviors as a result of listening to the body's needs (Senekal et al., 1999). Interpersonal characteristics and skills associated with the proposed paradigm are enhanced self-esteem, body image, self-efficacy, internal locus of control, motivation, stress management, assertiveness, and problem solving and decision making skills (Senekal et al., 1999). Many of these elements are variables which have been associated with successful weight management approaches for Black women and should be considered in relevant program development (Bronner & Boyington, 2002; Hill, 2006).

D. The Role of Spirituality and Religiosity in the Lives of Black Women

Spirituality has been interpreted and measured in various ways, and often used interchangeably with religiosity, although they are distinct concepts. In their recent review of the concept of spirituality in the health sciences, Chiu et al. (2004) found that the holistic understanding of the word spirituality has been based primarily on Christian theology. Moreover, to establish elements of spirituality, current operational definitions/measurements, conceptual frameworks used in spirituality research, and cross-cultural spiritual themes, Chiu et al. (2004) conducted a review of 76 "qualified" articles dated 1990–2000. The spirituality themes that emerged were: Existential Reality; Connectedness/Relationship; Transcendence; and Power/Force/Energy. In order to determine an operational definition of spirituality, Chiu et al. (2004) analyzed the use of scales to measure spirituality constructs. Sample articles revealed several overarching operational definitions of spirituality that can be organized according to the following spiritual dimensions:

- **Existential** - a spiritual search for purpose and meaning, the experienced strength of a person's spiritual beliefs;
- **Relational** - aspects of social and divine relationships or connectedness and the experienced support associated with these relationships;
- **Transcendent** - transcendent experiences, transcendent awareness, and spiritual perspective;
- **Subjective** - measures of spiritual well-being, spiritual distress, and quality-of-life; and
- **Expressive** - religious behaviors and practices.

These definitions were developed through the examination of over 30 instruments that varied in belief system. The relational, expressive, and possibly essential aspects of these research findings may be correlated with elements of behavior change and will be addressed in this study.

A national working group of the Fetzer Institute identified domains of religiosity and spirituality in the following manner:

> "*While some may regard the two as indistinguishable, others believe religiousness has a specific behavioral, social, doctrinal, and denominational characteristic because it involves a system of worship and doctrine that is shared with a group. Spirituality is concerned with the transcendent, addressing ultimate questions about life's meaning with the assumption that there is more to life than what we see or fully understand...While religions aim to foster and nourish the spiritual life – and spirituality is often a salient aspect of religious participation – it is possible to adopt outward forms of religious worship and doctrine without having a strong relationship with the transcendent*" (Fetzer Institute, 2003, p 2).

It was from this workgroup that the Daily Spiritual Experiences, Religious Support, and other related scales were developed. The Daily Spiritual Experience Scale was developed to measure the everyday ordinary experience rather than particular beliefs or behaviors. This concept makes it easier to capture the "meaning of God" in an individual's life. Although it was originally developed for the Judeo-Christian U.S. population, the Daily Spiritual Experience Scale is intended to capture the spiritual experiences of any religion (Underwood & Teresi, 2002).

Many African Americans, especially women, use their faith in God as a source of strength to overcome challenges (Newmark, 2001). Research also shows that there are life-changing situations where spirituality is a source of hope. For example, spirituality for African American mothers with helplessly ill infants brought feelings of comfort,

strength and hope (Wilson & Miles, 2001). The researchers conducted retrospective interviews with 14 mothers and found that the concept of spirituality was used as "a propensity to make meaning through a sense of relatedness to dimensions that transcend one's self in such a way that it empowers and does not devalue the individual" (Wilson & Miles 2001, p. 116). Spirituality for these women is understood as:

- Belief in something greater than one's self;
- Interconnectedness with self, others, and God;
- A source of support and hope in finding meaning and purpose in life; and
- Strong linkage to religious faith systems and church activities.

For these women, "one's personal relationship with God can provide support and be a source of hope for a positive outcome" (Wilson & Miles, 2001, p. 116). Some of the women reported praying because God was in control and others because He would make them stronger. In addition, prayer and support from ministers, family, and friends helped some of them to acknowledge God even more than before (Wilson & Miles, 2001).

Although this research is very limited in that it is qualitative and specific to a very distinct group of women, it demonstrates the relativity and importance of spirituality to the African American woman. The notion that God can "be a source for a positive outcome" or that "He would make them stronger" gives reason to believe that spirituality in this manner can affect the self-efficacy and outcome expectation constructs of the social cognitive theory. Religious support may also be a variable that affects coping strategies in challenging situations. Holt, Shultz, and Wynn (2008) found that the perception of the religion-health connection, and its relationship to health behavior, is growing among African American men and women. Results of the qualitative study

showed that the positive role of a "higher power" influences social support, health behavior, and mental health, which are perceived to influence overall health (Holt, Shultz, & Wynn, 2008).

For many Black women, spirituality is defined as the basic or inherent quality in all humans that involves a belief in something greater than the self and a faith that positively affirms life (Musgrave, Allen, & Allen, 2002). Religiosity refers to religious attendance, practice, or activity, and influences the response to signs and symptoms of illness through rituals associated with disease prevention and health protection (Musgrave, Allen, & Allen, 2002). For Black women, however, things such as church attendance, Bible Study, and prayer are examples of spirituality, which is not viewed as abstract but deeply rooted in relationships and the community (Musgrave, Allen, & Allen, 2002; Giger, Appel, Davidhizar, & Davis, 2008). For Black women in particular, because of historical experiences, their spirituality is defined in a communal religious experience. The authors wrote:

> *Since slavery, the Black church has served a critical role in Black women's lives. God is seen as a deliverer from unjust suffering and the comforter in times of trouble. The church provides spiritual renewal and empowerment. In Black churches women feel free to receive and exhibit the reviving power of the Spirit as a healing resource supplying meaning in the midst of trials and tribulations. The overt expression of emotions in Black churches is an outlet for pent-up anguish. Women become therapist to each other and the church assumes the role of "an asylum of therapeutic assistance" as well as a place of shelter* (Musgrave, Allen, & Allen, 2002, p. 558).

The faith community should not be "used" in public health and health promotion efforts to target hard-to-reach populations, but as a key partner in the development of culturally appropriate interventions. Health and healing aspects within the context of faith traditions can promote positive health outcomes, positive decision making, and

behavior change (Musgrave, Allen, & Allen, 2002; Gelo, 1995). Assessment of client spirituality should also be incorporated into the traditional medical, social work, and psychological primary or initial assessment process (Gelo, 1995; Walker, 2001; Thorpe & Barsky, 2001; Moore, 2003). It was practices such as prayer, spiritually informed recovery programs, participation in religious activities, or meditation that had the potential to contribute to client recovery (Moore, 2003). The author indicates that it is imperative to assess the spiritual relevance in each case, followed by the client's identification of spirituality as strength or a problem in the current situation (Moore, 2003). It is important to understand the importance of the belief system as a resource (Wilson, 2001). There has been, however, little research that demonstrates the possibility that this concept can be applied to behavior change practices, such as those involved in weight management.

E. The Role of Self-Efficacy in Weight Management

Self-efficacy refers to an individual's confidence in their ability to produce a desired outcome by their actions (Bandura, 1988). The results of a focus group study conducted by Young, Gittelsohn, Charleston, Felix-Aaron, and Appel (2001) showed that the motivating factors of women over 40 who were currently physically active centered around personal factors such as concern over body weight or health, while those who were not active said they would be motivated by external factors such as a friend or group, advice from their doctor, or a fun and interesting exercise class. These ideas are associated with the methods of increasing efficacy as explained by Bandura (1988) – mastery experiences, vicarious experiences, social persuasion and somatic or emotional states.

The authors of a 1999 review article addressing the need for multidimensional weight management strategies reported that weight control self-efficacy plays an important role in weight loss, and treatment groups that enhance self-efficacy are associated with greater weight loss than comparison groups (Senekal, Albertse, Momberg, Groenewald, & Visser, 1999). This effect, however, was only apparent for those with an internal locus of control and for those who agreed with the belief that a successful weight management program should be approached on a multidimensional scale (Senekal, et al., 1999). Similarly, authors indicated that follow up evaluations reflecting maintained efficacy have been positively related to the maintenance of weight loss (Patsis & Hart, 1991; Rodin et al., 1988; DiClemente, 1995).

In terms of weight management and eating, the Weight Efficacy Lifestyle (WEL) Questionnaire was useful in providing measures of success in regards to eating for Caucasian women who were obese and primarily middle-class. The women were participants of a three month self-efficacy and behavior modification-based weight loss program that included a non-obese comparison group (Richman, Loughnan, Droulers, Steinbeck, & Caterson, 2001). Originally developed and validated by Clark (1999), a structural analysis of the WEL Questionnaire yielded a five-factor hierarchical model. The factors of the model were negative emotions, availability, social pressure, physical discomfort, and positive activities. The subjects of the Richman et al. (2001) study were asked to rate their confidence to resist the desire to eat in each of the 20 situations represented by the five factors of the questionnaire in an effort to highlight strengths and weakness of participant behaviors. Results from the study indicated statistically significant increases in eating self-efficacy for the obese participants. The results support

previous research that the WEL Questionnaire is useful in assessing change "in self-efficacy in relation to food following a brief behavior modification program" (Richman et al., 2001, p. 912).

The questionnaire was later validated with a group of low-income African American women (both overweight and obese) who participated in a structured weight loss program (Dutton, Martin, Rhode, & Brantley, 2004). The results of this study indicated improvements in overall WEL scores, but yielded different factor analysis results in regards to the structure of the scale. For this reason, changes in subscale scores were not calculated. Internal consistency of the original subscales displayed Cronbach's alpha coefficients that ranged from .69 to .84.

The factors of the original study were negative emotions, availability, social pressure, physical discomfort, and positive activities. There were four, rather than five factors around which the variables loaded when an exploratory factor analysis was conducted in the study. While the negative emotion and availability subscales were retained, the variables that made up the remaining three factors loaded around just two other factors that were not named by subject matter (Dutton et al, 2004). The authors of the study speculate that differences in factor loading could reflect interpretation differences between mostly educated Caucasian women of the original study and low-income African American women of the current study (Dutton et al, 2004).

The self-efficacy scales most utilized for exercise have been the Self-Efficacy for Exercise Scale (Marcus, 1992), the Barriers Self-Efficacy Scale (McAuley, 1992) and the Exercise Self-Efficacy Scale (McAuley, 1993). Self-efficacy, utilizing these and adaptations of these scales, has been shown to predict exercise behavior and to be

"positively associated with physical activity among men, women, older adults, overweight individuals and persons with injuries or disabilities" (Dallow & Anderson, 2003 p. 374). When used with obese women, the internal consistency for the adapted 5-item self-efficacy for exercise scale was determined as 0.76 and the test-retest reliability was 0.90 over a two-week period (Dallow & Anderson, 2003). External validity was demonstrated with statistically significant increases in self-efficacy in the intervention but not the usual care group of the study (Dallow & Anderson, 2003).

The five-item adaptation of the scale was also utilized to examine predictors of exercise maintenance among Caucasian middle-class women, following an individualized motivationally tailored intervention (Bock, Marcus, & Pinto, 2001). In this study, those who were physically active, at or above recommended levels six months after completing the intervention reported significantly higher levels of self-efficacy (Bock et al, 2001). In addition, a seven-item adaptation of the instrument was utilized to test factors associated with physical activity among African American men and women, and the internal consistency for this study was 0.73 (Bopp, Wilcox, Laken, Butler, Carter, McClorin, & Yancey, 2006). The researchers reported that among men, self-efficacy for physical activity was associated with moderate or vigorous physical activity and strength training. It was also independently correlated with meeting strength training recommendations among the men. Self-efficacy for physical activity was associated with meeting walking recommendations, moderate or vigorous physical activity, and strength training among the women in the study. Additional independent correlations were found with walking and moderate or vigorous physical activity (Bopp et al., 2006).

Wilber et al. (2003) utilized McAuley's Barriers Self-Efficacy scale in their assessment of the determinants of physical activity and adherence to a 24-week home-based walking program. The sample consisted of Caucasian and African American women who received an exercise prescription, instructions and support (Wilber et al., 2003). The Cronbach's alpha for the scale in this study was 0.92. Study results showed that the women had moderately high self-efficacy for overcoming barriers to exercise, and this self-efficacy was associated with program adherence (Wilbur et al., 2003). The results varied by ethnic group, with self efficacy being significantly higher at baseline in African American women. Paired t-tests on the women who completed post-intervention measures indicated that while self-efficacy for overcoming barriers to exercise decreased in both groups, it was only significant for the African American women (Wilber et al., 2003). These results support the notion that culturally sensitive programs may have better outcomes. The spirituality of Black women may have the potential to limit the extent to which her confidence to overcome barriers decreases.

Although there is a paucity of research in the area self-efficacy for following a low-calorie diet, Plotniknoff and Higginbotham (1995) found that study participants who had a higher dietary self-efficacy related to consuming a low-fat diet had better dietary outcomes related to the prevention of coronary heart disease. The authors, however, did not include Black participants, which limits generalization related to the proposed study. Results of a different study indicated that self-efficacy for reducing dietary fat intake predicted progression in stage of change for 44% of the individuals in the study (O'Hea, Boudreaux, Jefferies, Taylor, Scarinci, & Brantley, 2004). The participants were all low-income, predominately African American, and attended a primary care clinic where the

data was collected. The internal consistency for the measure was 0.88 (O'Hea et al., 2004).

Focus groups with African American women (Reicks, Mills, & Henry, 2004; Young, Gittelsohn, Charleston, Felix-Aaron, & Appel, 2001) revealed that although many of the women began weight loss strategies due to external factors (e.g., being able to fit in one's clothing), the successful weight loss maintainers had later incorporated the concepts of lifestyle behavior change into their attitudes and beliefs. The women recognized that successful eating habits coincided with God's plan and it was better to face challenges through prayer to strengthen self-discipline and willpower, rather than through emotional eating and blaming others (Reicks et al., 2004). Although limited, this research suggests that internal belief factors like self-efficacy, willpower, and self discipline are associated with spirituality and important in making healthy eating choices.

Other researchers conducted focus groups with obese women to evaluate the racial and socioeconomic differences of their weight-loss experiences (Davis, Clark, Carrese, Gary, & Cooper, 2005). Results indicated that many of the women did not maintain lost weight and that the weight management program should be tailored to the needs of the women and include weight maintenance strategies. Fifty percent of the women in the study were African American and they thought difficulties in weight management should be addressed through spiritual means. One respondent said that for her "the spiritual piece is important. Without it, any weight-loss program is not gonna work. You need a dual program" (Davis et al., 2005, p.1541).

When all aspects of the research on self-efficacy and its relation to weight management in Black women are combined, it leads the reader to believe that self-

efficacy may be correlated with internal locus of control. If the internal locus of control of a Black woman is strengthened through relationship with and faith in God (I can do all things through Christ who gives me strength), then degree of spirituality (or relationship with God) may affect her self-efficacy for a specific behavior. For Black women, the confidence to overcome the barriers of weight management may be associated with where her internal strength comes from. This strength, for many Black women, is associated with her degree of spirituality as defined earlier in this paper. Research that addresses the relationship between self-efficacy, spirituality, and the ability to achieve successful weight management outcomes would be beneficial to the existing body of knowledge addressing components of culturally sensitive behavior change programs among Black women.

F. Faith-Based Weight Management Program Outcomes

Maintaining staff contact, relapse prevention training, and participation in regular physical activity is critical for any successful weight loss maintenance. The following programs have tried to incorporate these strategies as well as factors such as community, family, and cultural preferences proved to be important in the Black community.

McNabb et al. (1997) designed the PATHWAYS church-based weight loss program to determine whether the positive results of a clinic-based program could be transferred into the community. After being pilot tested with some success, McNabb et al. (1997) implemented the program in three urban African American churches. The components of the program remained the same as the clinic-based program, but were facilitated by lay health educators in a church setting. The dietary changes promoted by the program included dietary fat reduction, increase in fiber intake, and a gradual change

in total calories consumed. The program was originally created for diabetes patients, but was expanded to include those at risk for diabetes, measured as a BMI between 30 and 45 kg/m^2 (McNabb et al., 1997). Baseline measures included weight, height, and waist circumference. Participants also completed the Food Behavior Checklist, the PATHWAYS Weight Loss Behavior Index, and a 24-hour recall questionnaire (McNabb et al., 1997). While there was no baseline measurement for physical activity, participants were instructed to begin an at-home exercise program (McNabb et al., 1997). Researchers collected data at baseline and one week after the 14-week intervention. The women randomly assigned to the control group were put on a waiting list to receive the intervention after initial data collection. Trained volunteers implemented the program from the three churches, with continued technical assistance provided (McNabb et al., 1997; Quinn & McNabb, 2001).

Results indicated that there were significant differences between groups in all measurements, except fiber intake. An independent sample t-test showed that the mean difference between groups was -11.9 pounds after the completion of the sessions. Those in the intervention group lost an average of 10 pounds while those in the control group gained an average of one pound (McNabb et al. 1997). The difference in the change in BMI was also significant. Finally, significant differences favoring the intervention group were found with waist circumference and eating behaviors. Although the differences were not significant with exercise behaviors, they were large (McNabb et al., 1997). This may have been due to the large variability in baseline exercise levels between subjects in the intervention and control groups (McNabb et al., 1997).

Another faith-based intervention, *Project Joy*, had the objective to determine the impact of active nutrition and physical activity interventions on one-year measures relating to lifestyle risk factors and cardiovascular disease risk profiles compared with a self-help (control) group (Yanek et al., 2001). In addition, the researchers wanted to "determine the extent to which a strong spiritual component and elements of church culture strengthen the impact of standard behavioral group interventions in the church" (Yanek et al., 2001, p. 68). There were three intervention groups in the study: a standard behavior intervention, a spiritual intervention (standard plus spiritual component), and a self-help control intervention. The added spiritual components and church contextual components were designed by a community expert panel and investigators. The weekly sessions included group prayers, scripture-enriched health messages, and physical activities such as aerobics to gospel music or praise dance (Yanek et al, 2001). Other spiritual components included printed health messages called "The Joy of Health" that were accompanied by scripture and monthly health messages from the pastor in a newsletter called "From the Pastor's Desk" (Yanek et al, 2001).

African American health educators from the research staff taught weekly sessions for 20 weeks, after which formally trained lay leaders offered weekly sessions for the remainder of one year (Yanek et al., 2001). Support from the research staff was available to the health educators when necessary. Baseline measures were weight, height, body fat, blood pressure, heart rate, blood lipid and glucose levels, dietary nutrient intake (The Block Food Questionnaire), smoking and carbon monoxide, and physical activity (Yale Physical Activity Survey to calculate energy expenditure; Yanek et al., 2001). After one

year of intervention sessions, Yanek et al. (2001) contacted participants to obtain follow-up measurements.

The researchers were unable to compare the two intervention groups due to the fact that the women in the standard intervention group spontaneously added a spiritual component from the very first session. Because the participants were in a faith-based setting, this likely encouraged spiritual integration, thus the two groups were combined during the analysis of the data. At the one-year follow-up, there were significant beneficial changes in each measure except energy expenditure, for the combined intervention group compared to the self-help group. There were slight and statistically significant decreases in body weight and BMI, when compared to baseline measures in the combined intervention group, but no significant differences in the control (self-help) group.

Although one objective of this project was to measure the impact of the additional spiritual component on the intervention, participants made it difficult to do so. In addition, baseline religious denomination was assessed with no statistically significant differences in outcomes within or between standard and spiritual intervention groups. The "extent to which a strong spiritual component impacts the intervention" (Yanek et al., 2001, p. 69) was a key element, yet was left unanswered.

The *Weighed Down Workshop* is an exception to the above programs in that it is not specifically geared towards African American women. The program, however, is a Biblically–based program that focuses on the idea that God gave us hunger cues, and to overeat is to ignore those cues as indicators of mealtime. The weakness of the program is that it does not follow the guidelines of the U.S. Department of Health and Human

Services on healthy eating (adequate servings for each food group) and physical activity (at least 30 minutes per day). It focuses specifically on hunger cues and does not include a physical activity component. On the other hand, one of the strengths of the program is that the participants are taught to internalize the control of eating with the help of God, through prayer and the reading of the Word. When the women in a focus group reported their experience in the program, they mentioned the importance of the group meetings, Bible readings, and prayer (Reicks et al., 2004). More than half of the women also stated that they repeated the program more than once, mostly for the purpose of wanting to remain in the group classes (Reicks et al., 2004). This type of support encompasses spirituality and may not be comparable to the basic weight management support group for women in the Black community. However, there was no group with which to compare differences in this focus group study.

Fitzgibbon et al., (2005) conducted a randomized pilot study with 59 overweight or obese Black women that had a goal to estimate the effects of a 12-week culturally tailored, faith-based weight loss intervention on weight loss, dietary fat consumption, and physical activity. The program was called *Faith on the Move.* The women were randomized into either the culturally tailored, faith-based weight loss intervention or the culturally tailored weight loss intervention with no active faith component. The intervention was based on the principles of the social cognitive theory and included cognitive, behavioral, and environmental or cultural aspects of lifestyle changes in physical activity that would lead to weight loss. The women met twice per week in a small group setting that was divided into two 45-minute segments: an interactive didactic component and an exercise component. Topics discussed were as follows: Pros and cons

of weight loss, breast cancer risk factors, self monitoring, fruit and vegetable intake, high fat foods, portion control, physical activity, reading food labels, program review, meal planning, lifestyle versus fitness-focused exercise, goal setting, breast health, holiday planning, barriers to making healthy choices, and maintaining behavior changes. Subjects were combined in some instances and all discussions were accompanied by a related scripture(s).

The results of this adequately controlled trial approached statistically significant differences in weight loss and dietary fat consumption between the spiritual and non-spiritually supplemented groups. For example, the women in the faith-based group reduced their BMI by an additional .34 kg/m^2 (p=.37), and their weight by an additional 2 lbs (p=.34) or 0.73% (p=.41) in 12 weeks. However, the study lacked adequate power due to small sample size of 59 Black women (Fitzgibbon et al., 2005). Data collection consisted of anthropometry and socio-demographic and health-related questionnaires. Questionnaires were administered in the form of interviews. While the effect size (.27) suggested improved results with the addition of the faith component, particularly in the area of weight reduction, results were not statistically significant. The researchers suggested further research in the form of an adequately powered trial.

The researchers of a recent study did find that Catholic-tailored programs may represent a feasible, culturally acceptable approach to weight management/maintenance in the examined faith community (Krukowski, Lueders, Prewitt, Williams, and West (2010). Overweight Catholic individuals (n = 34, 71% female) were randomized to a Catholic-tailored or standard behavioral 16-week group weight control program. Both conditions experienced significant weight losses (Catholic-tailored: -8.1 + 4.1%,

Standard: -7.9 + 4.2%); however, treatment satisfaction was significantly greater in the Catholic-tailored program. Although the participants were 100% Caucasian, the Catholic-tailored program experienced trends for greater attendance, more completed self-monitoring journals and smaller weight regain six months post-treatment than the standard program (Krukowski et al, 2010). Based on published evidence to date, the relationship between spirituality and weight management outcomes among Black women remains unclear.

G. Conclusions

Weight management in Black women has been studied within and outside of the context of a "spiritual" setting; mainly for the purposes of community, social support and culture. Programs such as those to reduce mammography non-adherence, decrease blood pressure, and increase rates of smoking cessation and weight loss have often been successful (Holt, Lee, & Wright, 2008). However, while Black churches have been an effective venue for many health education programs, studies have not investigated the specific relationship between spirituality and self-efficacy to achieve and maintain healthy behavioral habits, such as those necessary for weight management. Further research is necessary to address the question of whether or not the spirituality of Black women affects their self-efficacy for behaviors pertaining to achieving and maintaining a healthy weight outside of a faith-based or church setting.

CHAPTER 3

METHOD

A. Overview and Design

This study used a repeated measures design to examine the relationships among self-efficacy for physical activity and healthy eating, spirituality, and changes in body composition among Black women over the period of participation in the *Curves for Women (Curves)* weight management program (Nutrition Solutions – Appendix A). The *Curves* program for general members was not a part of the study. The study explored the notion that faith or relationship with God, as assessed by the Daily Spiritual Experiences scale, may positively affect the efficacy for crucial weight management behaviors (nutrition and physical activity habits), program adherence, and program outcomes in Black women.

B. Inclusion and Exclusion Criteria

The inclusion criteria were women, who were 18 years or older, with a body mass index (BMI) above 25, not pregnant or breastfeeding, reporting no major illness, and not taking weight loss medication. In addition, the women could not be a current participant in any other weight management program. Women were not excluded from the study based on ethnicity. However, recruitment efforts were focused on Black women in Northern (N) and Southern (S) California. Three women were excluded from the analysis, but not from participation, due to the ethnicity criteria.

C. Study Variables

The key study variables and how they were assessed are as follows:

1. Outcome Measures

- Self-efficacy: Scores on self-efficacy for healthy eating and physical activity scales
- Behavior Change: Change in consumption of fruits and vegetables and minutes of participation in physical activity
- Body Composition: Change in BMI (height & weight) and change in percent body fat as assessed by Tanita scales, and change in waist-to-hip ratio
- Attrition/Adherence: Percent/number of sessions attended

2. Independent Variables

- Spirituality: Score on the Daily Spiritual Experiences scale, collected at baseline
- Religiosity: Score on Private Religious Practices and Religious Coping scales, and response to a single question regarding religious service participation, collected at baseline
- Religious Support – Response to instrument sub-scale regarding support from place of worship, collected at baseline
- Family Support – Response to instrument sub-scale regarding support from family members, collected at baseline

- BMI, waist and hip circumferences, and percent fat measures: Measured and recorded by the staff of participating *Curves* sites at baseline

3. Measurement and Instrumentation

The study instrument (Participant Questionnaire – please see appendix B) included measures of exposure to healthy eating and physical activity messages, spirituality, religiosity, religious support, family support, and selected demographics. The instrument also included measures of self-efficacy for physical activity and eating behaviors. All elements of the instrument have been previously tested and validated. The Daily Spiritual Experience scale had also been validated with African American women (Dutton et al., 2004). The instrument was pilot-tested with a sample of women (N=11) in the target population of this study to determine face validity and length of time to complete. Measurement of the study variables is described below.

a. Healthy Eating and Physical Activity. Questions regarding fruit and vegetable intake and physical activity recommendations were used with permission from the *Network for a Healthy California.* The *Network* survey from which the questions were taken has been piloted tested with Black women and used annually as a part the *Network's African American Campaign* "Consumer Survey." Awareness of nutrition messages, and knowledge questions that addressed the recommendations of fruit and vegetable consumption and participation in physical activity, were only asked at baseline. Questions regarding fruit, vegetable, and physical activity behavior were asked at all three data collection points of the study. When asked about the average number of cups of fruit and vegetable eaten per day, participants were able to choose responses of less

than 3 through 6.5, "more than 6.5", or "I don't know". When asked about minutes of daily moderate or vigorous physical activity, participants could choose "less than 30", "30-60", "more than 60", or "I don't know".

b. Spirituality and Religious Support. Each scale was adapted from the *Multidimensional Measurement of Religiousness/Spirituality for Use in Health Research: A Report of the Fetzer Institute/ National Institute on Aging Working Group* (1999). In this study, spirituality was defined as a score on a scale adapted from the Daily Spiritual Experiences Scale developed by Underwood et al. (1999). Three of the 16 items were unintentionally omitted from the questionnaire in this study, but the reliability of the measure was still high (.90). The scale is intended to measure an individual's perception of a divine God in daily life and his or her perception of his or her interaction with or involvement of the transcendent in life. Participants respond to statements like "I find strength (or comfort) in my religion or spirituality" or "I feel guided by God in the midst of daily activities" with how often this might occur (i.e., many times per day, every day, most days, etc.). For ease of interpretation, the scores were coded to indicate that the higher the score, the greater the spiritual experiences or religiousness.

c. Religiosity. (i.e., church attendance, private practices, and coping) was measured and analyzed independent of spirituality for the possibility of an independent relationship with self-efficacy. The scale was also adapted from the Multidimensional *Measurement of Religiousness/Spirituality for Use in Health Research: A Report of the Fetzer Institute/ National Institute on Aging Working Group* (1999). Church attendance was assessed by a single question – How often do you attend religious services. This question is from the Organizational Religiousness short form (Idler, 1999). The

Spiritual/Religious Coping (religiosity) short form (three items), which measures patterns of religious/spiritual coping with stressful life events, had a reliability score of .85 (Pargament, 1999). The reliability score for the four-item Private Religious Practices (religiosity) scale was .58 - a scale designed to capture the larger construct of religious involvement that is non-organizational, informal, and non-institutional (Levin, 1999). Congregation Benefits (support received from others) was addressed with two items (Krause, 1999). All spirituality and religiosity variables were assessed only at baseline.

d. Self-Efficacy for Healthy Eating. The 20-item Weight Self Efficacy Scale (Clark, 1991), which measures confidence to resist eating unnecessarily, was used to assess self-efficacy for healthy eating as it has been validated with a group of low-income African American women (both overweight and obese) who participated in a structured weight loss program (Dutton, Martin, Rhode, & Brantley, 2004). In previous studies, internal consistency of the sub-scales displayed Cronbach's alpha coefficients that ranged from .69 to .84. In this study, the coefficient for the total scale was .95. This variable was assessed at all three time points in the study.

e. Self-Efficacy for Physical Activity. The 13-item Barriers Self-Efficacy Scale (McAuley, 1992), which measures confidence to overcome exercise barriers has also been validated and utilized with a previous sample consisting of Caucasian and African American women who received an exercise prescription, instructions and support (Wilber et al., 2003). The researchers in the Wilber et al. study reported a Cronbach's alpha of 0.92 for the scale. In this study, the coefficient was .94. An additional 6-item scale (McAuley, 1993) that measured the confidence of the women in this study to continue exercise for up to 6 additional weeks had a reliability score of .99.

f. Body Composition Measures. The same standard Balance Beam scale was used at each site to measure height (inches) and weight (pounds). The Omron HBF-306 Body Fat Analyzer was used to assess body fat percentage and body mass index (BMI). BMI was also calculated in SPSS version 17 when assessment information was not complete but weight was available for a particular measurement interval (assuming height had not changed from baseline). Circumference measures were assessed with a standard plastic tape measure and reported in inches.

g. Program Adherence . Study participants were asked to complete the program by attending the seven sessions offered. Attendance logs were collected for each class and recorded as number of sessions attended. Participants were asked to complete at least five of the seven sessions offered to qualify for the program incentive (the cost of program participation).

D. Procedures

1. Recruitment and Consenting

Partnerships with local churches and *Curve* sites were formed to recruit study participants and instructors. Geographic areas of the study included one site in each of the following cities in California - Oakland (N), Emeryville (N), Paramount (S), Carson (S), and Inglewood (S).

Although flyers were distributed, word-of-mouth by owners, area church members, and other recruits was the primary method used to recruit study participants. *Curve* sites were chosen based on the desire to have a cross-section of women from both Northern and Southern California (location), the percent of Black women who lived in the area (demographics), and the willingness of site owners to participate. Initial

recruitment focused on sites and was followed by participant recruitment. Once trained on study details, the owners and staff of participating sites verbally explained the study to current and prospective members and to potential study participants. If the women were interested, a consent form was used to further discuss commitment and to confirm participation. The consent form was signed at that time if an agreement was reached. Signatures on the informed consent document were also obtained at the beginning of the first class if new participants had been recruited but not confirmed and consented. There were six sites recruited (three in each geographic area), but due to the unexpected closing of one Northern California site, the study proceeded with five, rather than six sites. The site closed two weeks before the study began, and the 24 individuals recruited for that site were unable to participate in the study. The program fee, in the amount of $99, was paid for participants who completed at least 5 of the 7 classes offered over the 7-week period.

The recruitment goal was set according to an anticipated 30% dropout rate. The average rate is closer to 45%, but because of the program payment incentive, we anticipated the dropout rate would be lower. The fee was prorated in the sense that research participants who did not complete the program were responsible for reimbursing that cost to the *Curves* owners. The *Curves* owners were paid directly for materials and program-related incentive items at the beginning of the program, with the remainder of the program fee paid by the study investigator to the *Curves* owners once the participant had completed all aspects of the study.

2. Baseline and Follow-up Assessments

As a part of its standard assessment, the *Curves* Weight Management Program measures height, total weight, fat weight, percent body fat, and various

circumference measures at 1, 4, and 7 weeks. The *Curves* staff collected initial BMI information (height, weight) and other anthropometric data (percent body fat, waist circumference, etc.) at the kick-off session and each week thereafter as part of their standard Weight Management Program. BMI was calculated using the Omron HBF-306 Body Fat Analyzer. After the initial assessment, women were told by the *Curves* staff if they qualified for the study, based on inclusion/exclusion criteria. All sites use the same protocol, and this was reiterated in the owner training sessions (appendix D). Minutes of daily exercise were self-reported in an exercise chart located in the participant manual and reviewed weekly. Study participants were also asked to include physical activity participation and consumption of fruits and vegetables on this chart. The study questionnaire assessing spirituality and other study variables (e.g., self-efficacy, etc.) was completed at the *Curves* Kick-Off session (week 1). At week 4 and at the wrap-up session (week 7), participants completed the self-efficacy sub-scales and eating and physical activity questions, in addition to standard assessments conducted as part of the weight management program.

3. Spiritual Component (Pilot Study)

At one study site, a spiritual component was added to the weekly session of the *Curves Weight Management Program*. Similar recruitment and methods to the main study were utilized for recruitment and consent. However, the addition of the spiritual component was explained to the *Curves* owner and the study participants during recruitment.

This component was developed by a consultant with strong knowledge of adult learning theories and who had been trained in the scriptures and concepts of the Bible.

She was a member of the target population for the study, and had personal weight management experience. Utilizing the overall format of the Fitzgibbon (2005) study, a brief spiritual component was developed that could be easily integrated into the *Curves Weight Management Program* (please refer to Appendix E).

4. Intervention and Assessments

The basic *Curves Weight Management Program* included one kick-off session, six weeks of program content, and a wrap-up session. As suggested by the consultant, the instructor of the pilot test site integrated a brief spiritual component into each of the *Curves Weight Management* sessions. There are areas in each of the sessions that leave room for the instructor to vary activities, or use various questions as conversation starters. Similar assessments to the Main Study (questionnaires, anthropometric measurements) were conducted at the pilot test site. In addition, participants at the pilot site were asked to participate in a brief discussion at the end of the study to express reactions to the brief spirituality intervention.

E. Data Analysis

Data were analyzed with the Statistical Package for the Social Sciences (SPSS) version 17.0 (2007). Descriptive statistics were conducted to examine the frequencies, central tendency, outliers, missing values, and variability of the data from the demographic questionnaire and study variables. The normality of data distribution was examined by producing a histogram for each variable. Equality of variance and outliers were checked by examining the spread of the data in the box plot. Missing values and extreme outliers were examined for reasons for occurrence, and decisions were made as to whether to exclude or keep them.

Linear regression analysis was used to determine the association of outcome variables to spirituality, controlling for baseline values of outcome variables - self-efficacy, body mass index (BMI), waist-to-hip ratio, and body weight at mid- and end-of-program. Correlation among variables was examined at baseline. Significance of mean change in self-efficacy, consumption of fruits and vegetables, and minutes of physical activity were assessed through paired t-tests and crosstabs/chi square.

F. Power Analysis

For multiple regression analyses, effect size is denoted by f^2 and is interpreted as the proportion of the remaining unexplained variability that is explained by the predictors of interest. Cohen (1977) describes an $f^2 = 0.02$ as small, $f^2 = 0.15$ as medium, and an $f^2 = 0.35$ as large. It was expected that the effect sizes we obtained would be between small and medium (e.g. $f^2=0.10$). After attrition, we expected to have a total sample size of 110. Assuming a 5% type 1 error rate, and assuming as many as 5 additional confounding variables in our models, with 110 subjects, we would have 90% power to detect an effect size of .10. For larger effect sizes, the statistical power will be greater than 90%. In order to account for 30% attrition, 150 women were recruited to one of six *Curve* sites.

G. Research Ethics

Institutional Review Board approval was given through Loma Linda University (appendix F) and reviewed by *Curves International* and Alameda County Public Health Department Research Units. Participants were asked to give informed consent at the time of enrollment into the weight management program. Consent form information includes a summary of the study purpose and procedures, risks/benefits, costs/payments, an overview of confidentiality adherence, and information on who to contact for questions

and/of complaints. Participant information was kept in a locked file located on the site of the program, and information that connected participant to outcomes was only available to the principal investigator and program assistant.

CHAPTER 4

PUBLISHABLE PAPER

Spirituality, Religiosity and Self Efficacy among Black Women Participating in a Weight Management Program

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ABSTRACT

Obesity is a major concern in the United States and Black Americans are among those with the highest rates of overweight, obesity, and related co-morbidities. While weight loss among Black women has been studied within the context of a faith-based setting, there is little information about the relationship between spirituality, or relationship with the transcendent, and self-efficacy in the achievement and maintenance of a healthy weight.

Eighty-two Black women, who enrolled in the 7-week *Curves for Women (Curves) Weight Management Program*, completed self reported assessments of spirituality and religiosity at baseline, and self-efficacy for weight management behaviors at the baseline, middle and end of the program. The three assessment intervals also included body mass index (BMI), waist-to-hip ratio, basic circumference measures, as a part of the program, and self-reported physical activity participation and fruit and vegetable consumption. Regression analysis was used to determine predictors of self-efficacy for healthy eating and physical activity, and body weight measures at each interval. Both self-efficacy and daily spiritual experiences at baseline were significant contributors to the prediction of efficacy for physical activity/exercise and eating variables later in the program.

Keywords: spirituality, self-efficacy, African American, Black, women's health, weight management

Background

Overweight and obesity are, together, leading indicators of preventable deaths in the United States (Mokdad, Marks, Stroup, & Gerberding, 2005). Over the past few decades, the rates of overweight and obesity have grown by epidemic proportions. Data from the Center for Disease Control and Prevention's Behavior Risk Factor Surveillance System show that in 1995 there were only four states in the U.S. with an obesity prevalence rate of 15-19% and none with 20% or more. However, in 2005 only four states had prevalence rates of less than 20%, while 17 states had rates or 25% or greater. In 2006, the epidemic had grown worse. There was only one state with a prevalence rate of 15-19%, and the number of states with an obesity prevalence of $\geq$25% had exceeded 25.

Overweight and obesity are known to be associated with heart disease, certain types of cancer, type 2 diabetes, stroke, arthritis, breathing problems, and psychological disorders (Fitzgibbon et al, 2008). All of these health issues have related economic costs. In 1998, aggregate adult medical expenditures attributable to overweight and obesity was estimated to be $51.5 billion using Medical Expenditure Panel Survey (MEPS) data and $78.5 billion using 1998 National Health Accounts (NHA) data. For obesity alone, the estimated costs were $26.8 billion and $47.5 billion, respectively (Finkelstein, Fiebelkorn, & Wang, 2003). Data from 2001 revealed an estimated direct and indirect cost of $123 billion (Hossain, Kawar, & El Nahas, 2007). Obesity is the greatest risk factor for type 2 diabetes and the total annual economic cost of diabetes in 2007 was estimated to be $174 billion (http://www.diabetes.org, accessed April 3, 2009). The rise

in the prevalence of overweight and obesity was one of several factors that contributed to the increase of $42 billion since 2005.

While there are recognized health differences among sub-groups of Black Americans, the term "Black" will be used in this paper to include individuals living in America who have an African heritage, as well as those who have Caribbean, Central, or South American heritages (Read, Emerson, & Tarlov, 2005). Most of the early literature refers to Blacks as African Americans and it is unclear as to whether or not those with multiple heritages are included. The terminology of the reference articles will not be changed in the literature review section of this paper to accurately reflect usage by those authors.

Barriers and Strategies for Weight Management

Researchers believe that the major contributor to weight gain in the United States is the vast amount of energy intake that is not balanced by energy expenditure (Blair & Nichaman, 2002), in addition to changes in the environment that promote a positive energy balance (Hill, 2006). Research also shows that a reduction in prices for prepared meals has reduced home production, leaving more time for non-active leisure activities – a result of changes in technology (Sturm, 2007). Previous research suggested that decreased participation in physical activity was more likely than increases in energy intake (i.e., food consumption) to be the greatest contributor to the recent increase in obesity prevalence (Blair & Nichaman, 2002). However, more recent evidence shows that leisure time physical activity has actually increased, but not enough to balance the increase in travel time and sedentary leisure time (Sturm, 2007). Recommendations for obesity interventions include continual increases in regular physical activity, an improved

diet to decrease caloric intake, and environmental changes that promote a healthy lifestyle (Blair & Nichaman, 2002; Swinburn & Egger, 2002; Kealy, 2003; Lowry et al., 2000; Jakicic, Wing, & Winters-Hart, 2002; Hill, 2006).

Unhealthy eating and physical inactivity, the two primary causes of obesity, are second only to cigarette smoking as the leading cause of death in the United States (Flegal, Carroll, Ogden, & Johnson, 2002; Mokdad, Marks, Stroup, & Gerberding, 2005). While chronic diseases account for five of the six leading causes of death in the United States, regular physical activity and good nutrition habits can help prevent many of these obesity-related diseases (U.S. Department of Health and Human Services, 2006). The U.S. Department of Agriculture, along with the American Dietetic Association, recommends that Americans eat 5 to 13 servings (or 3.5 to 6.5 cups) of fruits and vegetables every day and be physically active at least 30 minutes per day for adults and 60 minutes per day for children, to help prevent chronic diseases and obesity (Kahn et al., 2002; www.health.gov/DieratyGuidelines/dga2005/document/default.htm, accessed April 6, 2009).

According to Blanck, et al. (2008), the prevalence of eating fruit two or more times per day was 32.6% for the U.S. adult population. This rate was 35.1% for non-Hispanic Black adults, compared to 37.2% for Hispanic adults, and 31.2% for non-Hispanic White adults (Blanck et al., 2008). The prevalence of eating vegetables three or more times per day was 23.7% for non-Hispanic Black adults, compared to 20.7% for Hispanic adults, and 28.6% for non-Hispanic White adults (Blanck et al., 2008). Among women, the rate was 29.8% among non-Hispanic White women, and 27.3% among non-Hispanic Black women (Blanck et al., 2008). Although the prevalence rate of physical

activity is increasing among Black American men and women, the racial/ethnic disparities remain evident. The highest prevalence rate of regular physical activity is among non-Hispanic White men (52.3%), and the lowest among non-Hispanic Black women (36.1%) (http://www.cdc.gov/MMWR/preview/mmwrhtml/mm5646a1.htm, accessed April 5, 2009). The disparity in healthy eating and physical activity habits is a likely contributor to the health disparities related to overweight and obesity, independent of socioeconomic status.

McInnis, Franklin, and Rippe (2003) report that there are no longer any serious doubts about the strong impact of physical activity on promoting health and preventing disease, or achieving and maintaining a healthy body weight. The authors state that "physical activity has a positive effect on weight loss, total body fat, and body fat distribution, as well as favorable body weight and change in body composition" (McInnis et al., 2003, p. 1249). The high rates of overweight and obesity may reflect the low rates of physical activity participation. The California Behavioral Risk Factor Survey 2002 data indicate that almost two-thirds of African Americans in California are at risk for health problems related to being overweight.

In 2001, more than 77% of African American women were overweight and 50.8% were obese (Flegal et al., 2002). Prevalence data from the 2003-2004 National Health and Nutrition Examination Survey (NHANES) indicate that, since 1999, the rate of overweight for Black women has increased by more than four percent (to 81.6%), compared to the relatively stable rates of 61.8% for all women and 66.3% for all adults (Ogden et al., 2006, Stolley, Sharp, & Schiffer, 2009). Nationally, 54.0% of Black women are obese and 14.7% are extremely obese, compared to 33.2% obesity and 6.9%

extreme obesity for all women (Ogden et al., 2006; Fitzgibbon et al., 2008). In California, 30.4% of Black women are overweight and 34.5% are obese, compared to 27.0% and 18.4% for non-Latino White women (www.askchis.com, accessed April 10, 2009). Obesity data are calculated based on height and weight, and categorized into a weight health index known as the Body Mass Index (BMI).

There are many variables associated with weight and weight loss strategies in Black women. While recent studies indicate that the utilization of unhealthy strategies to lose weight, such as severe caloric restriction and over-the-counter weight loss supplements, are not uncommon in African American women (Tsai et al., 2009; Breitkopf & Berenson, 2004; Clark et al., 2001; Lowry et al., 2000), approaches that address the barriers to successful outcomes are few and those that exist have yielded varied results (Bronner, 2002; Tsai et al., 2009). Factors such as participant motivation and high expectations, active discovery learning, a strong team approach, behavior modification, the promotion of small changes in diet and physical activity, and compatibility with culture are important components of successful weight management programs for Black women (Bronner, 2002; Hill, 2008).

Primary care weight management interventions have also been effective for low-income African American women (Martin et al., 2006). However, focus group themes such as dislike of the word obese, physician manner and timing when discussing weight, and a personalized approach to challenges emerged from a group of obese African American women participating in physician-based weight loss programs (Ward, Gray, & Paranjape, 2009). Evidence suggests that a multidimensional weight management paradigm that is influenced by interpersonal characteristics and skills as well as the

surrounding environment will help achieve positive outcomes (Senekal, Albertse, Momberg, Groenewald, & Visser, 1999; Hill, 2006).

Self-Efficacy, Spirituality and Weight Management

Self-efficacy, confidence in one's ability to complete a given task, is an important construct of the social cognitive theory. Research shows that for behaviors such as physical activity, self-efficacy may be high at the beginning of an intervention but decreases over the length of the program for participating Black women, compared to participating White women (Wilbur, Miller, Chandler, & McDevitt, 2003). Although it is not clear why, this may be due to less experience at the beginning of the program with overcoming challenges in related behavior change programs like physical activity. The decrease in self-efficacy affects overall success in behavior change and is often associated with program attrition (Wilber et al., 2003).

It is possible that the spirituality of a Black woman, or the extent of her relationship with God, may positively influence her self confidence (self-efficacy) to change. According to Wilson and Miles (2001), a person's personal relationship with God can provide a source of support for a positive outcome. Research also shows that in Black women, spirituality significantly influences what they think and believe (Musgrave, Allen, & Allen, 2002). Holt, Shultz, and Wynn (2008) also found that the perception of the religion-health connection, and its relationship to health behavior, is growing among African American men and women. Results of the qualitative study showed that the positive role of a "higher power" influences social support, health behavior, and mental health, which are perceived to influence overall health (Holt, Shultz, & Wynn, 2008).

Successful weight loss and maintenance are found in faith-based weight reduction programs for Black women and may be associated with spirituality (Reicks, Mills, & Henry, 2004; Yanek, Becker, Moy, Gittelsohn, & Koffman, 2001). The association, however, has not been satisfactorily examined. Researchers of *Project Joy*, a faith-based cardiovascular health project, attempted to determine the impact of a standard behavioral group intervention, a spiritually supplemented intervention, and self-help strategies on cardiovascular risk profiles of the participants. The risk profile included body weight, waist circumference, and dietary intake patterns. One objective was to understand the difference between two intervention groups – one with and one without a spiritual component (scripture readings, prayer, gospel aerobics, etc.) - within a faith-based setting. The group without the spiritual supplement voluntarily added the aspect of spirituality to the program, which led to a problem with diffusion of treatment. For this reason, the researchers were unable to compare the groups in terms of the spirituality component (Yanek et al., 2001). Thus, the two intervention groups were combined and compared with the self-help group. At the 1-year follow-up, there were significant beneficial changes in each measure except energy expenditure for the combined intervention group compared to the self-help group. There were slight and statistically significant decreases in body weight and BMI, when compared to baseline measures in the combined intervention group, but no significant differences in the control (self-help) group (Yanek et al., 2001).

Although one objective of *Project Joy* was to measure the impact of the additional spiritual component on the intervention, participants made it difficult to do so. In addition, baseline religious denomination was assessed with no statistically significant

differences within or between standard and spiritual intervention groups. The "extent to which a strong spiritual component impacts the intervention" (Yanek et al., 2001, p. 69) was a key element but was left unanswered.

More recently, Black women participating in a culturally sensitive weight management program suggested the addition of a spiritual component to further strengthen the programs cultural sensitivity (Fitzgibbon et al., 2005). The results of this adequately controlled trial approached statistically significant differences in weight loss and dietary fat consumption between the spiritual and non-spiritually supplemented groups. For example, the women in the faith-based group reduced their BMI by an additional .34 kg/m^2 (p=.37), and their weight by an additional 2 pounds (p=.34) or 0.73% (p=.41) in 12 weeks. However, the study lacked adequate power due to the small sample size of 59 Black women (Fitzgibbon et al., 2005). Data collection consisted of anthropometry and socio-demographic and health-related questionnaires. Questionnaires were administered in the form of interviews. While the effect size (.27) suggested improved results with the addition of the faith component, particularly in the area of weight reduction, results were not statistically significant. The researchers suggested further research in the form of an adequately powered trial. Thus, it is unclear, based on published evidence to date, how spirituality affects weight management outcomes among Black women.

Conclusions and Study Purpose

In light of the continued increases in overweight and obesity in Black women and the relationship to chronic disease, it is imperative that successful weight management approaches are developed and utilized in public health and health education programs.

Those interventions with a spiritual component that appeals to Black women, for whom spirituality is important, have the potential to be more effective than programs without such a component.

The framework for the study was based on one major principle of Bandura's social cognitive theory – the importance of the self-efficacy construct. According to this behavior theory, self-efficacy is the belief that one is capable of organizing and executing a course of action that will produce given levels of attainment (Bandura, 1998). Research shows that Black women often use their belief or faith in God as a source of strength in adversity, which may be useful in achieving and/or maintaining self-efficacy for physical activity and healthy eating (Wilson & Miles, 2001). Many Black women believe that their personal relationship with God can provide support and be a source of hope for positive outcomes in challenging situations (Wilson & Miles, 2001). Bandura (1998) refers to two levels of personal efficacy that influence human health: the ability to cope with stressors and belief in the efficacy to regulate motivation and behavior. There is a potential for spiritual influence at both levels.

The purpose of this study was to analyze the relationships among self-efficacy for physical activity and healthy eating, spirituality, and changes in body composition among Black women over the period of participation in an existing weight management program. Figure 4.1 gives a graphic overview of the framework for the study and demonstrates the potential influence of self-efficacy and outcome expectations (as a result of behavior).

METHODS

Participants

Participants were 85 overweight or obese women (M age = 46, SD 11.55) enrolled in one of 5 participating *Curves for Women* (Curves) weight management classes offered in California. Three women were excluded from the analysis due to the ethnicity criteria. As outlined in Table 4.1, the majority of the women were Black (96%), and the majority of those who responded to the question regarding religious preference (n=73) reported being of the Christian faith (86%). Forty-two percent reported an annual household income of $37k or less, 23% reported between $37k and $56k, and the remainder reported an income above $56k. Marital and educational status questions were unintentionally omitted from the baseline questionnaire. Participants were called approximately 6 months later and asked to give a retrospective response to two categorical questions that addressed marital and educational status. Of those who responded to the telephone questions regarding education and marital status (n=37, or 45% of sample), 53% had at least an associate degree and 56% were married (the remaining 44% were single, divorced or separated).

Recruitment

The inclusion criteria were women, who were 18 years or older, with a BMI above 25, not pregnant or breastfeeding, with no major illness, and not taking weight loss medication. In addition, the women could not be a current participant in any other weight management program. Women were not excluded from the study based on ethnicity. However, recruitment efforts were focused on Black women in Northern (N) and Southern (S) California. Data collected for women other than those of African decent,

were not included in the analysis (N=3). Partnerships with local churches and *Curve* sites were formed to recruit study participants and instructors. Geographic areas of the study included one site in each of the following cities in California - Oakland (N), Emeryville (N), Paramount (S), Carson (S), and Inglewood (S).

Although flyers were distributed, word-of-mouth by owners, area church members, and other recruits was the primary method used to recruit study participants. *Curve* sites were chosen based on the desire to have a cross-section of women from both Northern and Southern California (location), the percent of Black women who lived in the area (demographics), and the willingness of site owners to participate. Initial recruitment focused on sites and was followed by participant recruitment. Once trained on study details, the owners and staff of participating sites verbally explained the study to current and prospective members and to potential study participants. If the women were interested, a consent form was used to further discuss commitment and to confirm participation. The consent form was signed at that time if an agreement was reached. Signatures on the informed consent document were also obtained at the beginning of the first class if new participants had been recruited but not confirmed and consented. There were six sites recruited (three in each geographic area), but due to the unexpected closing of one Northern California site, the study proceeded with five, rather than six sites. The site closed two weeks before the study began, and the 24 individuals recruited for that site were unable to participate in the study. The program fee, in the amount of $99, was paid for participants who completed at least 5 of the 7 classes offered over the 7-week period.

Procedures

Study participants were asked to complete the *Curves Weight Management Program*. As a part of its standard assessment, *Curves* staff assessed total weight, fat weight, percent body fat, and various circumference measures at baseline or week 1 (kick-off), week 4, and week 7 (wrap-up). Participating site staff were informed about the importance of reliable measures and asked to assess the same study participants each time. Along with the collection of this information, participants completed self-reported assessments of daily spiritual experiences and religiosity at baseline, and self-efficacy for weight management behaviors at the baseline, middle (4 weeks) and end of the program (7 weeks). Study participants were also asked to report consumption of fruits and vegetables and physical activity participation at each measurement interval.

Measures

The study instrument included self-reported measures of exposure to healthy eating and physical activity behavior change messages, spirituality, religiosity, religious support, family support, and selected demographics. The instrument also included Likert scale measures of self-efficacy for physical activity and eating behaviors, as well as questions that addressed daily consumption of fruits and vegetables and participation in physical activity. The instrument was pilot-tested with a sample of women (N=11) in the target population of this study to determine face validity and length of time to complete. Measurement of the study variables is described below.

Healthy Eating and Physical Activity

Questions regarding fruit and vegetable intake and physical activity recommendations were used with permission from the *Network for a Healthy California.*

The *Network* survey from which the questions were taken has been piloted tested with Black women and used annually as a part the *Network's African American Campaign* "Consumer Survey." Awareness of nutrition messages, and knowledge questions that addressed the recommendations of fruit and vegetable consumption and participation in physical activity, were only asked at baseline. Questions regarding fruit, vegetable, and physical activity behavior were asked at all three data collection points of the study. When asked about the average number of cups of fruit and vegetable eaten per day, participants were able to choose responses of less than 3 through 6.5, "more than 6.5", or "I don't know". When asked about minutes of daily moderate or vigorous physical activity, participants could choose "less than 30", "30-60", "more than 60", or "I don't know".

Spirituality, Religiosity and Religious Support

Each scale was adapted from the *Multidimensional Measurement of Religiousness/Spirituality for Use in Health Research: A Report of the Fetzer Institute/ National Institute on Aging Working Group* (1999). In this study, spirituality was defined as a score on a scale adapted from the Daily Spiritual Experiences Scale developed by Underwood et al. (1999). Three of the 16 items were unintentionally omitted from the questionnaire in this study, but the reliability of the measure was still high (.90). The scale is intended to measure an individual's perception of a divine God in daily life and his or her perception of his or her interaction with or involvement of the transcendent in life. Participants respond to statements like "I find strength (or comfort) in my religion or spirituality" or "I feel guided by God in the midst of daily activities" with how often this might occur (i.e., many times per day, every day, most days, etc.). For ease of

interpretation, the scores were coded to indicate that the higher the score, the greater the spiritual experiences or religiousness.

Religiosity (i.e., church attendance, private practices, and coping) was measured and analyzed independent of spirituality for the possibility of an independent relationship with self-efficacy. Church attendance was assessed by a single question – "How often do you attend religious services?" This question is from the Organizational Religiousness short form (Idler, 1999). The Spiritual/Religious Coping (religiosity) short form (three items), which measures patterns of religious/spiritual coping with stressful life events, had a reliability score of .85 (Pargament, 1999). The reliability score for the four-item Private Religious Practices (religiosity) scale was .58 - a scale designed to capture the larger construct of religious involvement that is non-organizational, informal, and non-institutional (Levin, 1999). Congregation Benefits (support received from others) was addressed with two items (Krause, 1999). All spirituality and religiosity variables were assessed only at baseline.

Self-Efficacy for Healthy Eating

The 20-item Weight Self Efficacy Scale (Clark, 1991), which measures confidence to resist eating unnecessarily, was used to assess self-efficacy for healthy eating as it has been validated with a group of low-income African American women (both overweight and obese) who participated in a structured weight loss program (Dutton, Martin, Rhode, & Brantley, 2004). In previous studies, internal consistency of the sub-scales displayed Cronbach's alpha coefficients that ranged from .69 to .84. In this study, the coefficient for the total scale was .95. This variable was assessed at all three time points in the study.

Self-Efficacy for Physical Activity

The 13-item Barriers Self-Efficacy Scale (McAuley, 1992), which measures confidence to overcome exercise barriers has also been validated and utilized with a previous sample consisting of Caucasian and African American women who received an exercise prescription, instructions and support (Wilber et al., 2003). The researchers in the Wilber et al. study reported a Cronbach's alpha of 0.92 for the scale. In this study, the coefficient was .94. An additional 6-item scale (McAuley, 1993) that measured the confidence of the women in this study to continue exercise for up to 6 additional weeks had a reliability score of .99.

Body Composition Measures

The same standard Balance Beam scale was used at each site to measure height (inches) and weight (pounds). The Omron HBF-306 Body Fat Analyzer was used to assess body fat percentage and BMI. BMI was also calculated in SPSS version 17 when assessment information was not complete but weight was available for a particular measurement interval (assuming height had not changed from baseline). Circumference measures were assessed with a standard plastic tape measure and reported in inches.

Program Adherence

Study participants were asked to complete the program by attending the seven sessions offered. Attendance logs were collected for each class and recorded as number of sessions attended. Participants were asked to complete at least five of the seven sessions offered to qualify for the program incentive (the cost of program participation).

Data Analytic Strategy

The purpose of the study was to explore whether level of spirituality (faith in or relationship with God), as assessed by the Daily Spiritual Experiences Scale, was associated with the efficacy for key weight management behaviors (nutrition and physical activity habits), program adherence, weight loss, decreased BMI, and decreased circumference measures in Black women. Regression analysis was used to determine the association of outcome variables to spirituality – correlations among variables at baseline, and self-efficacy, BMI, waist-to-hip ratio, and body weight at the middle and the end of the program. Significance of mean change in self-efficacy, consumption of fruits and vegetables, and minutes of physical activity were assessed through paired t-tests and crosstabs/chi square. SPSS version 17.0 was used for data analysis. One site pilot-tested a spiritual intervention, but this did affect baseline associations examined. Detailed results of the pilot are discussed elsewhere.

RESULTS

There were 82 Black women who completed baseline assessments, 77 (94%) who completed mid program assessments at week 4, and 76 (93%) who completed end-of-program assessments at week 7. The majority of the study participants attended at least five of the seven sessions offered during the program period (N=75, 91%).

Spirituality, Religiosity and Religious Support

The possible range for the Daily Spiritual Experiences Scale was 14 to 82. The variable was coded in a manner that high scores indicate more daily spiritual experiences. The mean score for participants in this study was 68.45. (SD = 9.45), indicating that the women in the study reported having many spiritual experiences each day (actual range

was 35 to 82). This is similar to other research where African American study participants reported more frequent daily spiritual experiences than their counterparts (Loustalt et al., 2006). Mean score for Private Religious Practices was 21.26 (SD = 4.33), indicating a high frequency of informal religious involvement (possible range of 4 to 29, actual range was 10 to 28).

As indicated in table 4.2, when asked how often religious services were attended, most (68%) reported attending at least once a week, 20% reported attending "every month or so" or "once or twice a month," and 12% reported never attending or attending once or twice a year. In terms of religious coping, services attended, and religious support, categorical responses indicated high positive levels of each. When participants were asked about the extent to which their religion was involved in understanding or dealing with stressful situations in any way (overall coping), 58% responded with "very involved," 35% responded with "somewhat involved," and 7% responded with "not at all" or "not very involved". When asked how often people in your congregation make you feel loved and cared for, 82% reported that this love and care was felt fairly or very often. Eleven percent reported never or once in a while. The response for support from family was 4% for "never or once in a while" and 96% for "fairly or very often." When asked how often people in your congregation listen to you talk about your private problems or concerns, 50% reported never or once in a while, and 41% answered with fairly or very often. The responses for this type of family support was 27% for never or once in a while, and 72% for fairly or very often.

At baseline, the Daily Spiritual Experiences (DSE) score was positively associated with private religious practices, religious coping, frequency of religious service attendance, and religious support (Table 4.3).

Eating Self-Efficacy

On a Likert scale of 0-9, with 0 meaning not at all confident and 9 meaning very confident, baseline mean self-efficacy for the ability to resist eating unnecessarily was 130.38 (SD = 31.91). Mid-program mean self-efficacy was 141.28 (SD= 29.51). At the end of the 7-week program, the mean efficacy was 148.94 (SD = 1.39). Paired t-tests indicated that the mean increase (18.69) in self-efficacy for eating from baseline to the end of the program was significant ($p<.001$). Self-efficacy to resist eating unnecessarily was not significantly correlated with spiritual experiences or religiosity variables at baseline. There were also no significant correlations found between baseline eating self-efficacy and body fat, BMI, or waist-to-hip ratio. There was a negative correlation between self-efficacy for eating and body fat ($r=-.20$) that approached significance ($p=.074$).

Regression analysis results indicate that the DSE score at baseline made an independent significant contribution to the prediction of mid-program eating efficacy ($\beta=.319$, $p=.002$) when baseline eating self-efficacy ($\beta=.537$, $p<.001$), age, and religious coping were included as covariates (Table 4.4). The variables accounted for 64% of the variance in mid-program efficacy score ($p<.001$). The DSE score also made a significant independent contribution to end-of-program eating self-efficacy ($\beta=.271$, $p=.012$), accounting for an additional 7% of the variance (F change $p=.039$) beyond baseline eating self-efficacy, age, and religious coping. All of the variables accounted for 35% of

the variance in end-of-program eating self-efficacy ($p<.001$). Neither age nor religious coping were significant independent contributors to eating self-efficacy.

Self-Efficacy to Overcome Physical Activity Barriers

On a Likert scale of 0-100, with 0 indicating no confidence and 100 very confident, the baseline mean self-efficacy to overcome exercise barriers was 66.42 (SD=22.45). Mid-program mean self-efficacy was 68.31 (SD=23.55). At the end of the program the mean for self-efficacy to overcome exercise barriers was 70.3 (SD=23.38). Paired t-test indicated that there was a 3.86 mean increase from baseline to the end of the program that approached statistical significance ($p=.063$). Baseline self-efficacy was significantly correlated with spiritual experiences ($r=.426$, $p<.001$) and congregational support through love and care ($r=.275$, $p=.019$), but no other religious variables.

Regression analysis results indicate that the DSE score at baseline did not independently contribute to the prediction of mid- or end-program self-efficacy to overcome physical activity barriers when baseline self-efficacy to overcome physical activity barriers, age, and religious coping were included as covariates (Table 4.4). Neither age nor religious coping were significant independent contributors to self-efficacy to overcome physical activity barriers.

Self-Efficacy to Continue to be Physically Active

On a Likert scale of 0-100, with 0 indicating no confidence and 100 very confident, the mean self-efficacy score to continue to exercise over the next one to six weeks was 85.00 (SD=22.47) at baseline. Mid-program self-efficacy was 83.54 (SD= 23.45). By the end of the program, the self-efficacy to continue exercise over the next one to six weeks was 80.74 (SD= 23.99). Paired t-test results indicate that the decline in mean

efficacy (-4.26) approached significance (p=.054). The DSE score was positively correlated with the baseline efficacy score to continue to exercise (*r*=.337, p=.002) and the correlation with private religious practice approached significance (*r*=.217, p=.056). However, neither were significant independent contributors in regression equation predictions of self-efficacy to continue exercise at mid-program assessment. Baseline self-efficacy to continue to exercise was also correlated with baseline self-efficacy to overcome exercise barriers (*r*=.631. p<.001). Spiritual experiences score made a significant independent contribution to end-of-program self-efficacy to continue exercise (β=.218, p=.028), although the change in variance above baseline efficacy, age, and religious coping only approached significance (F change p=.088). All variables accounted for 53% of the variance in end-of-program self-efficacy to continue to exercise (p<.001).

Weight Management Program Behavior and Outcomes

At baseline, 82% of study participants reported having seen or heard the message: "Eat fruits and vegetables and be active everyday for better health." However, 53% indicated that they were aware of the recommendation to consume between 3.5 and 6.5 cups of fruit and vegetables daily, and only 31% reported consuming this recommended amount. Eighty-seven percent of study participants indicated knowledge of the recommendation to participate in 30-60 minutes of physical activity per day, and most (61%) reported that they met this recommendation. At baseline, there was no difference in DSE or religious coping scores between those who met the recommendations and those who did not. There were also no correlations between fruit and vegetable intake and religious/spiritual variables at baseline.

At mid-program (week 4), those who met the recommendations for physical activity had significantly higher self-efficacy to overcome exercise barriers (72.19 vs. 44.58, $p<.001$), and higher self-efficacy to continue exercise (87.75 vs. 61.67, $p=.032$) compared to those who did not meet the recommendations. A paired sample t-test indicated a mean increase of .5 cups (or one category) of fruit and/or vegetable per day (3.5 to 4, $p=.003$) by week 4. There was no significant increase in fruit and vegetable consumption from week 4 to week 7. However, there was a slight mean increase of .32 cups from mid-program to end, for a total increase of approximately .82 cups of fruit and/or vegetables per day (baseline to end), which was significant ($p<.001$).

The DSE score was not significantly correlated with baseline measures of body fat, BMI, or waist-to-hip ratio. There was a modest negative correlation ($r=-.28$, $p=.015$) between waist-to-hip ratio and overall spiritual/religious coping at baseline. No other correlations were found between body measures and spiritual/religious variables. The negative correlation between age and BMI at baseline approached significance ($r=-.22$, $p=.073$). There was also a modest negative significant correlation between mid-program self-efficacy to overcome exercise barriers and end-of-program waist-to-hip ratio ($r=-.29$, $p=.016$).

The majority of study participants lost weight during the 7-week program (76%). Of those who lost weight, the mean percent decrease in body weight was 2.64 pounds. The mean decrease in percent body fat was 1.4% among those participants who experienced a decrease (75.4%). In terms of BMI, 77% of the program participants experienced a decrease. The mean decrease among these participants was 1.38 (range, .20 – 6.50).

DISCUSSION

The primary outcome of this study was that there is a relationship between self-efficacy for weight management behaviors, daily spiritual experiences, and certain religiosity constructs for Black women. Similar to the findings of other studies, DSEs were frequent among Black women. McCauley, Tarpley, Haaz, and Bartlett (2008) found that while 80% of the older adult participants, in their sample of 99, reported having DSE most to many days of the week, DSEs were even more frequent among African Americans, especially women. In this study of 82 Black women, 92% reported DSEs most to many times each day.

We also found that DSE score at baseline made a significant independent contribution to the prediction of mid- and end-program self efficacy to refrain from unnecessary eating, as measured using the Weight Efficacy Lifestyle Scale. When combined with baseline eating self-efficacy, age, and religious coping, the variables accounted for as much as 64% of the variance in efficacy score. The scores for eating self-efficacy were comparable to the mean scores of previous studies that included Black women - 130.38 compared to 126.4 at baseline (Dutton, Martin, Rhode, & Brantley, 2004). Post-program eating self-efficacy scores (M=148.94, SD=27.67) were also comparable to previous studies, although the treatment period for the previous study was 6 months (M=138.6, SD 35.85). Of the three self-efficacy measures utilized in this study, eating self-efficacy was the only area that demonstrated a significant increase from baseline to the end of the program. The potential for increase from baseline was also greater. The baseline mean for eating self-efficacy was 130 and the scale limit was 180, allowing a 50-point range to improve. There was a 34-point range for self-efficacy to

overcome physical activity barriers, and only a 15-point range for self-efficacy to continue exercise.

The results of this study demonstrated a positive correlation between self-efficacy to continue exercise with DSE score, but DSE scores did not independently contribute to this efficacy at the end of the program. Much like the results of the research of Wilber, Miller, Chandler, and McDevitt (2003), efficacy for physical activity behaviors was somewhat high at baseline, and in this previous case, significantly declined over time. Researchers gave the possible explanation of inexperience with weight management challenges and competing priorities. The results of the current study differ, however, in that there was no significant decrease in self-efficacy to overcome exercise barriers, or to continue exercise throughout the program. Results of qualitative and quantitative studies addressing weight loss, diabetes management, and heart health behaviors indicate that spirituality or religiosity, in terms of the words God, Jesus, Lord, church, and Bible, was frequently mentioned by participating Black women when discussing health, life satisfaction, social support, coping techniques, and stress management (McNabb, Quinn, Kerver, Cook, & Karrison, 1997; Reicks et al., 2004; Wilson & Miles, 2001; & Yanek et al, 2001). This may be an indication that the spirituality or religiosity of Black women may contribute to the maintenance of self-efficacy.

Fruit and vegetable intake increased and was maintained throughout the study. Physical activity participation increased, although participation was fairly high at baseline; and there was a decrease in body measures for the majority of program participants. It could be that the type of support (i.e., spiritual support) may be important when addressing behavior change strategies for Black women. If the concepts of self-

efficacy, social support (in terms of a group setting), health behavior change, and spirituality are addressed within the context of a culturally sensitive intervention, there may be greater success in weight management for Black women.

There is a passage in the King James Version of the Holy Bible that states "I can do all things through Christ which strengtheneth me" (Philippians 4:13). The "I can do" portion of the verse signifies a sense of self-efficacy, but the "through Christ" recognizes the assistance that comes from God. The decrease in self-efficacy often cited in behavior change research may have been minimized or avoided when spiritual experiences were a part of the attempt to maintain the confidence (self-efficacy) necessary to attain weight management goals in Black women. It is possible that constructs of spirituality work through self-efficacy to positively affect weight management outcomes in Black women.

LIMITATIONS

The findings of this study must be interpreted within the context of the following limitations: 1) While the effort was put forth to recruit an adequate cross section of Black women in northern and southern California, results may not be generalizable to other parts of the country. Women in California may be more likely to express their spirituality than in other geographical areas; 2) Most of the women in the study were not only of the Christian faith, but within this group of Christians, the majority of the women were Baptist. A sample that better represents other Christian denominations may yield different results; 3) The length of the weight management program was seven weeks, as opposed to between 12 and 24 weeks – the time it takes to observe optimal weight and circumference change results. This study was not able to observe many of these results, and therefore, adequately analyze the possible influence of spirituality and/or efficacy. It

is also unknown whether the DSEs increased as a result of the "challenge" of the program.

The major strength of the study is that it is quasi-experimental, with a standard comparison group, as opposed to a correlational or cross-sectional design. The instruments have been well validated, there are objective outcome measures, and many of the threats to internal validity are addressed by the research design. However, there is the possibility of selection bias because the participants are likely to be motivated to be helped. The participants in the study make the decision as to whether or not they want to participate. Participants' decision to participate may be correlated with traits that affect the study, possibly making the participants a non-representative sample of all Black women. In addition, the groups are randomized based on geographic area and have the potential to be different from other group in the study. Matching is being used prior to area randomization to try and control for this. Attrition from the program is accounted for by recruiting 30% more women than required by the power analysis. In regards to external validity, the results should be generalized to those programs similar to that of the *Curves* setting.

Construct validity concerns include the following: 1) Participants may feel that spirituality is socially desirable and if not included in the area where spirituality is added, may try to compensate for this difference; and 2) Diffusion of treatment, which was be addressed by randomly assigning geographical areas and not sites to groups. In addition, the six-week length of the intervention is standard for the *Curves* Weight Management Program and the participants of the program are usually *Curves* members. While participants were considered "members" during the time of the study, continued

membership was the responsibility of the participant. The study does not include follow-up after the wrap-up session. Self report of spirituality and religiosity was acknowledged in the discussion section of the study results.

IMPLICATIONS FOR PRACTICE

The influence of spirituality or faith on health is a long standing concept for those who live according to the principles of the Holy Bible. More recently, the general public has recognized that spirituality is a major contributing factor to the attitudes, beliefs, and behaviors of many individuals (Musgrave, Allen, & Allen, 2002). With the current rise in faith-based health education and promotion programs, it is imperative that the relationship between spirituality and health-related behavior change continue to be explored. Because the goal of most of these programs is to reach Black Americans, elements of the programs should include those things, such as spirituality, that are important to the target population.

While there are qualitative studies that have gathered spirituality-based information from participants of faith-based programs (Reicks, Mills, & Henry, 2004), formal research related to degree of spiritual experiences and weight management behavior is lacking. Fitzgibbon et al (2005) conducted a randomized pilot study with the goal to "estimate the effects of a culturally tailored, faith-based weight loss intervention on weight loss, dietary fat consumption, and physical activity" (pg, 1394). While the culturally tailored, faith-based weight loss intervention was compared to a culturally tailored intervention with no active faith component, and the effect size suggested improved weight loss results with the addition of the faith component, results were not statistically significant. This study supports the need for further research in terms of how

spirituality may act on self-efficacy to affect weight management outcomes. Additional research is also needed to further test the addition of spirituality as a component of culturally sensitive health education and behavior change programs and practices involving Black women.

Table 4.1 Baseline Descriptive Statistics for Participants Characteristics

Demographics	N	% or M (SD)
Age in years	78	46.2 (11.6)
18-24		7.7
25-44		30.8
46-64		57.7
65-74		3.9
Income (n=75)	74	
Under $18,130		20.3
$18,131 - $37,000		22.7
$37,001 - $55,870		23.0
More than $55,870		33.8
Marital Status (N=37)	37	
Married		24.3
Single		54.0
Divorced/Separated		21.6
Education (N=37)	37	
Less than HS/GED		2.7
High School/GED		40.5
Associates Degree		13.5
Bachelors Degree or Above		43.2
Religious Preference (N=74)	73	
Non-Christian		1.2
Christian		87.8
Baptist		42.7
Pentecostal/Non-denominational		10.0
Adventist		2.4
African Methodist Episcopal		1.2
Church of God in Christ		3.7
Other		12.2

Table 4.2 Religious Coping, Services Attended and Religious/Family Support

Overall Religious Coping			
	Not at all or not very involved	**Somewhat involved**	**Very Involved**
Extent to which your religion is involved in understanding or dealing with stressful situations in any way	7%	35%	58%

Congregation and Family Support		
	Never or once in a while	**Fairly or very often**
How often do people in your congregation make you feel loved and cared for?	11%	82%
How often people in your family make you feel loved and cared for?	4%	96%
How often people in your congregation listen to you talk about your private problems or concerns?	50%	41%
How often people in your congregation listen to you talk about your private problems or concerns?	27%	72%

Frequency of Religious Service Attendance	
Never or once/twice per year	12%
Every month or so, or once/twice a month	20%
At least once per week	68%

Table 4.3 Religion and Spiritual Experiences Correlations at Baseline

Variable and Associations	*r*
Daily Spiritual Experiences Score	
Private Religious Practices	.464**
Religious Coping Score	.269*
Overall Religious/Spiritual Coping	.341**
Frequency of Religious Service Attendance	.395**
Religious Support – Love and Care	.417**
Religious Support – Listen to Concerns	.317**

**Correlation is significant at the 0.01 level (2-tailed)

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

Table 4.4 Multiple Analysis Regression of Mid and End Program Self-Efficacy for Weight Management Behaviors

	Self-Efficacy to Resist Unnecessary Eating			
	Week 4 (R^2=.41, p<.001)		**Week 7 (R^2=.35 p<.001)**	
	Mid β	P-value	End β	P-value
Age	-.090	.346	-.165	.103
Baseline Efficacy	.560	.000	.520	.000
Spiritual Experiences	.319	.002	.270	.012
Religious Coping	-.174	.084	-1.038	.303

	Self-Efficacy to Overcome Physical Activity Barriers			
	Week 4 (R^2=.33, p<.001)		**Week 7 (R^2=.59, p<.001)**	
	Mid β	P-value	End β	P-value
Age	-.050	.633	-.161	.056
Baseline Efficacy	.453	.000	.646	.000
Spiritual Experiences	.208	.110	.142	.155
Religious Coping	-.116	.313	.016	.856

	Self-Efficacy to Continue Exercise			
	Week 4 (R^2=.33, p<.001)		**Week 7 (R^2=.53, p<.001)**	
	Mid β	P-value	End β	P-value
Age	-0.68	.512	-.196	.024
Baseline Efficacy	.521	.000	.606	.000
Spiritual Experiences	.091	.446	.218	.028
Religious Coping	-.223	.051	-.080	.395

Note: Standardized Betas are reported

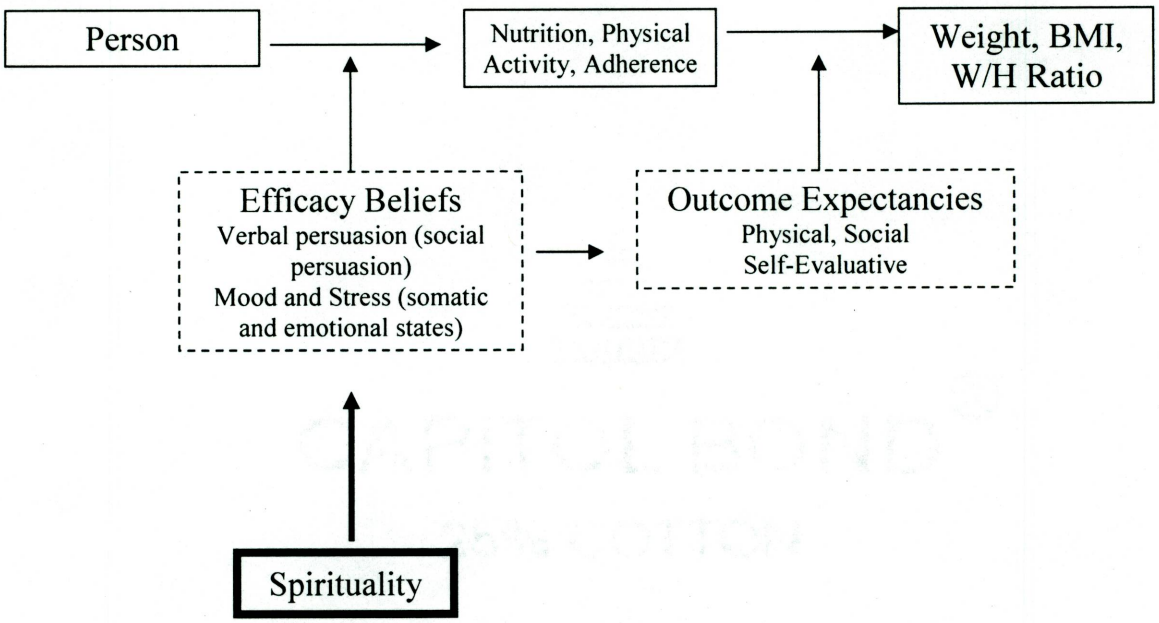

Figure 4.1 Theoretical Framework (based on Social Cognitive Theory)

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CHAPTER 5

OTHER FINDINGS

In addition to the methods of the main study, the instructor of the pilot site integrated a brief spiritual component into each of the weekly *Curves Weight Management* sessions. There were areas in each of the sessions that left room for the instructor to vary activities, or use various questions as conversation starters. King James Version Bible verses were used to incorporate words of inspiration or encouragement at the beginning of each session. This chapter will focus on changes in self-efficacy of this group (n=27) as compared to the all women in the study. In addition, participants of the pilot site were asked to participate in a brief discussion at the end of the study to express reactions to the brief spirituality intervention. A brief summary of these qualitative findings will also be presented.

A. Eating Self-Efficacy

On a Likert scale of 0-9, with 0 meaning not at all confident and 9 meaning very confident, baseline mean self-efficacy for the ability to resist eating unnecessarily was 130.38 (SD = 31.91). Mid-program mean self-efficacy was 141.28 (SD= 29.51). At the end of the 7-week program, the mean efficacy was 148.94 (SD = 1.39). Paired t-tests indicated that the mean increase (18.69) in self-efficacy for eating from baseline to the end of the program was significant ($p<.001$). The mean increase in the main group was also significant.

B. Self-Efficacy to Overcome Physical Activity Barriers

On a Likert scale of 0-100, with 0 indicating no confidence and 100 very confident, the baseline mean self-efficacy to overcome exercise barriers was 66.42 (SD=22.45). Mid-program mean self-efficacy was 68.3 (SD=23.55). At the end of the program the mean for self-efficacy to overcome exercise barriers was 70.3 (SD=23.38). Paired t-test indicated that there was a 3.86 mean increase from baseline to the end of the program that approached statistical significance (p=.063) in the main study. In the pilot group, the mean difference was 7.66. This increase in self-efficacy to overcome exercise barriers was statistically significant (p=.037).

C. Self-Efficacy to Continue to be Physically Active

On a Likert scale of 0-100, with 0 indicating no confidence and 100 very confident, the mean self-efficacy score to continue to exercise over the next one to six weeks was 85.00 (SD=22.47) at baseline for all women in the study. Mid-program self-efficacy was 83.54 (SD= 23.45). By the end of the program, the self-efficacy to continue exercise over the next one to six weeks was 80.74 (SD= 23.99). Paired t-test results indicate that the decline in mean efficacy (-4.26) approached significance (p=.054). In the pilot group, the mean difference from baseline to the end of the program was -1.15. This decrease in self efficacy to continue to be physically active was not significant (p=.774).

D. Qualitative Outcomes

The women in this pilot group were also asked to provide a written and verbal response to two questions after completing the final questionnaire: 1) What did you think about the spirituality piece; and 2) Did the spirituality component make a difference for

you? The responses are indicated in table 5.1. Of the 14 women who provided a written response, 12 believed the added spiritual component was beneficial to program success and/or continued participation. Common themes in response were motivation, confidence, encouragement/support, and assistance with overcoming barriers.

Table 5.1 Responses to Questions about the Addition of the Spiritual Component

Participant	Response
1	What did you think about the spirituality piece? Although I'm a spiritual person by nature, the piece reminded me that I can do all things through Christ even lose weight. Did the spirituality component make a difference? Yes
2	The scriptures were helpful; however, I don't think that they had a great impact on any weight loss for me.
3	I especially enjoyed and benefited from the spiritual component of the program. I found it valuable in all aspects of my day whether related to food and eating or not. Provided a good mind-body connection.
4	The spirituality piece was a daily reminder of what I can do if I give all things to the Lord. The spiritual component made a big difference. This is a great program – wish we could continue. [Curve Owner] was a wonderful sponsor. Thank you.
5	Spirituality, I think it was positive and it help[ed] to keep you going.
6	I enjoyed the spiritual side of the challenge, because I can do all things through strengthens me.
7	I believe that I could have gone through the same program without the spiritual component part of the program part of it. I don't think it would make much difference.
8	I believe the scriptures were very helpful to me. I was motivated after listening to scriptures each week, and at times I pulled out the scripture that was important to me and reviewed them at home!
9	I liked the spiritual part.
10	I liked the bible verses and readings. It helped to make the program for me. Thank you.
11	The spiritual component made a difference by motivating me to keep on track in losing weight. If it wasn't for the spiritual part I might not have stayed and completed the program.
12	The spirituality component was very valuable for me. It helped to give me the extra motivation to push myself and remain focus[ed].

Table 5.1 (Continued) Responses to Questions about the Addition of the Spiritual Component

Participant	Response
13	I loved the spiritual component of the challenge. I used the scriptures each week to assist me through the difficult days. The Curves manual was very beneficial.
14	Spiritual portion was an encouragement, and the group had a goal to keep Jesus in the mix. We were a body of one.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The primary outcome of this study was that there is a relationship between self-efficacy for weight management behaviors, daily spiritual experiences (DSEs), and certain religiosity constructs for Black women. Similar to the findings of other studies, DSEs were frequent among Black women. McCauley, Tarpley, Haaz, and Bartlett (2008) found that while 80% of the older adult participants in, in their sample of 99, reported having DSE most to many days of the week, DSEs were even more frequent among African Americans, especially women. In this study of 82 Black women, 92% reported DSEs most, to many, times each day.

We also found that DSE scores at baseline made a significant independent contribution to the prediction of mid- and end-program self efficacy to refrain from unnecessary eating, as measured using the Weight Efficacy Lifestyle Scale. When combined with baseline eating self-efficacy, age, and religious coping, the variables accounted for as much as 64% of the variance in efficacy score. The scores for eating self efficacy were comparable to the mean scores of previous studies that included Black women - 130.38 compared to 126.4 at baseline (Dutton, Martin, Rhode, & Brantley, 2004). Post-program scores (M=148.94, SD=27.67) were also comparable to previous studies, although the treatment period for the previous study was 6-months (M=138.6, SD 35.85). Of the three self-efficacy measures utilized in this study, eating self-efficacy was the only area that demonstrated a significant increase from baseline to the end of the

program. The potential for increase was also greater. The baseline mean for eating self-efficacy was 130 and scale limit was 180, a 50 point cushion. There was a 34 point cushion with self-efficacy to overcome physical activity barriers, and a 15 point cushion for self-efficacy to continue exercise.

The results of this study demonstrated a positive correlation between self-efficacy to continue exercise with DSE score, but DSE scores did not independently contribute to this efficacy at the end of the program. Much like the results of the research of Wilber, Miller, Chandler, and McDevitt (2003), efficacy for physical activity behaviors was somewhat high at baseline, and in this previous case, significantly declined over time. Researchers gave the possible explanation of inexperience with weight management challenges, and competing priorities and competing priorities. The results of the current study differ, however, in that there was no significant decrease in self-efficacy to overcome exercise barriers, or to continue exercise throughout the program. Results of qualitative and quantitative studies addressing weight loss, diabetes management, and heart health behaviors indicate that spirituality or religiosity, in terms of the words God, Jesus, Lord, church, and Bible, was frequently mentioned by participating Black women when discussing health, life satisfaction, social support, coping techniques, and stress management (McNabb, Quinn, Kerver, Cook, & Karrison, 1997; Reicks et al., 2004; Wilson & Miles, 2001; & Yanek et al, 2001).

Fruit and vegetable intake increased and was maintained throughout the study; Physical activity participation increased, although participation was fairly high at baseline; and there was a decrease in body measures for the majority of program participants. It could be that the type of support (i.e. spiritual support) may be important

when addressing behavior change strategies for Black women. If the concepts of self-efficacy, social support (in terms of a group setting), health behavior change, and spirituality are addressed within the context of a culturally sensitive intervention, there may be greater success in weight management for Black women.

There is a passage in the King James Version of the Holy Bible that states "I can do all things through Christ which strengtheneth me" (Philippians 4:13). The "I can do" portion of the verse signifies a sense of self-efficacy, but the "through Christ" recognizes the assistance that comes from God. The decrease in self-efficacy often cited in behavior change research may have been minimized or avoided when spiritual experiences were a part of the attempt to maintain the confidence (self-efficacy) necessary to attain weight management goals in Black women. It is possible that constructs of spirituality work through self-efficacy to positively affect weight management outcomes in Black women.

B. Recommendations for Research

While there are qualitative studies that have gathered spirituality-based information from participants of faith-based programs (Reicks, Mills, & Henry, 2004), formal research related to degree of spiritual experiences and weight management behavior is lacking. Fitzgibbon et al (2005) conducted a randomized pilot study with the goal to "estimate the effects of a culturally tailored, faith-based weight loss intervention on weight loss, dietary fat consumption, and physical activity" (pg, 1394). While the culturally tailored, faith-based weight loss intervention was compared to a culturally tailored intervention with no active faith component, and the effect size suggested improved weight loss results with the addition of the faith component, results were not statistically significant. This study supports the need for further research in terms of how

spirituality may act on self-efficacy to affect weight management outcomes. Additional research is also needed to further test the addition of spirituality as a component of culturally sensitive health education and behavior change programs and practices involving Black women.

C. Recommendations for Practice

With the current rise in faith-based health education and promotion programs, it is imperative that the relationship between spirituality and health-related behavior change continue to be explored. Because the goal of most of these programs is to reach Black Americans, elements of the programs should include those things, such as spirituality, that are important to the target population. The faith community should not be "used" in public health and health promotion efforts to target hard-to-reach populations, but as a key partner in the development of culturally appropriate interventions. There is a distinct difference between faith-based and faith-placed. Faith-based interventions that focus on the spiritual culture of the target population may be more effective than those that do not.

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APPENDIX A: CURVES WEIGHT MANAGEMENT PROGRAM OUTLINE

Curves Weight Management Program Outline

- Kick-Off Session – The Six Week Challenge – The learning objective is to educate the participants about the program expectations, prepare then for week one, and help them understand the importance of diet and supplementation for healthy weight loss.

- Week 1 – Understanding Phase I – The learning objective is to get acquainted and help an atmosphere of support, excitement and enthusiasm for learning. The goal is to have participants leave with a broader understanding of how the Curves Weight Management Program works.

- Week 2 – Understanding Phase II –The objective is to understand all the components of Phase II (Caloric intake plans, Curves Protein Shake, Curves Complete Biomultiple, Glycemic Index, Food Labels, and ingredient lists).

- Week 3 – Understanding Phase III – The objective is to understand the Phase III process and how you can raise your metabolism to pre-diet levels without regaining the weight you lost.

- Week 4 – The Curves Workout – The objective is to understand how to properly utilize the Curves workout and fully understand the "total fitness" concept.

- Week 5 – The Curves Approach to Wellness and Nutrition – The objective is to understand how diet and exercise can prevent chronic disease.

- Week 6 – Chronic Diseases – The objective is to broaden our knowledge of the Curves supplements and explore some common chronic diseases and supplements that can help in their prevention.

- Week 7 – Wrap-Up Session, Phase III: Prevailing Metabolism – The objective is to understand how eating and time will allow starvation hormones to dissipate and will increase metabolism.

APPENDIX B: PARTICIPANT SURVEY

Curves Site: _____ Participant #:_____

All information given here will be kept confidential and not shared with any other agency.

Spirituality and Weight Management Participant Survey

1) **Before today, have you heard or seen the message "Eat fruits and vegetables and be active every day for better health?"**

❑$_1$ Yes ❑$_2$ No ❑$_3$ I'm not sure

2) **On average, how many cups of fruits and vegetables do you eat every day? (check one)**

❑Less than 3 ❑3 ½ ❑4 ❑4½ ❑5 ❑5½ ❑6 ❑6½

❑More than 6½

❑I don't know

3) **How many cups of fruits and vegetables should you eat every day for good health? (check one)**

❑Less than 3 ❑3 ½ ❑4 ❑4½ ❑5 ❑5½ ❑6 ❑6½

❑More than 6½

❑I don't know

4) **On average, how many minutes do you spend each day doing moderate or vigorous physical activity (gardening, walking, exercising)?** Moderate activities cause small increases in breathing or heart rate while vigorous activities cause large increases in breathing or heart rate. **(check one)**

❑$_1$ Less than 30 ❑$_2$ 30-60 ❑$_3$ More than 60 ❑$_4$ I don't know

5) **How many minutes of physical activity should you do each day for good health? (check one)**

❑$_1$ Less than 30 ❑$_2$ 30-60 ❑$_3$ More than 60 ❑$_4$ I don't know

Spiritual Experiences and Religious Involvement

The list that follows includes items you may or may not experience. Please consider if and how often you have these experiences, and try to disregard whether you feel you should or should not have them. In addition, a number of items use the word 'God'. If this word is not a comfortable one, please substitute another idea that calls to mind the divine or holy for you.

6) I feel God's presence.

❑$_1$ Many times per day ❑$_2$ Every Day ❑$_3$ Most Days

❑$_4$ Some Days

❑$_5$ Once in a while ❑$_6$ Never or almost never

7) I experience a connection to all of life.

❑$_1$ Many times per day ❑$_2$ Every Day ❑$_3$ Most Days ❑$_4$ Some Days

❑$_5$ Once in a while ❑$_6$ Never or almost never

8) During worship, or at other at other times when connecting with God, I feel joy which lifts me out of my daily concerns.

❑$_1$ Many times per day ❑$_2$ Every Day ❑$_3$ Most Days ❑$_4$ Some Days

❑$_5$ Once in a while ❑$_6$ Never or almost never

9) I find strength in my religion or spirituality.

❑$_1$ Many times per day ❑$_2$ Every Day ❑$_3$ Most Days ❑$_4$ Some Days

❑$_5$ Once in a while ❑$_6$ Never or almost never

10) I find comfort in my religion or spirituality.

❑$_1$ Many times per day ❑$_2$ Every Day ❑$_3$ Most Days ❑$_4$ Some Days

❑$_5$ Once in a while ❑$_6$ Never or almost never

11) I ask God for help in the midst of daily activities.

❑$_1$ Many times per day ❑$_2$ Every Day ❑$_3$ Most Days ❑$_4$ Some Days

❑$_5$ Once in a while ❑$_6$ Never or almost never

12) I feel guided by God in the midst of daily activities.

❑$_1$ Many times per day ❑$_2$ Every Day ❑$_3$ Most Days

❑$_4$ Some Days ❑$_5$ Once in a while ❑$_6$ Never or almost never

13) I feel god's love for me directly.

❑$_1$ Many times per day ❑$_2$ Every Day ❑$_3$ Most Days

❑$_4$ Some Days ❑$_5$ Once in a while ❑$_6$ Never or almost never

14) I feel God's love for me through others.

❑$_1$ Many times per day ❑$_2$ Every Day ❑$_3$ Most Days

❑$_4$ Some Days ❑$_5$Once in a while ❑$_6$ Never or almost never

15) I am spiritually touched by the beauty of creation.

❑$_1$ Many times per day ❑$_2$ Every Day ❑$_3$ Most Days

❑$_4$ Some Days ❑$_5$ Once in a while ❑$_6$ Never or almost never

16) I feel thankful for my blessings.

❑$_1$ Many times per day ❑$_2$ Every Day ❑$_3$ Most Days

❑$_4$ Some Days ❑$_5$ Once in a while ❑$_6$ Never or almost never

17) I feel a selfless caring for others.

❑$_1$ Many times per day ❑$_2$ Every Day ❑$_3$ Most Days

❑$_4$ Some Days ❑$_5$ Once in a while ❑$_6$ Never or almost never

18) I desire to be closer to God or in union with him.

❑$_1$ Not at all close ❑$_2$ Somewhat close ❑$_3$ Very close

❑$_4$ As close as possible

19) In general, how close do you feel to God?

❑$_1$ Not at all close ❑$_2$ Somewhat close ❑$_3$ Very close

❑$_4$ As close as possible

20) How often do you pray privately in places other than at church or synagogue?

❑$_1$ More than once a day ❑$_2$ Once a day ❑$_3$ A few times a week

❑$_4$ Once a week ❑$_5$ A few times a month ❑$_6$ Once a month

❑$_7$ Less than once a month ❑$_8$ Never

21) Within your religious or spiritual tradition, how often do meditate?

❑$_1$ More than once a day ❑$_2$ Once a day ❑$_3$ A few times a week

❑$_4$ Once a week ❑$_5$ A few times a month ❑$_6$ Once a month

❑$_7$ Less than once a month ❑$_8$ Never

22) How often do you watch or listen to religious programs on TV or radio?

❑$_1$ More than once a day ❑$_2$ Once a day ❑$_3$ A few times a week

❑$_4$ Once a week ❑$_5$ A few times a month ❑$_6$ Once a month

❑$_7$ Less than once a month ❑$_8$ Never

23) How often do you read the Bible of other religious literature?

❑$_1$ More than once a day ❑$_2$ Once a day ❑$_3$ A few times a week

❑$_4$ Once a week ❑$_5$ A few times a month ❑$_6$ Once a month

❑$_7$ Less than once a month ❑$_8$ Never

24) How often are prayers or grace said before or after meals in your home"?

❑$_1$ At all meals ❑$_2$ Once a day ❑$_3$ At least once a week

❑$_5$ Only on special occasions ❑$_5$ Never

Think about how you try to understand and deal with major problems in your life. To what extent is each of the following involved in the way you cope?

25) I work together with God as partners.

❑$_1$ A great deal ❑$_2$ Quite a bit ❑$_3$ Somewhat ❑$_4$ Not at all

26) I look to God for strength, support, and guidance.

❑$_1$ A great deal ❑$_2$ Quite a bit ❑$_3$ Somewhat ❑$_4$ Not at all

27) I try to make sense of the situation and decide what to do without relying on God.

❑$_1$ A great deal ❑$_2$ Quite a bit ❑$_3$ Somewhat ❑$_4$ Not at all

28) To what extent is your religion involved in understanding or dealing with stressful situations in any way.

❑$_1$ Very involved ❑$_2$ Somewhat involved ❑$_3$ Not very involved

❑$_4$ Not involved at all

29) How often do you go to religious services?

❑$_1$ More than once a week ❑$_2$ Every week or more often

❑$_3$ Once or twice a month ❑$_4$ Every month or so

❑$_5$ Once or twice a year ❑$_6$ Never

30) How often do the people on your congregation make you feel loved and cared for?

❑$_1$ Very often ❑$_2$ Fairly often ❑$_3$ Once in a while ❑$_4$ Never

31) How often do the people on your congregation listen to you talk about your private problems and concerns?

❑$_1$ Very often ❑$_2$ Fairly often ❑$_3$ Once in a while ❑$_4$ Never

32) How often do the people on your family make you feel loved and cared for?

❑$_1$ Very often ❑$_2$ Fairly often ❑$_3$ Once in a while ❑$_4$ Never

33) How often do the people on your family listen to you talk about your private problems and concerns?

❑$_1$ Very often ❑$_2$ Fairly often ❑$_3$ Once in a while ❑$_4$ Never

34) What is your current religious preference?

_____

Please list the specific denomination if it applies to you.

_____

General Information:

35) How many people are in your household (yourself included)? _____

36) How many children under 18 are in your household? _____

37) What is your age? _____

38) Please check the race/ethnic group you identify with:

❑$_1$ Latino/Hispanic/Mexican-American

❑$_2$ African American/Black

❑$_3$ Asian/Pacific Islander

❑$_4$ Other _____

❑$_5$ Caucasian/White

39) Please check the primary language spoken at home:

❑$_1$ Spanish ❑$_2$ English ❑$_3$ Both Spanish & English equally ❑$_4$ Other _____

40) Please check your annual household income:

❑$_1$ Under $18,130
❑$_2$ $18,131-$24,420
❑$_3$ $24,421-$30,710
❑$_4$ $30,711-$37,000
❑$_5$ $37,001-$43,290
❑$_6$ $43,291-$49,580
❑$_7$ $49,581-$55,870
❑$_8$ $55,871-$62,160

APPENDIX C: STUDY CONSENT FORMS

School of Public Health

Loma Linda, California 92350
(909) 558-4546
FAX: (909) 558-4087

Spirituality and Weight Management – Main Study
Consent to Participate

Purpose and Background the Study
You are invited to participate in a research study to examine how spirituality relates to behavior change in Black women during and after participating in the *Curves* weight management program. Loma Linda University, which conducts research on health issues, is overseeing this study. Shené Bowie, a doctoral student at LLU, is conducting the study, under the guidance of her dissertation research committee. Please consider the following information carefully before you decide to participate in this study.

Study Procedures
The study consists of attendance at the 8-week *Curves* Weight Management program, which includes kick-off and wrap-up sessions. At the kick-off session, you will be screened to determine if you qualify for the study, based on your body mass index (height, weight), age (18 or older), and general health status. You will be asked to complete initial, mid-program, and end-of-program questionnaires that ask you about your spirituality and religiosity, as well as eating- and exercise-related beliefs and behaviors. The questionnaire will take about 20 minutes of your time at each of the three assessments. These assessments will include height, weight, percent fat, and body mass index (BMI) assessments, which are a standard part of the *Curves* weight management program. In addition, information about fruit and vegetable intake, and physical activity participation will be collected at these assessments, for study purposes.

Risks of Participation
This study poses minimal risk to you. Although it is highly unlikely, answering some of the questions on the surveys may make you feel uncomfortable. You can decide, however, not to answer a specific question, take a break, or stop participating at any time. In addition, there are always some risks in giving information about yourself to someone else. To minimize these risks, the research team has instituted specific security procedures to protect your privacy and keep information about you as confidential as possible. The risks of participating in the *Curves* Weight Management program are the same as you would experience if you were in the program outside of this study and include potential physical and psychological risks associated with regaining the lost weight and with weight cycling.

Benefits of Participation
You may personally benefit from your participation in the study by becoming more aware of your spirituality and how it relates to weight management. In addition, you may receive the usual benefits of participating in a weight management program, which include weight loss and related health benefits. The study will provide a benefit to society in that it may help to identify culturally sensitive strategies related to weight management for Black women in an effort to assist in decreasing the obesity epidemic.

Loma Linda University
Adventist Health Sciences Center
Institutional Review Board
Approved 7/14/08 Void after 7/13/2009
57370 Chair R.L. Rippe MD

_____ Initials
_____ Date

Costs and Payment for Participation
There are no costs to you for participating in this study. As a thank you for completing the study, the weight management program fee will be paid for you by study funds to the *Curves* owner, in the amount of $99. If you agree to, but do not complete the program and study, for reasons other than an emergency, you will be held responsible for a prorated portion of the fee, which you will be asked to pay to the research project.

Confidentiality
After you complete each survey, an identification number will be assigned to you and the data you provide. Only the research team will know which identification number links to you. This information will be kept in a locked cabinet except when we are gathering survey data and will be used only to link the data you provided at each survey period. Your name will not appear on any of the information. The key linking your name with the identification number will always be kept separate from the recorded comments. Your identity will not be revealed in any publication or report resulting from this study.

Questions
If you have any questions about the study, you can contact Shené Bowie, by emailing to joyfitness@aol.com, or calling (510) 772-8281. You may contact her research supervisor, Dr. Helen Hopp Marshak, by email at hhoppmarshak@llu.edu or calling (909)558-4800 ext. 47229.

Impartial Third Party Contact
If you wish to contact an impartial third party not associated with this study regarding any question or complaint you may have about the study, you may contact the Office of Patient Relations, Loma Linda University Medical Center, Loma Linda, CA 92354, phone (909) 558-4647, or email jfankhanel@llu.edu for information and assistance.

Consent
"I have read the contents of the consent form and have listened to the verbal explanation given by the investigator. My questions concerning this study have been answered to my satisfaction. I hereby give voluntary consent to participate in this study. Signing this consent document does not waive my rights nor does it release the investigators, institution or sponsors from their responsibilities."

_____ _____
Signature of Participant Date

Investigator Statement
I certify that the participant has been given adequate time to read and learn about the study and all of their questions have been answered. It is my opinion that the participant understands the purpose, risks, benefits, and the procedures that will be followed in this study and has voluntarily agreed to participate.

_____ _____
Signature of Person Obtaining Informed Consent Date

Loma Linda University
Adventist Health Sciences Center
Institutional Review Board
Approved 2/14/08 Void after 2/13/2009
57370 Chair R L Rigsby MD

LOMA LINDA UNIVERSITY

School of Public Health

Loma Linda, California 92350
(909) 558-4546
FAX: (909) 558-4087

Spirituality and Weight Management Pilot Intervention Study
Consent to Participate

Purpose and Background the Study
You are invited to participate in a pilot research study to examine if a brief spiritual intervention for Black women during can be implemented into the *Curves* weight management program. Shené Bowie, a doctoral student at Loma Linda University, a health sciences institution in southern California, is conducting the study, under the guidance of her dissertation research committee. Please consider the following information carefully before you decide to participate in this study.

Study Procedures
If you agree to participate, you will complete the local *Curves* weight management program either as you normally would with a brief spiritual component added to the program for each session. The study consists of attendance at the 8-week program, which includes kick-off and wrap-up sessions, along with a brief spirituality intervention delivered at each session. You will be asked to complete initial, mid-program, and end-of-program questionnaires that ask you about your spirituality and religiosity, as well as eating- and exercise-related beliefs and behaviors. The questionnaire will take about 20 minutes of your time at each of the three assessments. These assessments will also include height, weight, percent fat, and body mass index (BMI) assessments, which are standard for all *Curves* weight management program attendees. In addition, information about fruit and vegetable intake, and physical activity participation will be collected for study purposes. At the end of the program, a 1-hour focus group will be conducted to assess your reactions to the spirituality intervention.

Risks of Participation
This study poses minimal risk to you. Although it is highly unlikely, answering some of the questions on the surveys may make you feel uncomfortable. You can decide, however, not to answer a specific question, take a break, or stop participating at any time. In addition, there is always some risk in giving information about yourself to someone else. To minimize these risks, the research team has instituted specific security procedures to protect your privacy and keep information about you as confidential as possible. The risks of participating in the *Curves* program are the same as you would experience if you were not in this study and include potential physical and psychological risks associated with regaining the lost weight and with weight cycling.

Benefits of Participation
You may personally benefit from your participation in the study by becoming more aware of your spirituality and how it relates to weight management. In addition, you may receive the usual benefits of participating in a weight management program, which include weight loss and related health benefits. The study will provide a benefit to society in that it may help to identify culturally sensitive strategies related to weight management for Black women in an effort to assist in decreasing the obesity epidemic.

Loma Linda University
Adventist Health Sciences Center
Institutional Review Board
Approved 4/14/08 Void after 4/13/2009
53370 Chair R. L. Rich, MD

Payment for Participation
There are no costs to you for participating in this study. As a thank you for completing the study, the weight management program fee will be paid for you by study funds to the *Curves* owner, in the amount of $99. If you agree to, but do not complete the program and study, for reasons other than an emergency, you will be held responsible for a prorated portion of the fee, which you will be asked to pay to the research project.

Confidentiality
After you complete each survey, an identification number will be assigned to you and the data you provide. Only the research team will know which identification number links to you. This information will be kept in a locked cabinet except when we are gathering survey data and will be used only to link the data you provided at each survey period. Your name will not appear on any of the information. The key linking your name with the identification number will always be kept separate from the recorded comments. Your identity will not be revealed in any publication or report resulting from this study.

Questions
If you have any questions about the study, you can contact Shené Bowie, by emailing to joyfitness@aol.com, or calling (510) 772-8281. You may contact her research supervisor, Dr. Helen Hopp Marshak, by email at hhoppmarshak@llu.edu or calling (909)558-4800 ext. 47229.

Impartial Third Party Contact
If you wish to contact an impartial third party not associated with this study regarding any question or complaint you may have about the study, you may contact the Office of Patient Relations, Loma Linda University Medical Center, Loma Linda, CA 92354, phone (909) 558-4647, or email jfankhanel@llu.edu for information and assistance.

Consent
"I have read the contents of the consent form and have listened to the verbal explanation given by the investigator. My questions concerning this study have been answered to my satisfaction. I hereby give voluntary consent to participate in this study. Signing this consent document does not waive my rights nor does it release the investigators, institution or sponsors from their responsibilities."

_____ _____
Signature of Participant Date

Investigator Statement
I certify that the participant has been given adequate time to read and learn about the study and all of their questions have been answered. It is my opinion that the participant understands the purpose, risks, benefits, and the procedures that will be followed in this study and has voluntarily agreed to participate.

_____ _____
Signature of Person Obtaining Informed Consent Date

Loma Linda University
A Seventh-day Adventist Health Sciences Center
Institutional Review Board
Approved 2/26/08 Void after 2/12/2009
57370 Chair R L Rigsby MD

APPENDIX D: TRAINING OUTLINE FOR CURVES INSTRUCTORS/OWNERS

a. Overview of Study

b. Conducting a Research Study

c. Study Design

d. Spirituality and Black Women

e. Integrating Spirituality into the *Curves Weight Management Program*

f. Responsibilities

g. Confidentiality

h. Study Follow-up

Note: The areas not assigned to spirituality groups will not receive sections D and E

CAPITOL BAND

APPENDIX E: SCRIPTURE-BASED MOTIVATION FOR PILOT STUDY PARTICPANTS

MEMO TO THE CURVES FACILITATORS

The following lessons can be presented to your classes during the opening sessions of each class. Make copies for each participant to keep, and simply read over the inspirational words and scriptures with them before you start each class.

They are designed to get them motivated for each session, and help keep them motivated spiritually as well as physically.

They are designed to use one for each week you meet. You can put them on transparencies, and use with an overhead projector, or use them as a PowerPoint presentation each week.

They can read along with you silently as you read them aloud, with the exception of week one, where they have to write the word failure on a piece of paper, stand and stomp on it, etc.

CURVES MOTIVATIONAL CURRICULUM

KICK- OFF

"JUST BECAUSE WE CAN-DOES NOT MEAN WE SHOULD"

The scripture says in ***I Corinthians 6:12 All things are lawful unto me, but all things are not expedient…***

Expedient *means appropriate, useful, fulfilling, suitable, beneficial, or helpful. It means helping to bring about a desired result; it means to your advantage.*

What this scripture is saying is that there is nothing stopping me from eating the wrong foods, or to exercise. There is no law against it, I won't get arrested or receive a citation from the police, but by eating all the wrong things, not exercising is unhealthy for me. It is not to my body's advantage. It is not in the best interest for my well-being.

It also says in ***Proverbs 23:2*** ***…put a knife to thy throat if thou be a man (or woman) given to appetite.*** Does God want you to kill yourself for overeating? Absolutely not! But you are killing yourself! You, as an individual have a lot to do with controlling what you eat, and how much you eat. Be familiar with what it says in ***Philippians 4:13*** ***I can do all things through Christ which strengthens me.***

Additional helpful scriptures:

- ***Psalm 121:2 My help cometh from the Lord…***
- ***Psalm 121:7 The Lord shall preserve thy soul…***
- ***Psalm 126:5 They that sow in tears shall reap in joy.***
- ***St. Mark 10:27 And Jesus said, with men this is impossible, but not with God…***
- ***St. Luke 1:37 For with God nothing shall be impossible.***
- ***Ephesians 3:20 Now unto Him that is able to do exceeding abundantly above all that we ask or think…***

You can do it with God's help! Now let's get busy.

WEEK ONE – SESSION TWO

"UNDERSTANDING *FAILURE"*

First, let's have a clear understanding of what this word ***"failure"*** means. ***It means being unable to do or become what is wanted, expected, or attempted. It means to be unsuccessful.***

This is definitely what we are about, and is most certainly not the way we want to think. The Bible says in ***Proverbs 23:7 For as he thinketh in his heart, so is he…***
It also says in ***St. Matthew 12:34…for out of the abundance of the heart the mouth speaketh.***

So what we are going to do first is put this piece of paper with the word ***failure*** under our feet, and then we are going to tread on it. I want you to literally stomp on the word ***failure***, because ***Jesus told us in St. Luke 10:19…I give unto you power to tread on serpents and scorpions…and nothing shall by any means hurt you.*** So we have power over this word ***failure***, and we are going to kill it, tread on it, and then put it in ***File 13***. ***File 13*** is the death or dead file, and when we put it in ***File 13***, we are not going back to get it!

Sometimes when we make an attempt to change our lives we may falter, or meet with opposition, but it says in ***Psalms 37:23-24 The steps of a good man (or woman) are ordered by the Lord…(24) Though he fall, he will not utterly be cast down, for the Lord upholdeth him or her.***

It says in ***Proverbs 24:16 For a just man falleth seven time, and riseth up again.***
Romans 8:37 …in all these things we are more than conquerors through Him that loved us.

We are overcomers, no matter what we are going through. We have the victory! Our victory is always through Christ!

WEEK TWO – UNDERSTANDING PHASE II

"HOLD FAST TO WHAT GOD HAS PROMISED YOU"

Here is what you have to believe and hold on to if you trust God. First, that it is impossible for you to fail with Him holding your hand, and second, everything He told you is true because it is impossible for Him to lie!

Numbers 23:19 says, ***God is not a man that He should lie; neither the son of man that He should repent: hath He said, and shall He not do it? or hath He spoken, and shall He not make it good?***

The answer to both these questions is yes! A resounding yes!

Here are some encouraging scriptures and words to hold on to for this week:

- Jesus told us in ***Hebrews 13:5*** ***I will never leave you, nor forsake you.***
- ***Isaiah 41:13*** ***For I, the Lord thy God will hold thy right hand, saying unto thee, Fear not; I will help thee.***
- ***Isaiah 43:5*** ***Fear not; for I am with thee.***
- ***Jeremiah 17:7*** ***Blessed is the man (or woman) that trusteth in the Lord.***

The Lord knows and understands that some things we try to do may be very difficult for us, and that we need His help to make it ***through***, but be assured, ***through*** is what you will do. It simply means to ***go in one way, and come out the other***.

WEEK THREE

"UNDERSTANDING TRIUMPH"

***Triumph** means to have victory, achievement, and accomplishment. It means to win by perseverance or to prevail.*

The Bible tells us in ***Isaiah 55:11** So shall my word be that goeth forth out of my mouth: it shall not return unto me void, but it shall accomplish that which I please, and it shall prosper in the thing whereto I sent it.*

We have been using scriptures and encouraging words to motivate you for the past couple of weeks. We must take these words, given to us externally, and apply them to our lives internally. When we do, they move from being extrinsic to being intrinsic.
These are two words that have a lot of meaning.

Extrinsic means to be motivated from the outside, or by outside influences. In other words just for the rewards. Rewards are great, but we want to be rewarded for what we feel inside. That is when **wanting to be rewarded moves from extrinsic to the intrinsic.**
Intrinsic means to be inherent. In other words, the desire for being reward comes from the inside of us. We want to be rewarded or benefited because it is now something we are working hard to do. We really want it. Nobody has to make us or give us the rewards. We really want it.

Losing weight, maintaining the weight loss, exercising, and eating healthy should be a part of a new lifestyle for you. You are now doing this because you have the knowledge, understanding, and desire to maintain a healthy lifestyle.

WEEK FOUR

"TOTAL FITNESS CONCEPT"

The Bible tells us in ***II Corinthians 6:20*** ***to glorify God in your body, and in your spirit.***

We are talking about total fitness that includes the physical body, the mind, and the spirit, or the inside of you.
In order to keep the weight off and maintain a healthy lifestyle, your thinking has to change along with the physical part of you. You can't get excited about losing the weight, eating right, and exercising for a while, then say ***"let's go get a triple cheeseburger with a double order of fries, and a large milkshake!"***

You have you maintain what you started a few, short weeks ago. Remember this scripture in ***Ecclesiastes 9:11...the race is not given to the swift...*** and ***St. Matthew 10:22...he that endureth to the end shall be saved.***

Long distance runners win the race because of their ability to endure until the end, not how fast they run. They run with wisdom so as not to wear them out. It is an *endurance race*. ***Endurance means the power to last and to withstand hard wear.***

Another thing to be aware of is that breakfast is your most important meal of the day. When you eat a well-balanced breakfast, you survive off of those calories and energy all day.

WEEK FIVE

"WELLNESS AND NUTRITION"

God said in ***III John 1:2*** ***Beloved, I wish above all things that thou mayest prosper and be in health, even as thy soul prospereth.***

God wants us to live a long, happy, healthy life. If you think He is not concerned about our health, read these scriptures from the Bible:

- ***Psalm 42:11****...I shall yet praise Him, who is the health of my countenance.*
- ***Psalm 91:14*** *Because he hath set his love upon me, therefore will I deliver him...*
- ***Psalm 91:16*** *With long life will I satisfy him...*
- ***St. John 10:10*** *The thief cometh...to destroy. I am come that they may have life, and that they may have it more abundantly.*

The Lord does not want us to have long life with a broken down, unhealthy body. That is unhealthy, and we know He is only associated with good things.

WEEK SIX

"CHRONIC DISEASES"

Chronic diseases like diabetes, heart trouble, high blood pressure, arthritis, and osteoporosis, can all come from poor eating habits. Eating the wrong foods, and overeating them at that! In addition, we should be taking a multivitamin on a daily basis, along with drinking at least 8 glasses of water each day.

The Bible says in:

- ***Psalm 103:1, 3 (1) Bless the Lord, O my soul…(3) Who forgiveth all thine iniquities; who healeth all thy diseases.***
- ***Psalm 107:20 He sent His word and healed them…***
- ***Isaiah 53:5…by His stripes we are healed.***

What these scriptures are saying is that God is concerned about the whole man, not just your soul, and He wants us to be concerned about the whole man. We have got to take what we have learned these past few weeks and continue it. Maintain a healthy lifestyle. Maintain eating the right foods, exercising a few minutes a day or week. Look back on the words of encouragement, the scriptures to support that, and every lesson you have heard in Curves. Keep sound wisdom in your heart.

The Bible says in:

- ***Proverbs 2:7 He layeth up sound wisdom for the righteous…***
- ***Psalm 22:26…your heart shall live forever.***
- ***Proverbs 3:13 Happy is the man (or woman) that findeth wisdom, and the man (or woman) that getteth understanding.***
- ***Proverbs 4:7 Wisdom is the principal thing; therefore get wisdom: and with all thy getting get understanding.***

Don't forget the words and concepts you have learned.

WEEK SEVEN- WRAP UP SESSION
PHASE III: PREVAILING METABOLISM

Metabolism is the chemical change in living cells by which energy is provided for vital processes essential to maintain a healthy body.

This simply means that the foods you eat, and the excising you do control how energy is provided to you vital organs necessary to maintain weight loss, or gain. In other words, ***you are what you eat!*** If you eat unhealthy foods, then you will find yourself with low energy, lethargic, always tired, depressed, unmotivated, and many other mind and body symptoms that eating and living unhealthy can do to the body.

Not only does the food we eat improve our health, but specifically can heal us emotionally. **Dopamine and endorphin are two of the brain's chemicals that help end emotional eating, or food cravings.** They create our moods. There are mood foods or ***amino acids contained in protein foods. High protein foods like fish, eggs, chicken, and beef, contain all 9 amino acids essential for humans. They help restore brain chemistry, which leads to promoting a healthy metabolism, and in turn we have more energy.***

Food cravings can be stopped with an amino acid supplement, but a nutritionist, or health food advisor can recommend some for you.

The important thing to know here is going back to what we learned in the past few weeks, and builds upon that information. The Bible says in

Hosea 4:6 My people are destroyed for a lack of knowledge…

Now that you have the knowledge to change maintain, and live a healthier life, don't lose it-use it, and use it continually, and consistently.

APPENDIX F: INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL NOTICE

INSTITUTIONAL REVIEW BOARD

Initial Approval Notice - Expedited Review

OFFICE OF SPONSORED RESEARCH • 11188 Anderson Street • Loma Linda, CA 92350
(909) 558-4531 (voice) • (909) 558-0131 (fax)

OSR# 57370

To: **Marshak, Helen H**
Department: **Health Promotion & Education**
Protocol: *Spirituality, religiosity, and weight management in Black women*

This study was review and approved administratively on behalf of the IRB. This decision includes the following determinations:

Risk to research subjects: **Minimal**
Approval period begins **14-Feb-2008** and ends **13-Feb-2009**
Stipulations of approval:

Consent Form

Unless IRB has given a specific waiver of informed consent (as documented in the approval stipulations above) the IRB-approved and stamped consent form accompanies this letter. This now becomes the official master consent form for making copies to provide to study participants.

Adverse Events / Protocol Changes

The IRB should be notified in writing of any modifications to the approved research protocol. Adverse effects must be reported to the IRB in accordance with institutional policy. If sponsor or contractual adverse event reporting requirements differ from requirements for reporting to IRB, all reporting requirements must still be met.

Protocol Review

Your protocol is tentatively scheduled for review and renewal at least two weeks prior to the approval end-date indicated above. To assure uninterrupted approval of this project, you will be sent a report form to request renewal by completing and timely returning. to Office of Sponsored Research. Anticipate the approval expiration so your study does not lapse; contact OSR for assistance if necessary. In addition to reporting the requested renewal status information, you may also use the form to close the study at that time, if applicable.

Records

All records relating to this project, including signed consent forms, must be kept on file for three years following completion of the study.**Please note the PI's name and the OSR number assigned to this IRB protocol (as indicated above) on any future communications with the IRB. Direct all communications to the IRB c/o the Office of Sponsored Research.** Thank you for your cooperation in LLU's shared responsibility for the ethical use of human subjects in research.

Signature of IRB Chair/Designee: RL Rigsby

Loma Linda University Adventist Health Sciences Center holds Federalwide Assurance (FWA) No. 6447 with the U.S. Office for Human Research Protections, and the IRB registration no. is IORG226. This Assurance applies to the following institutions: Loma Linda University, Loma Linda University Medical Center (including Loma Linda University Children's Hospital, LLU Community Medical Center), Loma Linda University Behavioral Medicine, and affiliated medical practices groups.

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