PROJECT HEAL (HEALTHY EATING AND ACTIVITY FOR LIFE): PROPOSING A FAITH-BASED HEALTH EDUCATION AND LIFESTYLE INTERVENTION FOR RURAL AFRICAN AMERICANS

by

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African Americans, particularly those who reside in rural areas, are at increased risk of developing several preventable health conditions, including type 2 diabetes, cardiovascular disease, and overweight/obesity. Because of several professional and personal experiences, I was inspired to use this thesis as an opportunity to propose an intervention that addresses these preventable health conditions. The proposed intervention, Project HEAL (Healthy Eating and Activity for Life), is a faith-based, theory driven education and comprehensive lifestyle management intervention for rural African Americans. This program is of public health importance because it may be particularly useful in positively impacting the health of rural African Americans, a traditionally hard-to-reach population, and in significantly reducing racial/ethnic and geographic health disparities.

Project HEAL is informed by the Social Cognitive Theory and Health Belief Model. These theories were chosen because of their emphasis on self-efficacy, the individual, and the environment. Much of the content of Project HEAL was derived from the curriculum of the evidence-based lifestyle modification intervention of the Diabetes Prevention Program. The Project HEAL curriculum is a modified version that addresses specific constructs of the previously mentioned theories and that is more appropriate for rural African Americans churches and for small group settings. To ensure a comprehensive evaluation of the program, Project HEAL's evaluation strategy will be guided by the Reach, Efficacy, Adoption, and Implementation, and Maintenance framework for health behavior programs.

Project HEAL will be implemented with the guidance of an advisory committee and with the help of lay health educators. Therefore, while this thesis describes the Project HEAL development and implementation in detail, there are several aspects of the program will need additional modifications to suit the participating church and its congregants. It is my sincere wish to implement this program to determine its feasibility and translatability to public health policy and research regarding rural African Americans.

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PREFACE

This work would not have been possible without the guidance and support of Dr. Kenneth Jaros, Dr. James Butler, and Dr. Andrea Kriska, as well as other faculty, staff, classmates, and loved ones. Words cannot express my appreciation for the roles they each played during this process.

1.0 INTRODUCTION

The U.S Department of Health and Human Services (DHHS) (2000b) recognizes physical activity and overweight and obesity as two of the leading indicators of health. In 2004, approximately 40% of all American adults reported being physically inactive, meaning that they did not participate in any light-to-moderate or vigorous sessions of physical activity during their typical week (National Center for Health Statistics, 2006). The highest rates of physical inactivity were found among individuals with no high school diploma; individuals whose annual household income was below 100% of the poverty level, individuals not living in a metropolitan statistical area; and African Americans, of whom 50% were inactive. Furthermore, African American women are more likely to be overweight or obese, with 80% of individuals in this population having a body mass index (BMI) of at least twenty-five (National Center for Health Statistics, 2006).

Overweight and obesity are associated with increased risk of type 2 diabetes, hypertension, and heart disease, among other preventable causes of death (US Department of Health and Human Services, 2000b). Conversely, regular physical activity, in addition to providing assistance in weight loss and control, provides a protective effect against hypertension and helps to reduce elevated blood pressure levels. Furthermore, regular physical activity is associated with decreased risks of developing diabetes and dying from heart disease.

Accordingly, “Physical Activity and Fitness” and “Nutrition and Overweight” are two focus areas of *Healthy People 2010*, for which specific objectives include increasing the proportion of adults who engage in regular, moderately intense physical activity and decreasing the proportion of adults who are obese (US Department of Health and Human Services, 2000a). These objectives are particularly important for rural African Americans, as there are cultural and structural factors of rural life that present challenges to achieving and maintaining a healthy weight (Tai-Seale & Chandler, 2003). Cultural factors include, but are not limited to, diets high

in fat and calories and low frequency of exercise, while lack of nutrition education and decreased access to exercise facilities are two important structural factors.

Community-based programs that combine the behavioral, social, and environmental aspects of education, prevention, screening, and treatment are recognized as effective components needed to improve the health of Americans (Gamm, Castillo, & Williams, 2004; US Department of Health and Human Services, 2000b). Such programs may be particularly useful when trying to connect with populations that are traditionally difficult to reach, such as minorities and/or individuals living in rural areas (Gamm, Castillo, & Williams, 2004). In the United States, faith-based organizations have traditionally provided social programs to the public, and have been especially useful among African Americans and other minority populations (Flannelly, Weaver, & Tannenbaum, 2005). Rural African Americans are in great need of community-based programs designed to increase physical activity and healthy eating behaviors, as they are at greater risk of developing heart disease, hypertension, and type 2 diabetes when compared to urban African Americans and rural and urban Whites (Mainous, King, Garr, & Pearson, 2004).

At the beginning of his first presidential term, President George W. Bush (2001) signed an Executive Order to establish the White House Office of Faith-Based and Community Initiatives. The purpose of this order was to, "…expand opportunities for faith-based and other community organizations and to strengthen their capacity to better meet social needs in America's communities…" (President George W. Bush, 2001, ¶ 1). The establishment of this office emphasizes the value of faith-based programs and their importance in providing effective health and social programs for Americans.

During the summer of 2006, I had the privilege of participating in an internship program at the Uniformed Services University Center for Health Disparities. My assignment was to evaluate health assessment data collected as part of the G.O.S.P.E.L. (Glorifying our Spiritual and Physical Existence for Life) program, a community-based health education program that serves 11 predominantly African American churches in Montgomery County, Maryland. As a member of an African American church located in a rural county of North Carolina, I particularly enjoyed the opportunity to work with urban churches and to see the differences in how the churches operate. At the beginning of 2006, my church adopted a cell, or small group, ministry lifestyle, which heavily relies on social support and social networks to maintain unity

and to establish more equity in organization and leadership within the church. Since then, I have seen the members of my church grow spiritually and develop stronger relationships with each other. I was inspired by their spiritual and emotional progress, and wondered how the cell ministry lifestyle could also benefit their physical health. My experiences with the G.O.S.P.E.L. program's administrators and Community Outreach Workers, combined with my personal experiences with African American churches, led me to use my thesis requirement as an opportunity to propose a faith-based health intervention for rural African Americans.

This thesis is a proposal for a physical activity and nutrition education and lifestyle intervention for rural African American churches that have adopted the small group ministry lifestyle for their congregations. The intervention, entitled Project HEAL (**H**ealthy **E**ating and **A**ctivity for **L**ife), is informed by the Social Cognitive Theory and the Health Belief Model. It will be administered in a series of modules that will address behavioral, social, and environmental barriers to healthy eating behaviors and regular physical activity. The purpose of this intervention is to determine how theoretically-driven, faith-based health education and lifestyle programs can change the health behaviors and improve the health of rural African Americans.

2.0 LITERATURE REVIEW

2.1 THE STATE OF RURAL AFRICAN AMERICANS

2.1.1 Quality of Life

Twenty percent of Americans are residents of rural areas, and 45% of African Americans reside in small towns or rural areas (Agency for Healthcare Research and Quality, 2005; Rural Sociological Society, 2006). As the largest minority group of rural America, there are approximately 4 million rural African American residents (Whitener, Jen, & Kassel, 2004). Due to improving economic conditions and long-standing familial and cultural ties, increasing numbers of African Americans have been returning to small towns and rural areas, especially the rural South, since 1995 (Whitener, Jen, & Kassel, 2004). Despite the economic growth, rural African Americans continue to have a lower socioeconomic status compared to other rural residents and residents of urban areas (Rural Sociological Society, 2006; Whitener, Jen, & Kassel, 2004).

One of the regions of the country in which African Americans maintain a particularly low socioeconomic status and often suffer from a low quality of life is the Southern Black Belt. The term "Black Belt" has been used since the 1800s to describe a crescent-shaped region that begins in Maryland and ends in Louisiana (Calhoun, Reeder, & Bagi, 2000). In his autobiography, Booker T. Washington (1996) wrote:

> I have often been asked to define the term "Black Belt." So far as I can learn, the term was first used to designate a part of the country which was distinguished by the colour of the soil. The part of the country possessing this thick, dark, and naturally rich soil was, of course, the part of the South where the slaves were most profitable, and consequently they were taken there in the largest numbers. Later,

> and especially since the war, the term seems to be used wholly in the political sense—that is, to designate the counties where the black people outnumber the white (p. 52).

During the early 1900s, W.E.B. DuBois (1903) vividly described the antebellum counties and towns of the Black Belt. Although the institution of slavery had been abolished, the lives of African Americans residing in Black Belt counties remained, to say the least, of low quality, as broken families, inadequate housing, and cyclic debt characterized many communities. Today, nearly eighty percent of rural African Americans live in the 623 counties of the Black Belt (Rural Sociological Society, 2006; Wimberley & Morris, 1997). Many indicators of quality of life, including levels of unemployment, low income and education, poor health, infant mortality, and social dependence continue to be higher among Black Belt African Americans compared to other racial/ethnic and geographic populations across the nation (Wimberley & Morris, 1997).

2.1.2 Health Status

According to the National Center for Health Statistics (2006), heart disease and diabetes were two of the leading causes of death among Americans in 2003. Mortality rates for heart disease were particularly elevated among African American men and women, for which the age-adjusted mortality rates were approximately 364 and 254 deaths per 100,000 individuals, respectively. These rates are considerably higher than those seen among White men and women, for whom the rates were 283 and 185 per 100,000 individuals, respectively. Furthermore, data from 2001 through 2004 show similar racial differences in the rates of hypertension and diabetes. For example, approximately 65% of both African American adults have elevated blood pressures or hypertension, while 37% of their White counterparts experience these same conditions. Similar trends are apparent for diabetes morbidity rates, as approximately 14% of African American adults and 9% of White adults have either type 1 or type 2 diabetes; this includes physician-diagnosed and undiagnosed diabetes.

In identifying groups that have unique healthcare needs and/or require special attention from the healthcare delivery system, both racial and ethnic minorities and residents of rural areas are recognized as priority populations (Agency for Healthcare Research and Quality, 2005). According to Tai-Seale and Chandler (2003), self-reported rates of obesity are higher among

rural adults compared to those reported by urban adults. Diabetes is serious public health problem among rural adults, as prevalence rates among rural adults were 12% higher than those among urban adults (Dabney & Gosschalk, 2003). Furthermore, most heart disease-related deaths among men occur in Southern rural counties; similarly, the second highest number deaths of this kind are seen among rural, Southern women (Zuniga, Anderson, & Alexander, 2003). Mainous et al. (2004) found that the prevalence rates of diagnosed diabetes and hypertension were greater among rural African Americans compared to urban African Americans and rural and urban Whites.

2.2 AFRICAN AMERICANS, THE CHURCH, AND HEALTH

2.2.1 The Church in the African American Community

According to DuBois (1903), there were approximately 24,000 African American churches recorded by the U.S. Census in 1890, with a combined total of 2.5 million church members. DuBois estimated that at that time, there was one African American church for every sixty African American families. In less than ten years, the number of African American churches and church members grew to 36,563 and 3.6 million, respectively (US Bureau of the Census, 1910). Today, seven of the 25 largest denominations in the United States and Canada are comprised of predominantly African American churches (National Council of Churches, 2004).

Officially, the first African American church was certified in Savannah, Georgia in 1778 (Public Broadcasting Service, 1998). However, the church's roots and place in the African American community can be traced back to the colonial era, during which time, missionaries sought to convert slaves to Christianity (Woodson, 1921). In the early 1700s, Whites and African Americans, most of whom were slaves, attended church services and worshiped together (Maffly-Kip, 2001; Tuggle, 2000). While slave owners and church leaders encouraged the slaves' participation in the Christian faith, there was a great fear that rebellion would occur if the slaves were allowed to worship on their own (Maffly-Kip, 2001). Although the slaves were not legally permitted to worship independently, they secretly held religious gatherings in the slave quarters or in the woods after nightfall; these meetings were particularly popular during the

"Great Awakenings" of the middle and late 1700s, when there were increases in religious enthusiasm and revival among both Whites and slaves (Tuggle, 2000). The structured, present-day African American church has its beginnings in these secret meetings of prayer, social support, and temporary freedom of expression (Maffly-Kip, 2001; Tuggle, 2000).

During the decades following the Civil War, churches within the African American community began to serve multiple purposes for their congregants (DuBois, 1903). In addition to traditional religious services, the physical church buildings often facilitated social gatherings and meetings for community organizations. As an organization, the African American church served as welcome centers for newcomers, news centers, networks for finding jobs, and havens of high moral standards and family life. Because of these qualities, the African American church was, "…the social centre of Negro life in the United States…" (Dubois, 1903, p. 150). In addition to being informal social services centers, African American churches have traditionally been a source of health education and counseling (Drayton-Brooks & White, 2004). Clergy and other church leaders are often regarded as healers and comforters, and many African American churches have built upon this by developing health ministries that provide congregants with guidance and support in health matters (Carter-Edwards, Jallah, Goldman, Roberson, & Hoyo, 2006; Drayton-Brooks & White, 2004). In recent years, these health ministries have been increasingly recognized as potential cost-effective venues for reaching African Americans through health promotion programs (Catanzaro, Meador, Koenig, Kuchibhatla, & Clipp, 2006). More importantly, churches in the African American community provide an opportunity for public health practitioners and researchers to maintain constant contact with a traditionally hard-to-reach population.

2.2.2 Faith-Based Health Interventions

Because of its traditionally prominent role in the community, the church is often seen as a useful setting for developing and implementing health interventions for African Americans (Drayton-Brooks & White, 2004; Flannelly, Weaver, & Tannenbaum, 2005). African American churches have been the sites for health promotion programs concerning a range of public health issues, including breast cancer screening, smoking cessation, substance abuse and HIV/AIDS prevention, advanced directives promotion, and weight control (Bullock, 2006; Darnell, Chang,

& Calhoun, 2006; Marcus et al., 2004; Resnicow, Taylor, Baskin, & McCarty, 2005; Sherrod & Richardson, 2003; van Olphen et al., 2003; Voorhees et al., 1996). Several researchers have discussed challenges to and strategies for developing and implementing successful faith-based health promotion programs (Duan, Fox, Derose, Carson, & Stockdale, 2005; Kotecki, 2002; Peterson, Atwood, & Yates, 2002; Young & Stewart, 2006). Suggested strategies include encouraging pastoral involvement and support, recruiting churches that are active and productive within their communities, incorporating a systematic evaluation strategy, promoting social support relationships, and developing a coalition of churches when financial resources limit the effective delivery of a program by a single church.

Young and Stewart (2006) describe an urban, church-based physical activity intervention for African American women and illustrate the need for actively involving church leadership when implementing faith-based interventions. The six month randomized trial compared the effects of an aerobic exercise intervention and a stretching and health lecture intervention on daily levels of energy expenditure. The researchers recruited 196 women from 11 churches in Baltimore City and Baltimore County; each church was randomly assigned to host one of the intervention types. Focus groups were conducted to help develop culturally appropriate materials and strategies for both interventions. Individualized physical activity plans were given to all of the women, without regard to which intervention their churches were assigned to; the plans emphasized walking and aerobic dance and recommended gradual duration and intensity increases.

The aerobic exercise intervention included one-hour classes that were held weekly for six months (Young & Stewart, 2006). Each class was led by a certified aerobics instructor, included a warm-up and cool down, increased in intensity as the six months progressed, and used gospel music. This intervention was heavily based on constructs of the Social Cognitive Theory, with a special emphasis on social support that was provided through prayer and a buddy system. The women participated in brief discussions during each class and received monthly newsletters and weekly handouts that provided motivational tips and information regarding setting goals and realistic outcomes. The “Stretch N Health” intervention included low-intensity stretching classes and health lectures that were held on alternate weeks for six months. Each stretching class was taught by a certified aerobics instructor, and members of the local African American community taught the health lectures. One month of aerobics classes were provided to participants of the

"Stretch N Health" intervention at the end of the six months; they also received regular newsletters that provided general health motivation messages. All classes for both interventions were held at the churches.

The researchers collected data at baseline and post-intervention, concerning physical activity levels, cardiorespiratory fitness, cardiovascular disease risk factors, psychosocial factors, and quality of life using questionnaires and clinical tests (Young & Stewart, 2006). Data analyses showed that while levels of physical inactivity decreased in both groups, there was no significant difference in the degree to which each of the interventions increased habitual physical activity levels among the women. One of the major limitations of this study is that there was no inclusion of messages from pastors or other church leaders, as the churches were simply providing a site for the interventions' activities. In addition, both interventions experienced low attendance rates, which may have contributed to the lack of differences in the data collected from both groups of women.

Research by McNabb et al. (1997) depict how interventions implemented through churches can be useful in reaching a wider audience than interventions implemented in clinical and other settings. The PATHWAYS program is a fourteen week weight loss program for urban African American women at risk for type 2 diabetes. The researchers applied this program to a community-based setting after it was first administered in a clinical environment with unsatisfactory patient participation; the content and delivery of the intervention remained the same in both settings. The intervention featured culturally appropriate learning activities and discussions that took place in small group settings. The small group sessions were facilitated by registered dietitians and lay health educators; each lay health educator received at least nine hours of training on the PATHWAYS program and how to conduct the sessions. Each participant identified their dietary challenges and worked with their small group to develop realistic solutions. The participants were encouraged to increase intake of dietary fiber and decrease intake of dietary fat, aim to lose 0.5 to 1 pound per week, and to use walking as a mode of physical activity. Acknowledging the possible acceptance of larger body size in the African American culture, the PATHWAYS program focused on health benefits and general well-being as the primary motivations for and positive consequences of weight loss.

There were 39 women recruited from three urban churches for participation in the PATHWAYS program (McNabb, Quinn, Kerver, Cook, & Karrison, 1997). To facilitate an

experimental design, 19 of the women were randomly selected to participate in the program immediately, while the remaining women were assigned to participate in the program at a later time. Height, weight, and waist circumference data were collected at baseline, after the 14 week program concluded, and at various points in between. In addition, the women completed questionnaires to assess their consumption of high fat and high fiber foods and their attitudes and behaviors towards successful weight loss.

The data analyses showed that during the program, women in the experimental group lost an average of ten pounds, while women in the control group gained an average of two pounds; this difference in weight loss between the groups was statistically significant (McNabb, Quinn, Kerver, Cook, & Karrison, 1997). Furthermore, women participating in the PATHWAYS program were more like to report positive changes in eating behaviors, such as decreasing dietary fat and increasing dietary fiber. Women in the experimental group reported little or no changes in their eating behaviors during the 14 week program. The researchers reported that outcomes data from the clinical-based setting showed similar trends. This suggests that programs can be successfully adapted to the community-based setting, in which a wider audience may be reached. Although this study included a small number of participants, it does suggest that highly structured, active learning interventions can be effective in a community-based setting.

These and other faith-based interventions have been useful in improving the health of African Americans and in increasing knowledge and awareness of certain health conditions among this population. However, the literature shows that most faith-based interventions have served African Americans living in urban areas and/or attending urban churches. As previously mentioned, African Americans residing in rural areas have life experiences and health needs related to their environment and culture that are quite different from African Americans residing in urban or suburban areas. With almost one-half of African Americans residing in rural areas, it is feasible that health interventions specifically tailored to address these difference may be effective in improving the health of rural African Americans and in reducing ethnic/racial and geographic health disparities.

2.3 USING LIFESTYLE INTERVENTIONS TO ADDRESS PREVENTABLE DISEASES

While education-based public health interventions are useful, it is clear that a more rigorous type of intervention is needed to produce substantial behavioral changes, particularly among racial/ethnic minority groups. Several studies have shown that lifestyle-based interventions can be effective in addressing many public health concerns, including increased physical activity and improved management of hypertension, and decreased incidence and improved management of type 2 diabetes (Cakir & Pinar, 2006; Diabetes Prevention Program Research Group, 2002b; Fokkema, Muskiet, & van Doormaal, 2005; Pahor et al., 2006; Samuel-Hodge et al., 2000).

Toobert et al. (2007) provide an example of the usefulness of lifestyle interventions in developing long-term healthful behaviors, particularly those that can prevent cardiovascular disease. The Mediterranean Lifestyle Program (MLP) is a comprehensive lifestyle management intervention developed to examine the effects of lifestyle changes on the health of postmenopausal women diagnosed with type 2 diabetes and at risk for developing cardiovascular disease. This program, which was informed by the Social Cognitive and Social Ecological Theories, sought to determine appropriate methods for facilitating long-term maintenance of positive changes in health behaviors (Toobert, Strycker, Glasgow, Barrera, & Bagdade, 2002). The MLP was delivered collaboratively by a registered dietitian, an exercise physiologist, and a stress management instructor. A key component of the MLP was the provision of support groups led by professional and lay leaders.

In addition to collecting standard demographic information and health information, the researchers also measured behavioral outcomes and psychosocial factors (Toobert et al., 2007). Targeted behavioral outcomes were dietary behavior, physical activity, and stress management practices. Psychosocial measures included the availability of social support, problem solving ability, self-efficacy, depressive symptom, perceived stress, and overall quality of life. These data were compared to identical data collected from women receiving usual care for type 2 diabetes. The study initially included 279 women, who were randomly assigned to receive usual care for type 2 diabetes or to enroll in the MLPs. At 24 months after the conclusion of the trial program, 237 women were still participating in the study. Overall, the MLP participants showed significantly greater improvement in dietary patterns, physical activity, and stress management

practices over the 24 month period. In addition, women participating in the MLP maintained improvements in several psychosocial outcomes, including perceived social support, self-efficacy related to diet and physical activity, and problem solving abilities. The results of this study suggest that comprehensive lifestyle interventions may be effective in facilitating the long-term maintenance of multiple healthful behaviors and positive psychosocial factors related to those behaviors. The researchers cite the need for additional research to determine if such interventions can be successfully applied with diverse populations.

In a national study, lifestyle interventions were shown to be effective in preventing type 2 diabetes, regardless of the one's age, gender, or race/ethnicity (Diabetes Prevention Program Research Group, 2002b). The study was a clinical trial designed to determine and compare the effectiveness of a lifestyle intervention and treatment with metformin, an antihyperglycemic agent, in preventing or delaying type 2 diabetes. The study was carried out at 27 centers across the United States, and involved a diverse group of 3,234 adults who were at high risk for type 2 diabetes. There were three intervention groups to which each participant was randomly assigned—a lifestyle modification program, a metformin regimen with standard lifestyle recommendations, and a placebo regime with standard lifestyle recommendations.

The standard lifestyle recommendations for the metformin and placebo groups included encouraging the participants to reduce their weight, to increase their levels of physical activity, and to follow the Food Guide Pyramid and Step 1 of the National Cholesterol Education Program (NCEP) (Diabetes Prevention Program Research Group, 2002b). The NCEP Step 1 diet emphasized low dietary intake of saturated and trans-fat and high dietary intake of fruits, vegetables, whole grains, lean meats, and reduced-fat dairy products (American Heart Association, 2007b). All of the recommendations were provided via handouts and in a brief individual session with a case manager that took place once per year. The lifestyle modification program set specific weight loss and physical activity goals for each participant (a weight loss of 7% of the baseline body weight and 150 minutes of physical activity per week), and included sixteen core individual sessions with a case manager; additional individual and group sessions were continued until the study's completion. Key components of the lifestyle modification program include continuous support from and contact with case managers and culturally appropriate materials and strategies (Diabetes Prevention Program Research Group, 2002a). Additional information regarding the materials, learning objectives, and administration of the

lifestyle modification program is available at http://www.bsc.gwu.edu/dpp. There were approximately 1,100 individuals assigned to each intervention group; participants were followed for an average of three years.

At six month intervals, the researchers collected clinical data, including fasting blood glucose and glycosylated hemoglobin levels (Diabetes Prevention Program Research Group, 2002b). Questionnaires were used to determine the participants' dietary intake and levels of physical activity. After six months of participation, individuals in the lifestyle modification program experienced greater weight loss and reported greater increases in physical activity in comparison to those in the placebo and metformin groups. Participants of the lifestyle modification program had an average weight loss of 5.6 kg, while those in the metformin and placebo groups had an average weight loss of 2.1 kg and 0.1 kg, respectively. Furthermore, the incidence of type 2 diabetes was 39% lower in the lifestyle modification program participants than in participants in the metformin groups. Because of these and other findings, the research group determined that the prevention or delayed onset of type 2 diabetes is possible in high risk individuals, especially through the use of lifestyle interventions.

In a more detailed analysis of the lifestyle modification program, several predictors of participants' success at achieving the set goals were identified (Diabetes Prevention Program Research Group, 2004). One of the key indicators of long-term weight loss success was experiencing weight loss early in the program. Individuals who achieved and maintained the physical activity goal were also more likely to experience success at achieving the weight loss goal. There was more success in reaching the weight loss and physical activity goals among men, those with lower BMI, and those of older age. Individuals who frequently monitored their diets were also more successful at achieving both goals; this implies that successfully performing one healthy behavior can trigger the performance of healthy behaviors. Overall, there was no significant difference in diabetes preventive behaviors among racial/ethnic groups, suggesting that this type of intervention can be effective when implemented among African American populations.

2.4 THEORETICAL FRAMEWORKS FOR HEALTH INTERVENTIONS

Because of the previous success of faith-based and comprehensive lifestyle management interventions, it is possible that an intervention combining both approaches would be effective among rural African Americans. Developing such an intervention on one or more theoretical frameworks would increase the likelihood of success. The intervention proposed by this thesis is informed by the Health Belief Model (HBM) and the Social Cognitive Theory (SCT). These theoretical frameworks are often used to develop interventions targeting a wide range of public health problems. The Health Belief Model and Social Cognitive Theory were chosen because of their emphasis on self-efficacy and overcoming perceived barriers to healthy behaviors. The Health Belief Model addresses self-efficacy from an individualist perspective, while the Social Cognitive Theory addresses this how individual and environmental factors interact to affect self-efficacy.

2.4.1 The Health Belief Model

The Health Belief Model (HBM) is an individual or intrapersonal level theory of health behavior. This framework was developed during the 1950s by U.S. Public Health Service social psychologists who wanted to understand why there was so little participation in disease prevention programs (Janz, Champion, & Strecher, 2002). As a value-expectancy theory, the HBM is based on the principle that whether or not individuals will act to prevent or treat an undesirable health condition depends on their perception of their susceptibility to the condition, the severity of the condition's consequences, and their ability to carry out preventive actions (National Institutes of Health, 2005). This framework has been used in interventions seeking to understand and/or improve cancer screening behaviors, AIDS-protective behaviors, and prenatal care practices. Because of its focus on health motivation, this framework has been used in interventions seeking to understand and/or improve cancer-screening behaviors, AIDS-protective behaviors, and prenatal care practices (Janz, Champion, & Strecher, 2002).

There are six constructs of the HBM, all of which are explained in the table below. When these constructs are adjusted for cultural appropriateness, the framework is useful when

implementing health behavior interventions among minority populations or when examining the health behaviors of these populations (Janz, Champion, and & Strecher, 2002).

Table 1. Constructs of the Health Belief Model

Construct	Definition	Potential Application Strategies
Perceived Susceptibility	Beliefs regarding the risk or chances of developing a health condition	Develop culturally appropriate risk information based on the individual's characteristics and/or current health behaviors
Perceived Severity	Beliefs about the seriousness of the condition and its consequences	Clearly identify the consequences of the condition and advise action(s)
Perceived Benefits	Beliefs about the effectiveness of action(s) aimed at preventing or treating the condition	Specify the how, where, and when of the advised action(s); Highlight potential benefits of the action(s)
Perceived Barriers	Beliefs about the tangible and intangible costs of the advised action(s)	Identify perceived costs of advised action(s); Correct misinformation and provide reassurance, assistance, and incentives
Cues to Action	Activating one's readiness to take action	Provide how-to information, develop reminder systems, and promote awareness
Self-Efficacy	Self-confidence in the ability to take action and overcome perceived barriers	Provide guidance and training; Demonstrate desired behaviors; Use progressive goal setting; Provide verbal reinforcement

(Janz, Champion, & Strecher, 2002; National Institutes of Health, 2005)

Byrne, Walsh, and Murphy (2005) provide an example of how perceived benefits of preventive or treatment actions may affect individuals' likelihood of adhering to those actions. The purpose of this work was to identify how illness perceptions and beliefs about medication affect secondary preventive behaviors, such as diet, exercise, medication adherence, smoking, and alcohol consumption, among coronary heart disease patients. There were 1,084 Irish adults with established coronary heart disease included in the study. A series of questionnaires was used to address patterns in secondary preventive behaviors, and medical chart reviews were used

to gather demographic data and medical details related to coronary heart disease. The researchers found that patients with stronger beliefs in the necessity of their medication exhibited greater adherence to medication. However, there was only a weak association between illness perceptions and secondary preventive behaviors. The findings from this study suggest that interventions designed to prevent and/or manage coronary heart disease should aim to produce cues to action by informing patients of their morbidity and mortality risks, particularly in cases in which the patients show little or no symptoms.

Another study illustrates how constructs of the HBM can be used to predict dietary behaviors that may prevent cardiovascular disease (Petrovici & Ritson, 2006). The study included 485 urban adults living in Romania, who completed questionnaires addressing dietary health preventive behaviors and HBM-related perceptions, such as perceived barriers to healthy eating, perceived diet effectiveness, and perceived threat of cardiovascular disease. Among the study population, respondents were more likely to perform dietary health preventive behaviors if they had greater knowledge about nutrition, higher levels of health motivation (i.e., willingness to engage in healthy, preventive behaviors), and stronger beliefs that disease could be prevented through diet. Participants who were 35 years of age and older had greater perceived susceptibility to hypertension and heart disease than younger respondents. The results of this study suggest that interventions designed to provide nutrition education, describe the benefits of healthy dietary behaviors, and describe the true risks of hypertension and heart disease may be useful in promoting healthy eating. The researchers note that these findings may be applicable only to urban populations. Therefore, additional studies are needed to determine if these constructs of the HBM apply to other populations in the same manner.

Aljasem, Peyrot, Wissow, and Rubin (2001) show the effects of perceived barriers and self-efficacy behaviors related to diabetes self-care. The study involved 309 African-American and white adults with type 2 diabetes. Medical chart audits and self-report questionnaires were used to collect information on sociodemographic variables, health belief and self-efficacy measures, and diabetes self-care behaviors. The perceived barriers addressed in this study were effort required to exercise, change of habits to adhere to recommended diet, level of hunger when adhering to recommended diet, and interference between medication and daily activities. Five factors of self-efficacy were addressed and measured, including the ability to choose healthy meals and snacks at and away from home (planning efficacy); requesting help from

health professionals, co-workers, or family/friends when others when sick or in need of something (reliance efficacy); adjusting insulin administration based on exercise or sickness (insulin efficacy); arguing with health care providers if they seem to be acting unfairly or getting attention from others when diabetes is under control and when it is not (assertiveness efficacy); and being able to sneak unhealthy foods without anyone noticing (sneaking food efficacy). The diabetes self-care behaviors included diet, exercise, proper use of insulin and other medications, and blood glucose testing.

Data from this study suggest there is an association between diabetes self-care behavior and both perceived barriers and self-efficacy (Aljasem, Peyrot, Wissow, & Rubin, 2001). There were fewer perceived barriers among participants who exercised more frequently and in longer duration. Participants who had higher planning efficacy levels perceived fewer barriers than those who perceived more barriers. In addition, those who were closer to following recommended diets had fewer perceived barriers; lower sneaking food efficacy; and higher planning, reliance, and insulin efficacies. This study suggests that perceived barriers and self-efficacy beliefs may predict diabetes self-care behaviors. It also indicates the importance of developing diabetes education programs that work to increase self-efficacy, as well as teach self-care behaviors.

These studies suggest that the constructs of the Health Belief Model may be useful in predicting and changing health behaviors. More specifically, individuals are more likely to implement changes in dietary and physical activity behaviors when they have more positive perceived benefits of and fewer perceived barriers to such behaviors. However, additional studies are needed to examine the relevance and influence of these constructs among African Americans.

2.4.2 The Social Cognitive Theory

The Social Cognitive Theory (SCT) is an interpersonal model that addresses how health behavior, personal factors, and environmental influences interact with each other (Baranowski, Perry, & Parcel, 2002). This theory was developed in the 1960s with Bandura's concept of social learning and imitation; since then, it has evolved into comprehensive framework that integrates concepts of cognitive, behaviorist, and emotional models of behavior (Baranowski,

Perry, & Parcel, 2002; National Institutes of Health, 2005). The SCT is based on the belief that an individuals will change their behaviors if they develop goals, higher levels of self-efficacy, and greater outcome expectancies (National Institutes of Health, 2005). It informs the development, implementation, and evaluation of interventions that target a wide range of health behaviors, including fruit and vegetable consumption, alcohol use, and physical activity (Baranowski, Perry, & Parcel, 2002). Because it is such a comprehensive framework, the SCT has several constructs; the constructs most relevant to this proposal are described in the table below.

Table 2. Constructs of the Social Cognitive Theory

Construct	Definition	Possible Application Strategies
Environment	Physically external factors	Provide social support and opportunities for action
Behavioral Capability	Knowledge and skill needed to perform required health behavior	Promote mastery learning through skills training
Self-Efficacy	Self-confidence in the ability to take action and overcome perceived barriers	Be specific about desired behavior changes; Promote the use of small steps of behavior change
Expectations	Anticipated outcomes of the required health behavior	Model positive outcomes of healthy behaviors
Self-Control	Self-regulation of goal-directed health behavior	Provide opportunities for self-monitoring, goal setting, decision making, and self-reward
Observational Learning	Adopting health behaviors by watching the actions and outcomes of others' health behaviors	Provide credible role models who perform the desired health behaviors
Reinforcements	Responses to health behaviors that increase or decrease the likelihood of the behavior's reoccurrence	Promote self-initiated rewards and incentives

(Baranowski, Perry, & Parcel, 2002; National Institutes of Health, 2005)

Anderson et al. (2006) show how constructs of the SCT influence each other and nutrition behaviors. The researchers collected data from 307 adult food shoppers, who were

recruited directly from supermarkets. Self-efficacy and outcome expectations were measured using questionnaires, and nutrition behaviors were measured using supermarket receipt data and food frequency questionnaires. The self-efficacy questions targeted increasing fiber and fruits and vegetables and decreasing fat in meals and snacks, while outcome expectancy questions focused on appetite satisfaction, health, budget, and family reactions.

The researchers found that shoppers with more positive outcome expectancies about their budgets and appetite satisfaction had the greatest overall self-efficacy; these positive outcome expectancies had a direct effect on healthy nutrition behaviors among the shoppers (Anderson, Wojcik, Winett, & Williams, 2006). However, shoppers with more children in their households were more likely to have lower self-efficacy than those with fewer or no children; furthermore, self-efficacy has a weaker effect on nutrition behavior among these shoppers. In addition, older shoppers and shoppers with higher socioeconomic status practiced healthier nutrition behaviors. These shoppers also had more positive outcome expectancies concerning budget and appetite satisfaction as these factors relate to healthy food choices. The findings of the study suggest that nutrition education interventions should be appropriately adjusted based on the age, socioeconomic status, and family structure of the target population. In addition, interventions may help to improve nutrition behaviors by placing an emphasis on improving self-efficacy and outcome expectancies concerning appetite satisfaction and affordability of healthy food choices.

Evans, Wilson, Buck, Torbett, and Williams (2006) qualitatively examined perceived barriers and outcome expectancies for healthy eating behaviors among low-income adolescents. Although this study does not focus on an adult population, it does exhibit how several levels of the environment interact to affect eating behaviors. The investigators conducted five focus group sessions with 48 adolescents, most of whom were African American, male, and twelve years old, at two middle schools. Each of the focus group questions was developed based on the SCT. Specifically, the questions addressed the students' perceived barriers and outcome expectancies related to healthy eating behaviors at home, school, and restaurants or snack bars visited with friends. In addition, they were asked to provide suggestions for effective strategies for healthy eating behaviors for themselves and their friends.

The most commonly cited outcome expectancies for healthy eating behaviors were disease prevention, physical fitness, and weight control; physical fitness was a strong outcome expectancy among male participants, while weight control was an expectancy predominantly

given by female participants (Evans, Wilson, Buck, Torbett, & Williams, 2006). The students had several perceived barriers to healthy eating behaviors in each of the targeted environments. The perceived barriers that were present across the three environments were peer pressure to eat unhealthy foods and undesirable taste of healthier foods. In their school environments, perceived barriers were lack of variety in school lunches and an unappealing look and/or smell of the foods provided. Within their homes, the adolescents perceived easy access to unhealthy foods, lack of availability of healthier foods, and parents' purchasing habits supporting the consumption of unhealthy foods to be barriers to healthy eating behaviors. These barriers were related to the adolescents' proposed strategies for improving eating behaviors, which included improving the taste of healthy foods; assisting their parents in making better food choices at the supermarkets; having peer, adult, and public role models who can promote and model healthy behaviors; and frequenting eating establishments that offer healthier food choices. In addition, the students suggested that the school cafeterias offer foods that are healthier and more appetizing. Although this study did not include the perspectives of parents and school staff, it still provided valuable implications for future research and practice. Interventions, especially those aimed at improving the eating behaviors of low-income adolescents, should focus on increasing the availability of healthier, more appetizing food choices within both the home and school environments.

Because of its consideration of the effects of environmental factors on health behaviors, the SCT was used in a study to determine how these factors affect physical activity (Humpel, Owen, Iverson, Leslie, & Bauman, 2004). Specifically, the researchers examined environmental factors that influence general neighborhood walking, walking for exercise, walking for pleasure, and walking to get to and from places. This study included 399 Australian adults who were more than 40 years of age. The data were collected using a mailed survey that addressed demographics; walking behaviors; and neighborhood and environmental perceptions, such as aesthetics, safety, and weather. Data analyses suggest that environmental factors affected the types of walking performed by the participants. For example, men with positive perceptions of neighborhood aesthetics and men who did not perceive weather as a barrier were more likely to walk for exercise compared to those who had negative perceptions of neighborhood aesthetics and who perceived weather as a significant barrier to walking. Similar results were found among women who did not perceive weather as a barrier, as they were seven times more likely to walk for exercise in comparison to those who did view weather has a walking barrier. Neighborhood

safety also played a role in the participants' likelihood of walking in their neighborhoods. Women were more likely to walk for pleasure if they perceived their environments as safe for walking; however, men who had positive perceptions of neighborhood safety were less likely to walk for pleasure. The findings of this study imply that improving neighborhood aesthetics and increasing neighborhood safety may have a positive impact on the physical activity behaviors of adults in developed countries in which participation in physical activity is decreasing.

These studies show that the constructs of the Social Cognitive Theory may have a significant effect on one's likelihood of participating in physical activity and/or performing healthy eating behaviors. Interventions that help individuals develop more positive outcome expectancies may be particularly in affecting such behaviors. Similar to conclusions concerning the Health Belief Model, additional studies designed to explore the influence of the Social Cognitive Theory constructs on African Americans are needed.

2.4.3 Social Support and Social Networks

Social networks are person-centered webs of social relationships that may or may not facilitate the conscious exchange of aid and assistance between individuals, which is also known as social support (Heaney & Israel, 2002). Rather than being classified as health behavior theories, social support and social networks are viewed as descriptive concepts of the functions, processes, and/or structure of social relationships. The link between health and social networks and social support began to receive recognition in the 1970s with John Cassel's social epidemiology work, which suggested that some psychosocial factors, such as social support, were protective against undesirable health outcomes (Heaney & Israel, 2002). Since then, several interventions have been developed and implemented to observe the sub-concepts within social networks and social support, including enhancing existing social networks linkages, developing new social network linkages, and improving networks through capacity building and problem solving within communities (Heaney & Israel, 2002). Furthermore, researchers have sought to understand how social support and social networks affect various areas of public health, including smoking cessation, weight control strategies, stress and depression, HIV prevention strategies, mortality and general wellness behaviors (Allen, Markovitz, Jacobs, & Knox, 2001; Hagler et al., 2007;

Hicks, Allen, & Wright, 2005; Krause, 2006; Nollen, Catley, Davies, Hall, & Ahluwalia, 2005; Schulz et al., 2006).

Eyler et al. (1999) sought to understand the relationships between physical activity and social support. The investigation included 2,912 African American, Hispanic, American Indian/Alaskan Native, and White women who were 40 years or older and who participated in the US Women's Determinants Study, a national telephone survey that was conducted in the late 1990s. Portions of the survey addressed general physical activity social support, physical activity social support from friends, and physical activity social support from family members. There were also measurements of regular exercise (at least 30 minutes of traditional exercise at least five days per week), cumulative exercise (at least 150 minutes of participation in physically active hobbies or sports per week), and lifestyle activity (at least 300 minutes of regular exercise, cumulative exercise, vigorous household chores, and/or job-related physical activity per week).

The study's results showed that while lifestyle activities were common among all of the women, fewer women belonging to racial/ethnic minority groups participated regularly in exercise (Eyler et al., 1999). Overall, White and Hispanic women were more active than women belonging to other racial/ethnic groups. As the researchers expected, women with greater physical activity social support exhibited the most physical activity. The racial/ethnic minority women in the study sample reported greater levels of physical activity social support provided by their friends. Hispanic women reported the greatest overall social support for physical activity. These findings show a relationship between social support and physical activity. The investigators suggest that physical activity interventions that include social support mechanisms, such as combining social activities with physical activities, friendly competition between groups, and pairing participants with exercise buddies, may be especially effective among women belonging to racial/ethnic minority groups.

Another study investigated the effects of social support on weight loss efforts among a diverse group of 109 overweight adults aged 25 to 50 years old (Gorin et al., 2005). Each participant was instructed aim for expending 2,500 calories in physical activity per week; they were also asked to adopt a 1,000 to 1,200 calorie per day diet that consisted of no more than 20% fat. In addition, the participants were encouraged to invite 3 support partners to join the study with them; the researchers hypothesized that the inclusion of support partners would increase the participants likelihood of reaching the physical activity goal. Demographic data and BMI were

collected at baseline and again at 6 month intervals; activity and food frequency questionnaires were used throughout the 18-month intervention.

Approximately one-half of the participants brought support partners, and most participants with partners had one partner (Gorin et al., 2005). At each of the six-month assessments, there were no significant differences in weight loss between those with partners and those without partners. In addition, having more than one partner did not significantly affect the participants' weight loss. However, significantly more weight loss was seen among participants whose partners lost at least 10% of their baseline body weight, compared to participants whose partners lost a smaller percentage of their baseline body weight. Furthermore, greater weight loss was seen among participants and partners who followed the advised physical activity and nutrition plan set forth by the researchers. The findings of this study suggest that having a partner who is successful at weight loss may increase one's likelihood of experiencing success in achieving weight loss goals. In addition, forming partnerships in weight loss efforts may make it easier for individuals to follow dietary and physical activity guidelines, and therefore experience greater success.

Social support is a key underlying concept of the cell, or small group, ministry that has become popular among many modern churches. Churches who have implemented a cell ministry believe that this practice is resurfacing from similar, home-based practices found in the New Testament of the Bible (Clarke, 2002; Touch Outreach Ministries, 2007). According to Clarke (2002), some of the world's largest churches are those that practice the cell group ministry, including Yoido Full Gospel Church of South Korea, led by Dr. David Cho (300,000 members), and Eglise Protestante Baptiste Oeuvres et Mission of Cote D'Ivoire, led by Dion Robert (100,000 members). The purpose of the cell ministry is to create an environment, in which people can safely share any issues and concerns about their lives and experience spiritual and emotional growth and development (Clarke, 2002). The cell group ministry also provides opportunities for church members to become more accountable for one another, develop their leadership skills, and practice evangelism (Clarke, 2002; Touch Outreach Ministries, 2007). Through my personal experiences with a church that has a cell group ministry, I know that cell groups perform a wide range of activities together, including participating community outreach, providing support during family and medical emergencies, celebrating life events, such as births and marriages; and simply meeting outside of the normal cell group meeting to enjoy each

other's company. In addition, the provision of food has been an integral part of each meeting that I have attended.

Under the cell group ministry model, a church's congregation is divided into small groups consisting of 5 to 15 individuals (Clarke, 2002). Each group meets once each week and is open to individuals who are not members of the church. In most cases, meetings take place in the homes of church members; however, churches do not typically place limitations on where their small groups can meet (Touch Outreach Ministries, 2007). Because the purpose of cell groups is to provide setting for intimate interactions, a group will multiply into two separate groups when it becomes larger than 15 members. All of the cell groups come together for a traditional, corporate worship service once each week. The figure and table below illustrate and describe the typical hierarchy and roles of the cell leadership structure (Clarke, 2002; Small Group Ministries, 2007). This shows the importance of involving congregants at every level of the church's infrastructure. In smaller churches, the roles of district pastor, zone leader, and section leader may not be needed. These roles are more relevant to larger churches, such as those mentioned above, that may have several cell groups spanning a broad geographical region.

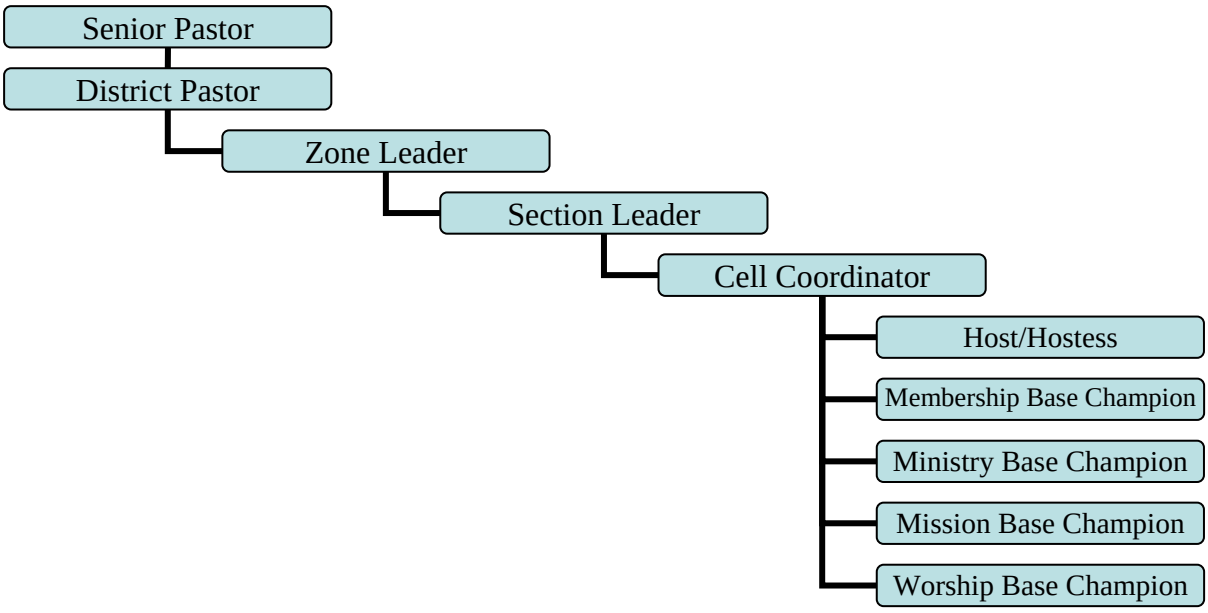

Figure 1. Cell Ministry Organizational Chart

Table 3. Description of Cell Ministry Roles

Cell Ministry Title	Role Description
Senior Pastor	Directs the entire church
District Pastor	Manages a district comprised of several zones
Zone Leader	Manages a zone comprised of several sections
Section Leader	Manages a section comprised of several cell groups
Cell Coordinator	Manages a cell group consisting of 5 to 15 members
Host/Hostess	Coordinates the rotation of meeting locations and refreshment provision
Membership Base Champion	Leads support of group sharing, fellowship, and events
Ministry Base Champion	Encourages the use of individual talents and gifts within the group and church; Encourages group serving opportunities within the church or community
Mission Base Champion	Coordinates outreach events and group mission projects; Promotes evangelism by encouraging group members to invite others to the meetings
Worship Base Champion	Encourages group members to participate in church-wide services

3.0 PROJECT HEAL INTERVENTION DESIGN

3.1 PURPOSE OF THE INTERVENTION

The purpose of Project HEAL (**H**ealthy **E**ating and **A**ctivity for **L**ife) is to provide health education information to rural African American congregations. Furthermore, the proposed intervention seeks to improve upon negative health behaviors by helping its participants develop and maintain lifestyle changes conducive to preventing and self-managing cardiovascular disease, type 2 diabetes, and overweight and obesity. These lifestyle changes, primarily healthier eating behaviors and increased physical activity, will be reinforced by the social support provided through the churches' small group ministries.

Because of the success of the Diabetes Prevention Program (DPP), as described in section 2.3, Project HEAL will be heavily based on the DPP's lifestyle intervention, with the addition of information relevant to cardiovascular disease and the modification of the materials to make them culturally appropriate for rural African Americans. Prior to implementing this program, I am planning to attend a DPP training and orientation that will be provided by researchers who helped develop the original DPP curriculum.

In addition to the modified DPP curriculum content, Project HEAL will include scripture references to help motivate the participants and to help them relate the expected health benefits of the program to the spiritual and biblical basis of the small group lifestyle. The overarching scripture for Project HEAL is 3 John 2, "Dear friend, I hope all is well with you and that you are as healthy in body as you are strong in spirit" (New Living Translation). The scriptures for each program session will be determined by the congregants.

3.1.1 Program Goals and Objectives

As a faith-based health promotion program, Project HEAL does not aim to recreate physical activity and nutrition education material that is currently available. Instead, Project HEAL aims to provide an environment in which these materials are readily available and explained in terms that are relevant to rural African Americans. More importantly, this program seeks to provide information that is modified to suit a faith-based setting and to present this information in a manner that addresses comprehensive lifestyle management and promotes overall positive lifestyle changes. In addition, Project HEAL aims to provide a non-threatening environment in which program participants can discuss physical activity and nutrition, as well as receive social support regarding these and other aspects of their health.

The long-term goals of Project HEAL are to: (a) decrease cardiovascular disease morbidity and mortality rates in rural African Americans, (b) decrease type 2 diabetes morbidity and mortality rates in rural African Americans, and (c) decrease overweight and obesity rates in rural African Americans. The short-term goals of the program are to decrease body weight and increase physical activity among the program's participants. At the completion of the 12-week pilot program, (a) sixty to seventy percent of program participants will achieve a 3 to 5% loss of baseline body weight; (b) sixty to seventy percent of program participants will complete, on average, 30 to 45 minutes of physical activity per week. These objectives are similar to those set forth by the Diabetes Prevention Program.

3.2 DEVELOPING AN ADVISORY COMMITTEE

The use of advisory committees in public health programs helps to increase community involvement and to develop program ownership among community members (Hodges & Videto, 2005b). In faith-based interventions, advisory committees provide program leadership and may be helpful in coordinating the church's involvement in the program (Kotecki, 2002; Tuggle, 2000). Furthermore, advisory committees are particularly useful in providing feedback used to tailor program activities to the community (Reed, Foley, Hatch, & Mutran, 2003).

The Project HEAL advisory committee will include leaders and members from the participating church, local health professionals, community leaders, and local organization representatives. At least one cell group coordinator will be asked to participate in the committee's activities. The local health professionals, community leaders, and local organization representatives will be collaboratively selected by the program staff and church leadership. To fulfill its role adequately, the advisory committee will be formed 6 to 8 months prior to the start of the program.

The advisory committee will be instrumental in several aspects of the programs' preparation, particularly in designing the Project HEAL logo, selecting appropriate scriptures for each session, and selecting lay health advisors. Through the advisory committee, program staff can remain abreast of community news, events, and concerns that may affect the program. In addition, the advisory committee can help keep the program staff aware of any relevant community resources that may be available to the program participants. Most importantly, the advisory committee will be instrumental in working with the program staff to plan for and ensure constant contact with the church after the completion of the pilot program and in determining the best strategies for proceeding with Project HEAL after the initial implementation.

The program staff will also provide the advisory committee with a copy of the program's curriculum. The committee will be consulted on changes and strategies for adjusting the curriculum so that it is better suited for the congregation's culture, needs, and values. The program staff will also consult with the advisory committee to ensure that the program's evaluation strategy addresses aspects of the program and its outcomes that are of particular interest to the congregation and others in the community.

3.3 TRAINING THE HEALTH BASE CHAMPIONS

Project HEAL will utilize the lay health educator concept that has been prominent among health promotion and disease prevention programs (Giarratano, Bustamante-Forest, & Carter, 2005; Kegler, Stern, Whitecrow-Ollis, & Malcoe, 2003; Parker, Schulz, Israel, & Hollis, 1998). With adequate training, lay health educators have been shown to deliver complex faith-based programs (Kotecki, 2002; Quinn & McNabb, 2001; Wilcox et al., 2007). This program will

utilize lay health educators to help increase program ownership among the congregants, and therefore increase the likelihood that the program will continue successfully after the pilot program is completed. To make this concept more applicable to the cell group ministry and the other titles used in the cell group ministry, the lay health advisors for Project HEAL will be called Health Base Champions (HBCs). During the initial sessions of the program, the HBCs will be accompanied by local health professionals and/or program staff to provide support and assistance to the HBCs. In addition, the health professionals will be useful in ensuring that the curriculum materials and messages are being relayed properly and in presenting behavioral modification strategies that require professional training and knowledge beyond what the HBCs will receive in the training workshops.

The church leaders and cell group coordinators will work together to nominate two individuals from each small group to serve as HBCs for their respective groups. Two individuals will be chosen so that one individual is not overwhelmed with teaching all of the program's session, and to ensure that sessions can still be administered in the event that one HBC is unable to attend a small group meeting. The nominees for HBC must be willing to serve in the position, able to read and write efficiently, and comfortable with speaking to and with their fellow group members. Each HBC will be required to complete one hour of training for each program session. The 12 hours of training will be conducted in a series of workshops lasting 3 hours each; these workshops will be conducted once per week for 4 weeks. Each training workshop will be audio and video recorded for future reference and for evaluation purposes. The training workshops will be taught jointly by program staff and local health professionals, such as physicians, nurses, and nutritionists. Upon completion of the training workshops, each HBC should fully understand the materials they will present to the program participants and recognize the strategies for effectively presenting this information.

In addition to providing training specific to program sessions 1 through 3, the initial workshop will introduce the HBCs to their responsibilities; the purpose, design, and philosophy of Project HEAL; and the roles of program staff. Each HBC will be provided with a Training and Instruction Manual that they will use during the training workshops and throughout the programs. This manual will include learning objectives, sample scripts, and copies of participant worksheets and handouts for each session. Additional materials needed for each program session will be given to the HBCs during the program's implementation. During each workshop, the

HBCs will be introduced to strategies for promoting self-efficacy for developing healthy behaviors among the program's participants. Another important component of the workshops will be having the HBCs go through each program session as if they were participants, so that they may provide modification suggestions to help make the materials and activities more relevant to the congregation.

Following the lay health educator design presented by Quinn and McNabb (2001), the HBCs will be trained primarily through the use of role playing and mock presentations of program sessions. The program staff, health professionals, and HBCs will interact to role play scenarios that may unfold during an actual program session. There will be at least one role playing activity during each training workshop. It is anticipated that role playing will promote team building, self-evaluation, and self-reflection. The HBCs will work in pairs to prepare and present the information for one program session. The program staff, health professionals, and other HBCs will provide constructive feedback for each mock presentation; in addition, the HBCs will self-evaluate their performances. This activity will help the HBCs feel more comfortable during actual presentations, while also making them more aware of the time and commitment required by their roles in Project HEAL.

3.4 RECRUITING PROGRAM PARTICIPANTS

Recruitment for Project HEAL will begin approximately three months before the program is scheduled to begin. To help increase interest in the program, and to reinforce the program's importance, the initial program announcement will come from the church's leading clergy member. These announcements, in addition to those made by the Health Base Champions during the small group meetings, will continue weekly until the start of the program. Program staff will plan to attend at least three church services (i.e., once per month) to assist in making the weekly announcement, to answer any questions congregants may have, and to distribute handouts; the Health Base Champions will also be actively participating in this phase of the recruitment process. The handouts will contain the Project HEAL logo, contact information for program staff, and an easy-to-read summary of the program and some of its potential activities. The handouts will also be available in the church's bookstore. It will be imperative that all

announcements and handouts clearly state that there is no cost or obligation to participate in Project HEAL.

Participation in Project HEAL will be limited to congregants who are 18 years of age and older. These congregants must be participating in one of the church's small group meetings or agree to begin participating in these meetings. Since this intervention involves dietary changes and increasing physical activity, all congregants who express an interest in becoming a program participant must submit documentation from their primary care physicians stating that they are medically able to participate. Each physician will receive detailed program information to review prior to making a decision. All congregants presenting a medical clearance will be allowed to participate in the program.

3.5 INTERVENTION CURRICULUM

3.5.1 Curriculum Overview

Project HEAL will be administered in a series of twelve sessions. Each session will be administered during the weekly small group meetings. A local health professional and/or member of the program staff will be present at many of the earlier sessions to help ensure that the information provided during these critical sessions, is presented completely and correctly. The presence of a local health professional or program staff member will not be as necessary during the latter sessions of the program.

A Bible scripture is included for each session to help the participants relate the learning objectives to their Biblical knowledge and spiritual well-being. The participants will be presented with a "challenge" each week to help increase their physical activity levels and occurrences of healthy eating behaviors. Group activities to promote physical activity and healthy eating behaviors will be arranged on a biweekly basis. The Diabetes Prevention Program allowed its participants to decide whether to place their initial focus on the physical activity or weight loss goal. Because long-term success at achieving weight loss goals at associated with initial weight loss success, Project HEAL is designed to have all participants focus on the weight loss goal at the beginning of the program.

The Project HEAL administrators will provide each participant with a workbook that will be used for the duration of the program. In addition to worksheets that will be completed during the weekly sessions, these workbooks will provide space for journaling and body weight, physical activity, and dietary intake tracking. The worksheets will include visual aids and brief exercises to help the participants learn and effectively implement the health education messages. Journaling will be encouraged to help the participants engage in self-reflection through recording their thoughts, feelings and/or challenges during the program. Each workbook will also contain contact information, brief role descriptions, and photographs of key program staff and administrators; the participants will be encouraged to utilize this contact information if they have questions or concerns about Project HEAL.

In addition to workbooks, each participant will receive a pocket calculator, digital scale, tape measure, set of measuring cups and spoons, water bottle, and small lunch bag; the pedometer, water bottles, and lunch bags will bear the Project HEAL logo. These materials will be provided at the appropriate times during the program, and participants will not be required to return them to the program's staff. In addition to the Project HEAL materials, participants will be provided with other relevant health education brochures and pamphlets during the program. After the conclusion of the pilot program, additional journaling and dietary and physical activity tracking materials will be available for participants in the church's bookstore or information center. This is to help encourage participants to continue the practices taught by the program and increase the likelihood that they will experience long-term success in achieving and maintaining weight loss, dietary, and physical activity goals.

One of the primary activities of Project HEAL will be group discussions. It is anticipated that these discussions will facilitate a greater understanding of the learning material and the sharing of ideas and concerns among the participants; this is consistent with the overall concept and proceeding of small group meetings. A key component of the group discussions will be the sharing of testimonies. Having the group members share their positive experiences and/or how they overcome negative experiences addresses the SCT construct of "observational learning", which suggests that the provision of credible role models can help individuals achieve the targeted health behaviors (Baranowski, Perry, & Parcel, 2002). In this case, the group members will serve as peer role models.

In most cases, small groups meet weekly for 1.5 to 2 hours each week. With the exception of the first two sessions, which will last approximately 10 to 15 minutes longer, the Project HEAL sessions are designed to last approximately 30 minutes, including a 15 to 20 minute presentation or demonstration by the Health Base Champion and a 10 to 15 minute group discussion. Because individual cell groups function differently, each group will decide when it is best during the weekly cell group meeting to conduct the Project HEAL session. In addition to the brief group-based sessions, a tri-fold display board will be created for each module. This display board will be placed in the church's information center and/or bookstore to make the information available to participants who were not able to attend the small group meeting, church members who are not participating in the program, and/or church visitors who may be interested in receiving health education materials.

3.5.2 Session 1 – Welcome to Project HEAL

This session will introduce the participants to Project HEAL and its purposes. Participants will also receive basic information regarding type 2 diabetes and cardiovascular disease. In addition, this session will also introduce participants to self-monitoring the foods they eat, as well as how this practice can assist in achieving weight loss goals. Furthermore, the participants will be encouraged to build upon the spiritual and emotional support fostered within the group by providing each other with encouragement and support in reaching their physical activity and weight loss goals. As Project HEAL's introductory session, the scripture base for this session will also be 3 John 2.

At the beginning of the session, each participant will receive a set of program materials, including a workbook, pocket calculator, water bottle, small lunch bag, and set of measuring cups and spoons. The Health Base Champion (HBC) will explain how each item will be used during the program. Demonstration of the proper use of the measuring cups and spoons will be done using items commonly found in rural households, such as rice; sugar; grits; and shortening, butter, or margarine. For the participants' future reference, pictorial instructions will also be included in the workbook.

Following the dissemination of program materials and demonstrations, the HBC will present information regarding heart disease, hypertension, and type 2 diabetes. Key messages of

the presentation will be modifiable and non-modifiable risk factors, warning signs, and outcomes of each health condition. The individual at-home challenge to reinforce this information will be to complete the family health history tree that is provided in the workbook. The purpose of providing a family health history tree is to increase the participants' awareness of trends in diagnoses of cardiovascular disease, diabetes, and/or obesity among their families. It may also help to increase perceived susceptibility to these health conditions and activate cues to action for preventing and/or treating the conditions.

Participants will then be introduced to setting goals for physical activity and weight loss. The HBC will explain that the primary goals for all participants are 150 minutes of physical activity per week and 10% weight loss. Because all participants will focus initially on the weight loss goal, the importance of tracking dietary intake and consuming less fat and salt in achieving these goals will be emphasized. As an additional at-home challenge, each participant will be instructed to record all of the foods and beverages they consume during the week. Each record should include a one-line description of the food and the time and place at which the foods and beverages were consumed. Because this is an introductory exercise, the participants will not track the fat, salt, and caloric content of the foods and beverages. However, they will be asked to indicate which foods and beverages they believe are high in fat and/or salt. The purpose of this activity is to familiarize the participants with tracking their food and beverage intake, as well as to activate thoughts and awareness of meals and snacks that are high in fat and salt. An example of a completed dietary record will be provided in the workbook. To help facilitate the group discussion for the second session, the HBC will also encourage the participants to journal their experiences, including thoughts, feelings, and challenges.

For this session's group activity, the HBC will facilitate a discussion on the participants' perceived benefits and challenges of participating in Project HEAL; participants will encouraged to think of the perceived benefits and barriers in regard to themselves, their family members, and others with whom they interact regularly. To encourage social support, the HBC will ask the participants to suggest strategies for supporting each other during the program, particularly in reaching their weight loss and physical activity goals. These suggestions will be written down on a large piece of paper, and each participant will record the suggestions in their workbooks so that they will have a reference list of social support strategies appropriate for their small group.

3.5.3 Session 2 – You Are What You Eat (Part 1)

The purpose of this session is help participants learn more about how body weight and dietary behaviors, such as fat and sodium intake, affect the development and management of type 2 diabetes, heart disease, and hypertension. Participants will also be introduced to self-monitoring of weight and fat and salt intake. This will be facilitated by teaching the participants how to read and use nutrition labels and the calorie, fat, and salt counter provided by Project HEAL.

To begin this session, the Health Base Champion (HBC) will facilitate a discussion in which the participants talk about their positive experiences and challenges during the first week of the program. Participants will be encouraged to share if and/or how completing the family health history tree changed their perceived susceptibility for developing type 2 diabetes, heart disease, and/or hypertension. In addition, the HBC will prompt participants to discuss how the dietary tracking activity influenced their dietary intake during the week. Participants will receive small rewards, such as motivational stickers for their workbooks, and verbal praise when discussion their efforts.

Following the group discussion, the HBC will briefly review key messages concerning heart disease, hypertension, and type 2 diabetes. The HBC will provide additional information regarding the effects of fat and salt intake on these health conditions. Key messages will include how sodium increases blood pressure and how fat contributes to weight gain and increases blood cholesterol levels, therefore increasing one's risk of having a heart attack. In addition, it is imperative for the participants to understand that African Americans appear to have a predisposition for developing hypertension.

The Health Base Champion will highlight high-fat and high-sodium beverages, foods, and food groups, commonly consumed by rural African Americans, such as fried fish and chicken, dried or salted meats, and gravies and similar dressings. The participants will be asked to share examples of the high-fat and high-sodium foods from their dietary tracking records. After receiving instructions on using the calorie, fat, and salt counter, the participants will work as a group to determine which examples are high in fat and/or sodium. Using an example from the workbook, the HBC will demonstrate how to decipher nutrition labels, with strong emphasis on the caloric, sodium, and fat values; the workbook example will be the nutrition label of a common household food, such as milk, eggs, or instant oatmeal.

In accordance with recommendations from the American Heart Association (2007a), the sodium goal for all participants will be predetermined as 2,300 milligrams; the HBC will explain that this is equal to approximately 1 teaspoon of salt. Individual fat gram goals will be determined using the chart provided in the calorie, fat, and salt counter. After seeing an example from the HBC, each participant will be asked to determine their daily fat gram goal and record the value in their workbooks. The HBC will also demonstrate how to use information from nutrition labels and/or the calorie, fat, and salt counter to calculate daily fat and salt intakes. Participants will be encouraged to work towards the sodium and fat gram goals gradually.

The final component of this session will focus on teaching the participants how to self-monitor body weight. Each participant will receive a digital bathroom scale to use for the program, and the HBC will demonstrate the proper way to stand on the scale and remind participants to weigh themselves regularly (i.e., on the same day of the week and/or at the same time of day) without shoes and heavy clothing. The participants will be given the opportunity to practice using their own scales and to record the displayed weight on the graph in their workbooks. The frequency at which to self-monitor body weight will be an independent decision made by each participant; however, each participant must self-monitor his/her weight at least one time each week. The individual at-home challenge for the second week will be tracking body weight and food and beverage consumption, with the addition of calculating daily fat and sodium grams. To facilitate the measuring activities for the third session, some participants will be asked to bring in samples of one of their favorite foods; these activities will be explained in detail in the following section.

3.5.4 Session 3 – You Are What You Eat (Part 2)

In this session of Project HEAL, participants will learn additional methods for weighing and measuring foods. In addition, they will be introduced to strategies for consuming less fat and sodium and incorporate these strategies into developing individual plans for diets lower in fat and sodium. Key messages for this session are to eat high-fat and high-sodium foods less often, eat smaller amounts of high-fat and high-sodium foods, and eat lower-fat and lower-sodium foods instead of high-fat and high-sodium foods.

This session will begin with a group discussion of experiences during the second week of the program. Similar to the opening discussion for the previous session, the Health Base Champion (HBC) will prompt participants to discuss challenges and positive experiences associated with the participating in the program, tracking weight and dietary intake, and calculating fat and sodium grams. Participants will receive modest rewards and verbal praise for their efforts and progress.

Following the group discussion, the HBC will facilitate a hands-on demonstration on properly measuring foods. In addition to using food samples provided by the participants, the HBC will also use samples of other foods commonly eaten by rural African Americans, such as butter or margarine, grits, fried chicken, collard greens, and black-eyed peas. At least one solid food, one liquid, and one meat or cheese product, will be placed at each table. The HBC will demonstrate the practices of leveling solid foods, reading liquid amounts from eye level, and weighing meats and cheeses. After each demonstration, someone from each table will be given the opportunity to follow each of the practices. The HBC will make sure that each participant gets hands-on experiences in weighing and measuring foods. In addition to the demonstration, the HBC will also discuss the concept of hidden sodium and fats, using examples such as batter on deep fried foods, sauces, and baked and dried products. Using a worksheet from their workbooks, the participants will keep track of the number of guessed and actual teaspoons of butter, margarine, or oil typically present in such foods.

After the demonstration, the HBC will lead a brief discussion to gather the participants' reactions to the amounts of hidden sodium and fat present in foods common to their diets. The HBC will also present the three principles for consuming less fat and sodium. Illustrated examples of each principle will be provided in the workbooks. As an initial step toward the establishment of a positive dietary lifestyle, each participant will be asked to identify one high-sodium and one high-fat food based on their dietary records for the previous two weeks of the programs. Each participant will choose to focus on one of the three principles for consuming less sodium and less fat for the upcoming week; this will serve as the at-home challenge for this session; daily tracking of dietary intake and regular self-monitoring of body weight will continue as well.

3.5.5 Session 4 – Eating to Live, Not Living to Eat

The purpose of this session is to help the participants understand and begin to use recommendations from the Food Guide Pyramid (FGP) as part of developing a healthy lifestyle. There will be an emphasis placed on the importance of consuming more grains, vegetables, and fruits. This session will also continue the presentation of strategies for consuming lower-fat and lower-sodium foods instead of high-fat and high-sodium foods.

The opening discussion for this session will focus on the participants' challenges and progress in their efforts to reduce sodium and fat content through the use of their chosen principles from the previous session. The Health Base Champion (HBC) will also address progress and concerns related to dietary tracking, weight loss, and self-monitoring of body weight. Participants will receive small rewards and verbal praise for their efforts and progress.

This session's activities will begin with the HBC explaining how consuming less fat and salt fits into the context of a positive dietary lifestyle. Key messages for this presentation include developing a regular meal pattern, eating slowly, and debunking the myth that one must "clean his/her plate". The HBC will also emphasize the importance of monitoring the types of foods that are being consumed and introduce the FGP as a guideline for developing healthy dietary patterns. A large illustration of the FGP will be used to help the participants understand its purpose and role in a positive dietary lifestyle; this illustration will also be provided in the participants' workbooks. The food examples provided in the illustration will reflect foods commonly eaten by rural African Americans; food models of common foods will also be provided to serve as a visual aid for correct portion sizes. The HBC's presentation will include a simple definition of each food group, as well as the recommended number of servings for each food group. For each food group, participants will be asked to name low-sodium and/or low-fat foods and to speculate on the correct serving size of those foods. Furthermore, the participants will identify high-fat and/or high-sodium foods that should be avoided from each group. Concerning the "fats, oils, and sweets" group, participants will think of alternatives to foods in this group, based upon the three principles introduced in the previous session. Healthier alternatives for each food group will be illustrated in the participants' workbooks.

Following the presentation, the participants will be asked to complete the "Rate Your Plate" exercise found in their workbooks. This exercise will require the participants to compare

two days of dietary intake from the previous week to the recommendations set forth in the FGP. The participants will tally the numbers of servings consumed from each food group, after which, they will use a comparison chart to illustrate how they can more closely match their dietary intakes with the FGP recommendations. One component of the at-home challenge for this session will require the participants to complete this exercise for each day of the week. This session will also introduce the participants to group level activities beyond discussions. Prior to leaving the meeting, each participant will be asked to sign up for one food dish to bring to the next session's pot-luck dinner. The food must be made from a recipe, and the participants must modify the recipe to lower the fat and/or sodium content. Individuals who are not accustomed to cooking from recipes may bring another healthy alternative to one of their favorite foods.

3.5.6 Session 5 – Let's Get Moving!

The purpose of this session is to help participants understand the importance of including physical activity as part of a healthy lifestyle. In addition, participants will identify their weekly physical activity goals and learn how to self-monitor their daily physical activity.

This session will begin with a discussion of the at-home activities for the previous week. The Health Base Champion (HBC) will prompt participants to provide feedback on the "Rate Your Plate" exercise, including any changes participants made to better match their dietary intake to the FGP, challenges they faced in completing this exercise, and how they addressed these challenges. In addition, participants will be given a chance to discuss progress and challenges associated with weight loss goals and dietary tracking. At the end of the session, each participant will be given the opportunity to discuss their choices in food brought in for this week's pot-luck dinner; in particular, they will be asked to explain the healthy recipe substitutions and alternatives they made to better match the food to the FGP recommendations. All participants will be given modest rewards and verbal praise for their efforts and participation in the pot-luck dinner. Furthermore, the HBC will collect written or typed copies of the modified recipes that will be combined with modified recipes from participants in other groups. The modified recipes will be organized into a cook book that will be distributed to program participants and other church members via the church's bookstore.

Following the discussion, the HBC will introduce the program's physical activity goal of 150 minutes, or 2.5 hours, of physical activity per week, and explain that each participant will create an individual activity plan based on current levels of activity. During this presentation, it is important for the HBC to let participants know that they will be able to choose activities they enjoy doing and gradually work towards the physical activity goal over the course of the next 4 weeks. The HBC will also emphasize 4 major benefits of developing a physically active lifestyle—increasing physical fitness, decreasing risk for heart disease and type 2 diabetes, assisting in weight loss and maintenance, and improving overall mood and energy levels. To prevent injury and discomfort during physical activity, participants will be encouraged to buy and wear supportive shoes. If they are unsure about the quality of their shoes, participants may bring in shoes they would wear during physical activity so that the HBC and help the participants determine if the shoes are adequate.

Each participant will use a worksheet and checklist to help give them ideas of physical activities that are suited to their current activity levels and that they may enjoy doing. Participants will be encouraged to think of other types of activities well-suited to their needs and desires. As an initial physical activity goal, each participant will write in the total number of minutes of activity that they will aim for during the week. The HBC will encourage all participants to set an initial goal of 30 to 60 minutes, explaining that the minutes can be spread out over 3 or 4 days for at least 10 minutes each day. For each day of the upcoming week, the participants will write down the type and duration of physical activity they plan to do; during the week, they will use tracking sheets in their workbooks to record the amount of time actually spent doing the activities. The HBC will also demonstrate how to graph weekly physical activity minutes on the charts provided in the participants' workbooks. The workbooks will also include information on stretches that can be done prior to physical activity or as a form of physical activity for participants who are limited in mobility.

To help increase social support for physical activity efforts, the HBC will ask the participants to think of an activity that can be carried out as a group. The group will be encouraged to schedule an activity at least once every other week. Suggestions for group activity will include free or low-cost activities, such as walking, skating, swimming and gardening. In some cases, more than two or more groups may join together for these activities. Participants

will also be encouraged to engage in physical activity in small groups of 2 or 3 individuals from their own small group or another small group if necessary.

3.5.7 Session 6 – Activity for Life

This session will focus on perceptions of time as a barrier to physical activity and provide strategies for overcoming this and other barriers identified by the participants. In addition, the participants will learn the basic principles of safety in exercise. The session will begin with a discussion of the participants' physical activity experiences during the previous week. The Health Base Champion (HBC) will prompt the participants to share their challenges and successes in working toward their initial physical activity goal, as well as how the physical activity may have affected their weight loss efforts during the week. All participants will be rewarded and praised for any physical activity that was done during the week. Each participant will also be given the opportunity to discuss any dietary challenges or successes they experienced during the week.

The discussion will continue with the HBC asking the participants about barriers to physical activity that they experienced during the past week and prior to participating in Project HEAL. Barriers that are common among many rural African Americans, such as time, children, weather, and lack of facilities, will be discussed. A large "Problems and Solutions" chart will be displayed in the room and in the participants' workbooks. The group will work together to suggest solutions to each barrier. The Health Base Champion will also introduce the participants to the concept of "lifestyle activity" by presenting ideas such as stretching while watching television, standing while on talking on the telephone instead of sitting, and parking further away from work or store entrances. While participants will not be required to record these types of lifestyle activities, the group will brainstorm on additional strategies for individuals to begin using during the upcoming week. The at-home challenge for this session will be to complete another weekly activity plan and increase physical activity goals by 30 minutes and to begin incorporating lifestyle activity. If possible, the small group will collectively participate in a physical activity.

3.5.8 Session 7 – It's All Just a Balancing Act

In this session, participants will be taught the basic concepts of how calorie balance relates to weight gain, loss, and maintenance. Specifically, they will learn how healthy eating and physical activity can work together to help them lose 1 to 2 pounds per week. As with previous sessions, this session will begin with a discussion of the participants' physical activity and dietary experiences during the week. The Health Base Champion (HBC) will prompt the participants to address if and how they were able to meet their physical activity goals for previous week. In addition, the HBC will ask participants to volunteer information about their challenges and progress in consuming fat and sodium grams below their daily goals. Each participant will receive a small reward and verbal praise for any effort and/or progress shared with the group.

Following the discussion, the HBC will explain how healthy eating behaviors and physical activity relate to each other and to calorie balance. Participants will be reminded of how physical activity and healthy eating behaviors help to prevent type 2 diabetes, heart disease, and hypertension. Key messages concerning calorie intake will be that the calories in food come from the fat, carbohydrate, protein, and/or alcohol content of the food and that fat is the nutrient with the most calories. Key messages concerning calorie expenditure will be that calories are required for basic bodily functions, such as breathing, and that the number of calories used during physical activity is contingent upon body weight and the type and duration of the activity. The HBC will also explain how calorie balance is related to weight loss and maintenance. It is imperative for participants to understand that weight loss results when they consumer fewer calories than they expend, weight gain results when they expend fewer calories than they consume, and weight maintenance results when their calorie expenditure is equal to their calorie consumption. There will be pictorial representations of this in the participants' workbooks.

There will be a simple demonstration on the calorie requirements for losing 1 to 2 pounds per week based on the fact that 1 pound of body fat contains about 3,500 calories. This demonstration will help participants understand the amount of weight loss they should have achieved after six weeks in the program. Participants will be encouraged to lose weight slowly, at a rate of 1 to 2 pounds per week. The HBC will emphasize that weight loss that takes place slowly and steadily is healthier and longer lasting than weight loss that takes place quickly and in large amounts. Following the presentation, the HBC will lead a discussion on how the

participants' calorie balances may have already been adjusted based on the changes they have made during the program. The participants will also discuss changes they can make to achieve a greater balance, such as continuing to monitor their dietary intake, being mindful of portion sizes, changing the frequency of weigh monitoring, and being physically active on a regular basis.

Each participant will be encouraged to increase their physical activity goal by 15 to 30 minutes for the upcoming week. The additional minutes will be worked into the participants' weekly physical activity plans. To facilitate activities for the next session, the HBC will ask participants to bring menus from their favorite restaurants and/or lists of foods that are typically present at family gatherings.

3.5.9 Session 8 – Healthy Eating Outside of the Home

During this session, participants will learn four basic strategies for maintaining their healthy eating behaviors when eating at restaurants and at family gatherings. The key messages for this session will be planning ahead, assertion, stimulus control, and healthy food choices.

A group discussion of the participants' experiences during the previous week will begin this session. The Health Base Champion (HBC) will prompt participants to share any challenges in incorporating additional minutes of physical activity into their daily schedules. Participants will also be asked to discuss challenges and progress related to dietary tracking, remaining within the fat and sodium gram goals, and achieving weight loss goals. Modest rewards and verbal praise will be given for any progress or efforts.

The Health Base Champion will explain that the purpose of this module is to help the participants learn how to maintain their healthy eating behaviors when visiting restaurants and attending family gatherings for which food is a major focus. Participants will be prompted to share what typically happens when they visit their favorite restaurants or attend family gatherings. In particular, the HBC will prompt participants to discuss any challenges in following their fat and sodium gram guidelines when eating outside of their homes.

The participants and HBC will engage in a role-playing exercise to show how they would normally order or choose from the menus and food lists they brought to the meeting. Following the discussion and role-playing, the HBC will begin a presentation on four basic principles that

the participants can use to help them maintain their healthy eating behaviors. Participants will be instructed to think about how their choices and behaviors compare the guidelines presented. These principles and examples of how each can be utilized in a real-world setting are described in the table below.

Table 4. Four Principles for Eating Outside of the Home

Principle	Fast Food Restaurant	Regular Restaurant	Family Gathering
Plan Ahead	• Choose a restaurant that offers a variety of low-fat alternatives; • Plan your order without looking at the menu so that you are not tempted to order what you do not want	• Eat fewer calories during other meals that day; • Drink water or eat a small serving of fruit or low-fat crackers before you go to the restaurant so that you are not too hungry	• Bring a healthy dish from home for everyone to try • Eat a small, healthy snack before you go so that you are not too hungry when you get there
Ask For What You Want	• "Please leave the mayo off my burger." • "May I have my coffee with low-fat milk instead of cream, please?"	• Ask for a smaller size of your main dish • Ask that sauces or dressing be served on the side	• Don't be afraid to say, "No, thank you" to foods you don't want
Take Charge Of What's Around You	• Be the first in your group to order so that you are not tempted by what others order	• Remove advertisements for high-fat/calorie foods from the table • Have ½ of your order put in a take-out container before it's brought to the table	• Choose a small plate • Sit a table far away from the buffet table
Choose Foods Carefully	• Try a grilled chicken sandwich instead of a fried chicken sandwich or hamburger; • Try a small side salad instead of french fries	• Make some compromises—don't have an appetizer if you want a dessert • Watch out for high-fat/salt/calorie words (list provided in workbook)	• If you must have a high-fat/salt/calorie food, take just enough to taste • Look at everything on the buffet before serving yourself & then choose only 3 or 4 of your favorite foods

The participants' workbooks will contain additional examples and scripts for eating at each of these settings. They will also receive lists of healthy alternatives from local restaurants, as well as the estimated fat, salt, and caloric content of each food. The at-home challenge for the upcoming week will be for the participants to try these strategies at the restaurant of their choice. Participants will be encouraged to visit the restaurants with other members of their group to reinforce social support during this exercise. The HBC will remind participants to continue with their journaling, weight monitoring, and dietary and physical activity tracking. Participants whose physical activity goals have not yet reached 150 minutes will be encouraged to increase their weekly goal by 15 to 30 minutes.

3.5.10 Session 9 – A Positive Way of Thinking

The purpose of this session is to introduce participants to the practice of coming aware of and stopping negative thoughts and replacing such thoughts with positive thoughts. In addition, participants will learn how negative thoughts may affect their efforts to develop and maintain a healthy lifestyle.

The session will begin with a group discussion of the at-home challenge for the previous week. In addition to discussing weight loss, physical activity, and dietary tracking, the Health Base Champion (HBC) will prompt participants to share their experiences with eating outside of their homes. All efforts and progress will be rewarded with modest gifts and verbal praise.

The Health Base Champion will explain that the purpose of this session is to help the participants control anything negative thinking patterns they may have. The HBC will begin by letting the participants know that everyone periodically has negative thoughts. Prior to beginning the presentation, the HBC will ask participants to share strategies they currently use to handle negative thinking. Following the discussion, the participants will receive information on the types and examples of negative thoughts that are commonly experienced; how negative thoughts can affect physical activity, dietary behaviors, and weight loss; and what to do to counteract negative thoughts. This information will also be provided in the participants' workbooks. The types and examples of negative thoughts, as well as potential strategies for combating them, are presented in the table below. Participants will use these strategies to practice counteracting positive thoughts for the examples they provided during the discussion.

Table 5. Negative Thoughts Examples and Solutions

Negative Thought Category	Definition	Example	Counteracting Thought Strategy
Good or Bad Thoughts	All or nothing thinking, with nothing in between	"Look at what I did. I ate two pieces of fried chicken. I'll never get this right!"	Remind yourself that it's okay if you're not perfect; Work toward balance, not extremes
Excuses (or Rationalization)	Blaming something or someone else for your problems	"I need to buy these potato chips for when my grandchildren come over tomorrow"	Remind yourself that you have to try new things and give yourself a chance to succeed
Should Thoughts	Expecting perfection of yourself	"I should have exercised for an extra 15 minutes today"	Remind yourself that you're in charge of your actions and that no one has unrealistic expectations of you
Not As Good As Thoughts	Comparing yourself to others and blaming yourself for not being the same as others	"Linda is losing weight every week, but I haven't lost any weight in two weeks."	Remind yourself that everyone is different and that you cannot compare yourself to others
Give Up Thoughts	Defeating yourself, usually after thinking one of the other types of negative thoughts	"I'm not losing any weight in the program. I might as well quit."	Remind yourself that you have to take things one step at a time to reach your goals.

The Health Base Champion will encourage participants to use their journaling to keep track of any negative thoughts they may have during the upcoming week. Participants will also be encouraged to write down how they counteracted their negative thoughts. This journaling activity will serve as the at-home challenge for this session. In addition, participants will continue to monitor and track their weight, dietary intake, and physical activity. Any participants who have not yet reached 150 minutes of physical activity per week will be encouraged to increase their weekly goal by 15 to 30 minutes.

3.5.11 Session 10 – Going to Another Level of Activity

The session will help participants learn how safely introduce physical activity of higher intensity into their physical activity plans. Information provided in this session will also help participants identify strategies for adding variety to their physical activity plans. As with previous sessions, this session will begin with a discussion of the participants' experiences during the previous week of the program. In particular, the Health Base Champion (HBC) will encourage participants to share how they handled any negative thoughts that came up during the week. The participants will also discuss any challenges that they may have faced in monitoring their weight loss, dietary intake, and/or physical activity. Progress and efforts toward achieving weight loss and physical activity will be acknowledged with modest rewards and verbal praise.

The Health Base Champion will explain that the purpose of this session is to teach them about adding variety to their activity plans, increasing the intensity of their physical activity, and practicing safety measures during physical activity. Participants will be prompted by the HBC to share any challenges they are having with their physical activity plans related to these areas. This will be an opportunity for the group to provide each other with feedback and support regarding their physical activity plans. The HBC will incorporate the group's ideas into the presentation of adding variety to physical activity plans. Key messages for varying physical activity plans will include strategies such as making physical activity a social activity, doing physical activity in different places, and trying new types of physical activity.

The participants will also be introduced to the idea of aerobic fitness. The HBC will explain how certain types of physical activity can improve heart functioning. The four basic principles of this component of the presentation are frequency of the activity, intensity of the activity, time spent doing the activity, and type of activity; these concepts will presented as the acronym FITT. As another method for determining exercise intensity, participants will learn how to measure their heart rates and determine their target heart rate based on age.

The at-home challenge for this session will be for the participants to work towards increasing the intensity of their workouts and to begin tracking their heart rates during physical activity. In addition, participants will continue to track their weight, dietary intake, and physical activity. To help promote variation and increased intensity of physical activity, the participants

will be encouraged to participate in group activities, such as softball, kickball, and/or roller skating.

3.5.12 Session 11 – You Can Have Victory over Stress

During this session, participants will learn how to manage and prevent stress associated with everyday life and with maintaining a healthy lifestyle. The Health Base Champion (HBC) will begin the session by prompting a group discussion of the previous week's at-home challenge. Participants will be prompted to share their experiences related to adding variety to their physical activity plans and increasing the intensity of their physical activity. The HBC will provide modest rewards and verbal praise for any progress or efforts made toward achieving physical activity and weight loss goals.

The discussion will continue with the HBC asking the participants about sources of stress in their lives and about how stress affects the quality of their lives. After the discussion, the HBC will continue with a brief presentation on strategies for preventing stress and for managing unavoidable stress. Key messages for this preventing stress will include setting reasonable goals, taking charge of the surrounding environment through organization and time management, planning ahead, developing a support system, and being physically active. Participants should understand taking a short time out for themselves and participating in physical activity may help them to manage unavoidable stress in a better manner. Another component of the discussion and presentation will be to acknowledge stress that participants may experience because of weight loss efforts and participating in Project HEAL. After the discussion, the HBC and participants will help each other develop stress management plans. These plans will be developed using worksheets provided in the participants' workbooks.

The at-home challenge for the upcoming week will be for participants to continue tracking their weight loss, physical activity, and dietary intake. In addition, participants will be encouraged to use their journals to help them become more aware of stressful situations and to help them manage stress.

3.5.13 Session 12 – Don't Quit!

As the final session of the program, this session will focus on providing strategies for staying motivated to live a healthy lifestyle. Participants will also receive recognition for their participation in and success during the program. The session will begin with a discussion of how the participants were able to manage stress during the previous week of the program. The Health Base Champion (HBC) will also prompt the participants to share their attitudes and perspectives of how the program has affected their lifestyles.

To help participants stay motivated in their weight loss and physical activity efforts, the HBC will provide a brief presentation on non-food self-rewards for healthful behaviors. In addition, the presentation will include strategies for adding healthy variety to their dietary intake. These strategies will include experimenting with foods from other cultures, sharing food preparation will family and/or friends, and planning themed pot luck dinners for the cell group meetings. Participants will also be encouraged to continue in their tracking activities and with group-based physical activities to increase motivation and social support for maintaining healthy lifestyles. At the next week's corporate church service, each participant will receive a certificate of recognition for their efforts and success during the program.

4.0 PROJECT HEAL EVALUATION STRATEGY

Since the 1950s, program evaluation has become a common component of public health interventions (Rossi, Lipsey, & Freeman, 2004). Systematic evaluations help to determine whether a program is meeting its goals and objectives, as well as to help generate future hypotheses for research and contribute to the knowledge of effective program designs (Hodges & Videto, 2005a). In recent years, there have been increasingly more faith-based health promotion programs implemented across the country; however, very few of these programs have utilized sound evaluation strategies to assess their effectiveness compared to that of traditional health promotion programs (Flannelly, Weaver, & Tannenbaum, 2005). To ensure that the effectiveness and appropriateness of the proposed intervention are adequately evaluated, the Reach, Efficacy, Adoption, Implementation, and Maintenance (RE-AIM) framework will inform the evaluation of Project HEAL. Quantitative and qualitative methods will be used to develop a comprehensive evaluation that addresses factors at both the individual and organizational levels.

4.1 THE RE-AIM EVALUATION FRAMEWORK

The Reach, Efficacy, Adoption, Implementation, and Maintenance (RE-AIM) framework is a comprehensive strategy for designing and evaluating health behavior and health promotion interventions (Glasgow, Vogt, & Boles, 1999). This model uses each of these dimensions to evaluate the public health impact of interventions, the internal and external validity of health behavior research, and to facilitate the translation of public health research into practice (Dzewaltowski et al., 2006). RE-AIM addresses individual and institution or organization levels of impact, and is compatible with the multi-level concepts of the social ecological model (Glasgow, Vogt, & Boles, 1999). Because of it's versatility and far-reaching capabilities, the

RE-AIM model has been used to design and evaluate programs in many areas of public health, including work site health promotion, physician-based health promotion, smoking cessation, arthritis education, and childhood nutrition education (Aittasalo, Miilunpalo, Stahl, & Kukkonen-Harjula, 2006; Baldwin, Humbles, Armmer, & Cramer, 2001; Bull, Gillette, Glasgow, & Estabrooks, 2003; Gyurcsik & Brittain, 2006; Noller, Winkler, & Rummel, 2006). In at least one instance, RE-AIM was used to compare to diabetes self-management programs (Glasgow, Nelson, Strycker, & King, 2006).

The "reach" dimension of RE-AIM denotes the absolute number and percentage of individuals who participate in a health behavior or health promotion program (Dzewaltowski et al., 2006; Glasgow, Vogt, & Boles, 1999). This is an individual level dimension that also measures how well the characteristics of the program's participants represent those of the overall target population (Dzewaltowski et al., 2006). Reach is often measured by comparing program data with that of census records, or another source that provides detailed demographic and/or medical information about the target population (Glasgow, Vogt, & Boles, 1999). Another individual level dimension is "efficacy", which measures the program's positive and negative impact on targeted outcomes, such as health behaviors and quality of life (Dzewaltowski et al., 2006; Glasgow, Klesges, Dzewaltowski, Estabrooks, & Vogt, 2006). Outcomes are typically measured using experimental or quasi-experimental methods, such as observing comparison groups or conducting pre- and post-tests (Dzewaltowski et al., 2006).

According to Dzewaltowski et al. (2006), few evaluations have considered how well programs have been adopted and/or implemented by the organizations or institutions in which they are administered. "Adoption" is the first dimension of RE-AIM that addresses the organization level of the environment (Glasgow, Vogt, & Boles, 1999). This dimension measures the number and percentage of the organization's staff and other administrators who are willing to initiate the program (Dzewaltowski et al., 2006). Adoption also addresses how well the organization represents similar organizations in which the program could be implemented. Qualitative methods, such as structured interviews or direct observation, are typically used to measure adoption (Glasgow, Vogt, & Boles, 1999).

The fourth dimension of RE-AIM is "implementation", an organization level measure that determines the extent to which the program is delivered as planned, including the consistency of the program's delivery and the time and cost of the program (Dzewaltowski et al.,

2006; Glasgow, Vogt, & Boles, 1999). Implementation is measured by examining the percentage of process objectives that are met during the program (Dzewaltowski et al., 2006). The efficacy and implementation dimensions can be used together to determine the program's overall effectiveness (Glasgow, Vogt, & Boles, 1999). RE-AIM's final dimension is "maintenance", an individual and organization level measure of the program participants' maintenance of the desired behavior change and the organization's continuance of the program's delivery (Dzewaltowski et al., 2006; Glasgow, Klesges, Dzewaltowski, Estabrooks, & Vogt, 2006). Individual maintenance is measured by examining program outcomes at least six months after the most recent intervention contact with the participants (Dzewaltowski et al., 2006).

As a pilot program primarily designed to impact individual level factors, the Project HEAL evaluation strategy will focus on the reach, efficacy, implementation, and maintenance constructs of the framework. All collected evaluation data will be presented to the advisory committee and congregants in various and appropriate formats, including formal reports and presentations, informal talks, and summary brochures and pamphlets.

4.2 EVALUATING THE REACH OF PROJECT HEAL

The evaluation of Project HEAL's reach will examine how well the congregation represents rural African Americans within the church's county, state, and region of the country. In addition, it will determine total program participation among the congregants. This component of the evaluation strategy will utilize quantitative evaluation methods.

Data concerning demographic, social, and economic indicators will be collected from each program participant via self-administered surveys. Participants will complete these surveys when they meet with program staff prior to the first program session. The surveys will also include items to address general health, type 2 diabetes, cardiovascular disease, and overweight/obesity. The data collected from the surveys will be compared to corresponding data from the local and state health departments and state centers for health statistics.

The program staff will also gather information from the church leadership concerning the congregation size and demographic characteristics. This data will be collected via membership forms that churches typically use when an individual officially joins the church. The number of

participants at the beginning and conclusion of the program will be compared to the church's recorded number of members. In addition, demographic data from the membership forms will be compared to demographic data collected via the self-administered surveys to determine how well the program participants represent the church's congregation. Attendance will be taken at each session to help the program staff determine overall program attendance.

4.3 EVALUATING THE EFFICACY OF PROJECT HEAL

In addition to addressing the three primary objectives of the program, the evaluation of Project HEAL's efficacy will also address participants' knowledge of type 2 diabetes, cardiovascular disease, and overweight/obesity. Positive and negative changes in self-efficacy; self-control; perceived barriers to and benefits of dietary modifications and physical activity; and perceived susceptibility to and severity of type 2 diabetes, cardiovascular disease, and overweight/obesity will also be assessed through a pre- and post-test method. This component of the evaluation strategy will utilize quantitative and qualitative evaluation methods.

Program staff will meet with each participant prior to the start of the program to collect the demographic data described above, as well as baseline body weight and typical physical activity patterns. The individual meetings will reoccur at 6 and 12 weeks after the start of the program. This will provide the participants with the opportunity to receive one-on-one counseling about their progress in reaching their physical activity and weight loss goals. Participants who may have made little or no progress after 6 weeks will be provided with additional strategies and resources for working toward their goals.

During the first meeting with program staff, each participant will complete the Project HEAL pre-test. The test will assess how well participants comprehend key messages from each session. In addition, the test will include close-ended questions addressing self-efficacy; self-control; perceived barriers to and benefits of dietary modifications and physical activity; and perceived susceptibility to and severity of type 2 diabetes, cardiovascular disease, and overweight/obesity to assess any positive or negative changes in these attitudes and perceptions. Tests containing similar questions will be given 6 and 12 weeks after the start of the program. The evaluation will be quasi-experimental in design, as these tests will also be administered in a

comparison church. The selected church must have demographic and membership characteristics similar to the church in which the intervention is being implemented. If possible, the comparison church will be one that also operates on the small group system. Sample survey questions that may be used to address constructs of the Social Cognitive Theory and Health Belief Model are listed in Appendix A.

Qualitative analyses of the participants' journal entries will also be instrumental in assessing changes in self-efficacy; self-control; perceived barriers to and benefits of dietary modifications and physical activity; and perceived susceptibility to and severity of type 2 diabetes, cardiovascular disease, and overweight/obesity. Copies of the journals will be obtained at the 6 and 12 week visits with program staff. Each journal entry will be analyzed for patterns and major themes. While this process may be cost and labor intensive, it may provide valuable information regarding behavioral patterns and idea systems regarding lifestyle changes (Aronson, Wallis, O'Campo, Whitehead, & Schafer, 2007).

4.4 EVALUATING THE IMPLEMENTATION OF PROJECT HEAL

This component of the evaluation strategy is a process evaluation of whether the program is implemented in accordance with its plan and guidelines. It will also determine how efficiently the program is implemented. This process evaluation will address the training workshops and the program sessions. Qualitative and quantitative methods will be used to evaluate the implementation of Project HEAL.

After each training workshop, the Health Base Champions (HBCs) will complete a brief survey that will prompt them to provide feedback on the effectiveness of the workshop, the clarity of the material, and timeliness of the workshop. At the end of the workshop series, each HBC will be required to complete a test to ensure that they understand the concepts they will be presenting during the program sessions. The mock presentations and feedback from these exercises will also serve as a process evaluation method for the training evaluation sessions. Program staff will periodically attend program sessions to observe the performance of the HBCs. The feedback from these observations will be compared to the feedback provided from the mock presentations. In addition, random program sessions will be chosen for participant observations

to help determine the overall efficiency of the delivery of the program sessions. At the end of the pilot program, the program staff will conduct group interviews with the HBCs to gather the HBCs' attitudes, perspectives, and suggestions concerning their roles and responsibilities in the program.

The Health Base Champions and program participants will periodically complete Project HEAL feedback forms to provide the program staff and advisory committee with suggestions for program improvement and with general comments about their experiences in the program. The feedback forms will also address the efficiency of the program sessions and the usefulness of the program materials and handouts. There will also be a comments/suggestions box available in the church's bookstore or information center. Participants will be able to drop comment/suggestion card in the box at any time during the program. Another process evaluation strategy will be keeping track of the amounts of the program's promotional items and informational pamphlets and brochures that are given out to and/or taken up by program participants.

4.5 EVALUATING THE MAINTENANCE OF PROJECT HEAL

This component of the Project HEAL evaluation strategy will assess the program's long-term effects on the church and the program participants. Quantitative and qualitative methods will be used to determine the extent to which Project HEAL is integrated into the church's normal operations and to examine the program participants' dietary behaviors and increase in or maintenance of weight loss and physical activity levels. The evaluation will also address any long-term changes in attitudes and perspectives concerning self-efficacy; self-control; perceived barriers to and benefits of dietary modifications and physical activity; and perceived susceptibility to and severity of type 2 diabetes, cardiovascular disease, and overweight/obesity. This phase of the evaluation will also help to increase opportunities for constant contact with the church after the completion of the pilot program.

The maintenance evaluations will be conducted at 3-month intervals following the conclusion of the pilot program. At each interval, selected members of the church leadership will be asked to complete a close-ended follow-up survey. This survey will address whether Project HEAL is still being implemented in the church, the level of program participation, and

overall satisfaction with the program since the conclusion of the pilot program. In addition, randomly selected Health Base Champions and members of the advisory committee will be asked to participate in focus groups that will address the general experiences, challenges, and benefits of implementing the program. Each interval data set from the church leadership, HBCs, and advisory committee members will be compared to each other to identify trends and common themes.

Project HEAL program staff will meet individually with program participants to collect data on weight loss, physical activity patterns, and dietary behaviors since the conclusion of the pilot program. This data will be collected by taking the participant's current body weight, via surveys, and by reviewing any tracking documents the participant may have completed. Participants will be randomly selected to participate in focus groups to collect qualitative data about attitudes and perspectives concerning self-efficacy; self-control; perceived barriers to and benefits of dietary modifications and physical activity; and perceived susceptibility to and severity of type 2 diabetes, cardiovascular disease, and overweight/obesity. As with data collected from the church leadership and program advisory board, the interval data sets from the program participants will be compared to each other and to corresponding data collected during the pilot program.

5.0 CONCLUSIONS/DISCUSSION

Healthy People 2010 recognizes community-based interventions as an necessary component of public health efforts to positively impact the health of Americans. Furthermore, studies have shown that faith-based interventions may be particularly effective in reaching a wider audience that health interventions implemented in other settings. Because of the traditionally prominent role of the church in the African American community, faith-based interventions may be especially useful in connecting with rural African Americans, who have unique healthcare needs due to their cultural and structural differences compared to other populations in the United States. With almost one-half of the African American population residing in rural areas, a program such as Project HEAL is of extreme public health importance because it may significantly impact health behaviors among this population and reduce health disparities related to race/ethnicity and/or geographic location.

Although Project HEAL's design was heavily influenced by the Diabetes Prevention Program (DPP), several aspects of the curriculum have been modified to suit the needs of rural African American congregants. The primary modification is the addition of content addressing cardiovascular disease in addition to content addressing type 2 diabetes. Furthermore, the modified curriculum includes the sharing of testimonies, providing food models specific to the African American culture, and using of scriptures to help make the learning material more relevant to a faith-based setting. Finally, the DPP curriculum has been modified to facilitate small group learning, rather than one-on-one sessions with case workers. This change was made so that the social support provided through the cell group ministry could also be applied to the congregants' efforts to reach their weight loss and physical activity goals.

One of the primary strengths of Project HEAL is its evaluation strategy. Using the Reach, Efficacy, Adoption, Implementation, and Maintenance framework as a guideline, program staff will be able to evaluate Project HEAL comprehensively and show how the

program compares to other community-based interventions with similar goals and objectives. However, the proposed evaluation does not address the program's adoption among the church staff. I believe that this will not significantly affect the evaluation's findings, as many rural churches have fewer congregants than urban churches, and therefore do not maintain an extensive staff.

While the intervention design and evaluation strategy have been described in detail, I recognize the reality that several aspects of the program will need additional modifications to suit the participating church and its congregants and surrounding community. Input from the church will be necessary in fostering the spirit of community-based participatory research, in maintaining constant contact with the church, and in hopes of increasing the church's long-term ownership of the program.

APPENDIX A

SAMPLE SURVEY FOR PARTICIPANTS AND CONTROL GROUP

THANK YOU FOR TAKING THE TIME TO PARTICIPATE IN OUR SURVEY! This survey will ask questions related to your feelings about diabetes, heart disease, and high blood pressure. We will also ask you about your nutrition and physical activity habits.

DIABETES

Q1. Have you ever been told by a doctor or nurse that you have diabetes, or sugar?

- ☐ Yes → **Skip to Question 6**
- ☐ No

PLEASE TELL US HOW MUCH YOU AGREE WITH THE FOLLOWING STATEMENTS ABOUT DIABETES.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Sure
Q2. People my age are too young to have diabetes	☐	☐	☐	☐	☐	☐
Q3. I am not worried that I may get diabetes	☐	☐	☐	☐	☐	☐
Q4. I am very healthy so I will not get diabetes	☐	☐	☐	☐	☐	☐
Q5. I am not at risk for getting diabetes	☐	☐	☐	☐	☐	☐

HEART HEALTH

Q6. Have you ever been told by a doctor or nurse that you have a heart condition or have had a heart attack?

- □ Yes → **Skip to Question 11**
- □ No

PLEASE TELL US HOW MUCH YOU AGREE WITH THE FOLLOWING STATEMENTS ABOUT YOUR HEART HEALTH

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Sure
Q7. People my age are too young to have a heart attack	□	□	□	□	□	□
Q8. I am not worried that I may have a heart attack	□	□	□	□	□	□
Q9. I am very healthy so I will not have a heart attack	□	□	□	□	□	□
Q10. I am not at risk for having a heart attack	□	□	□	□	□	□

HIGH BLOOD PRESSURE

Q11. Have you ever been told by a doctor or nurse that you have high blood pressure?

- □ Yes → **Skip to Question 16**
- □ No

PLEASE TELL US HOW MUCH YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS ABOUT HIGH BLOOD PRESSURE

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Sure
Q12. People my age are too young to have high blood pressure	□	□	□	□	□	□
Q13. I am not worried that I may get high blood pressure	□	□	□	□	□	□
Q14. I am very healthy so I will not get high blood pressure	□	□	□	□	□	□
Q15. I am at risk for getting high blood pressure	□	□	□	□	□	□

NUTRITION & PHYSICAL ACTIVITY

PLEASE TELL US HOW MUCH YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS ABOUT YOUR DIET AND PHYSICAL ACTIVITY

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Sure
Q16. It is hard for me to find time to exercise everyday	□	□	□	□	□	□
Q17. I do not find exercising fun or enjoyable	□	□	□	□	□	□
Q18. I do not have a place where I can exercise	□	□	□	□	□	□
Q19. I am not able to find healthy things to eat everyday	□	□	□	□	□	□
Q20. I do not enjoy trying new, healthier foods	□	□	□	□	□	□

PLEASE TELL US HOW MUCH YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS ABOUT OTHERS AND YOUR EXERCISE AND HEALTHY EATING EFFORTS

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Sure
Q21. There are people that I can call when I need motivation to exercise	□	□	□	□	□	□
Q22. When I want to exercise, I can easily find a workout partner	□	□	□	□	□	□
Q23. My family members support my efforts to exercise	□	□	□	□	□	□
Q24. My friends support my efforts to exercise	□	□	□	□	□	□
Q25. The people who live with me don't mind buying and eating healthier foods	□	□	□	□	□	□
Q26. My family members support my efforts to eat healthier foods	□	□	□	□	□	□
Q27. My friends support my efforts to eat healthier foods	□	□	□	□	□	□

PLEASE TELL US HOW SURE YOU ARE THAT YOU COULD PERFORM THE FOLLOWING TASKS

	Very Sure	Pretty Sure	Somewhat Sure	A Little Sure	Not Sure At All
Q28. I can exercise for 30 minutes 1 day each week	□	□	□	□	□
Q29. I can exercise for 30 minutes 2 days each week	□	□	□	□	□
Q30. I can exercise for 30 minutes 3 days each week	□	□	□	□	□
Q31. I can eat 1 serving of fruits or vegetables each day	□	□	□	□	□
Q32. I can eat 2 servings of fruits or vegetables each day	□	□	□	□	□
Q33. I can eat 5 servings of fruits or vegetables each day	□	□	□	□	□

THE FOLLOWING QUESTIONS ASK ABOUT YOUR NUTRITION AND PHYSICAL ACTIVITY

Q34. In a typical week, how much time to you spend doing sports or hobbies, physical activities, or exercise, including walking?

_____ Minutes

Q35. On a typical day, how many servings of fruits or vegetables do you eat? (One serving of fruits or vegetable is usually ½ to 1 cup)

_____ Servings

FAMILY HEALTH HISTORY

THE FOLLOWING QUESTIONS ARE ABOUT YOUR FAMILY HISTORY OF DIABETES AND HEART DISEASE

Q36. Does/did anyone in your family have diabetes, or sugar?

- ☐ Yes
- ☐ No → **Skip to Question 38**

Q37. Which of your family member(s) have/had diabetes, or sugar? Check all that apply.

- ☐ Parent
- ☐ Brother or Sister
- ☐ Grandparent
- ☐ Aunt or Uncle
- ☐ Niece or Nephew

Q38. Does/did anyone in your family have heart disease?

- ☐ Yes
- ☐ No → **Skip to Question 40**

Q39. Which of your family member(s) have/had heart disease? Check all that apply.

- ☐ Parent
- ☐ Brother or Sister
- ☐ Grandparent
- ☐ Aunt or Uncle
- ☐ Niece or Nephew

ABOUT YOU

PLEASE ANSWER THE FOLLOWING QUESTIONS ABOUT YOURSELF

Q40. What is your gender?

- □ Male
- □ Female

Q41. Which of the following best describes your race or ethnicity?

- □ African American/Black
- □ Hispanic/Latino
- □ White
- □ Native American/American Indian
- □ Asian/Pacific Islander
- □ Other: _____

Q42. Which of the following best describes your level of education?

- □ Did not complete high school
- □ High school graduate or GED
- □ Some College
- □ Associate's Degree
- □ Bachelor's Degree
- □ Graduate/Profession Degree

Q43. Which of the following best describes your income?

- □ Less than $20,000 per year
- □ $20,000 - $39,999 per year
- □ $40,000 - $59,999 per year
- □ $60,000 - $79,999 per year
- □ More than $80,000 per year

THIS COMPLETES THE SURVEY.

AGAIN, THANK YOU FOR YOUR TIME!

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