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Reach and Adoption of a Randomized Weight Loss Maintenance Trial in Rural African Americans of Faith: The WORD (Wholeness, Oneness, Righteousness, Deliverance)

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Abstract

Purpose—There is minimal information regarding the Reach and Adoption of evidence-based weight loss maintenance interventions for African Americans of faith.

Design—The WORD (Wholeness, Oneness, Righteousness, Deliverance) was an 18-month, cluster randomized trial designed to reduce and maintain weight loss in African American adults of faith. Participants received the Diabetes Prevention Program adapted core weight loss program for 6 months, and churches were subsequently randomized to 12-month maintenance treatment or control. All participants underwent body weight and associated behavioral and psychosocial assessments at baseline, 6, 12, and 18 months. The current article focuses on assessing Reach and Adoption at baseline and 6 months using the Reach, Effectiveness, Adoption, Implementation, and Maintenance framework.

Setting—Lower Mississippi Delta.

Participants—Thirty churches, 61 WORD Leaders (WLs), and 426 participants.

Intervention—Group delivered by trained community members (WLs).

Measures—Body mass index and percentage weight lost from baseline to 6-month follow-up were measured. Reach was assessed at participant, WL, and church levels through calculating participation rates and sociodemographics of each level. Adoption was assessed at church and WL levels.

Analysis—Descriptive statistics summarized baseline characteristics of each level. Continuous and categorical end point comparisons were made.

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Authors' Note

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Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Results—Participants' participation rate was 0.84 (n = 437 agreed to participate, n = 519 eligible invited to participate); they were predominantly female, employed, and had a mean age of 49.8. Dropouts by 6 months were younger, had differential marital status, and religious attendance compared with retained participants. Church participation rate was 0.63 (n = 30 enrolled, n = 48 eligible approached) and the majority reported 100 active members. The WL participation rate was 0.61 (n = 61 implemented intervention, n = 100 eligible approached); they were primarily female and aged 53.9 (mean).

Conclusion—Recruitment, engagement, and delivery strategies employed by the WORD show promise of sustained engagement and adoption in other faith-based behavioral weight management programs for African Americans.

Keywords

RE-AIM; community-based participatory research; obesity; rural; African American; faith-based; weight loss

Purpose

With the majority (69%) of US adults overweight or obese, obesity is a public health crisis,¹ particularly for ethnic/racial minorities: Obesity is highest among African Americans at 48.1%, followed by 42.5% among Hispanics and 34.5% for whites.² Obesity increases the risk of chronic disease³ and death, with approximately 280 000 deaths attributable to obesity each year.⁴ Obesity also imposes a huge economic burden. The estimated annual cost attributable to obesity is \$149.4 billion at the national level,⁵ with the annual cost predicted to increase up to \$957 billion by 2030.⁶

Comprehensive behavioral interventions such as the Diabetes Prevention Program (DPP)⁷ are the gold standard approach to weight loss for overweight or obese adults. The World Health Organization,⁸ National Institutes of Health,⁹ and other expert panels^{10–12} have each independently recommended behavioral weight loss interventions designed to change dietary intake and physical activity behaviors as the first choice to address the serious problem of adult obesity.

Effective strategies to produce weight loss—particularly weight loss maintenance—are important to improve population health. While evidence-based behavioral lifestyle interventions effectively promote weight loss in the short term (6 months),^{13–15} weight regain typically occurs 1 to 3 years subsequently,^{16,17} and the beneficial effects are lost unless initial weight loss is maintained. Numerous multicenter efficacy trials have produced weight loss and maintenance in diverse samples.^{18,19} However, few studies have translated these evidence-based interventions into real-world settings,²⁰ particularly for groups at highest risk such as African American adults. Samuel-Hodge and colleagues²¹ report in their review of DPP translations for African Americans that only a few published reports of such translations existed, with the majority reporting sample sizes of 45 or fewer. In their review of weight loss maintenance lifestyle interventions in African American women, Tussing-Humphreys and colleagues²² reported even fewer studies available for review. Lancaster et al's²³ review of faith-based weight loss and related behaviors revealed 27 studies, 12 of

which were randomized controlled trials (RCTs). However, only 5 of the RCTs focused on weight loss, with 3 including maintenance follow-up assessments of at least 12 months or more.

The engagement of faith-based organizations in weight loss maintenance interventions provides a venue to leverage the strengths of many African American communities.²⁴ The black church is an influential force in many African American communities,^{25,26} and religiosity and spirituality are important aspects of African American culture.^{27,28} Both the setting and promulgated beliefs of black churches have been built upon to successfully change obesity-related health behaviors in African Americans,^{29–33} but few have specifically tested obesity control programs. The faith-based weight loss studies reported in the literature have shown promising results,^{34–38} but are few in number, have not used evidence-based programs (eg, DPP), and have been conducted without long-term follow-up. Clearly, faith-based, evidence-based weight loss maintenance interventions for African Americans are needed.

When practitioners are considering different evidence-based programs to implement in a faith-based or other community setting, rigorous studies not only need to demonstrate effectiveness but also whom the intervention engages and the extent it is adopted in communities of interest. Sustained engagement and adoption are particularly critical in evidence-based weight loss maintenance interventions, which often require continued participation of at least 12 months. Interventions shown to be efficacious in controlled clinical trials may not be attractive to targeted groups, churches, or other communities, leading to a lack of meaningful change in a community's health and squandered resources. Thus, faith-based weight loss maintenance effectiveness trials that gather information regarding whom the intervention attracts, who remains engaged, and the extent the intervention is accepted by the faith community are essential to combat the obesity epidemic by providing practitioners with the necessary information to make informed choices in choosing intervention programs, particularly in the area of weight loss maintenance.

The components of Reach and Adoption from the RE-AIM (Reach, Effectiveness, Adoption, Implementation, and Maintenance) framework²⁰ comprehensively capture information regarding participant and community engagement for the purpose of guiding practitioners who will later translate results from an effectiveness trial into real-world practice.²⁰ The RE-AIM framework can be used to evaluate the reach, effectiveness, adoption, implementation, and maintenance of health promotion interventions.²⁰ The framework includes individual-level indicators (Reach into the target population, effectiveness in changing health behaviors, and maintenance of individual changes in health behaviors) and organizational indicators (adoption by churches and staff, implementation quality, and maintenance of program components over time). Unfortunately, across the extant literature on health promotion intervention impact, the generalizability of approaches is limited by a lack of reporting on Reach and Adoption of interventions within a target population and across settings, respectively.²⁰ In the area of weight loss maintenance, few trials have assessed Reach and Adoption; in a review of weight loss maintenance intervention trials, only 37% of the articles reported more than 50% of Reach indicators and approximately 25% reported Adoption indicators.²⁰

Given the need to explore the generalizability of faith-based weight loss maintenance interventions for African Americans based on the representativeness of participants relative to the intended audience and the representativeness of churches to the population of churches in a region, we will report the results of comprehensive Reach and Adoption measures used in a recently completed randomized effectiveness trial designed to reduce and maintain weight loss in African American adults of faith. Additional understanding of Reach and Adoption will yield information about the extent to which an intervention can penetrate a target population and provide invaluable information to practitioners ascertaining the applicability of an intervention in their setting and among their staff. We hope that this study will encourage and provide an example for other intervention scientists to include Reach and Adoption measures in their work, for the purpose of future, sustainable translation in “real-world” settings.

Methods

Detailed description of study methods has been previously reported.³⁹ Briefly, The WORD (Wholeness, Oneness, Righteousness, Deliverance) project was adapted from the DPP protocol⁷ using similar components (including self-monitoring, attendance) and curriculum content, while integrating spiritual beliefs and scriptures, social cognitive theory, social support, and 0 minutes of physical activity at each session.^{30,40} The study aimed to have group meetings of 8 to 10 participants per group delivered in church settings by trained lay health workers (WORD leaders) who were local residents of the community. The study was approved by the institutional review board, University of Arkansas for Medical Sciences.

Sample

Church-based and community-wide recruitment was conducted by study staff. All of the participating churches were African American churches in the Arkansas Lower Mississippi Delta, a predominately rural region bordering the Mississippi river characterized by high levels of poverty and chronic disease.^{41,42} The target study population was overweight or obese African American adults (age 18 years or older) affiliated with one of the 30 participating churches. Our study aimed to recruit at least 15 eligible individuals in each participating church for the intervention group held in that church. Enrolled participants associated with a participating church underwent an initial informational session, eligibility determination, study enrollment, and baseline assessment. Churches were randomized to one of 2 groups: (1) the 6-month core sessions only (*weight loss*) or (2) the 6-month core sessions plus 12-month weight loss maintenance group sessions (*weight loss plus maintenance*). The core sessions consisted of 16 group meetings over the 6-month period; the weight loss maintenance sessions were an additional 12 monthly sessions as described earlier.³⁹ Data were collected at baseline, 6, 12, and 18 months.

Data

This report provides comprehensive Reach and Adoption data at baseline, whereby Reach data are presented at the participant level and Adoption data are presented at both the setting (church) and staff (WORD Leader) level.

Reach data included records of how the target population was identified and recruited, eligibility criteria, number of participants recruited, the participation rate (# of participants who agreed to participate/# of eligible persons asked to participate), and the sociodemographic and behavioral characteristics of the study participants at baseline. Operationalizing representativeness is also recommended when assessing the Reach of an intervention. However, gathering data on church members who are eligible and decline participation is challenging and requires resources beyond the support for this study. In lieu of examining representativeness of the sample to the eligible membership population, we pragmatically focused on the sociodemographic and behavioral characteristics of those who agreed to participate in the study and those who dropped out after study consent but before the 6-month follow-up.⁴³ This approach is consistent with other research that has examined representativeness in a temporal, dynamic rather than static manner.²⁰

Sociodemographic information included gender, age, marital status, education, employment, and income. Denomination, church attendance, and average distance (mileage) from home to group sessions were also assessed.⁴⁴

Body weight was measured to the nearest 0.5 lb using a calibrated digital scale (Tanita); height was measured without shoes to the nearest 0.5 cm using a stadiometer; and *body mass index* (BMI) was calculated ($[\text{weight in kg}]/[\text{height in meters}]^2$).

The *Fat and Fiber Behavior* questionnaire was used to assess dietary behavior.⁴⁵ *Total selection of low-fat foods* was composed of 5 subscales (avoid, substitute, modify, replace with fruit and vegetables, replace high-fat meat with low-fat alternative) containing 21 items (4–5 items per scale), which were scored according to frequency within the past 3 months (1 = none, 2 = rarely, 3 = a few times, 4 = often, 5 = very often). A score for each of the fat behavior subscales was calculated.⁴⁶ In addition, a summary score for fat-related diet behavior was calculated using previously reported methods.⁴⁵ *Total selection of high-fiber foods* consisted of 3 subscales (consumption of cereals and grains, fruits and vegetables, substitution of high-fiber foods for low-fiber foods) containing 12 items (3–4 items per subscale) scored according to frequency within the past 3 months (1 = none, 2 = rarely, 3 = a few times, 4 = often, 5 = very often). A score for each of the fiber behavior subscales was calculated.⁴⁶ A fiber-related diet behavior summary score was also calculated using previously reported methods.⁴⁵

Fruit and vegetable intake was assessed as the number of times consumed per week within the past month⁴⁶ (2011 Behavioral Risk Factor Surveillance System [BRFSS]). *Sugar-sweetened beverage* intake (soda and sweetened fruit drinks) was measured as the number of times consumed per week (2011 BRFSS). Frequency of presweetened/sweetened tea consumption was also collected (1 = never or less than 1 per month, 2 = between 1 and 4 per month, 3 = between 2 and 6 per week, 4 = 1 per day, 5 = 2 per day, 6 = 3 per day, 7 = 4 per day or more; 2011 BRFSS). Frequency of both items was combined to assess total sugar-sweetened beverage intake.

Total physical activity was measured using a 16-item checklist validated in African Americans. Frequency and duration of different types of activity permitted calculating data

from the checklist on metabolic equivalent task (METs).⁴⁷ *Recreational physical activity* (METs) as a component of total activity was also assessed using validated algorithms.⁴⁷

Questions regarding *social support for diet and exercise* behavior from friends and from family included [whether they]...“encouraged me not to eat ‘unhealthy foods’ (cake, salted chips) when I’m tempted to do so” and “offered to exercise with me” (1 = none, 2 = rarely, 3 = a few times, 4 = often, 5 = very often).⁴⁸

Adoption data included both data at the setting (church) level and staff (WORD Leader) level. At the church level, inclusion and exclusion criteria of selecting churches, the method to identify churches, and recruitment strategies were noted, in addition to the number of eligible churches invited to participate and the number of churches that actually participated in the study (church participation rate). A church survey was also administered to pastors that assessed church denomination, active members (those who attended services at least once a month), number of persons who attend services, age of church members (percentage who are 17 or younger, 18–34 years old, 35–49 years old, 50–64 years old, 65 or older), the annual operating budget, whether the church had a health ministry (yes/no), and the frequency of church services held (once a week, twice a week, other). Representativeness of the sample of churches that participated when compared to eligible churches that did not participate was examined descriptively based on church characteristics.

At the staff or WORD Leader level, inclusion and exclusion criteria for being a WORD Leader, the method for identifying WORD Leaders, and strategies to recruit WORD Leaders were collected, in addition to the WORD Leader participation rate (# of WORD Leaders who agreed to implement the intervention/# of eligible persons invited). In addition, sociodemographic data were collected using the same sociodemographic measures administered to participants.

Statistical Analyses

Descriptive statistics (ie, counts and percentages, means and standard deviation [SD], median and interquartile range) were used to summarize the baseline characteristics for (1) all participants, (2) participants who did not drop out of the study before 6 months, and (3) participants who did not drop out of the study after 6 months. If the distribution was skewed, the median was reported; otherwise, the mean was reported. Baseline characteristics were compared between participants retained through the end of the core intervention with those who dropped out before 6-month follow-up. Continuous end point comparisons were made using a 2-sided 2-independent-sample *t* test or a 2-sided Wilcoxon rank-sum test, as deemed appropriate. Categorical end point comparisons were made using a χ^2 test or Fisher exact test. An α level of .05 was used to determine statistical significance for all tests. Analyses were conducted using SAS, version 9.4 (SAS Institute, Cary, North Carolina). Descriptive statistics (ie, counts and percentages, means and SD, median and interquartile range) were used to summarize baseline characteristics of WORD Leaders and churches.

Results

Reach Results

The target population was identified and recruited through participating churches, which were identified by community partners with extensive faith-based networks across the Arkansas Lower Mississippi Delta. A person was included if she/he was 18 years or older, African American, affiliated with a participating church, and had a BMI ≥ 25 . A person was excluded if she/he was currently pregnant or delivered within the past 6 months; she/he took medications known to have an impact on weight and/or weight gain (steroids, sibutramine, orlistat, etc) or had a clinically significant medical condition likely to impact weight (cancer, AIDS, etc); or she/he had any condition that would have made it unlikely for her/him to be available to follow the protocol for 18 months (terminal illness, plans to move to another state, etc). Community partners worked with the WORD Leaders to recruit participants through church announcements, church advertisements, flyers, and word of mouth. A total of 519 participants were invited to participate. A total of 437 participants agreed to participate and were recruited; however, 1 church dropped out ($n = 11$ participants) after 2 intervention sessions were delivered. Thus, 426 participants were utilized in the analyses, though the participation rate was 0.84 (total agreeing to participate = 437/# of eligible persons invited to participate = 519).

Table 1 contains the baseline sociodemographic characteristics and information about dietary and physical activity behaviors for study participants who dropped out and those who were retained in the study at 6-month follow-up assessment. Participants were predominantly female and employed, with a mean age of 49.8 years. About half were married, had a high school diploma or general educational development (GED), and had a household income of less than \$35 000. The majority of participants indicated a Baptist religious affiliation and attended church at least once a week. Typically, participants were obese, practiced choosing low-fat and high-fiber foods “a few times” in the past 3 months, and did not meet the national recommendations for fruit and vegetable intake. However, participants met national recommendations for physical activity. The median sugar-sweetened beverage intake was 7.6 times a week. Participants reported varied family and friend support for healthy eating and physical activity. About 30% to 40% of the sample reported “sometimes,” “usually,” or “always” experiencing financial stress related to housing and healthy food expenses.

Participants who had dropped out of the study by the 6-month assessment were significantly younger and had differential marital status compared with retained participants. A higher proportion of retained participants reported attending church more than once a week compared to dropouts.

Adoption Results

Churches were eligible if they were African American churches in the Arkansas Lower Mississippi Delta. Community partners engaged their extensive networks to identify churches. In-person PowerPoint presentations were conducted to recruit participating churches. A total of 48 eligible churches were approached, with 31 initially agreeing to

implement The WORD program. However, 1 church dropped out after baseline assessment, yielding a total of 30 recruited churches and a final participation rate of 0.63. The nonretained church reported lack of time, competing church activities, and low intervention attendance as reasons for not continuing in the study. Characteristics of this church were similar to the 30 retained churches as described below.

The majority of the 30 recruited churches were Baptist, had active members of 100 or less (63%), and an average of 83 people usually attending church services. The ages of congregation attendees were fairly evenly split across 5 categories ranging from 17 years or younger to 65 years or older, with about half being 35 to 64 years of age. The majority of recruited churches reported annual operating budgets of over \$50 000 (66%), and approximately half reported having health ministries. Most participating churches held weekly Sunday worship services (Table 2).

WORD Leaders were eligible if they were adults (age 21 years or older) who were associated with a participating church. Pastors of participating churches identified potential WORD Leaders in their congregations, and community partners conducted a PowerPoint presentation to recruit WORD Leaders. An estimated total of 100 WORD Leaders were approached, with 94 initially agreeing to implement the intervention. A total of 71 were trained and 61 implemented the intervention, yielding a participation rate of 0.61.

WORD Leader sociodemographic characteristics included the following. WORD Leaders were primarily female (89.3%) with a median age of 53 years (interquartile range: 49.0–59.5 years). Over half had a college degree or more, with approximately 60% having incomes of less than \$50 000. The majority were employed (64.2%) with approximately 22.6% retired or unable to work.

Discussion

The purpose of this article was to report the Reach and Adoption outcomes of a recently completed randomized effectiveness trial designed to initiate and maintain weight loss among African American adults of faith. A number of conclusions can be drawn from this work related to the application of faith-based weight loss and maintenance interventions in real-world settings. The WORD program has good applicability on the dimensions of Reach and Adoption and lends generalizable lessons for the translation of evidence-based weight loss and maintenance interventions into typical community practice targeting vulnerable populations of faith.

The WORD intervention was successful in reaching the target population, as demonstrated by an individual participation rate of 84%. Our aim was to enroll 8 to 10 participants from each church, yet we enrolled an average of more than 14 participants per church. Given that only a small proportion of the congregation was exposed to recruitment strategies, the high participation rate is particularly notable. This success is a result of recruiting efforts led by community partners and WORD Leaders.¹⁴ When compared to similar behavioral interventions, our participation rate ranks considerably higher than most. A systematic review that identified 53 unique behavioral interventions for weight loss reported a median

sample size of 103 participants and listed only 4 interventions that had a higher participation rate than The WORD (32). For example, a multisite diet intervention to reduce blood cholesterol with similar recruitment strategies to The WORD, such as using public health nurses to recruit participants and deliver the intervention, screened 781 individuals for participation and enrolled 468, yielding a participation rate of approximately 60%.⁴⁹ Utilizing individuals connected in the community, such as public health nurses or lay health leaders, may lead potential participants to be more inclined to enroll and stay engaged in behavioral interventions.

A notable inquiry of this analysis is the characteristics of those participants who did not drop out of the study before 6 months compared to those who dropped out of the study before the 6-month assessment. Retained participants tended to be older, had differential marital status, and attended church more regularly. These findings suggest that a modest amount of travel may not inhibit participation among this population. Importantly, retained participants and dropouts did not differ among any of the behavioral measures (fat and fiber consumption, fruit, vegetable, and sugar-sweetened beverage intake, energy expenditure from physical activity) or among the social support measures. When considering scaling up The WORD program, employing strategies to engage younger participants and those who do not regularly attend church services may improve participant retention.

Dropouts attended church less frequently than those who remained in the program. While we did not measure the social network or social cohesion of each congregation, it can be hypothesized that individuals who more frequently attended church services felt a greater sense of belonging in the religious community and may be more willing to remain active in the intervention because it was delivered through the church, by a member of the congregation, and included tailored religious content. This is a hypothesis that could be tested in future studies.

Similar to Reach, there was successful Adoption of The WORD program at the church level, with 63% of the churches that were invited to participate choosing to implement the program. Church recruitment was carried out through community partners and WORD Leaders¹⁴ in concert with community-based participatory research principles,⁵⁰ which are likely the 2 biggest contributors to our adoption success.⁵¹ Adoption of a program at the site level is infrequently reported among behavioral interventions. In fact, only one of 53 unique weight loss interventions included in a recent systematic review reported site adoption rate.³²

An innovation of The WORD program relevant to recruitment and program delivery includes a continuous participatory approach. The WORD engages the faith-based social infrastructure of rural African American communities with input from church leaders, parishioners, and community partners during program development, recruitment, and assessment.¹⁴ Programs delivered through the community that engage patients and organizational decision makers are hypothesized to be more sustainable and give organizations more agency.⁵¹

While one church (n = 11 participants) dropped out of the study, its characteristics were similar to other churches that remained in the study. This church did not have a health ministry at the time of assessment, which may have played a role in the prioritization of The WORD program and the support of The WORD Leader at this site. However, simply having a health ministry was not associated with church participation, as approximately 50% of participating churches reported having a health ministry. This suggests that churches without a current infrastructure to support a wellness program may still be successful in adopting and implementing The WORD program.

Adoption reached 61% among individuals identified by church pastors as potential WORD Leaders. Notably, WORD Leader characteristics were very similar to participant characteristics, whereby both were primarily female, approximately 50 years of age, and had similar education and employment statuses. The social support and modeling exhibited by WORD Leaders during program sessions, as explained by social cognitive theory,^{14,16} may have contributed to greater intervention reach and participant retention at 6 months. This report has limitations that should be considered when interpreting the results. Self-report measures were used to gather Reach and Adoption data, with the exception of the BMI assessment. Recall bias and/or social desirability may have influenced the results of these measures, and therefore our results, particularly the comparisons made between dropouts and retained participants among the behavioral and psychosocial measures. Additionally, we do not know the exact number of individuals exposed to recruitment efforts to be a WORD Leader. Without this information, we were unable to calculate Adoption at the level of the WORD Leaders. We also acknowledge that all of the dimensions of RE-AIM were not reported in this article. It is challenging to provide details across all RE-AIM dimensions in a single paper^{52,53}; other RE-AIM dimensions associated with The WORD will be addressed in a future publication.

Despite this study's weaknesses, it has several strengths. While a number of behavioral weight management interventions have utilized the RE-AIM framework, few have reported RE-AIM characteristics in a manner that is useful for potential future implementation of that intervention.⁵⁴ We report the Reach characteristics of WORD project participants and Adoption characteristics at the setting (church) and program leader (WORD Leader) levels, 2 essential elements in understanding and achieving public health impact. Moreover, the recruitment, engagement, and delivery strategies employed by The WORD program show great promise for generalizability to other behavioral weight management programs for African American communities of faith.

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So What?/Conclusion

RE-AIM is a framework that enables the collection of data critical to the successful translation of evidence-based interventions. However, few weight loss and maintenance interventions have assessed RE-AIM components, such as Reach and Adoption. Our findings provide greater understanding regarding the degree a weight loss maintenance intervention can penetrate an underserved population and inform practitioners of the intervention's applicability in a rural context. Our results also help to draw conclusions regarding recruitment and delivery strategies, which will inform future implementations of The WORD and similar interventions. It is our hope that this study will serve as an example for and encourage other researchers to include RE-AIM measures in their reports.

Table 1.

Sample Characteristics and Outcomes for Intervention Participants.

Variable	Total Sample, N = 426	Retained After 6 Months, n = 376	Dropouts Before 6 Months, n = 50	P Value
Female ^a	396 (93.0%)	351 (93.4%)	45 (90.0%)	.377
Age (years) ^b	49.8 (12.8)	50.5 (12.3)	44.2 (14.6)	.0009
Marital status ^c				.0468
Married or member of an unmarried				
Couple	189 (47.1%)	169 (46.6%)	20 (52.6%)	
Previously married	118 (29.4%)	113 (31.1%)	5 (13.2%)	
Never married	94 (23.4%)	81 (22.3%)	13 (34.2%)	
Education ^a				.6259
Less than high school	19 (4.7%)	19 (5.2%)	0 (0.0%)	
High school or GED	187 (46.4%)	167 (45.9%)	20 (51.3%)	
College or some college includes				
Associate degree	144 (35.7%)	131 (36.0%)	13 (33.3%)	
More than bachelor's degree	44 (10.9%)	39 (10.7%)	5 (12.8%)	
Other degree	9 (2.2%)	8 (2.2%)	1 (2.6%)	
Income ^c				.3901
Less than \$20 000	116 (30.0%)	106 (30.2%)	10 (27.8%)	
\$20 000–\$34 999	90 (23.3%)	81 (23.1%)	9 (25.0%)	
\$35 000–\$49 999	66 (17.1%)	63 (17.9%)	3 (8.3%)	
\$50 000 or more	115 (29.7%)	101 (28.8%)	14 (38.9%)	
Employment ^c				.1424
Employed	288 (72.2%)	256 (71.1%)	32 (82.1%)	
Unemployed	33 (8.3%)	29 (8.1%)	4 (10.3%)	
Retired or unable to work	78 (19.6%)	75 (20.8%)	3 (7.7%)	
Baptist	266 (62.4%)	241 (64.1%)	25 (50.0%)	.0532
Religious attendance ^a				<.0001
Never	4 (1.0%)	2 (0.5%)	2 (4.0%)	

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Variable	Total Sample, N = 426	Retained After 6 Months, n = 376	Dropouts Before 6 Months, n = 50	P Value
Once a year or less	6 (1.4%)	5 (1.3%)	1 (2.0%)	
A few times a year	17 (4.0%)	10 (2.7%)	7 (14.0%)	
A few times a month	29 (6.9%)	24 (6.4%)	5 (10.0%)	
Once a week	91 (21.5%)	77 (20.6%)	14 (28.0%)	
More than once a week	276 (65.3%)	255 (68.4%)	21 (42.0%)	
Mileage ^d	2.5 (1.0, 8.1)	2.5 (1.1, 7.5)	1.8 (0.7, 9.5)	.5193
BMI ^d	35.8 (31.2, 41.4)	35.7 (31.2, 41.1)	36.3 (31.3, 42.5)	.5718
Total selection of low-fat foods ^d (1 = none, 2 = rarely, 3 = a few times, 4 = often, 5 = very often)	2.8 (0.7)	2.8 (0.7)	2.8 (0.8)	.9816
Fat substitute ^d	2.4 (1.0)	2.4 (1.0)	2.5 (1.1)	.5321
Avoid fat ^d	2.6 (1.0)	2.6 (1.0)	2.5 (1.0)	.292
Modify meat ^d	3.1 (1.0)	3.1 (1.0)	3.1 (1.1)	.9921
Replace fat ^b	3.0 (2.5, 4.0)	3.0 (2.5, 4.0)	2.9, (2.3, 3.8)	.3455
Replace meat ^d	2.6 (0.9)	2.6 (0.9)	2.6 (0.9)	.9596
Total selection of high-fiber foods ^b (1 = none, 2 = rarely, 3 = a few times, 4 = often, 5 = very often)	2.7 (2.1, 3.3)	2.7 (2.2, 3.3)	2.5 (2.1, 3.5)	.8706
Grain ^b	2.8 (2.0, 3.5)	2.8 (2.0, 3.7)	2.5 (2.0, 3.5)	.831
Fruit and vegetable ^d	3.1 (1.0)	3.1 (1.0)	3.0 (1.0)	.6098
Subfiber ^b	1.7 (1.0, 2.7)	1.7 (1.0, 2.7)	1.7 (1.0, 3.0)	.6749
Fruit intake ^d (# times per week)	7.8 (7.2)	7.8 (6.9)	7.7 (8.8)	.9576
Vegetable intake ^b (# times per week)	9.0 (6.0, 15.0)	9.0 (6.0, 15.0)	9.5 (7.0, 14.0)	.6892
Sugar-sweetened beverage intake ^d (times per week)	7.6 (3.0, 14.0)	7.6 (3.6, 14.0)	9.3 (1.6, 15.0)	.7707
Total physical activity (METS) ^d	9.2 (0.0, 19.6)	8.8 (0.0, 19.4)	12.6 (0.0, 22.6)	.4912
Recreational physical activity (METS) ^d	1.7 (0.0, 8.8)	1.7 (0.0, 8.6)	2.5 (0.0, 10.0)	.7493
Family encouragement for healthy eating ^d (5 = low, 25 = high)	11.0 (6.0, 15.0)	11.0 (7.0, 15.0)	10.0 (5.0, 15.0)	.359
Family discouragement for healthy eating ^d (5 = low, 25 = high)	10.0 (6.0, 14.0)	10.0 (6.0, 14.0)	9.5 (6.0, 13.0)	.5673

Variable	Total Sample, N = 426	Retained After 6 Months, n = 376	Dropouts Before 6 Months, n = 50	P Value
Friend encouragement for healthy eating ^d (5 = low, 25 = high)	10.0 (5.0, 15.0)	10.0 (6.0, 15.0)	9.0 (5.0, 15.0)	.6963
Friend discouragement for healthy eating ^d (5 = low, 25 = high)	8.0 (5.0, 12.0)	9.0 (5.0, 12.0)	8.0 (5.0, 13.0)	.8522
Family participation (exercise) ^d (10 = low, 50 = high)	18.0 (11.0, 28.0)	18.0 (11.0, 28.0)	19.0 (14.0, 27.0)	.4806
Family rewards and punishment (exercise) ^d (3 = low, 15 = high)	3.0 (3.0, 5.0)	3.0 (3.0, 5.0)	3.0 (3.0, 4.0)	.213
Friend participation (exercise) ^d	18.0 (10.5, 27.5)	17.0 (10.0, 27.0)	21.0 (13.0, 29.0)	.2094
Financial stress—Rent/mortgage ^c				.2603
Always/usually	35 (8.3%)	29 (7.8%)	6 (12.2%)	
Sometimes	118 (28.0%)	100 (26.8%)	18 (36.7%)	
Rarely	91 (21.6%)	83 (22.3%)	8 (16.3%)	
Never	178 (42.2%)	161 (43.2%)	17 (34.7%)	
Financial stress—Nutritious meals ^c				.6012
Always/usually	42 (10.0%)	36 (9.7%)	6 (12.2%)	
Sometimes	96 (22.8%)	86 (23.1%)	10 (20.4%)	
Rarely	102 (24.2%)	87 (23.4%)	15 (30.6%)	
Never	181 (43.0%)	163 (43.8%)	18 (36.7%)	

Abbreviations: BMI, body mass index; GED, General Educational Development; METS, metabolic equivalent task.

^aFisher exact test.

^bMean (standard deviation); independent *t* test.

^c χ^2 test.

^dMedian (Q1, Q3); Wilcoxon rank sum test.

Table 2.

Church Characteristics.

Variable	Total Sample, N = 30
Denomination	
Baptist	21 (70.0%)
Non-Baptist	9 (30.0%)
Active adult membership	
Less than 25	1 (3.3%)
26–50	10 (33.3%)
51–100	8 (26.7%)
101–150	1 (3.3%)
More than 150	10 (33.3%)
Number of church attenders ^a	82.9 (73.5)
Age of congregation attenders ^a	
17 years or younger	14.2% (7.5%)
18–34	19.4% (9.4%)
35–49	24.4% (8.9%)
50–64	24.8% (11.0%)
65 or older	17.3% (16.9%)
Annual operating budget	
\$15 000–\$50 000	10 (34.5%)
Over \$50 000	19 (65.5%)
Church has health ministry (% yes)	16 (55.2%)
How often church holds Sunday worship service	
Twice a week	2 (6.7%)
Once a week	24 (80.0%)
Twice a month	4 (13.3%)

^a Mean (standard deviation).