

Multiple Behavior Change Among Church Members Taking Part in the *Faith, Activity, and Nutrition* Program

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ABSTRACT

Objective: To examine the extent to which participants in a combined physical activity (PA) and dietary intervention achieved changes in multiple health behaviors.

Design: Group randomized trial; includes only participants assigned to the intervention group only.

Setting: Thirty-six churches in South Carolina.

Participants: Three hundred sixty African American church members.

Intervention: A 15-month PA and dietary intervention, guided by the structural ecological model, targeting environmental (ie, social, cultural, physical) and organizational (ie, policies, practices) changes within the church.

Main Outcome Measures: Self-reported PA, fruit and vegetable consumption, fat-, and fiber-related behaviors.

Analysis: Change in each behavior was defined as unadjusted pretest–posttest improvement ≥ 0.20 of the baseline standard deviation. The total number and each combination of behaviors changed were calculated.

Results: Up to 19% changed no health behaviors as defined above, 31% changed 1 health behavior, 31% changed 2 health behaviors, 13% changed 3 health behaviors, and 5% changed all 4 of the targeted health behaviors. Combinations of multiple behavior change included PA and dietary behaviors, which suggests that both behaviors can be changed simultaneously.

Conclusions and Implications: Nearly half of participants changed at least 2 health behaviors. Faith-based interventions targeting environmental and organizational change can successfully change multiple behaviors, potentially leading to greater improvements in public health.

Key Words: physical activity, diet, multiple behavior change, African Americans, faith-based (*J Nutr Educ Behav.* 2013;45:428–434.)

INTRODUCTION

Consuming a healthy diet and engaging in regular physical activity (PA) reduce the risk of premature mortality.¹ A recent study showed that globally, physical inactivity causes 6%–10% of major non-communicable diseases and 9% of premature mortality (5.3 million deaths), a number similar to deaths caused by smoking and obesity.² Physical activity and diet have been recognized globally as public health priorities for both adults and children.³ Government programs, including the First Lady's Let's Move! Initiative,⁴ have recognized the consequences of a lifestyle of poor diet and inadequate PA, and have created

programs to improve these health behaviors.

Modifiable risk behaviors (ie, lack of PA, poor nutrition, tobacco use, excessive alcohol consumption) are responsible for a majority of chronic diseases⁵; often, risk behaviors cluster.^{6,7} Bambs and colleagues⁸ found that only 1% of African Americans in their sample met the American Heart Association Ideal Health Behavior Index, defined as being a nonsmoker, having a body mass index (BMI) < 25 kg/m², being very physically active, and consuming ≥ 3 fruits and vegetables (FVs) per day. Physical activity and diet are considered major components of a healthy lifestyle, and both are important for disease

prevention,^{9,10} premature mortality,¹ and reaching and maintaining a healthy weight.¹¹ Individuals engaging in 1 behavior (ie, PA) are more likely to engage in the other (ie, favorable dietary behaviors).^{7,12–15} Because these behaviors are often related, it seems reasonable to believe that individuals changing 1 behavior may also try to change the other. Therefore, interventions have targeted and attempted to change dietary and PA behaviors simultaneously.^{16–18} A recent review found that interventions aiming to simultaneously improve dietary and PA behaviors yielded inconsistent and disappointing results so far¹⁹; however, these types of interventions remain understudied.¹⁹

Churches are a promising setting for delivering health behavior change programs, particularly in underserved populations. Faith-based studies have shown promise for increasing PA and improving dietary behaviors (eg, FV consumption) among African Americans.²⁰ A number of large-scale, faith-based studies targeting African

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Americans have focused on changing a single health behavior (ie, diet²¹⁻²³ or PA²⁴), whereas others have focused on both behaviors simultaneously.^{16,25,26} However, among the studies targeting both diet and PA, only 1 study¹⁶ reported the extent to which participants made changes in both behaviors (ie, diet and PA). A closer examination of the patterns of change in interventions that target multiple behaviors can provide insight into whether participants making changes in 1 behavior are more likely to make changes in another, or whether they are successful in changing only a single behavior. Such findings have important implications for intervention development and implementation.

The *Faith, Activity, and Nutrition* (FAN) program was a PA and dietary intervention delivered in churches in South Carolina. The results of FAN have been previously published and showed significant group differences at the end of the 15-month intervention, favoring the intervention group, in leisure time PA and FV consumption, but no differences in blood pressure, and fat- or fiber-related behaviors.²⁷ Although differences in outcomes according to group assignment have been previously reported,²⁷ the extent to which individuals in the intervention group changed multiple targeted behaviors has not been examined. The purpose of this secondary analysis of FAN was to examine the percentage of participants who were able to successfully increase PA, FV consumption, and fiber-related behaviors, and decrease fat-related behaviors (all behavioral targets of the intervention); and the percentage of participants who improved multiple health behaviors.

METHODS

The methods of FAN have been described in detail elsewhere.^{27,28} The FAN program was a 15-month PA and dietary intervention delivered in 74 African Methodist Episcopal (AME) churches in South Carolina. Churches were randomized to receive the intervention immediately (intervention group) or at 15 months (delayed group). The FAN program used a group-randomized design and

included 3 waves of implementation. Churches were randomized to receive the intervention immediately after baseline assessments (ie, intervention group) or at the end of the 15-month intervention period, after post-measurements (ie, control group). Because this study aimed to examine the extent of multiple behavior change among those receiving the intervention, analyses were limited to participants in the intervention group. The primary goals of FAN were to increase moderate to vigorous intensity PA and FV consumption, and to improve blood pressure; secondary aims were to decrease fat-related behaviors and increase fiber-related behaviors.²⁸

Procedures

As reported in more detail elsewhere,^{27,28} presiding elders from 4 geographically defined AME districts in South Carolina sent pastors a letter introducing the FAN program and inviting participation. Program staff made follow-up telephone calls to pastors to provide more details about the FAN program and to answer questions. Pastors from interested churches were encouraged to appoint a liaison, usually the health director, to assist program staff in scheduling and coordinating a measurement session to take place at their church. Measurement sessions typically took place on Saturdays, after church services, or during or after Bible study.

Liaisons from interested churches recruited members of their congregation to take part in a measurement session at baseline (pre-intervention), with recruitment goals a function of church size (13 small church, 32 medium, and 63 large). At each session, participants completed an informed consent form approved by the institutional review board at the university and by the FAN planning committee. To be eligible, participants had to be at least 18 years of age, free of serious medical conditions or disabilities that would make changes in PA or diet difficult, and attend church at least once a month. Upon providing consent, trained staff took physical assessments and participants completed a comprehensive survey. The same measures were repeated 15 months later (post-program).

Intervention

The intervention, developed using a community-based participatory research approach, targeted environmental (ie, social, cultural, physical) and organizational (ie, policies, practices) change within the church. Guided by the structural ecologic model,²⁹ churches were asked to implement intervention activities, focusing on PA and healthy eating, that targeted each of the 4 structural factors thought to influence behavior: provide opportunities for PA and healthy eating, make opportunities for PA and healthy eating appropriate and fun, set organizational guidelines and provide support for PA and healthy eating, and get the message out about PA and healthy eating. Examples of activities that churches could implement include offering opportunities for PA before, during, or after church services; setting guidelines regarding food choices and PA at church events; forming walking groups; planting a garden; or providing healthy eating or cooking educational classes.

Although churches had a great deal of flexibility in what intervention activities they implemented (based on the needs and wants of the congregation), they were asked to implement some core activities, focusing on PA and healthy eating, that were consistent across churches: distribute bulletin inserts (provided by study staff), share messages from the pulpit (eg, church announcements, sermons), pass out educational materials (eg, brochures, handouts provided by study staff), create a FAN bulletin board, and suggest policies and practices the pastor could set (eg, incorporate PA breaks into church meetings). Thus, although the FAN intervention did not necessarily look the same across all churches, there were some consistent activities implemented by all.

Each church formed a committee and attended full-day training. The purpose of the committee training was to provide an overview of the FAN program and its goals, to engage the pastor in supporting FAN, and to brainstorm activities the church could do to promote PA and healthy eating. Each FAN committee developed a formal intervention plan (that included

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