The Effects of a Faith-Based Diabetes Program for African Americans

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Introduction

In the United States, African Americans are disproportionately affected by diabetes. African American adults are nearly two times more likely than their white counterparts to be diagnosed with Type 2 diabetes (T2D) (Center for Disease Control and Prevention [CDC], 2021). T2D may be controlled through lifestyle modifications such as weight loss, diet, and exercise, but eventually, most people will require oral hypoglycemic agents and/or insulin to manage their disease. Persons diagnosed with diabetes must be able to perform self-care practices (meal planning, physical activity, blood sugar checks, and foot checks), in order to effectively manage their condition. Because some of the self-care practices may be performed by patients, families, and significant others, there is an important need for diabetes self-management education. Faith-based settings are appropriate sites when considering outreach efforts to promote prevention and wellness. Therefore, the purpose of this study was to pilot test the effectiveness of a diabetes self-management program for African Americans with T2D in a group format in a faith-based setting. The aims of the intervention were to improve knowledge about diabetes and diabetes self-management practices, and improve self-efficacy. By reaching these goals, this program will contribute to Healthy People 2020 objective D-14, which is to increase the proportion of persons with diabetes who receive diabetes self-management education (Healthy People, 2020).

Methodology

Design

A quasi-experimental pretest-posttest design with nonrandomized groups was used to test the effectiveness of a 12-week faith-based diabetes self-management program for African American adults with T2D. The study was approved by Winston-Salem State University

Institutional Review Board (IRB) and funding was provided by a Winston-Salem State University Research Initiative Project (RIP) Grant. The participants in the comparison group received a $30.00 gift card at pre-data collection and a $30.00 gift card at post-data collection. The participants in the experimental group received $20.00 gift cards at weeks 1 thru 5, and a $20.00 gift card at the post-data collection.

Goals

The goals of the program were that study participants would show improvement in their A1C level, increased scores on the diabetes knowledge and self-efficacy scale and the diabetes self-management practices scale after receiving a 12-week intervention in a faith-based setting.

Setting

The study was conducted at two local African American churches located in the southeastern part of the United States. Each congregation had over 100 predominately African American members.

Sample

A convenience sample of African Americans 18 years or older was recruited into the study. The study sample included participants with a self-reported diagnosis of T2D made by a healthcare provider. Further inclusion criteria included the ability to speak and read English and the ability to complete surveys. Exclusion criteria included: diabetes as a secondary diagnosis, persons with type I diabetes, having participated in a diabetes self-management program during the past year, pregnant women, and diabetes complications that would impede responses to questionnaires. The principal investigator (PI) scheduled enrollment visits at each church for interested persons to sign an informed consent.

Data Collection Tools

Glycemic Control

A hemoglobin A1C level was obtained by pricking a finger of each participant by a research assistant (RA). The instrument that was used to measure the hemoglobin A1C was an over-the-counter *Bayer A1C Now test kit*, similar to the point of care kits used in many community settings. The study considered a decrease in A1C from baseline compared to 12 weeks as an improvement.

Diabetes Knowledge Test (DKT)

The Diabetes Knowledge Test (DKT) scale is a 23- item questionnaire developed to assess diabetes knowledge and symptom management. This scale consists of two parts: part one includes general diabetes questions and part two applies to the use of insulin for participants that are insulin dependent. The questions were related to diet, hemoglobin A1C, hypoglycemia management, activity, effect of illness and infection on blood glucose levels, foot care, and signs and symptoms of diabetic neuropathy. The questionnaire was scored by summing the number of questions answered correctly. Higher scores indicated that an individual had greater knowledge about diabetes and management of diabetes. A score of 50% or greater indicated higher diabetes knowledge and a score of <50% indicated lower diabetes knowledge. The reliability was tested with Cronbach's alpha (a = 0 .71 overall). Content validity was tested with analysis of scores (1) by diabetes type and treatment, (2) by educational level, and (3) by prior diabetes education (Fitzgerald et al., 1998).

Summary of Diabetes Self-Care Activities Scale (SDSCA)

The revised Summary of Diabetes Self-Care Activities (SDSCA) scale measured the frequency of diabetes self-care across the different components of diabetes regimens. The tool

was designed to measure the frequency of self-care behavior activities over the previous seven days (Glasgow & Anderson, 1999). The revised SDSCA is an 11-item self-report questionnaire. Participants' are assigned numerical scores for each component (exercise, diet, foot care, and blood glucose testing). Item scoring was based on the number of days of the week that the behavior was performed using a 7-point reply format. The total scores ranged from 0 - 77 points, and higher scores indicated more days that participants performed self-care activities (Chen, Chien, Kang, Jeng, & Chang, 2014). The Cronbach's alpha for this instrument was 0.70.

Diabetes Empowerment Scale-Short Form (DES-SF)

The Diabetes Empowerment Scale-Short Form (DES-SF) questionnaire were used to assess psychosocial efficacy of people with diabetes. Participants were asked about their perceived ability "in general I believe that I…" and responded using the options of "strongly disagree" (1) to "strongly agree" (5). The total scale scores were summed, and higher scores (>3) indicated positive attitudes and were interpreted as a higher level of self-efficacy. (Anderson, Fitzgerald, Gruppen, Funnell, & Oh, 2003). The Cronbach's alpha for this instrument in that study was 0.80 (Schwarz, 1999).

Data Analysis Plan

Descriptive statistics such as frequency and percentage or mean (M), and standard deviation (SD), were used to describe characteristics of the sample. Paired sample t tests (2-sided) to detect differences in A1C, diabetes knowledge, diabetes self-management practices, and self-efficacy scores between baseline and at 12 weeks post completion of the program were conducted. An alpha level of 0.05 was used to determine statistical significance.

Program Intervention

The churches were conveniently selected to determine which participants would receive the intervention or standard of care. The intervention group received six, 90-minute diabetes education group sessions weekly directly following Sunday worship services. The standard of care group received a direct mailing to their residence of three pamphlets (Healthy Eating, Physical Activity, and Glucose Monitoring) published by the American Diabetes Association. The intervention group sessions were focused on areas of diabetes self-management based on the American Diabetes Association (ADA) guidelines: (1) Introduction to diabetes (prevalence and signs and symptoms), (2) Healthy eating, (3) Being active, (4), Medications, (5) Glucose monitoring and complications, and (6) Symptom management (ADA, 2017). After the completion of the six-weekly group sessions, both groups were instructed to practice diabetes-self-management independently for an additional six-weeks (total of 12 weeks).

Results

A convenience sample of 20 African American adults, 18 years or older who met the criteria for inclusion were recruited into the study. Twenty participants (10 participants from each church) consented to and participated in the study designed to improve diabetes knowledge and self-efficacy, self-management practices, and A1C levels. Study participants had a mean age of sixty and 11% were females. Among participants, 20 completed post-assessments and were included in the analysis.

There was not a statistically significant decrease in the A1C levels observed at week 12 ($p = 0.105$) between the groups, but there was clinical significance observed in the intervention group (A1C = 6.6) compared to the standard of care group (A1C = 7.0). There were statistically

significant differences for diabetes self-care practices (p < 0.001), diabetes knowledge (p = 0.002) and self-efficacy (p <.001) in the intervention group.

Discussion

The purpose of this study was to pilot test the effectiveness of a diabetes self-management program for African Americans with T2D in a group format in a faith-based setting. The aims of the intervention were to improve knowledge about diabetes and diabetes self-management practices, and improve self-efficacy. Faith-based settings are appropriate venues to consider for outreach efforts to promote prevention and wellness.

Limitations

Limitations were noted in this study. First, the Hawthorne effect, where participants' behaviors are affected by their desire to please the PI, could have been a threat to internal validity. Second, the small nonrandomized sample was not representative of the population. Third, the short treatment duration may have impacted final outcomes although the intervention group did have improvements and this program is a practical way in which to reach this underserved population.

Conclusions

The results supported the hypotheses that after receiving a 12-week intervention in a faith-based setting, participants showed improvements in diabetes self-management practices, diabetes knowledge, and self-efficacy. Although there was no statistically significant difference in the hemoglobin A1C in the intervention group, there was clinical significance between the groups. Self-efficacy, diabetes self-management practices, and diabetes knowledge were improved by participation in the diabetes self-management intervention.

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