DIABETES MANAGEMENT IN THE AFRICAN AMERICAN COMMUNITY

by

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ABSTRACT

**Purpose:** The purpose of this project was to explore the effectiveness of utilizing an evidence based diabetes tool kit and a physical activity program in the management of A1C levels >8.0 of African American adult patients.

**Data sources:** A sample of 25 African American adult patients ages 21-75 with Type 2 Diabetes Mellitus were recruited from a local Community Health Center for this cross-sectional study design. The data has been collected using administrative data from electronic medical records and utilizing an evidenced-based diabetes tool kit from the American Diabetes Association and a physical activity program which consists of a thirty-minute aerobic walking exercise.

**Conclusion:** The project participants consisted of 13 African American women and 12 African American men. The results suggest patients are more likely to adhere to checking their blood sugars, manage their diets, and participate in moderate physical activity when they have access to resources and one on one discussions with their provider. The participation and adherence to the project guidelines were met 95% among the females and 80% among the male participants. The results conclude that A1C levels can be significantly decreased using the diabetes tool kit in conjunction with physical activity if there is consistency in daily routine and adequate follow up with provider.

**Implications to practice:** African Americans are disproportionately impacted by the adverse effects of diabetes mellitus. Cost effective strategies must be identified to manage their diabetes
and A1C levels. This project addresses strategies to fill gaps in practice for African Americans who lack economic resources and provider interest in helping to manage their diabetes mellitus.

**Keywords** (*African Americans, diabetes mellitus, physical activity, A1C levels*)

**INTRODUCTION**

Diabetes mellitus is a prevalent disease among African Americans that contributes largely to the declining health of this population. The treatment and management of diabetes has proven to be an economical burden for both the consumer and the insurance carriers. The hospital emergency rooms have found themselves overwhelmed with consumers suffering from exacerbations of diabetes and no primary care providers to provide ongoing care and treatment. Understanding that the number of patient’s being diagnosed with diabetes mellitus will continue to increase over time it is imperative that cost effective measures are developed to help control and prevent diabetes. ²³

Factors contributing to the rise of poor diabetic control among African Americans include lack of physical activity, socioeconomically disadvantaged, lack of knowledge regarding diabetes care and poor diet management. ¹ Implementation of basic lifestyle modifications such as physical activity and an evidenced-based diabetic tool kit from the American Diabetes Association is key to helping to control diabetes amongst a population with both economic and health care related barriers. ¹,²,³,¹³ The American Diabetes Association released recent studies that have shown great success with the incorporation of nutritional management and exercise in African American patients with an A1C level greater than 8.0. ¹,² These outcomes have encouraged additional studies to confirm compliance and a shift in goals for the African American community where complications from uncontrolled diabetes continue to rise.
Stressman and Jacobs provided research that suggests some progress has been made in controlling diabetes amongst African Americans but there is still difficulty in finding interventions that conforms with their lifestyle and behavior towards the disease. The Self-Care Theory aligns with the focus of this project because it helps to identify a participant’s deliberate actions to care for themselves and adhere to established care guidelines. The evidence based diabetic tool kit is related to the theory of self-care because within the tool kit there are specific evidence based guidelines that must be followed to help achieve glycemic control. These guidelines include (a) checking glucose levels daily (b) adhering to diet plan (c) participating in physical activity at least 3-5 times a week (d) adhering to having A1C levels checked as ordered by provider (e) measuring weight and BMI, (f) maintaining therapeutic blood pressure and cholesterol levels. Gaitlin identified African Americans as a high-risk group for complications due to uncontrolled diabetes. Additionally, giving them an active role in care improve efficacy of their behaviors and lowered blood sugar levels are seen over a period.

Finally, there is supportive documentation that has successfully linked physical activity and the use of evidenced-based diabetes practices to having promising efficacy within the African American community. The interventions developed to be utilized in this project were cost effective guidelines that could be easily achieved and known to produce positive results. The problem is there are few primary care providers that are willing to devote the time to implement these interventions and follow through long term for effective outcomes.

METHODS
This cross-sectional study designed was used to assess the effectiveness of a physical activity and an evidenced-based diabetic tool kit in helping to reduce the A1C levels greater than 8.0 in African Americans. The key elements being assessed each visit to the Community Health Center included (a) A1C levels every 3 months at the clinic site (b) aerobic walking exercise three times a week at the Community Health Center for 30 minutes (c) blood pressure monitoring each visit (d) BMI and weight monitoring each visit. Clinical staff at the Community Health Center were heavily involved in collecting and maintaining data and ensuring interventions were implemented timely. The staff included a Nurse Practitioner, Registered Nurse, and Medical Assistant.

The Community Health Center is in a rural area where African Americans are treated more abundantly for illnesses like diabetes mellitus. The setting for the project is taking place within the Community Health Center with a population of approximately 2500 patients, with 55% of that population being diabetic. We selected 25 African American patients with A1C levels 8.0 or greater that was willing to adhere to project guidelines during the 12-week time frame. The participants included 13 African American women and 12 African American men age ranging from 21-75. Patients were scheduled routinely per clinical guidelines for A1C levels to be checked which was every 3 months and 3 times weekly for aerobic walking exercise at the Community Health Center for 30 minute intervals. Vital signs were taken prior to beginning exercises and evidence-based diabetic tool kit data was reviewed and recorded along with visit data. The information included in the diabetic tool kit was daily blood sugar log, daily dietary intake (breakfast, lunch, dinner, and snacks) and weight. The beginning and ending data was compared at the end of the 12-week time frame to see if there was any significant change in A1C levels and weight.
The Self-Care Theory depicts participant’s willingness to participate in their own care and challenge their own knowledge of their disease process which includes making appropriate healthcare decisions. The Self-Care Theory was purposefully used as a care indicator for this population to encourage confidence and self-management behaviors while improving clinical outcomes.

Results

The project consists of 13 African American females and 12 African American men. Approximately 75 electronic medical records were screened to identify participants with an A1C >8.0 and BMI >25. Twenty-five participants meeting inclusion criteria were sought and agreed to participate. There was 95% adherence and participation found within the females and 80% among male participants. Of the 25 participants, 15 have noted a decrease in A1C level of one point since beginning participation. Nine of the fifteen are women with ages ranging from 35-70 and six are men age ranging from 28-62. Physical activity was lacking in 75% of the participant’s daily routine and 25% of participants reported mild to moderate physical activity less than 3 times per week. Participants reported checking blood sugars less than 50% of the time and this was noted equally among both male and female participants. The ending data report with results as follows: female participants 4 of 13 had a decrease of 2 points in A1C levels and male participants 3 of 12 had 1-1.5-point decrease in A1C level with an average A1C level of 10 amongst the participants. Weight reduction of 3-5 pounds was noted among 7 of 25 participants with an average weight of 245 pounds noted among participants.

Presently there is no significant change noted in weight and BMI of participants, but there is a 1-2-point decrease in A1C levels which suggests positive change in A1C levels when physical
activity and an evidence-based diabetes tool kit from the American Diabetes Association is conjunctively used in diabetes management of African American adults.

**Discussion**

There have been numerous similar projects that seek to identify cost effective measures of decreasing A1C levels and weight in diabetic patients. The nature of this project was to have primary care providers play a significant role in helping their patients manage their blood sugars and weight. Incorporating a physical activity and an evidence-based diabetic tool kit as part of a daily regimen and providing one on one care and oversight was key to the success of these participants. ¹³ Having access to primary care providers and staff increase participant’s confidence and self-efficacy throughout the project. The positive results thus far from participants further supported the need for cost effective measures such as physical activity and the use of already developed evidence-based diabetes resources as key elements in helping African American adults manage their own blood sugars while decreasing emergency room visits and high cost complications due to non-compliance. The biggest challenge throughout the project was ensuring consistency and dedication among participants while achieving the best outcomes for this already vulnerable population.

**Limitations**

There were a few limitations noted that were not previously discussed. African American participants were recruited from a Community Health Center that serves more than 2500 patients yet only a small sample of 25 participants were used. The small sample makes it difficult to generalize the findings to all African Americans or all Community Health Centers. The project focus on specific variables to assess the impact the variables would have on A1C levels and
weight such as physical activity, A1C levels, weight, and BMI. The inclusion of other variables that could possibly impact outcomes were not considered such as lipids, creatinine, and the presence of cardiac disease which could play a major role in the ability to get a positive result. Another limitation is the dependence on volunteered participants to remain actively engaged throughout the twelve-time frame and trust the validity of the documentation that was presented by the participants.

**Conclusion**

After implementation of a physical activity and evidence-based diabetic tool kit as an intervention to improve diabetes control among African American adults, we have concluded that there are positive changes with a noted reduction in A1C levels. Additional studies are not needed since it has long been known that physical activity is an important lifestyle modification to improving and preventing health related challenges. African American’s seem to be disproportionately affected by chronic health conditions because of both socioeconomic and educational challenges; however, continued studies are needed to develop additional data as to the type of interventions that has proven to be successful in care and treatment of African American’s affected by diabetes mellitus. Most cost-effective interventions that can easily be implemented and followed by primary care providers would be a key development to the treatment of diabetes among this population.

**Implications to practice**

Advance Practice Nurses are becoming more involved in the role of primary care providers which give them an upfront and personal role in the care of patients suffering from chronic diseases such as diabetes. Primary care provider’s need to understand which methods and
treatments have the biggest impact on controlling diabetes and other diseases and ensure their practice and treatment model include these practices. Care models and clinical guidelines for treatment of these diseases may change but the role of the Advance Practice Nurse will not change and will continue to require more responsibility in the primary care provider role.

**Ethical considerations**

The project was approved by Capella University’s IRB Committee and found no evidence or risk of patient’s rights being affected. The participants were strictly volunteers and had the option to withdraw from the project at any time. The expectation of participants was explained to them prior to beginning the project.

**Funding**

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References


5. Singleton Health Center (SHC). Primary Care Community Health Center. 2015


