

Culturally Tailored Group Medical Appointments for Diabetic Black Americans

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ABSTRACT

Diabetes and its complications disproportionately affect the black American community, requiring new multifactorial strategies for achieving glycemic control. In this study we evaluate the effectiveness of culturally tailored shared medical appointments or group visits in improving diabetic outcomes in black Americans. Our retrospective comparison group design assessed the significant within- and between-group differences in clinical measures for a sample of 250 blacks with diabetes who either participated in a group visit or received traditional office care. The results suggest that culturally tailored shared medical appointments have the potential to improve glycemic control.

Keywords: black Americans, cultural tailoring, group visits, shared medical appointment model, type 2 diabetes

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BACKGROUND

Diabetes is one of the most serious challenges affecting the health of the black American community. The incidence of diabetes is highest in blacks 65–75 years of age¹; however, statistics indicate that 4.9 million, or 18.7%, of blacks aged ≥ 20 years have diabetes.² Black Americans have more than double the risk of developing diabetes than non-Hispanic whites.³ According to the United States Department of Disease Control and Prevention, complications are more prevalent in black Americans with diabetes. End-stage renal disease and amputations of lower extremities are also more common in blacks with diabetes. Black men were 2.7 times more likely to require dialysis for end-stage renal disease from diabetes, as compared with non-Hispanic white men.⁴ In addition, black men and women were found to be 2.3 times as likely as non-Hispanic whites to die from diabetes.⁴

Development of type 2 diabetes (T2DM) is associated with a genetic predisposition, which is increased by the preventable risk factors of obesity, physical inactivity, and poor nutrition.⁵ Diabetes within the black American community is an emerging epidemic because of the high prevalence in this population of these preventable risk factors,

coupled with genetic insulin resistance. In addition, studies have shown that traditional care and educational strategies covering lifestyle changes, weight loss, and dietary self-management have not been as effective in improving diabetic outcomes among black Americans when compared with white Americans.⁶ This lack of efficacy may be due in part to cultural barriers for black Americans, including linguistic differences, limited educational background, specific religious beliefs, and unique health views.⁶ Adding these barriers a health care system designed for volume-driven, fee-for-service reimbursement, with limited time and access to primary care providers, there is a need for new care models to stem the ever-growing disproportionate burden of diabetes in the black American population.

In this article we explore a novel, increasingly popular, time- and cost-effective model of care, group or shared medical appointments, for treating this population. Furthermore, we describe new information and strategies for nurse practitioners to develop and implement culturally tailored group medical appointments, as part of their practice, that are fully reimbursable and more effective at lowering hemoglobin A_{1C} (HbA_{1C}) values in black diabetic patients than traditional primary care office visits.

CULTURAL TAILORING

One approach to reverse the growing trend of diabetes in black Americans is to incorporate “culturally tailored” interventions that adapt educational material and programs to be more culturally sensitive or appropriate for this specific racial or ethnic group. Cultural tailoring incorporates an understanding of the effects of a group’s cultural characteristics on their health behaviors to develop a more effective intervention.⁷ Although the use of culturally tailored group visits has not been studied in black Americans, it has been effective in improving diabetic outcomes in other ethnic groups.⁸

GROUP SHARED MEDICAL APPOINTMENTS

The incorporation of shared medical appointments (SMAs), sometimes referred to as group visits, has shown great potential for diabetic patients because they allow increased access to care and self-empowerment with education. The literature describes SMAs, organized as group visits, occurring within a single appointment and lasting 90–120 minutes.⁹ The SMA or group visit can fulfill several needs for the diabetic patient. During the SMA, patients can see their provider and address multiple questions in one visit. They can also take advantage of a peer support group that provides peer education and motivation, as well as have increased time with providers. In addition, SMA visits allow for a collaborative approach with the transfer of the primary responsibility away from the primary care provider as the authority for conveying information to the patient and peer-group members, with all members actively participating.⁹ Within a group visit, patients with diabetes can be empowered to better self-manage their diabetes. In this setting, participants can ask questions without feeling isolated, and discuss myths, fears, and concerns about the disease. Studies have shown that diabetes clinical and behavior outcomes improve when incorporating diabetes self-management education as a fundamental component of diabetes education and within a group or multidisciplinary setting.¹⁰

The primary objective of this study was to evaluate the effectiveness of culturally tailored SMA primary care visits as a collaborative, team-care approach, led by a nurse practitioner, for black

Americans with type 2 diabetes. The hypothesis was that care through the culturally tailored SMA would be more effective in improving HbA_{1C} control than traditional office visits.

METHODS

In this study we used a retrospective, mixed pre-/posttest comparison group design to examine within- and between-group differences in clinical measures for a sample of black Americans with diabetes who either participated in an SMA program or received usual office care, which consisted of the typical primary care 15-minute office visit. Targeted participants were black Americans > 21 years old with T2DM and HbA_{1C} ≥ 7.0%. Exclusion criteria were age < 21 years, no existing type 2 diabetes or HbA_{1C} < 7.0%, and being of another ethnic group. There was no time limit on how long ago participants had been diagnosed with diabetes. The study was conducted at a privately owned primary care practice in southeastern Virginia with a diabetes center accredited by the American Association of Diabetes Educators. The investigation was approved before data collection by the institutional review board for human subjects of Old Dominion University.

DATA COLLECTION

The sample’s data were retrieved from the medical practice of Primary Care Specialists, Inc. electronic medical records. The data were collected retrospectively from a 1-year time period. Convenience sampling was utilized to select 250 diabetic subjects (with 125 in each group) matching on the month of visit, who had either participated in an SMA or had received usual office care. Both groups’ preclinical measures data, including HbA_{1C}, total cholesterol, blood pressure (BP), and body mass index (BMI), were gathered from the SMA or regular office appointment to establish baseline clinical measures. Both groups’ postclinical measures data were retrieved a minimum of 3 months later (or next visit after SMA or next usual care appointment) to compare differences in clinical outcome measures. These data were evaluated to determine whether there were significant clinical differences within and between the SMA and usual office care groups.

Group SMA Care and Education Intervention

The SMA was a once-monthly, recurring, single-session program with standardized content and subjects participating in 1 session (Figure 1). The SMA professional staff included a nurse practitioner (also a certified diabetes educator), medical doctor, an additional certified diabetes educator (CDE), and medical assistants. The sessions were formatted as a group visit for 9–20 patients.

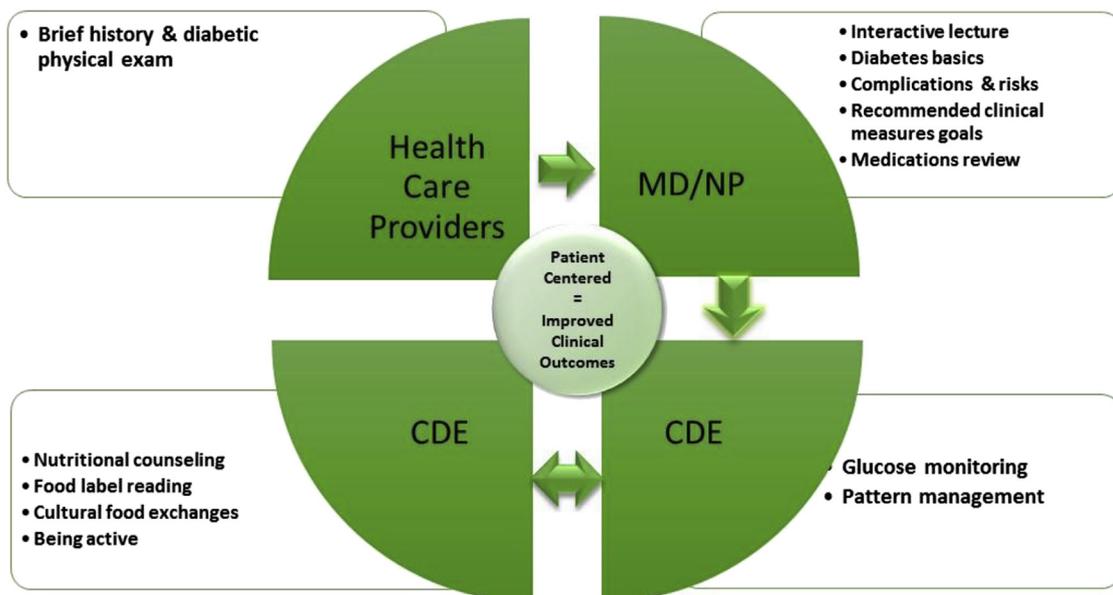
The participants were first given a brief medical exam that focused on the key body sites affected by diabetes. The participants were then directed to the educational area of the practice, where a chef had prepared, for each patient, a common food option in the black American community, such as sweet potato pie, yet prepared with healthier ingredients. This food alternative strategy was to serve as an example that diabetic food choices can be extremely tasty, while meeting the American Diabetes Association's recommended nutritional standards. Diabetes education, using the American Association of Diabetes Educators (AADE) 7 Self-Care Behaviors format, and handouts were all approved by the CDE and the primary care physician.¹¹ The design of the educational format consisted of the patients first being given a 30–45-minute PowerPoint presentation with specific information on the implication of diabetes

and the impact of diabetes in the black American community. Each patient was also given their specific clinical results, HbA_{1C} level, lipid profile, urine microalbumin, and BMI, to follow along as they were discussed during the lecture. During the lecture by the medical provider, questions were answered, along with an observation of the participant exhibiting signs of peer support within the group. The participants were then divided into 2 additional 30-minute, group-interactive educational sessions. Both groups were counseled simultaneously by a CDE on how to use a glucose monitor, along with interactive demonstrations on glucose monitoring and how to read food labels and calculate calories and sodium in foods. To reduce perceived barriers associated with diabetic dietary food choices, the CDE also introduced food label examples of healthier alternatives, specifically within the black American community. For example, instead of preparing vegetables with high-cholesterol animal fats, participants were shown how they could replace these cultural foods with trim or lean meat alternatives (Figure 1).

Data Analysis

Data were analyzed using SPSS version 21.0 (SPSS, Inc., Chicago, Illinois). Descriptive statistics were used to analyze sample characteristics such as insulin

Figure 1. Newby's shared medical appointments model.



use, smoking status, marital status, and gender and age. The independent variable was type of diabetic care—either the SMA group or usual office care group. The dependent variables were clinical measures outcomes, including HbA_{1c}, BP, total cholesterol, and BMI. Specific within-group differences in pre- and postclinical measures, including HbA_{1c}, total cholesterol, BMI, and systolic and diastolic BP, in both the diabetic group participating in the SMA and the traditional care group over a 3-month period were evaluated by paired *t*-test. Specific between-group differences in pre- and postclinical measures over the 3-month period for the SMA group and usual office care group were evaluated by independent *t*-test. Statistical significance was set at $P < .05$ (Table 1).

RESULTS

Participants' Characteristics

A total of 250 individuals participated in the study (SMA group, $n = 125$; usual care group, $n = 125$). Participants' mean age was 57 years (SD 11.48, range 31–81) years. Gender in both groups had a higher frequency of females at 64.8% (81) in the SMA group and 52.8% (66) in the usual care group. Total participants treated with insulin was 43.2% (108); the highest percentage of insulin patients was 45.6% (57) in the SMA group and 40.8% (51) in the usual care group (Table 2).

Glycemic Control Improvements

The mean SMA group patients' pre-HbA_{1c} before participating in the SMA was 9.39% (SD 1.95%),

Table 1. Comparison of the Shared Medical Appointment and Usual Groups on Differences in Clinical Measures Pre and Post

Clinical Measures	Shared Medical Appointment Group ($n = 125$)		Usual Care Group ($n = 125$)		Independent <i>t</i> -test (Between Groups)	
	Mean	SD	Mean	SD	<i>t</i>	<i>P</i>
HbA_{1c} (%)						
Pre-HbA _{1c}	9.394	1.95	8.683	1.817		
Post-HbA _{1c}	8.133	1.78	8.627	2.057		
Difference	-1.2608	2.18	0.0559	1.434	-5.158	.000
Total cholesterol (mg/dL)						
Pre-total cholesterol	182.79	45.12	189.35	46.054		
Post-total cholesterol	179.32	42.34	186.68	40.550		
Difference	-3.4701	31.45	2.6695	31.792	-0.194	.846
BMI						
Pre-BMI	35.02	6.53	36.141	8.198		
Post-BMI	34.98	6.57	36.149	8.082		
Difference	-0.0380	2.05	0.0080	2.222	-0.169	.866
Systolic BP (mm Hg)						
Pre-systolic	140.66	20.17	141.53	19.254		
Post-systolic	137.96	18.90	143.29	20.962		
Difference	-2.704	21.96	1.760	19.445	-1.701	.090
Diastolic BP (mm Hg)						
Pre-diastolic	75.36	13.89	77.86	13.230		
Post-diastolic	77.65	11.93	78.44	13.724		
Difference	-2.28	11.84	0.5760	12.221	1.125	.262

BMI = body mass index; BP = blood pressure; HbA_{1c} = glycated hemoglobin.

Table 2. Participants' Demographics^a

Demographic Measures	Shared Medical Appointment Group (n = 125)	Usual Care Group (n = 125)	Total Sample (N = 250)
Female	81 (64.8)	66 (52.8)	147 (58.8)
Male	44 (35.2)	59 (47.2)	103 (41.2)
Married	66 (52.8)	53 (42.4)	119 (47.6)
Single	39 (31.2)	50 (40.0)	89 (35.6)
Divorced	13 (10.4)	6 (4.8)	19 (7.6)
Other	7 (5.6)	16 (12.8)	23 (9.2)
Smoker	17 (13.6)	25 (20.0)	42 (16.8)
Nonsmoker	108 (86.4)	100 (80.0)	208 (83.2)
Insulin	57 (45.6)	51 (40.8)	108 (43.2)
Non-insulin	68 (54.4)	74 (59.2)	142 (56.8)

^a Data expressed as number of patients (%).

and the mean post-HbA_{1C} at 3 months after SMA participation was 8.13% (SD 1.78%). Thus, the average mean decrease in HbA_{1C} over 3 months in the SMA group was 1.26% (2.18% SD). This decrease in HbA_{1C} was statistically significant according to paired *t*-test ($t = 6.45, P = .000$). The mean pre-HbA_{1C} for the usual care group was 8.68% (SD 1.81%) and the mean post-A_{1C} for the usual care group follow-up was 8.63% (SD 1.43%), with a mean decrease of 0.05%. This decrease was not statistically significant. In addition, the group participating in the SMA had a significantly larger decrease in HbA_{1C} of 1.20% ($t = -5.16, P = .000$) than the usual care group, as evaluated by independent *t*-test. Overall, the results show that the group participating in the SMA had significantly improved diabetic control as compared with the usual care group over the 3-month period (Figure 2). There were also nonsignificant greater decreases in the SMA group in cholesterol, BMI, and systolic BP when compared with the usual care group (Table 1).

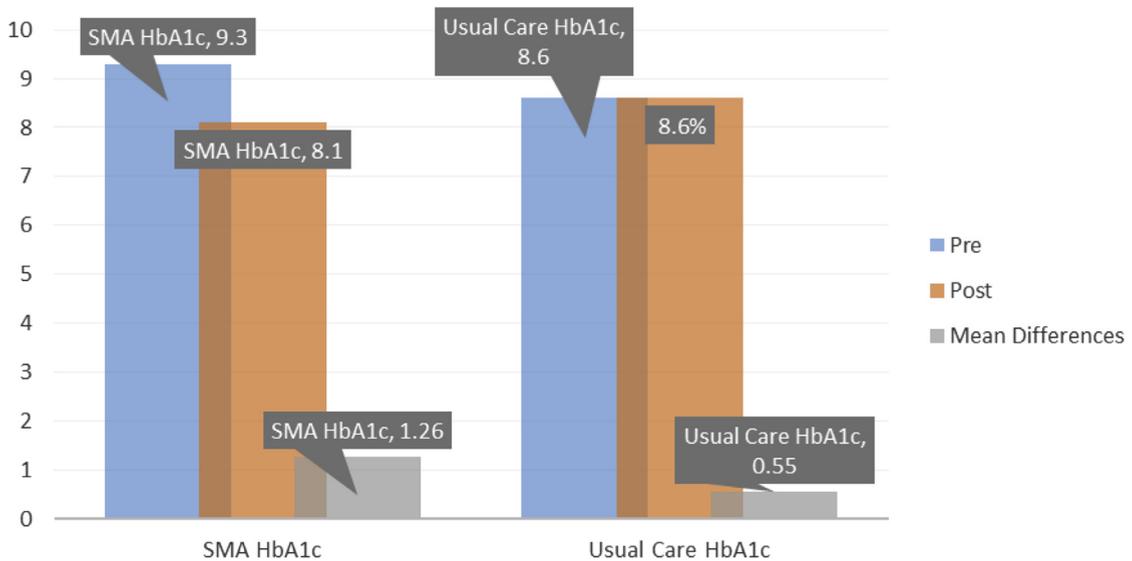
DISCUSSION

In this study we have demonstrated the potential efficacy and feasibility of culturally tailored diabetes SMAs for black Americans within a primary care setting. The 1.2% reduction in HbA_{1C} stemming from the single-session multidisciplinary educational format may represent an effective model of care specific to black Americans, who have a

disproportionate prevalence of diabetes of 12.6% when compared with whites at 7.1%.⁷ In addition, the redesigned model of the SMA study was grounded in the health belief model to facilitate health behavior change and maintenance, and adjusted for cultural characteristics to overcome cultural challenges associated with elevated HbA_{1C}.¹²

Although other shared medical appointments research has shown improvements in HbA_{1C} and other clinical measures,^{13,14} none were specifically culturally tailored for black Americans. In this study we have evaluated an SMA design that uses culturally tailored diabetes self-management education (DSME) healthy-eating curriculums to help diabetic patients overcome the assumption of having to give up cultural food choices to control diabetes. This assumption is a prevailing barrier to dietary compliance among black American diabetic patients.¹⁵ The significant improvement in HbA_{1C} outcomes found in this study highlight the need for a specific nutritional curriculum for black Americans as an integral part of any DSME format. This culturally sensitive format would ideally address dietary habits of black Americans, which commonly include meals prepared with high-fat meats and other foods containing large amounts of cholesterol, salt, and sugar. These methods of food preparation are regarded as “soul food.” Soul food is a culturally important because of its historical richness and

Figure 2. Bar graph comparison of the clinical measure of HbA_{1c} between the SMA group and usual care group.



symbol of surviving faith.¹⁵ In addition, soul food provides many diabetic patients a sense of comfort and good taste when compared with the commercially non-ethnic recommended diabetes food choices. Thus, being aware of these cultural characteristics, and following American Association of Diabetes Educators nutritional guidelines, samples of healthy, tasty soul food were provided along with recipes during the SMA session.

The improved HbA_{1c} results in our study may have also been due to the team approach to diabetes management. The SMA demonstrated that an innovative model of group health care, utilizing a multidisciplinary team with interprofessional collaboration should be implemented as an alternative to the current, traditional provider 1-on-1 medical care. Our study's educational approach enabled sharing the power among the team, thus relinquishing the autonomy of care of the primary care physician/provider.^{9,14} Also, the reason for greater HbA_{1c} improvement in this group may well be the visible collaboration between patients and health care providers in the group setting, who were allotted 120 minutes, as compared with the 15 minutes in the usual 1-on-1 office session. This patient-centered group approach appears to have stimulated additional 2-way communication that empowered patients to increase their knowledge and understanding from providers

and peers and allowed them to take greater control of their diabetes, thus reducing further disease and complication risks.

Study Limitations

A limitation of this study is that it used a retrospective, rather than prospective, design and included evaluation of outcomes of the SMA study that offered only 1 session. Although the reductions of nondiabetes measures, such as BP, BMI, and total cholesterol, after 1 session were not clinically significant, a longer time period with more educational sessions may have led to improved outcomes for these measures as well. In addition, the design did not allow for randomization with a true control group, which also may have affected the results. The generalizability of the study findings to the black American population may be limited by the small sample size and the lack of demographic information about the economic and educational backgrounds of the participants. Furthermore, the study did not include an assessment or evaluation of patient satisfaction. Additional longitudinal comparison studies are needed as this study represents a "first-look pilot" at comparison of SMA interprofessional collaboration and culturally tailored education versus standard office visits for patients with T2DM.

Recommendation for Practice

The study findings suggest that patient-centered, culturally sensitive, appropriate SMAs or group medical appointments may be a valuable tool in the primary care management of diabetes among black Americans. For practitioners, this unique SMA model offers a reimbursable, time- and cost-effective method of care with the potential to significantly improve outcomes, facilitate positive lifestyle changes, and promote achievement of Healthy People 2020 national goals for black Americans with T2DM.¹⁶ **JNP**

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