

FIT BODY AND SOUL: A CHURCH-BASED BEHAVIORAL LIFESTYLE PROGRAM FOR DIABETES PREVENTION IN AFRICAN AMERICANS

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Faith-based initiatives for lifestyle change show promise in helping to promote healthy behaviors in African American communities. It has been suggested that faith communities and programs within faith communities can influence health care practices and health care planning especially in high risk, minority populations. African American individuals are more likely to attend and participate in faith-based services than Whites from similar backgrounds. Our proposed intervention, Fit Body and Soul, has been adopted and modified from the proven diabetes prevention program (DPP) lifestyle intervention program, and uses the church-community experiences of the "Body and Soul" study as a faith-based effort. The intervention has been developed keeping in mind the church mission and goal of being spiritually healthy and has adopted bible scripture to develop a 12-session intervention. In this article, we present the development of the church-based Fit Body and Soul behavioral lifestyle intervention using community-based participatory research in partnership with African American churches. (*Ethn Dis.* 2009;19:135-141)

Key Words: Diabetes, Faith-based, Lifestyle Intervention, Physical Activity, Community-based Participatory Research

INTRODUCTION

Type 2 diabetes (herein referred to as diabetes), is rapidly becoming one of the most common chronic diseases in the United States and worldwide. In the United States, prevalence, incidence and mortality are high; >7% of the adult population is affected¹⁻³ and annually, almost one million new cases are diagnosed, with >200,000 who die from complications. Diabetes is even more common in the elderly and in some minority populations; Hispanic Americans, African Americans (AAs), Asian and Pacific Island Americans and Native Americans.⁴ It afflicts 10%–50% of adults. Complications include increased risk (2–4 fold) for cardiovascular diseases (CVD) and stroke.⁴⁻⁵ Even worse, diagnosed diabetes does not include the epidemic of glucose intolerance called pre-diabetes. An additional 17 million Americans have pre-diabetes,⁶⁻¹⁰ which includes elevated fasting blood sugar (100–125 mg/dL) or impaired glucose tolerance (IGT). Indeed, IGT is more prevalent than diabetes. Besides being a major risk factor for diabetes, IGT is associated with an increased risk of macro-vascular disease.¹¹

Substantial differences exist in the incidence and prevalence of diabetes and its risk factors among US regions and racial and ethnic groups.^{10,11} For example, the Southeast has historically had disproportionately high rates of diabetes, obesity, CVD and hypertension.¹¹⁻¹⁸ Indeed, this region is called the stroke belt due to the high prevalence of stroke and stroke-associated mortality.¹⁶⁻¹⁸ Although diabetes is on the rise generally, the greatest increase has occurred among AAs.⁸ According to age-adjusted data from the National

Health and Nutrition Examination Survey (NHANES III) and the Center for Disease Control (CDC),^{8,10,18-22} 2.7 million AAs aged ≥ 20 years (11.4%) have diabetes, with rates reaching 25% among AAs aged 65–74 years. The prevalence of IGT in AAs (17.7%)⁸ is also higher (12.2% in Whites), as is obesity where 31% of AAs are obese compared to 19.6% of Whites.²³⁻²⁷

Diabetes and obesity are associated with unhealthy habits including poor diet and a sedentary lifestyle. The Southeast is certainly no exception. According to the Behavioral Risk Factor Surveillance System (BRFSS), 23.3% of adults living in the South reported no physical activity in the past 30 days and 22.3% reported consuming fewer than five servings of fruit and vegetables per day as compare to other groups.²⁸

Physical inactivity is a major risk factor for obesity, diabetes, CVD, and osteoporosis.^{28,29} It accounts for 12% of total mortality and for 2.4% of annual healthcare expenditures in the United States.^{30,31} Physical activity (PA) among AAs is particularly low, only about 30% of AA women are physically active, and AAs are more likely to have a sedentary lifestyle.³²⁻³⁵ Also, AA women are more likely to be overweight.³⁶

To stem the rising tide of diabetes, public health policies need to move upstream toward prevention or at least toward delaying the onset of diabetes. Indeed, a number of recent studies have taken this approach and their results offer scientific evidence and new hope for curtailing the diabetes epidemic. Some of these recent studies show that intensive lifestyle modification – improving nutrition and increasing PA to the point that there is modest weight loss – is an effective preventive intervention for adults at high risk for

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By developing lifestyle intervention programs within the threads of a faith-based community, not only can we reach those in need of lifestyle change, but we can also offer continued contact and support to maintain these healthy behaviors as individuals and their families continue to attend church.

developing diabetes.³⁷⁻⁴¹ Delivery of these interventions through community-based participatory research (CBPR) programs has emerged as the important next step.^{37-40,42-46} For example, during the past decade numerous intervention studies have shown that some lifestyle program components can reduce risk factors for diabetes in both clinical and community settings,^{40,46} and several frameworks for evaluating these CBPR programs have been proposed.⁴³

The Diabetes Prevention Program (DPP) sponsored by the NIH was a highly successful, multi-center controlled, clinical trial that assessed ways to prevent or delay diabetes.⁴⁰ In addition, faith-based initiatives for lifestyle change show promise by not only increasing the reach into the populations in need of such intervention but by helping to promote healthy behaviors in AA communities in an appropriate and feasible manner. African American individuals are more likely to attend and participate in faith-based services than Whites from similar backgrounds.⁴¹ By developing lifestyle intervention programs within the threads of a faith-based community, not only can we reach those in need of lifestyle change,

but we can also offer continued contact and support to maintain these healthy behaviors as individuals and their families continue to attend church. Because of disproportionately greater risk of diabetes, AAs are a logical target for research on patients at high risk for diabetes. African American churches make an ideal setting for such programs and have historically been a leader in health screening and disease treatment in the AA community.

METHODS

This study was designed to build on lessons learned from the previous faith-based initiatives and improve upon them by using the evidence-based DPP lifestyle intervention as a backbone for our proposed program. The objective of this study is to present methods used in integrating two evidenced-based lifestyle interventions (Body & Soul and DPP) into a socio-culturally, ethnically preferred intervention called Fit Body and Soul for use in AA churches in the southeastern United States to promote weight loss and improve PA levels.

A brief description of the evolution of the Fit Body and Soul program follows.

The NIH Diabetes Prevention Program

The Diabetes Prevention Program sponsored by the NIH was a highly successful, multi-center randomized trial to determine whether a lifestyle intervention or pharmacological therapy (metformin) prevented or delayed diabetes onset in individuals with IGT. The study included a diverse adult group: 45% were from ethnic or racial groups known to have disproportionately higher levels of diabetes, including AAs, Hispanic Americans, Asians Americans, Pacific Islanders, and American Indians. The lifestyle intervention was an individualized delivery of a 16-session Healthy Lifestyle Program over

24 weeks with follow-up. The DPP lifestyle intervention focused on two modifiable risk factors for diabetes: sedentary lifestyle and overweight. Self-reported levels of PA were assessed at baseline using 3 different PA questionnaires including the Modified Activity Questionnaire (MAQ).⁴¹ The DPP was successful such that both the lifestyle intervention and metformin decreased diabetes incidence (-58% and -31%, respectively) and subjects had high adherence to their interventions. More details are presented elsewhere.⁴⁰

Description of the 12-Session Group Lifestyle Balance (GLB) program

The original DPP intensive lifestyle intervention was developed at the University of Pittsburgh⁴⁰ where a Diabetes Prevention Support Center (DPSC) was formed and modified the existing DPP into a 12-session intervention for delivery over a 12- to 14-week period. The sessions concentrated on healthy food choices, calorie as well as fat intake, and use of the pedometer. As in the original DPP lifestyle program, the goals of the GLB intervention were to achieve and maintain a 7% weight loss, and to safely and progressively increase PA to 150 min/wk of moderately intense PA, similar to a brisk walk. Changing from the individual to group format and reducing to 12 sessions allowed for greater reach and potentially greater cost-effectiveness in community settings. The DPSC faculty believed that a minimum of 10 intervention weeks was needed to impart the fundamental behavior change skills while experiencing a 1-2 pound weight loss per week (eg, a 5% weight loss in a 200 lb individual).⁴¹ It is the pairing of these self-management skills while losing weight that is the hallmark of efficacious behavioral intervention programs.

To date, several documented community programs have been offered by preventionists using the 12-session GLB

program. The program has been successfully implemented in a primary care practice setting and a university-based clinic.⁴² The program was delivered by preventionists who were DPSC-trained health care professionals. Preliminary data for 36 participants enrolled in the GLB program demonstrated significant reductions in weight, BMI, waist circumference and glucose.⁴² Approximately 16% of those who completed the program reached a 7% weight loss, with more than 50% demonstrating a 3% weight loss at 3 months. In addition, the GLB program was effectively delivered in an under-served community in the Pittsburgh area. The GLB program was also delivered by DPSC-trained preventionists and lay leaders from the community. Long-term follow-up continues in this project, however, preliminary results for 88 subjects demonstrate that 26.1% lost >7% , while 46.4% lost \geq 5% of their body weight.⁴³ Of these subjects, 87.5% and 66.7% demonstrated sustained weight loss >5% and 7%, respectively at the 6-month assessment visit. Furthermore, one third (43.5%) of subjects decreased one or more metabolic syndrome parameter at the conclusion of the 12-session intervention.

Body and Soul Program

The Body and Soul program was an NIH-funded trial to disseminate and evaluate the impact of newly developed dietary interventions for AAs,⁴⁴ and was constructed from two successful research-based interventions conducted in AA churches. The primary outcome was fruit and vegetable (F&V) intake measured with two types of food frequency questionnaires at baseline and 6-month follow-up. At the 6-month follow-up, intervention participants showed significantly greater F&V intake relative to controls. Post-test differences were 0.7 and 1.4 servings. Statistically significant positive changes in fat intake, motivation to eat F&V, social support, and efficacy to eat F&V

were also observed. The results suggest that health promotion efforts, delivered collaboratively by community volunteers and a health-related voluntary agency, can be effectively implemented under real-world conditions. Further details about Body and Soul study are given elsewhere.⁴⁴

FIT BODY AND SOUL BEHAVIORAL LIFESTYLE PROGRAM

The Fit Body and Soul Behavioral Lifestyle Program is a church-based intervention developed using community-based participatory research and input from members of African American churches; it was developed during a multi-step process defined below and was approved by the Medical College of Georgia's (MCG) institutional review board.

Step I: Partnership with the churches and focus group meetings

Church-Partnership

The Medical College of Georgia (MCG) has a well-established Health Disparities Community Advisory Board (CAB), funded by the MCG President's Council on Diversity Discretionary Funds. The board was established in 2003 to promote mutual understanding and cooperation in working toward improved research and health for community members. With the help and support of CAB, the study team visited 22 AA churches with at least 200 members in Richmond County, Georgia. Of the 22 churches, 20 consented to join the study and one church volunteered for another study currently underway. The study's principal investigator engaged the church community as partners and/or consultants in assessing how to best implement our church-based, church health advisor-led, behavioral lifestyle program in the community. Using a

community-based participatory research (CBPR) framework, researchers and pastors worked collaboratively to design, initiate and manage the program. In determining the appropriate way to develop and implement current behavioral lifestyle intervention program in churches, study researchers recognized that the knowledge, expertise, and resources of the involved communities are keys to effective research.

Focus Group Meetings

For this pilot study, the Gospel Water Branch Baptist church volunteered to implement a Fit Body and Soul program. This church has a well-developed health ministry with 12 women health ministers. The church pastor was asked to nominate at least 3–4 health ministers who were at least aged 25 years, belonged to the medical profession, had effective communication skills, and were willing to make a 6-month commitment to the study. Four were recruited and became the part of the church advisory panel. They received training from the DPSC and research team and were responsible for delivering the sessions of the intervention, and were called church health advisors (CHAs). CHAs received a small stipend. Four focus group meetings were held prior to the start of the project. Focus group meetings helped determine the number, length and timing of the church intervention sessions. Participants received project t-shirts.

Step II: Church Advisory Board

A church advisory panel provided continuous input and feedback on the program development and all church-related activities. The board was made up of 22 members, including: a pastor and the 4 CHAs from the Gospel Water Branch Baptist Church; five health ministers from other churches; members of the DPSC from the University of Pittsburgh; a member from the Body and Soul study, a nutritionist and

diabetes expert from MCG; and the research team including study coordinator and two doctoral students. This advisory board helped to plan and implement the study in the 20 NIH-funded church sites and also helped to build relationships and develop trust with church members.

The church advisory board suggested “Fit Body and Soul” as the name of the intervention. The research team provided a 2-day training program for the CHAs. A collective approach was adopted with all congregants having access to the intervention.

Step III: Workshop to Adopt the 12-Session Fit Body and Soul (FBS) Intervention

The basis of the Fit Body and Soul intervention was the 12-session GLB intervention, which in turn was modified from the original DPP program. Members of the original DPP lifestyle team were involved in the modification and development of the Fit Body and Soul intervention. This group of church leaders and experts modified the 12 sessions of the DPP, using the experiences of the Body and Soul study and input from the advisory panel. They developed a 12-session faith- and culture-based program for the participants in the study (the full program can be provided upon request). The 12-session FBS intervention was formed within a spiritual framework. Working with the advisory board of church leaders, we facilitated the development of the content and design of the manual. Panel members selected the spiritual themes and scripture to frame the 3 themes of the intervention –weight loss, increased PA, behavioral change – and wrote messages to be included in the manual (Table 1). The spirituality was seen as a source of emotional support, a positive influence on health, and contributing to life satisfaction. Overall feedback from the advisory panel and four focus groups regarding this multi-level, spirituality-based, behavioral lifestyle intervention

for AA congregations was generally consistent, showing strong preferences for design and content. The multi-level spiritually based FBS behavioral lifestyle intervention was designed to be delivered using three different approaches; Church level (led by pastor); group level (led by expert CHAs) and individual level approach (led by CHAs) (Table 1).

Level I- Church (led by Pastor)

Based on the advisory board recommendations, the pastor will take the lead in endorsing the intervention and motivating congregants to become involved. The pastor will be instrumental in communicating the behavioral lifestyle goal to all parishioners and provide positive encouragement to congregants. The pastor will mention the project during the weekly Sunday sermon, enhance the scriptures and biblical references to health and fitness, include prayers for divine intervention leading to healthy behaviors by parishioners, and use available church resources to market the program and success toward goals, such as church bulletins, newsletters, bulletin boards, etc.

Level II-Group (led by expert CHAs)

Group sessions will be offered weekly for 12 weeks to study participants (one hour sessions), 1-hour booster sessions monthly following the first 12-week intervention by the trained CHAs. Each session will start and end with special prayers. Only after the core intervention is complete and the group is in the maintenance phase will the “experts” start to play a lesser role. Each church will have a minimum of four DPSC-trained CHAs. All FBS participants will receive the same basic information about nutrition, PA, and behavioral self-management. The first six sessions present the goals for the behavioral lifestyle intervention, teaching fundamental information about modifying energy intake and increasing energy output, with instructions for participants to monitor their food

intake and PA. The latter six sessions focus on the psychological, social, and motivational challenges involved in maintaining these healthy lifestyle behaviors in the long term (Table 1). Each session will include a private weigh-in, presentation of a new topic, ongoing identification of barriers to weight loss and PA, and the development of group action plans and goals for the next sessions. The CHAs will establish the time and location in the church for the weekly group sessions and will also be responsible for marketing the program in the church. Written materials and handouts to enhance the group sessions will also be provided.

Level III- Individualized tailored approach (led by CHAs)

The trained CHAs will contact enrolled participants on need basis to assess progress toward individual goals (using participant diaries) and to “coach” the participants to achieve their lifestyle goals. Each session will include a review of individual weight records, self-monitoring records, individual barriers, and a tailored, individualized plan for the next week. These weekly sessions may be conducted in person or by telephone and will last 15–20 min. Each of the CHAs will be assigned to work with 9–10 participants. The CHAs and the participants will pray a more personal prayer during the weekly contacts. Reference to the most recent scriptures in the group sessions will also be included.

CONCLUSION

Obesity is a significant risk factor for the development of many common chronic diseases including diabetes. Evidence is accumulating that diet and physical activity are important for preventing obesity and protecting from the future risk of diabetes. Successful diabetes prevention lifestyle programs that have been used in clinical settings

Table 1. Fit Body and Soul Intervention

Wk	Major Theme	Group Session (led by expert CHAs)	Tailored Intervention with Individual (led by CHAs)	Church-level support (by Pastor)
1	Welcome to Lifestyle Balance	Build group commitment; set group goals (lose 7% body weight, do 150 min PA/wk); introduce self-monitoring of food intake.	Build individual commitment; record/reinforce reasons for joining; review benefits; reinforce self-monitoring of food intake.	Kick off event at least 1 wk prior to intervention start. Pastor presents overview and study goals to the whole congregation.
2	Healthy Eating	Introduce self-monitoring of fat intake; instruct on how to read food labels; provide fat counters.	Introduce home self-monitoring of weight (ie, assign fat g goal based on initial weight).	Pastor endorsement during weekly sermon.
3	Move Those Muscles	Introduce three ways to eat less fat: eat high-fat foods less often, eat smaller portions, and substitute low-fat foods and low-fat cooking methods.	Practice self-monitoring skills (ie, measuring foods, estimating food portion size).	Pastor endorsement during weekly sermon.
4	Being Active: A Way of Life	Introduce using the USDA Food Guide Pyramid as a model for healthy eating and recommend low-fat, low-calorie substitutes at each food pyramid level.	Emphasize importance of regular meals and eating slowly, review self reports and cooking/eating activities in past week.	≥1 activity during the 12 wk period. Church activities may include cooking demos & taste tests, inviting guest speakers, supermarket shopping demos, and/or pastor endorsement during Sunday sermons.
5	Tip the Calorie Balance	Introduce PA with plans to build to 150 minutes per week over next 4 wks (ie, brisk walking). Begin PA self-monitoring.	Begin self reports of food intake and PA; reinforce positive behaviors; assist to problem solve as needed (ie, addressing personal likes and dislikes about PA).	≥1 policy change during the 12 wk period (eg, setting guidelines about the types of food to be served at church functions and/or changing snacks served to children in church).
6	Taking Charge of what's around you	Assist participants to find time to include PA short bouts (10–15 minutes) and healthy lifestyle activities; teach basic principles of exercising safely.	Review self reports of food intake and PA; reinforce positive behaviors; develop action plan.	Pastor to promote project through announcements on display boards, newsletters, church bulletins (etc.).
7	Problem Solving	Teach the fundamentals of energy balance and what it takes to lose 1–2 lbs per week.	Review self reports; provide a reduced calorie, structured meal plan that is tailored for the individual; develop action plan.	Ongoing activity, policy, promotion (as described above).
8	Four Keys to Healthy Eating Out	Introduce the principle of stimulus control; identify cues in the environment that lead to unhealthy food and activity choices and discuss ways to change them.	Review self reports; identify cues in individual's environment and develop action plan.	Ongoing activity, policy, promotion (as described above).
9	Talk Back to Negative Thoughts	Present the 5-step model of problem solving; describe the problems as links in a behavior chain; brainstorm possible solutions; pick one solution to try, make a positive action plan and evaluate success solutions.	Review self reports; apply the problem solving model to eating and physical activity problems; develop and action plan.	Ongoing activity, policy, promotion (as described above).
10	The Slippery Slope of Lifestyle Changes	Introduce four basic skills for managing eating away from home; anticipate and plan ahead, positive assertion, stimulus control, and making healthy food choices.	Review self reports: develop action plan.	Ongoing activity, policy, promotion (as described above).
11	Jump Start your Activity Plan	Practice identifying common patterns of self-defeating, negative thoughts and learn to counter these thoughts with positive statements.	Review self reports; individualize positive thoughts; develop action plan.	Ongoing activity, policy, promotion (as described above).
12	Ways to Stay Motivated	Stress that slips are normal and learning to recover quickly is the key to success. Teach participants to recognize personal triggers for slips, their reactions to slips, and what it takes to get back on track.	Review self reports; discuss personal triggers; develop action plan.	Ongoing activity, policy, promotion (as described above).
*13	Maintaining and Problem Solving	Enhance motivation to maintain behavior change by reviewing reasons to join group and recognizing personal successes. Introduce other strategies for staying motivated.	Review self-reports; encourage positive results; develop action plan.	Ongoing activity, policy, promotion (as described above).

* Monthly booster sessions (1 h/wk × 6 months).

Future interventions in churches may benefit from taking a faith-based approach that embraces how faith informs health-related perceptions, beliefs, and behaviors and then explicitly applies this understanding in developing and implementing interventions.

can be translated to a faith-based setting. Churches are available in almost every community and CBPR programs can access individuals who typically do not use traditional health promotion resources. Churches are the “center” of many communities, especially for ethnically diverse and minority groups.⁴⁴ Establishing collaborative partnerships between the church and health professionals facilitates success in church-based programs. Because AAs carry disproportionately greater risk of diabetes, AAs are a logical target for research programs for those at high risk of diabetes. AA churches make an ideal setting for such programs. Faith-based initiatives using CBPR approach for lifestyle change show promise in helping to promote healthy behaviors in AA communities. The Fit Body and Soul is a culturally relevant, faith-based, behavioral lifestyle program, conducted and promoted by church leaders in AA churches with the support of experts and church pastors. We have suggested use of expert-led CHAs team to provide the intervention. Our “expert” will be trained and supervised by behavioral experts in the field. Only after the core intervention is complete and the group is in the maintenance phase will the “experts” start to play a lesser role.

We have implemented Fit Body and Soul study in one African American church (Gospel Water Branch Baptist Church) and currently its effectiveness is being studied in 20 AA churches. If successful, the program can be used in future behavioral lifestyle programs for other ethnic groups. In this project, we are working collaboratively with church members to plan and deliver these programs, taking into account the component of spirituality and how it affects the outcome. In partnership with AA churches and their leaders, we plan to engage CHAs to bring forth unique expertise. These CHAs, under the supervision of experts and with the pastor’s support, are interested in serving as lay health advisors to promote healthy lifestyles in an AA, faith-based setting. The program’s faith-based foundation will also promote program acceptance and perceived effectiveness. Future interventions in churches may benefit from taking a faith-based approach that embraces how faith informs health-related perceptions, beliefs, and behaviors and then explicitly applies this understanding in developing and implementing interventions. The overall effort will aim to develop evidence and a faith-based healthy lifestyle program designed to empower individuals and their families within the faith community to establish and maintain positive health related behavioral changes. We plan to use the results obtained from this study for future prospective studies assessing the effectiveness of this behavioral lifestyle program in reducing risk of diabetes in an AA population using church settings.

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