

6-17-2016

## Nurse Practitioner Group Visit Model: Improving Diabetic Outcomes for Afro-Caribbean Americans

Melissa Marballie

*Doctors Hospital*, [melissam3@baptisthealth.net](mailto:melissam3@baptisthealth.net)

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### Citation

Marballie, Melissa, "Nurse Practitioner Group Visit Model: Improving Diabetic Outcomes for Afro-Caribbean Americans" (2016). *All Publications*. 2696.

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# Nurse Practitioner Group Visit Model: Improving diabetes outcomes for Afro- Caribbean Americans with type 2 diabetes: A pilot study.

Melissa Marballie DNP, ARNP-BC, WCC

# Introduction

- According to the Centers for Disease Control (CDC, 2014,) 1.7 million people 20 years or older have type 2 diabetes and approximately, 8.1 million remain undiagnosed.
- According to Healthy People 2010, 27.3% blacks have HbA1c levels greater than 9 %, compared to whites with 16.3% (U.S Department of Health and Human Services, 2013).
- Diabetes(DM) if uncontrolled, is a major cause of heart disease, stroke and the leading cause of kidney failure, lower limb amputations, and adult-onset blindness.

# Background and Significance

- Diabetes focused groups or group visits is a model that has been demonstrated to effectively improve diabetes outcomes (Riley, 2012)
- Group visits includes components of individuals visits that are lead by a Physician or Nurse Practitioner
- The group visits offer the opportunity to addresses patient self –management, peer interaction, feedback and support.

# Problem Statement

- Afro- Caribbean have higher incidence of type 2 DM, they have higher risk for poor glycemic control and diabetes-related complications.

# Purpose of Project

The purpose of this capstone project is to examine the effectiveness of a Nurse Practitioner (NP), group visit model for Afro-Caribbean patients with uncontrolled type 2 diabetes.

# Framework

## Stages of Change Theory

- Staged model on behavioral change as a process of five identifiable stages through which patients go through to change any behavior they are; pre-contemplation, contemplation, preparation, action and maintenance.
- Has proven useful in adapting or tailoring treatment to the individual with diabetes (Norcross, Krebs, & Prochaska, 2011).

# Project Objectives

- Identify barriers faced by diabetic Afro-Caribbean Americans in managing diabetes.
- Develop and implement a group education program for diabetic Afro- Caribbean Americans.
- Evaluate participant's pre and post self-care management skills.



# Literature Review

Author/date	Design/purpose	Subjects	Key findings	Clinical recommendation
<b>Prevalence</b>				
Keaton, Cooke, Bailey, Bowden, et. al. 2014	Quantitative study. investigated the relationship between risk allele load and T2D risk, 46 T2D single nucleotide polymorphisms(SNPs) in 43 loci from GWAS in European, Asian, and African-derived populations were genotyped in African Americans with type 2 diabetes	A total of 1,990 African American	The common themes identified: <ul style="list-style-type: none"><li>• Prevalence of Type 2 Diabetes is greater in populations of African descent compared to European-descent populations.</li><li>• Genetic risk factors may underlie the disparity in disease prevalence of T2DM</li></ul>	A limited number studies have examined ethnic specific differences genetic risk of diabetes. Similar studies are needed

# Literature Review

Attitudes & Beliefs				
Smith(2012)	Quantitative design: Purpose investigated English speaking Afro-Caribbean women's cultural beliefs about type 2 diabetes using a 53 -item cultural consensus beliefs questionnaire.	30 participants aged 35 to 90 from Southwest Florida 19 (63.4%) were from Trinidad and Tobago, 10 (33.3%) were from Jamaica, and one (3.3%) participant was from Curacao	<ul style="list-style-type: none"><li>• diet is high in starchy carbohydrates and energy from fat.</li><li>• Belief traditional Caribbean medicines were effective treatments for type 2 diabetes.</li><li>• Belief prayer was a complementary treatment to control type 2 diabetes</li></ul>	<ul style="list-style-type: none"><li>• dearth of literature about Afro-Caribbean cultural beliefs and behaviors as related to type 2 diabetes and its self-management.</li></ul>

# Literature Review

## Implementation

Reitz, Sarfaty, Diamond & Salzman (2012)

controlled pre- and post-study design study to compare differences in the measured outcomes between diabetic patients whom attended a group visit program and those in a matched comparison group, who did not, attended a group visit program.

52 participants

- The A1C declined in 76.9% of the participants in the group visit program compared to 54.3% in the comparison group.
- They provide more time for self-management education and skill building and may reduce perceived barriers to behavior change.
- further studies were required to confirm the efficacy of group-based training programs in African Americans.

# Methodology

- Non-experimental design that will utilize:
  - An educational intervention
  - Evaluation of the program by utilization of one group pre/post test method.
  - Quantitative data was collected and analyzed with the assistance of a statistician.
  - Setting –Primary clinic in Urban Northeastern United States
  - 10 participants Afro- Caribbean

# Stages of Change Pre/Post test

- **1. Non-awareness-You haven't even thought about changing your habits (pre-contemplation)**
- **2. Realization-You've realized that there may be benefits to changing your habits (contemplation)**
- **3 Ready- You're ready for action (preparation)**
- **4. Action-You take steps to change behaviors**
- **5. Maintenance- You work toward maintaining accomplishments.**

# Diabetic Knowledge

How do you rate your understanding of: (circle one answer for each line)	Poor		Good		Excellent
a) overall diabetes care	1	2	3	4	5
b) coping with stress	1	2	3	4	5
c) diet for blood sugar control	1	2	3	4	5
d) the role of exercise in diabetes care	1	2	3	4	5
e) medications you are taking	1	2	3	4	5
f) how to use the results of blood sugar monitoring	1	2	3	4	5
g) how diet, exercise, and medicines affect blood sugar levels	1	2	3	4	5
h) prevention and treatment of high blood sugar	1	2	3	4	5
i) prevention and treatment of low	1	2	3	4	5

# Reliability of Overall Diabetic Questionnaire

Reliability of Overall Diabetic Questionnaire Based on a One-Ground Pretest/Posttest

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.945	.948	13

- *Note, N=13= is number of questions.*

## Objective 1. Identify barriers faced by diabetic Afro- Caribbean Americans in managing diabetes.

Outcome Measure: During the initial session participants filled out a Personal, Diabetic Knowledge and Stages of Change questionnaires. Each question from the questionnaires was read aloud and patients were provided with verbal instructions prior to answering the questionnaire.

The Stages of Change was used to measure if they were ready to change their habits to improve their diabetes outcomes. from 1 non awareness to 5 Maintaining.

Findings: 9 participants were in stage 3 meaning they were ready for change. 1 participants was in stage 2 meaning they realized that their may be benefits to changing habits.

Descriptive statistics was used to the describe the total of (n=10)participants, 5 females and 5 males.

Ten percent completed (n=1) completed grade 8 or less in school, twenty percent (n=2) some high school, fifty percent (n=5) completed high school and twenty percent (n=2) had some college education. Forty percent (n=4) worked part time, Ten percent (n=1) homemaker, 70 percent were(n=7) were retired. Ninety percent (n=9) answered yes to having a A1C in the last six months and ten percent (n=1) was not sure. Forty percent (n=4)of participants controlled their diabetes with oral medication alone, thirty



## Objective 2

### Develop and implement a group education program for diabetic Afro-Caribbean patient.

Outcome measure. The development and implementation of the diabetic curriculum was consistent with requirements from the American Diabetes Association. A 5-week curriculum was developed and 10 participants completed the program. Participants met once a week for 60-90minutes for 5 weeks including the initial session, during each session participants were encouraged to set personal self-management goals such as HGAIC, weigh loss and blood pressure.

Findings: Participants had the option of participating or not participating in discussions.

Information using lecture, demonstration and role play was used.

Open group discussion ending with 10-15 minutes question and answers.

Offered to stay behind if any one needed to ask any one on one questions at each session.

Upon completion of each weekly education session participation's set a self – management goals.

Given a meal and snack at each session example: Jerk chicken, curry goat etc.

# Objective 3

## Objective 3

### Evaluate participant's pre and post self-care management skills

Outcome measure- The participants completed the post test for the diabetic knowledge. The information was gathered and placed in IBM SPSS v. 22 (IBM Corporation, Oak Park, IL) and a paired t tests were used for the data analysis

Findings.  $T(df)=13.035$ .  $P<0.001$

Scores from the Diabetic knowledge questionnaire improved significantly from Mean=40.3(Std. Deviation= 4.6) to M=53.4(SD=2.60). From the pre- to post test period ( $t=13.035$ ,  $df=9$ ,  $p<0.001$ ). There is a statistical difference between the pre and post test and means it is likely due to the group session intervention and not by chance.

N=10 were in stage 4 of changes of change.

The pilot study suggests that the higher the participant's readiness to change, there was an increase in knowledge about diabetes self-management associated with the educational intervention.

# Conclusions/Discussion

- Statistically significant improvements on both the knowledge tool and the stage of change tool .
- Group visits are an innovative and efficient tool for the dissemination of diabetes related self-management education and support.
- Despite the small pool of participants, these data provide beginning evidence that participants of the education program benefited from involvement in the program
- The participants gained Knowledge and understanding of diabetes, complication related to diabetes and ways to identify reduce and prevent complications related to diabetes.
- Participants gained knowledge to implement changes lifestyles habits.
- Though self- management goal settings, participants were able to implement behavior changes
- Diabetic patients who do not received diabetes education risk are four times higher of developing diabetes related complications(Kent et al, 2013)

# Expected

- The participants gain some knowledge from the education class.
- Lack of knowledge about the disease and the disease process affected how they manage their health.
- The patients shared their problem solving skills.
- Shared coping techniques with each other and provided emotional support to one another.
- Cultural beliefs, prayer and traditional medications versus herbal medication were strong discussion in the group sessions.
- The clients over 65, N=7, held the strongest believes about different herbs that were good at decreasing their glucose regardless of education and how long they were diagnosed.

# Unexpected

- All except one participants who participated were in the stage 3 of change.
- All participants were retired or worked less than 35 hours a week so they had the time to come to group meetings.
- Providing a meal with classes serves as both an incentive and a teaching tool, especially on issues of portion size and identification of and counting carbohydrates.
- Income (socio economic barriers) came up as barrier to pay for medications, diabetic supplies and copayment of doctors visit.
- Understanding of each participants needs in education.

# Strengths/Weakness (Limitations)of Project

- Strength-The participants gained knowledge and understanding of diabetes, complication related to diabetes and ways to identify, reduce and prevent complications related to diabetes.
- Participants gained knowledge to implement changes lifestyles habits that can improved patient outcomes.
- The program can easily be recreated and offered at the clinic and it is billable if clients have insurance.

# Limitation

- Small sample size
- All participants spoke English, therefore Spanish speaking islands did not participate.
- Highest lowest level of education was 8<sup>th</sup> grade it unknown if this program would be effective less education.
- Income was not taken into consideration for this study
- All clients were ready for change

# Recommendations

- Establishing and implementing education sessions for high risk patient as a part of office visit.
- Make education sessions available at all primary care office.
- Group visit is billable under the patient reimbursement levels 3 or 4 patient office visit (CPT 99213 or 99214) depending on the complexity of the visit and should be encouraged.



# Implications

## Healthcare Policy

- Since Group visits are billable under patient reimbursement .Protocols can be made to streamline clients with uncontrolled diabetes and insurance companies can make group visit a recommended policy based on certain guidelines.

## Healthcare Outcomes

- The project educated and motivated the participants to make life long life-style changes for diabetes self-management.
- Long term outcomes can include improve glycemic control, hypertension, weight of Afro-Caribbean Americans adults, with uncontrolled type 2 diabetes.

# Implications

## Nursing Practice

- In order to manage diabetes, patients must engage in a complex set of behaviors performed on a daily basis
- Programs such as this pilot study can be used as a guideline to establish and implement education sessions for high-risk diabetic patient as a part of office visit. Prove.

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# Healthcare Delivery

- The project proved that Nurse Practitioners play a significant role in delivering care in the form of group visits.
- Patients with type-2 diabetes are one of the foremost target populations requiring NP care.
- NPs are charged with improving patient outcomes and developing practice based research and innovative care models such as this group intervention.
- Financially feasible to implement group visit in the primary care office and can be easily replicated.

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