

THE LIVING WELL BY FAITH HEALTH AND WELLNESS PROGRAM FOR AFRICAN AMERICANS: AN EXEMPLAR OF COMMUNITY-BASED PARTICIPATORY RESEARCH

Background: Using community-based participatory research (CBPR) as a guiding framework, a faith-based diet, nutrition and physical activity intervention for African Americans was implemented and evaluated as a small-scale randomized trial.

Methods: Five churches were recruited (intervention=3, control=2), resulting in an enrolled sample of 106 adults (intervention=74, control=32). The control group received a minimal intervention consisting of one educational workshop. The Living Well By Faith intervention group received a more intensive 8-week program. Classes were held twice a week and included educational workshops and exercise sessions. Both interventions were delivered at participating churches. Assessments for program evaluation occurred at baseline and 2-month follow-up. These included weight, blood pressure, percent body fat, and physical fitness using the step test.

Results: The sample was predominantly African American, female and well educated. At baseline, no significant differences between intervention and control groups were found for any of the primary endpoints. At 2-months follow up, the intervention group, compared to the control group, showed significant decreases in weight ($P<.02$), BMI ($P<.05$), and % body fat ($P<.03$), with a significant increase in physical fitness ($P<.02$). Systolic blood pressure also showed group differences in the predicted direction ($P=.10$).

Conclusion: This study provides an exemplar of CBPR. The results obtained are sufficiently promising to support more research involving similar interventions of longer duration and with longer-term follow-up for evaluation. (*Ethn Dis.* 2013;23[2]:223–229)

Key Words: African American, CBPR, Faith Based, Obesity, Diet, Nutrition and Physical Activity

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INTRODUCTION

It is now well established that partnerships with churches can provide a key opportunity for delivering community-based health and wellness programs to underserved populations, including African Americans.^{1–5} Such programs should remain a high priority for public health given that obesity and other risk factors for chronic disease (eg, poor dietary practices, sedentary lifestyle) are more prevalent among African Americans.^{6–8} Consistent with this public health priority, Living Well By Faith (LWBF) was designed as a faith-based health and wellness pilot program in collaboration with the Center for African American Health (CAAH) in Denver, Colorado. Among the signature characteristics of this program is that it was designed and implemented as community-based participatory research (CBPR),^{9–11} with the primary endpoints including clinical assessments of weight, body mass index (BMI), % body fat, blood pressure and physical fitness using the step test. In this article, we report how CBPR was operationalized for program development and implementation and, we present the final results obtained from the evaluation of this program.

RESEARCH METHODS

All research methods, materials and protocols for this study were reviewed

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and approved by the Institutional Review Board of the University of Colorado, Denver, Colorado.

Community Engagement for Program Development

Center for African American Health is a community-based organization providing disease prevention and management programs to African Americans living in the metro Denver area. Included within CAAH is Faith and Health Ministries (FHM), representing a consortium of over 60 African American churches. Through FHM, CAAH provides culturally appropriate programs and services on diabetes, cardiovascular disease, breast cancer, prostate cancer, and health literacy.

In collaboration with CAAH, a series of four half-day partnership summits were convened. Invitations to participate in these summits, which spanned a period of about 15 months, were extended to all church members within FHM. Summit 1 ($n=116$) provided background information and a context for the CBPR collaboration with FHM. The general theme of developing and testing a health and

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wellness program to promote cancer prevention was also introduced, as specified in the funding mechanism that supported this collaboration. Summit 2 ($n=68$) provided a brief overview of potential behavioral targets (diet, nutrition, physical activity, cancer screening), along with data from the Colorado Behavioral Risk Factor Surveillance System (BRFSS) that illustrated statewide disparities in these areas. Summit participants expressed a strong preference to conduct a diet, nutrition and physical activity intervention using a small-group, interpersonal format.

Between Summits 2 and 3, a research working group was convened that consisted of 15 participants, 10 of whom were from the community with the remainder from the university-based research team. The research working group was charged with taking the recommendations obtained during the previous summits and translating them into draft intervention concepts that would be reviewed during Summit 3. Using an audience response system (ARS), a series of follow-up questions asked during Summit 3 ($n=45$) determined that participants preferred a program delivery schedule of two-three times per week; that the preferred venues were CAAH (38%) and churches (31%); that having a buddy system (84%) and information about food preparation (97%) were strongly endorsed, and that the physical activity component should include walking groups (58%), strength and resistance training (53%), aerobics (44%), and Pilates/stretching (32%). Use of step counters, taste-testing classes and recipe makeovers also emerged as recommended program components, as did an educational module focused on cancer screening. When asked whether this participatory planning process had been helpful, 97% of summit participants answered in the affirmative.

After Summit 3, program staff from CAAH and the university-based research team developed the penultimate

version of the intervention concept. The proposed intervention, presented at Summit 4 ($n=48$), included a 2-month diet and nutrition program delivered at participating churches two times per week. Additional components included an individualized wellness plan, home-based strategies, cooking demonstrations using church kitchens (one reason why churches were selected instead of CAAH as the venue for the intervention), and an educational module that would review various cancer screening tests. At Summit 4, a facilitated discussion also occurred regarding the importance of program evaluation and the value of including randomized comparison or control groups, why research has practical value to the community (eg, to help identify programs that work), and why pilot studies are often needed before larger studies and service programs can be funded.

During Summit 4, participants were asked if they would consider joining this study if the comparison group received nothing at all. Using ARS, about 60% answered yes. The percentage increased to 91% if the comparison group received a less intensive intervention. Most participants (65%) supported randomization as the method for group assignment. Almost no participants (4%) felt that assessing clinical endpoints would be a barrier to participation, and 80% indicated that requiring a medical release from a physician would not be a barrier. Summit 4 concluded by assessing satisfaction with the summit (85% very satisfied, 15% satisfied) and whether the summit was useful (100% yes).

Research Design and Recruitment

A randomized pilot study was conducted where LWBF was compared to a minimal intervention control group, and where the unit of randomization was the church. An invitation to participate was extended to all FHM churches. Twelve churches initially

expressed interest, and six were randomly selected and pair-matched based on church size (large, medium, small). Within each pair, one church was randomly assigned to either the control condition or the LWBF program. One church withdrew after its pastor was assigned to another church, resulting in three intervention and two control churches.

Each church made recruiting materials available for at least three weeks and pastors actively encouraged their members to participate. A separate orientation meeting was scheduled at each church, during which interested church members could learn more about the study and receive pre-enrollment materials (informed consent, baseline clinical assessment appointments, baseline self-administered questionnaire, and medical release for physician signature). Enrollment was completed during the baseline clinical assessments conducted at CAAH, where group assignment was also disclosed to participants.

Participant Eligibility

Eligible participants included men and women recruited from participating churches who were aged ≥ 18 years, gave written informed consent, completed a self-administered baseline questionnaire and provided a physician-signed medical release at the baseline assessment. During the baseline assessments, participants were also interviewed by a physician to determine whether there were contraindications that would preclude participation. All church members who chose to undergo eligibility screening were subsequently enrolled, including 74 participants from intervention churches and 32 participants from control churches.

Baseline Assessments

Assessments of the clinical endpoints occurred at CAAH. These included blood pressure obtained by a research nurse using an arm or thigh cuff and stethoscope; height, weight and BMI

using a stadiometer and a medically approved digital scale; % body fat based on a five site measurement using Lange skin fold calipers; and a cardiovascular fitness step test based on the YMCA protocol, where scores were categorized from excellent to very poor using age- and sex-specific criteria.¹² The clinical assessment team, which consisted of certified fitness specialists, dietitians and registered nurses, completed an assessment training program that included demonstrations and a hands-on practicum. All members of the assessment team were blinded to group assignment.

The baseline self-administered questionnaire assessed sociodemographic characteristics of participants, general and functional health status and comorbidities, self-reported diet, nutrition and physical activity practices, and cancer screening practices, many of which were drawn from the BRFSS. Additional questions assessed prescription medications as well as motivation and self-efficacy in making dietary and physical activity changes.

Two Month Follow-Up Assessments

For the two-month follow-up assessments, the participation rate for the control group was 75% (24 of 32), compared to 97% (72 of 74) for the intervention group. The same clinical endpoints were assessed at two months follow-up using the same assessment team and procedures as at baseline. The two-month follow-up questionnaire, which was completed on-site during the clinical assessments, replicated many of the questions asked at baseline. Other questions asked LWBF participants to rate intervention staff on various dimensions, including providing information that was new, helpful and understandable, and whether the intervention staff were caring, involved everyone in the group sessions, provided good examples and were motivating for the participant. Intervention participants were also

asked to rate the individualized wellness plans in terms of helpfulness and whether they thought it was a good idea to deliver this program at their church. Both intervention and control participants were asked how much of the print materials they read and to rate these materials on many of the same dimensions used for intervention staff. All participants were asked their level of satisfaction with the program they received, and whether they would recommend their program to others.

OVERVIEW OF THE LIVING WELL BY FAITH PROGRAM

The LWBF was an eight-week program designed by the first author and delivered twice per week at intervention churches. Each church selected the days of the week when the program would be delivered, in most cases during the evening or Saturday mornings. Each session, which lasted about 90 minutes and included both diet and nutrition as well as physical activity, was delivered by dietitians and certified fitness specialists. Staff completed a 20-hour training program that provided a detailed overview of the program and their roles and responsibilities, a session-by-session review of the program, exemplar demonstrations, role-playing exercises, and techniques to lead and encourage participation. All intervention staff received a program manual for self-study that included a detailed description of the curriculum and all program materials.

Foundational to LWBF was the development of individualized wellness plans. These plans were developed in collaboration with participants and informed by the results obtained from the baseline assessments. During individual meetings held prior to the program, between two-to-three high priority objectives were identified for diet, nutrition and physical activity, as well as an action plan to achieve these objectives.

To augment the educational sessions, various print materials were distributed to participants, as well as weekly homework assignments (eg, food journaling, reading food labels and walking challenges) to reinforce the program. Participants were given resistance bands and a pedometer that were key components of the home-based exercise program. Participants also worked with a buddy on several homework assignments.

The LWBF was delivered in small-group classes, one class per church, averaging about 25 participants per class. Class formats were organized to begin with a discussion of homework assignments, followed by the educational topic and ending with 30 minutes of physical activity. Eight weekly themes were developed to structure the education topics and enhance the adoption of lifestyle behavior changes. A more detailed overview of the program is presented in Table 1, including the print materials and videos that were used. Significant emphasis was placed on educating participants about food basics (proteins, carbohydrates and fats), as well as how to read food labels and appropriate serving size. Participants received information on fruits and vegetables, the DASH Diet Guidelines, meal planning, a holiday survival guide and cultural eating habits. One of the highlights of the nutrition education segments was the Extreme Food Makeover Challenge that engaged participants and their program buddy to utilize a gift card provided by the program to purchase and prepare an entrée, appetizer, side dish or dessert. A list of healthy makeover recipes was provided for each member to choose from.

The 30-minute physical activity component provided during each session was developed to accommodate a variety of age levels and physical fitness. Segments were designed to include a warm up, stretch, aerobic activity and cool down. Some segments also included a strength component utilizing the

Overview of the 16 session Living Well By Faith program

Program Sessions	Curriculum/Content
Week 1	Begin With the Basics Program Buddy, Food Basics and Food Journaling
Week 2	Making Room for Change Readiness for Change: Reading Food Labels, Pedometers
Week 3	Health Investments for Everyday Living F&V: The Road Less Traveled, DASH Diet, and Meal Planning
Week 4	You, Family and Community Making Good Choices Every Day, Extreme Food Makeover
Week 5	Reducing Risk Factors Lowering Risk Factors, Super Foods, Cancer Close-Up
Week 6	Challenges to Change Overcoming Obstacles; Holiday Survival Guide
Week 7	An Informed and Empowered You Our Cultural Eating Habits; Integrating Nutrition Knowledge
Week 8	Making Change Permanent Integrating Nutrition Knowledge; Beyond 8 Weeks/Relapse Prevention; Focus Group
Illustrative print materials:	The New American Plate (American Institute for Cancer), Guide to Healthy Dining Out (American Institute for Cancer), Eat 5 Fruits and Vegetables a Day (National Cancer Institute), DASH to Diet (National Dairy Council), Moving More for Cancer Prevention (American Institute for Cancer Research), Walking for Fitness (American Heart Association), What Exercise Can Do For You (Harvard Health Publications)

resistance bands. The goal of including physical activity as a part of the weekly sessions was to ensure that participants could meet the daily recommendation for physical activity and to demonstrate the variety of methods possible to accomplish this goal. Strength-specific exercises emphasized upper and lower body strength development as well as movements to increase abdominal and core strength. Finally, closure to the program (week 8) emphasized relapse prevention strategies, integrating nutrition knowledge into everyday living, maintaining a physically active lifestyle, and a final group debriefing where participants could share their thoughts, suggestions and lessons learned from the program.

THE MINIMAL INTERVENTION CONTROL CONDITION

Participants assigned to the minimal intervention control condition were invited to participate in a single session educational workshop at their church,

where basic information was provided about diet, nutrition, exercise and cancer screening. This 90-minute session also included an exercise demonstration of the home-based program provided by a fitness specialist, as well as distribution of the same print materials, pedometer and resistance band given to the intervention group.

STATISTICAL ANALYSIS

Initial analyses consisted of calculating descriptive statistics for continuous variables and frequency distributions for categorical variables. For categorical variables assessed in the questionnaires, comparisons by experimental condition used the chi square test.¹³ For the clinical endpoints assessed as continuous variables, analysis of variance with repeated measures was used to compare differences in change from baseline by experimental condition.¹⁴ The primary research hypothesis in these analyses is that change from baseline will be greater in the intervention group than the control group, with the former showing

greater improvement in the clinical endpoints as reflected in a significant time-by-experimental condition interaction term. All statistical comparisons were conducted as two-tailed tests at the 5% significance level. Given that the unit of randomization was the church, all *P*s were adjusted to reflect that group (intervention vs. control) was nested within the church, with the latter also assumed to be a random variable.

RESULTS

Sample Characteristics

At baseline about 60% of the sample was aged 45–64; only 11% were ≥65 years. The sample was mainly female (73%), African American (90%) and well educated (19% high school graduates, 80% some college or above). About 60% reported a total family income >\$45,000 with nearly 40% reporting a total family income >\$65,000. Most participants (88%) had health insurance. There were no significant differences between the intervention and control groups, either at baseline or 2-month follow-up, for sex, age, race/ethnicity, education, income and health insurance.

Process Evaluation

Based on attendance logs, 42% of the intervention participants attended 14–16 intervention sessions, 26% attended 11–13 sessions, 17% attended 8–10 sessions, and 15% attended <7 sessions. At two months follow-up, 95% or more of participants rated both the exercise trainers and nutritionists as excellent or good across all evaluation domains, including providing information that was new and understandable, as well as answering questions, providing good examples and not rushing during the class session.

Additional information collected at two-months follow-up (data not shown) indicated that all LWBF participants rated the wellness plans as helpful, and

95% felt that the wellness plan was individualized and prepared especially for them. Virtually all intervention participants (99%) reported that “It was a good idea” to deliver the program at their church. Intervention participants reported being either very satisfied (96%) or satisfied (4%) with the program. The corresponding figures for the control group were 57% and 35%, respectively. Asked whether they would recommend the intervention they received to others, 99% of the intervention group answered in the affirmative, compared to 70% of the control group ($P=.002$).

Outcome Evaluation

For each endpoint exclusive of systolic and diastolic blood pressure, significant time-by-intervention interaction effects were observed in the predicted direction (see Figure 1). For weight, the intervention group recorded an average weight loss during this two month program of about five pounds compared to no change in the control group, which is also evident in the BMI scores. Percent body fat showed an average decline of 3.5% in the intervention group compared to no change in the control group. The step test showed dramatic improvement in the percent of participants performing average or better for the intervention group (from 41% to 70%), with virtually no change observed in the control group. Systolic blood pressure showed a non-significant trend in the predicted direction.

DISCUSSION

Historically, the church has been a pillar of strength and empowerment in the African American community, serving as a focal point and catalyst for education, business and political activism. Consistent with this historical perspective, churches have likewise emerged as a trusted and effective venue

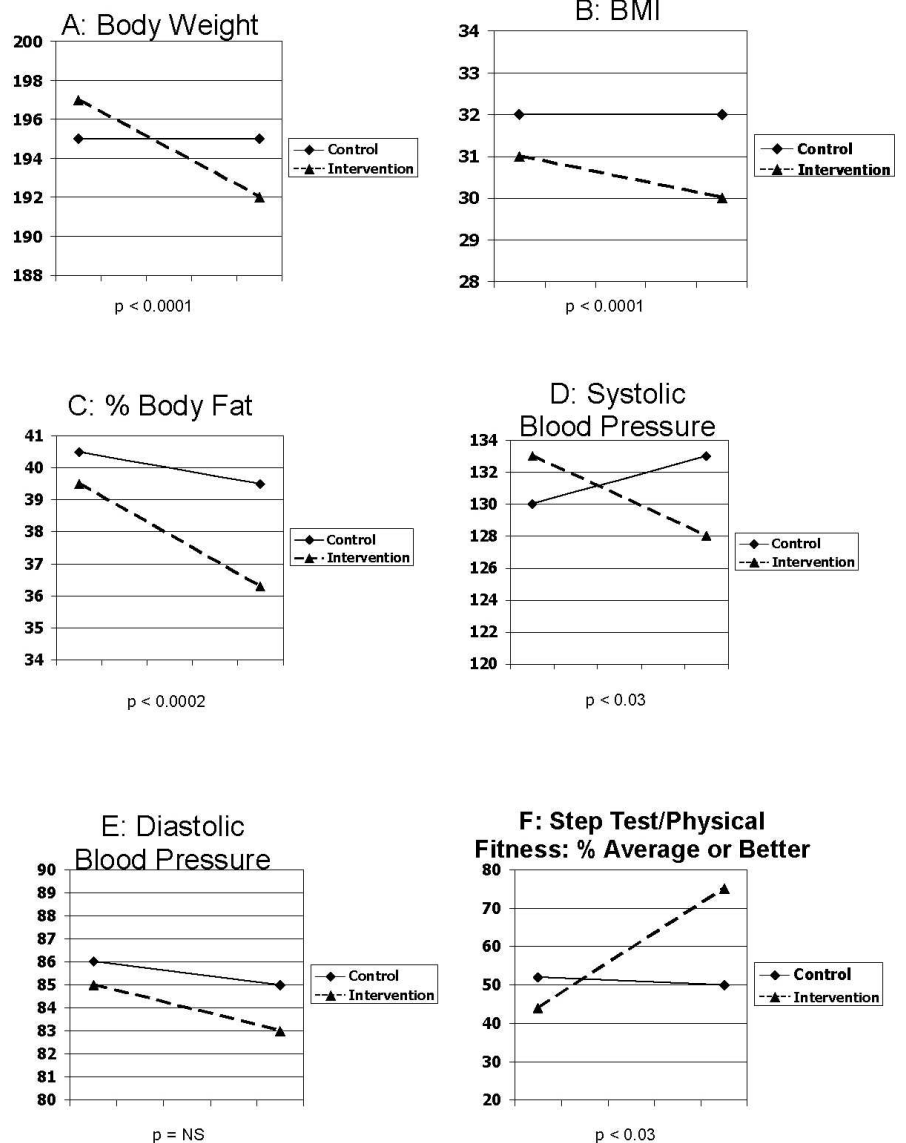


Fig 1. Change from baseline to two months follow-up for the primary clinical endpoints by experimental condition

for reaching African Americans with health and wellness programs¹⁻⁵ as exemplified by LWBF. This program also provides an exemplar in CBPR, where the community engagement strategies implemented within the church-based partnership summits produced a set of recommendations that fundamentally shaped LWBF. Especially noteworthy is that summit participants endorsed the use of a randomized design for

program evaluation, but not necessarily because of some abstract or altruistic commitment to produce better science. Instead, summit participants seemed to resonate with two key arguments driven by their allegiance to the community: 1) that conducting rigorous program evaluation is the preferred approach for identifying best practices that will protect the community against ineffective or wasteful programs; and 2) securing

additional funding to support the intervention as a service program will be enhanced by demonstrating program efficacy through research. Similarly, submit participants made clear their preference that the control group receive something of value (ie, a less intensive intervention), which also informed the design of this pilot study.

Given that LWBF was grounded in CBPR, it is not surprising that nearly 70% attended ≥ 11 of the 16 program sessions that were delivered in the evening or on Saturday, and that the perceived utility and benefits of the program were substantial, if not stellar. High positive ratings were obtained regarding both the exercise trainers and nutritionists, all of whom were recruited from the community, and virtually all program participants reported high levels of satisfaction with the program and would recommend it to others.

One innovative component of LWBF was the development of the individualized wellness plans for program participants. On average, these wellness plans took about 45 minutes to prepare per participant. This investment of program resources was well received and appreciated by participants, with nearly all (95%) reporting that the plans were individualized and helpful.

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Although conducted as a small scale feasibility study, significant time-by-experimental condition interaction effects were seen for weight loss, BMI, % body fat and physical fitness. Most of these group differences were modest, which is not unexpected given the short duration of LWBF. However, for the physical fitness step test, the intervention group showed dramatic improvement compared to the control group.

Several important study limitations should be noted. Available resources for conducting this small-scale feasibility study precluded testing a more intensive intervention with longer-term follow-up. Most participants were female. In addition, while the sample was mainly African American, it was not underserved based on family income. The sample was also highly educated, and all program participants had access to a primary care physician who signed a medical release form. Despite these limitations, this study provides an exemplar of how CBPR can lead to a community-based health and wellness program that not only received high positive ratings from participants, but also provided short-term improvements on most of the clinical endpoints. Finally, these promising results would seem to provide a strong foundation for conducting a larger and more ambitious randomized trial. Such a trial, as noted above, should allow for more diversity among participants (eg, sex, socioeconomic status), as well as providing longer-term follow-up for program evaluation. A second-generation trial should also provide sufficient sample size to determine whether program efficacy differs by population subgroup. If such differences are found, this might suggest additional program refinements to maximize the robustness of the intervention, and/or assist in targeting intervention resources to maximize future dissemination as a community-based service program.

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