The Effects of Diabetes Self-Management Education among African Americans

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Background

Type II diabetes continues to be a pervasive issue among African American adults. Significant challenges in effective management have resulted in poor health outcomes that have disproportionately threatened the quality of life among this group and increased the risk of mortality. Diabetes Self-Management Education (DSME) has demonstrated success in improved patient management and its capacity to mitigate risks for complications. Although researchers and health institutions generally accept DSME as an effective tool for managing diabetes, limited studies exist on its efficacy for African Americans.

Objectives

Objective 1: Improved self-management confidence as measured by SKILLD survey by achieving an 80% minimum average 3-months post intervention

Objective 2: Achieve a 10% increase in the percent of patients who have a hbA1c< 8 among participants 3-months post intervention

Objective 3: Achieve an SBP <140 and DBP<90 in 80 % of participants 3-months post intervention

Objective 4: Achieve LDL readings less than 100 among 60% of participants 3-months post-intervention

Objective 5: Achieve 1 or more BMI reduction among participants 3-months post intervention

Methods

Theoretical Framework: The Iowa Model of Evidence-Based Practice.

Design: Pre-post-intervention design over the course of three months.

Setting: Medium sized private primary care practice located in Glenn Dale, MD.

Intervention: 45-minute DSME tailored individualized appointments.

Sample: Thirty-Four African American adult participants, ages 18 and up, receiving care at the primary practice.

Measurements: SKILLD survey, Hemoglobin A1c (HbA1c), Systolic Blood Pressure (SBP), Diastolic Blood Pressure (DBP), Low-density Lipoprotein (LDL), Body Mass Index (BMI)

Data Analysis Plan: Descriptive statistics was utilized for data analysis. A paired t test was conducted for continuous variables, and a chi square test was for categorical variables.

Table 1: Study Demographics

Characteristics	Value n(%)
Gender	
Male	11(32%)
Female	23(68%)
Age at HbA1c Measurement (years)	
18-39	7(20.5%)
40-49	5(14.7%)
50-59	9(26.5%)
60-69	9(26.5%)
70	4(11.8%)
Insurance Coverage	
Medicaid Recipients	7(21%)
Non-Medicaid Recipients	27(79%)

Results

Following DSME intervention, significant improvement was observed in SKILLD assessment results with a 16.9% increase in score (Pretest 6.26 (2.12); Posttest 7.92 (1.28), p<0.001).

Mixed results were discovered for Hba1c improvement; 22(64.7 %) of participants met HbA1c <8 post DSME intervention compared to 16(47%) pre-intervention, however, HbAlc did not meet statistical significance in aggregate (p=0.142).

Improvement in LDL control was observed; 10(29.0%) pre-intervention vs. 18(52.9%) post-intervention (p=0.048). Results, however, did not meet the goal of 20(60%) of participants with controlled LDL.

No significant reductions were observed with BMI (Pre-intervention 35.6 kg/m^2 (9.1) vs post-intervention 35.4 kg/m^2 (8.9), p=0.273) and blood pressure SBP/DBP (pre-intervention SBP/DBP 138.2mmHg (18.5)/81.5mmHg (8.6) vs post-intervention 134.4mmHg (11.8), p=0.052; 79.9mmHg (7.5), p=0.35).

Table 2: Data Analysis

Outcomes Objectives	Pre-Intervention	Post-Intervention	P-values
#1- Improve self-management confidence as measured by SKILLD survey by achieving an 80% minimum average 3-months post intervention	62.6% Mean 6.26 (2.12)	79.2% Mean 7.9(1.28)	P<0.001
#2-Achieve a 10% increase in the percent of patients who have a hbA1c< 8 among participants 3-months post intervention	n=16(47%)	n=22 (64.7%)	P=0.142
#3-Achieve an SBP <140 and DBP<90 in 80 % of participants 3-months post intervention	**SBP:** n=18(52.9%) **DBP:** n=26(76%)	**SBP:** n=26(76%) **DBP:** n=29(85%)	P=0.052 P=0.35
#4-Achieve LDL readings less than 100 among 60% of participants 3-months post-intervention	n=10(29%)	n=18 (53%)	P=0.048
#5-Achieve 1 or more BMI reduction among participants 3-months post intervention	35.6 (9.1)	35.4(8.9)	P=0.273

Limitations

The small sample size imposed limitations in the strength of the findings. In addition, the applicability of the findings to all African Americans may be challenged given that the population derived from residents of Prince George only. Participation bias may have also played a factor as those who agreed to participate already held strong motivation to improve their diabetes management. Lastly, unequal gender participation was observed in the sample, with women outpacing the males (23(68%) vs 11(32%), respectively). Despite these factors, the summation of the study results provides a compelling argument to further explore the effects of DSME among this population.

Conclusions

DSME intervention is beneficial in improving patient knowledge, glycemic control, and cholesterol. DSME may not be sufficient in improving weight and blood pressure control; however, further studies may demonstrate higher efficacy amongst these variables. DSME may be an effective tool in decreasing specific risk factors for diabetic complications among African Americans. Further studies will need to be completed to conclude the long-term efficacy of DSME.