Doctoral Projects

Promoting Behavior Changes in Patients with Type 2 Diabetes Through Shared Medical Appointments

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PROMOTING BEHAVIOR CHANGES IN PATIENTS WITH TYPE 2 DIABETES

THROUGH SHARED MEDICAL APPOINTMENTS

by

Shonda Lanette Williams

Abstract of a Capstone Project
Submitted to the Graduate School
of The University of Southern Mississippi
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ABSTRACT

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Diabetes Mellitus (DM) is a chronic disease that affects many individuals in the United States. It was reported that a total of $245 billion is spent annually on both direct and indirect health care costs associated with the treatment of diabetes and diabetic related complications. Diabetes related complications can be prevented or delayed if proper education is done and individuals are willing to practice positive behavior changes and self-manage their disease. The purpose of this doctoral capstone project was to promote behavior changes in patients with diabetes through diabetes self-management education (DSME) in shared medical appointments (SMAs).

This project was implemented in a rural health care clinic located in the Mississippi Delta in patients with type 2 diabetes mellitus (T2DM). Participants were provided evidence-based DSME two weeks apart through two SMAs. The Diabetes Self-Management Report Tool (D-SMART) was used to collect behavior practices before and after implementing two SMAs, and results were compared to determine if behavior changes occurred among individuals who participated in this project.

The doctoral capstone project used a descriptive study design to demonstrate how SMAs affect behavior changes in individuals with diabetes. SMAs are an innovative system redesign concept with the potential to provide comprehensive and coordinated care for patients with chronic health conditions while still being efficient, effective,

financially viable and sustainable. The assessment of a participant's behavior before and following the SMAs with DSME demonstrated positive behavior changes in areas such as healthy eating and activity. The transtheoretical model of behavior change (TTM) provided a framework for the advanced practice nurse (APN) to motivate individuals with DM to make healthy decisions and adopt healthy lifestyles in the daily management of their DM. The intervention of SMAs with evidence-based DSME motivated patients to make positive behavior changes.

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LIST OF ABBREVIATIONS

AADE	American Association of Diabetes Educator
ADA	American Diabetes Association
APN	Advanced Practice Nurse
AHRQ	Agency of Healthcare Research and Quality
CDC	Centers for Disease Control and Prevention
CDE	Certified Diabetes Educator`
CPT	Current Procedural Terminology
DM	Diabetes Mellitus
DNP	Doctorate of Nursing Practice
D-SMART	Diabetes Self-Management Assessment Tool
DSME	Diabetes Self-Management Education
E & M	Evaluation and Management
HbA1C	Hemoglobin A1C
IRB	Institutional Review Board
LPN	License Practical Nurse
MS	Mississippi
NP	Nurse Practitioner
SMAs	Shared Medical Appointments
T2DM	Type 2 Diabetes Mellitus
TTM	Transtheoretical Model of Health Behavior Change
U.S.	United States

CHAPTER I

INTRODUCTION

Diabetes mellitus (DM) is a chronic disease that affects millions of individuals worldwide. DM is considered an epidemic and has caused many deaths due to the chronic complications that result from this disease. DM is a disease that can be prevented and managed through proper implementation of diabetes self-management education (DSME) and individuals willing to make positive behavior changes. Due to the complications caused by DM and the expense incurred treating the disease, it is imperative that diabetic complications are prevented and individuals are taught how to self-manage this illness. Changing behavior and living healthier lifestyles could help decrease diabetic complications. This can be accomplished by an advanced practice nurse (APN) promoting self-management skills through DSME in shared medical appointments (SMAs) in a clinical setting. The nurse practitioner (NP) is an APN that can be reimbursed for DSME and SMAs. The NP also known as the researcher implemented SMAs and provided DSME to individuals who participated in this project.

The purpose of this doctoral capstone project was to promote behavior changes in patients with Type 2 Diabetes Mellitus (T2DM) through the implementation of SMAs. DSME was provided during the SMAs to promote changes in behaviors, which include healthy eating, exercise, self-monitoring of blood glucose, taking medications, problem solving, reducing risks, and healthy coping. This intervention has been known to increase the quality of care for individuals who suffer from this illness. The American Association of Diabetes Educators (AADE) uses a model for DSME Outcomes Continuum, which includes four outcome phases. The phases include immediate (learning), intermediate

(behavior change), post-intermediate (clinical improvement), and long term (improved health status) outcomes. This model includes a repetitious process of measuring, monitoring, and managing outcome phases (AADE, 2008). This project collected data to measure the impact of SMAs and the use of DSME to determine intermediate outcomes (AADE, 2008; Peeples, Tomky, Mulcahy, Peyrot, & Siminerio, 2007).

<div align="center">Background and Significance</div>

Diabetes affects over 25.8 million people or 8.3% of the United States (U.S.) population (Burke & O'Grady, 2012; Centers for Disease Control and Prevention [CDC], 2011, Levesque, 2011). Complications from DM have resulted in billions of dollars in health care expenditure yearly (Ridge, 2012b). This disease is a leading cause of complications such as blindness, kidney failure and non-traumatic amputations (CDC, 2011; Conlon, 2010) and the seventh leading cause of death in the U.S. (CDC, 2011; Conlon, 2010; Healthy People 2020, 2011). The American Diabetes Association [ADA] (2013a) reported that direct and indirect costs for individuals with DM in the U.S. totaled $245 billion per year. Direct medical costs for diabetes totaled $176 billion and indirect cost totaled $69 billion (ADA, 2013b). Some of the direct costs include hospital admissions, medications, diabetes supplies, and the use of health care (Burke & O'Grady, 2012). According to the ADA, in 2012 43% of the medical cost was due to DM related to hospital in patient care (ADA, 2013b). Diabetics spend over three billion days in the hospital, which is considered an example of a direct cost for DM. Indirect costs include individual's absenteeism from work due to DM, loss of productivity from mortality and morbidity, and the quality of life among individuals and their family members who cared for them (ADA, 2008).

Across the U.S., DM is widespread. Within the U.S. 25.8 million adults are affected by diabetes (CDC, 2011). According to the CDC's 2011 National Diabetes Fact Sheet, the percentage rate of individuals within different ethnics groups diagnosed with DM included the following: Non-Hispanics Whites 7.1%; Asian Americans 8.4%; Non-Hispanics Blacks 12.6 %; Hispanics 11.8%; Hispanics Cubans 7.6%; Mexican Americans 13.3; and Puerto Ricans 13.8% (CDC, 2011.). In 2007 DM was listed as the cause of death on 71,382 death certificates, (CDC, 2011). The number of deaths resulting from diabetic complications was 160,022 (CDC, 2011). If left untreated, diabetes can cause serious conditions affecting the circulatory and nervous systems, kidneys, eyes, and feet (AHRQ, 2001).

Reimbursement of SMAs

The movement to group-based education was supported by the Balanced Budget Act of 1997, and resulted in uniform reimbursement for diabetes education from the Health Care Finance Administration (Rickheim, Weaver, Flader, & Kendall, 2002). The current health care system is shifting to more cost-effective solutions in delivering quality patient care to meet the increasing demands. SMAs have been recognized as an alternative to traditional one-on-one patient office visits. SMAs are designed to do the following: maximize the use of limited resources, better manage patient care workload, increase productivity without increasing work hours, manage busy physician practices more efficiently, effectively address the ongoing needs of patients with chronic conditions such as DM, increase face-to-face time between providers and patients with chronic conditions, and increase patients' involvement in their own care while improving patient satisfaction (Hodorowicz, 2012).

Before private payers implement SMAs, billing and other system issues must be addressed prior to starting this type of program. For example, reimbursements for SMAs can be billed the same as for a typical individual patient visit in an exam room based on the level of care delivered and documented in the patient's chart according to criteria for current procedural terminology (CPT) code use. The CPT codes that are used to bill SMAs are 99213, 99214, and 99215 (Hodorowicz, 2012).

Reimbursement for the group education component of group visits is not reimbursed by Medicare unless it is provided by a certified diabetes educator (CDE). This can be a significant challenge for primary providers because the requirements it takes to become a CDE involves completing at least 2,000 hours of hands-on diabetes education and pass an examination (Hodorowicz, 2012). The NP providing education to the participants of this project is not a CDE. Therefore, the office visits Evaluation and Management (E&M) methods employed in standard one-on-one office visits was used for billing purposes. Hodorowicz (2012) reported the CPT code to use depends on the extent of history, physical exam, decision making, and complexity that the NP uses when documenting a group visit. The E&M billing code Level 3 or Level 4 (99214 or 99215) may be appropriate in a typical visit. The usage of electronic or paper checklists can be helpful to promote appropriate documentation (Hodorowicz, 2012). The NP must always remember that documentation is vital when billing for group visits.

Evidence of the Problem

In 2012, the County Health Rankings and Roadmaps Website (2013) reported 13% of Mississippi's population was diagnosed with diabetes. According to the Mississippi State Department of Health (2010), in 2010 Mississippi (MS) ranked as the

second highest in the U.S. for diabetes prevalence, with over 270,000 (12%) adult Mississippians having T2DM (Mississippi State Department of Health, 2010). Bolivar County is located in the Mississippi Delta Region and has a population of 36,766 individuals. Of this population, 5,147 individuals (14%) were diagnosed with diabetes (County Health Rankings and Roadmaps, 2013). This doctoral capstone project took place at Delta Health Center, a community health center in Mound Bayou, MS, a city in rural Bolivar County, MS. For almost 40 years, Delta Health Center has provided health care services to individuals of all ages, ranging from infants to geriatric patients, despite budget constraints.

Type 2 Diabetes Mellitus

T2DM is the most common form of diabetes. Between 90 to 95% of individuals in the U.S. that have been diagnosed with DM have T2DM (Agency of Healthcare Research and Quality [AHRQ], 2010). In T2DM the pancreas is not able to produce enough insulin or the body's cells are resistant to the action of insulin (AHRQ, 2010; CDC, 2011). An individual's blood sugar level (also known as the glycemic level) helps to diagnose T2DM. The glycemic level is also the key factor in the development of DM complications. Glycemic levels are evaluated by both the glucose measurement and the hemoglobin A1C (HbA1C) level (Deshpande, Harris-Hayes, & Schootman, 2008).

HbA1C levels are glycemic levels monitored by providers that reveal the average amount of sugar in an individual's blood over a three month period (AHRQ, 2010; ADA, 2012). The ADA recommends that individuals diagnosed with DM should maintain a HbA1C level less than 7% (ADA, 2012). Efficient glucose control and monitoring of HbA1C levels can reduce DM complications (Almarzouki, Tashkandi, & Farooq, 2012).

According to AHRQ (2010), research has shown that a reduction in HbA1C levels has resulted in a reduction in the risks of complications caused by DM. For this reason, it is imperative for individuals with T2DM to know how to manage their disease. If not, it can result in individuals having diabetic complications.

When individuals with diabetes choose not to make healthy choices and not live healthy lifestyles, this can result in negative outcomes within the healthcare system. One avenue to promote positive outcomes is utilizing DSME among individuals with diabetes. DSME provides clear and useful information to patients to help patients set goals. Individuals are able to increase their knowledge and practice positive behavior changes (AHRQ, 2001). DSME can be delivered through SMAs.

Prevention of T2DM Complications

Poor control of HbA1C levels can result in diabetes-related complications. Some complications of DM include heart disease, stroke, hypertension, blindness, kidney disease, nervous system disease, amputations, and dental disease (CDC, 2011). To prevent complications, individuals must be willing to adopt lifestyle changes, which have been proven to be effective in the prevention or delay of DM complications (AHRQ, 2010). To reduce the risk of complications, individuals must be willing to practice healthy food choices, increase their physical activity, and lose weight (Burke & O'Grady, 2012).

According to diabetes research, reducing an individual's HbA1C level one percentage point can help to decrease the risk for microvascular complications by 40% (Almarzouki et al., 2012; Deshpende et al., 2008). The AHRQ (2010) reported that decreasing Mississippians' HbA1c levels by 0.5% could reduce spending for DM care by

$400,000 per year, and the lost of productivity among employees with DM could be reduced by $3,503,030 per year. For better diabetic management, individuals with T2DM should maintain a normal glycemic level and learn how to self-mange this disease.

Management of T2DM in Primary Care Settings

Managing a chronic illness and changing behavior are challenging and time consuming for everyone involved, including providers, patients, and caregivers. A traditional office visit usually takes fifteen minutes between the provider and patient, and takes place every three to six months (Ridge, 2012b). During this visit, the provider is expected to address the patient's personal needs along with evidence-based patient-centered recommendations for diabetes care outlined by Healthy People 2020 (Healthy People 2020, 2011). The provider must also screen and treat any psychosocial needs, heart disease, kidney disease, and neuropathy. In addition to the Healthy People 2020 recommendations, the provider should promote nutritional counseling, provide recommendations for physical activity and smoking cessation, and immunizations (Burke & O'Grady, 2012).

All of the recommendations for DM management can not be done in a traditional fifteen minute office visit due to the complexity of disease management. Lack of time to adequately assess and develop a management plan can frustrate the provider and individuals with DM who struggle with living and managing this chronic illness (Burke & O'Grady, 2012). This is a reason to promote support for self-management in individuals diagnosed with T2DM in order to manage this illness.

Self-management in Diabetes

Effective disease management of T2DM requires individuals to keep routine medical visits that involve self-management education and continuous DM support. SMAs, otherwise known as group visits, incorporate routine medical visits, self-management education, and continuous DM support (Ridge, 2012a). Moreover, statistics from AHRQ (2001) indicate diabetics make over 15 million visits to health care providers each year. The majority of these visits are conducted by providers who practice in a primary care setting (Ridge, 2012b). Using self-management support in primary care can have a positive effect on the care and health outcomes of people with chronic conditions (AHRQ, 2001). According to AHRQ (2001), some tools that can be used by the NP to ease into a self-management support program are action plans; goal-setting worksheets; and problem solving techniques which support and motivate patients.

The Doctorate of Nursing Practice (DNP) NP serves as the leader within the organization to initiate change to improve the quality of life through change in behavior. Self-management of T2DM plays a major role in improving health outcomes and quality of life. Self-management focuses on self-care behaviors. Additionally, self-management involves the NP to engage in a collaborative process to assist individuals gain knowledge, problem-solving, and coping skills needed to successfully self-manage the disease and its related complications (CDC, 2011). DSME in a group setting will promote healthy outcomes and increase positive behavior changes and improve quality of life in the long run. This will help to decrease the mortality rates of DM and the cost of care.

Self-management Support

DM has reached epidemic proportions. The management complexity of DM threatens to overwhelm the acute care-oriented health care system and individual primary care providers (Watts et al., 2009). Self-management support is the help given to people with chronic conditions that enables them to manage their illness on a day-to-day basis. By using self-management support skills and tools, primary care teams can help individuals get the information they need to manage their conditions, make healthy choices and develop the confidence to do so. Self-management support goes beyond simply supplying individuals with information. Self-management support includes provider and individual in a commitment to diabetes management that is focused and patient-centered care. Similarly, self-management support provides clear and useful information to help patients set goals (AHRQ, 2001).

The Role of the NP in Self-management

The NP is an APN trained to teach individuals how to manage this chronic illness. The NP is trained to provide a continuous process of engaging individuals in order to help them gain the knowledge, skills, and ability necessary for diabetic self-care. The NP uses evidence-based standards and incorporates the needs, goals, and life experiences of individuals when managing DM. Research has shown that interprofessional collaboration for self-care provides better outcomes. Some of the professionals include a dietitian, pharmacist, psychologist, and NP (Burke & O'Grady, 2012). The NP has specific competencies that include clinical and professional leadership. The NP acts as a change agent and has communication skills to collaborate with other health care professionals and lead multidisciplinary teams. These competencies are relevant to SMAs. The NP

provides a holistic approach to chronic illness management. Because NPs take a holistic approach through team building, educating, and motivating patients, they are ideally suited to lead a SMA (Watts et al., 2009).

The NP is a resource for experience in the realm of practical strategies to medication adjustment and self-management. These aspects of management are often unclear in practice guidelines. NPs have unique skills and are positioned to promote patient-centered care. Advanced education and training for NPs today provide both a solid evidence-based and a patient-centered holistic approach to care. This positions the NP to function optimally as both primary provider and a leader within SMAs (Watts et al., 2009). NPs have an essential role in chronic disease management. They are positioned to address issues of increasing incidence, cost, and complexity of care (Boville, Saran, Salem, Clough, & Jones, 2007).

Problem Statement

Diabetes is a chronic disease that affects many individuals and has caused many deaths due to the complications that can result from this disease. Diabetes can be controlled and complications of diabetes can be prevented if the proper DM education is implemented and individuals are educated and willing to adopt self-care behaviors. The implementation of DSME in SMAs helps to promote positive behavior changes in patients with diabetes to control and prevent complications.

Objectives

The goal for this doctoral capstone project was to promote positive behavior changes through DSME in patients with T2DM. DSME consisting of seven self-care

behaviors supported by the AADE were implemented through SMAs to increase self-management skills and adopt healthier behavior changes among individuals with T2DM.

Needs Assessment

Most individuals with T2DM receive their medical care from providers (a nurse practitioner, medical doctor, or physician assistant) who practice in a primary care setting. Since the decline in reimbursement, primary providers (the NPs) are being forced to see more patients daily due to the growing demand for high-quality health care services. This has resulted in a 10 to 17 minute visit for patients and their provider that takes place every three to six months (Ridge, 2012b). According to Ridge (2012b), this is not a sufficient amount of time for the patient and provider to properly discuss effective self-management options for diabetes.

According to Watts et al. (2009), the development of advanced practice nursing has resulted in an increased involvement of the NP in the management of patients with DM. The NP provides a holistic approach when it comes to treating patients with a chronic illness such as DM. The NP is able to assist individuals in the self-management of their disease and barriers to adherence. The NP is equipped with specific competencies such as clinical and professional leadership, which are relevant to SMAs. The NP was the researcher who implemented the project at this rural clinic. The NP/researcher sees several patients with T2DM on a daily basis. The NP's role is to help promote behavior changes in patients with T2DM to help decrease complications caused by this disease.

As a NP working at this community clinic in Bolivar County, Mississippi there are an enormous amount of individuals diagnosed with diabetes. Usually a licensed practical nurse (LPN) is the individual in charge of diabetic teaching, which takes place

within a group setting. In the past, the diabetic group met once a month for a couple of hours and discussed diabetes in general. Presently, no diabetic group sessions are held at the clinic.

When the diabetic group meetings were held, the LPN did not follow any specific curriculum or diabetic guidelines for DSME. There is no protocol for providers to follow for referral of diabetic patients and no method in place to inform providers that their diabetic patients have attended these classes. Lastly, outcomes were not measured in order to report the significance of these visits to providers and the organization.

A copy of Delta Health Center's Diabetes Registry Summary Report was reviewed to determine what improvements were needed to increase diabetes self-management in diabetes patients seen at the clinic. The summary report was reviewed with the LPN and Director of Nursing and later discussed with the Chief Executive Officer in order to obtain approval to conduct the doctoral capstone project at the clinic. The diabetes summary included the total number of individuals with diabetes seen in the clinic within a 12 month period; patients' demographics; visit information; and the percentage rate (67.1%) of patients with HbA1C levels greater than 7%. According to the report, the total amount of individuals diagnosed with diabetes was 483 patients. Of this number, 97.9% had T2DM and 97.3% were African American. Females represented 64.2%. At the start of this project, the clinic was in the process of seeking accreditation by AADE to offer and bill for reimbursement for DSME. Findings from the diabetes summary report resulted in inquiry into the topic of implementing behavior changes through SMAs with DSME among individuals with T2DM.

In order to bill for reimbursement for DSME, a CDE, a NP, or a medical doctor is required to lead these group sessions. SMAs have the potential to be very successful if proper guidelines are followed within the organization. A SMA intervention has the potential to improve health outcomes by increasing the knowledge of patients with T2DM and promoting positive behavior changes in order to self-manage DM (Ridge, 2012b). The next section will provide statistics on how DM affects individuals on the national, state (MS), and local levels (Bolivar County).

CHAPTER II

REVIEW OF RELATED LITERATURE

A literature review was conducted to guide the design of this project and help with the implementation of SMAs in a clinical setting to increase knowledge and promote behavior changes in patients with T2DM. A literature search was conducted utilizing Cumulative Index of Nursing and Allied Health Literature, Academic Search Premier, Google Scholar, Science Direct, Cochrane Database, and other internet evidence-based resources. Key words included shared medical appointments, diabetes, type 2 diabetes, group visits, diabetes self-management, diabetes support, diabetes complications, reimbursements for diabetes, and behavior change. The summary of the literature will address the effect of SMAs as it relates to patients with chronic illnesses such as DM and how incorporating DSME can help to promote behavior changes, which is considered an intermediate outcome when it comes to decreasing DM complications.

History of Shared Medical Appointments

SMAs have been around for many years. The shared medical model became popular in the 1990s in Colorado and California. Delivery of health care in a group setting gained popularity as a means to lower costs, provide timely appointments, and improve both provider and patient satisfaction (Watts et al., 2009). According to Ridge (2012b), SMAs are used in health maintenance organizations to provide chronic care for diseases such as T2DM. No one model of SMAs is universally applied; it varies in the length of time the meetings are held and how many individuals will attend the group session. The use of group visits has received attention for its potential to improve the care

of established patients with conditions, such as diabetes, asthma, urological conditions, and coronary disease (Ridge, 2012b).

SMAs focus on individuals diagnosed with the same disease, receiving support from each other. Barriers to self-care are identified along with solutions for overcoming the barriers while receiving new knowledge and skills to manage their illness. According to Ridge (2012b), patients feel that standard office visits do not allow enough time for the primary provider to answer questions, formulate new concepts, and facilitate behavior change. The pace of SMAs is slower and allows time for outcomes such as learning and incorporation of new knowledge skills (Ridge, 2012b).

According to Funnell and Anderson (2004), primary providers often struggle to give the recommended level of DM care within the constraints of a busy office setting. In order to manage this disease successfully, patients must be able to set goals and make frequent daily decisions that are both effective and fit their values and lifestyles. Intervention strategies that enable patients to make decisions about goals, therapeutic options, and self-care behaviors and to assume responsibility for daily DM care are effective in helping patients care for themselves. Patients are in charge of their self-management behaviors. They are in control of which recommendations to implement or ignore. The health professionals' role is to assist patients to make informed decisions that will help to overcome barriers and achieve their goals. This is accomplished through education, the use of recommended guidelines, expert advice, and support, which can be offered by the NP. Self-management is offered through proper education and is the foundation for the empowerment of patients. This is necessary to effectively mange diabetes and allows the patient to be able to make decisions. The purpose of patient

education is to help patients make decisions about their care and obtain clarity about their goals, values, and motivations. A common concern raised by professionals is the limited time that they have to spend with their patients (Funnell & Anderson, 2004).

Transdisciplinary Model

SMAs are considered to be a primary care system change. According to Burke and O'Grady (2012), a SMA was designed to overcome the challenges of the traditional fifteen-minute visit and self-management education that is not used by many providers. This visit is considered to be a transdisciplinary model that includes peer support and motivation. The ultimate goal is to help individuals with diabetes better cope with the management of DM and shared life experiences with their group members. The desirable outcome is to facilitate positive lifestyle and behavior changes by creating a supportive clinical and shared environment. The authors discussed the fact that a SMA model shifts the responsibility away from the provider, imparting knowledge to the patient and peer-group members, with each member taking an active role in the process (Burke & O'Grady, 2012).

The SMA model includes most components of a traditional office visit. The amount of time spent with each patient is increased while maintaining or increasing profitability. The visit varies in length and frequency. It is suited for chronic illness management education, skill-building, and doctor-patient interaction. This type of visit is also known to reduce perceived barriers to behavior change and reinforce self-efficacy, which is associated with successful chronic disease self-management (Jaber, Braksmajer, & Trilling, 2006). SMAs are suggested as a substitute for traditional office visits (Ridge, 2012b).

Diabetes Self-care Education and Shared Medical Appointments

The need to improve the accessibility and efficiency of health care has many providers implementing the SMA model into their practice. Evidence has shown that group visits can improve the quality of patient care in patients with a chronic disease such as DM (Brower, 2010). SMAs help to decrease costs in health care when it consists of a team approach that provides education to a group of individuals with the same disease and similar concerns.

A survey conducted by Sikon and Bronson (2010) Sikon & Bronson reported a 5.7% increase in practices using SMAs over a three year period. The ADA guidelines were followed and helped to improve the patient's and physician's satisfaction, quality of life, and a decrease in emergency room visits and specialty consultations. Improvements in outcomes were attributed to patients having more time with their provider and pressure on the patients to follow care directives. The patients learned from experiences. One major advantage was that the provider was able to see a day's worth of patients within ninety minutes (Sikon & Bronson, 2010)

Clancy et al. (2003a) discussed the feasibility and acceptability of group visits in uninsured or inadequately insured patients with T2DM over a six month period compared to traditional visits. The patient's responses on acceptability and feasibility of care being delivered via group visits or traditional visit was obtained using the Primary Care Assessment Tool and the Trust in Physician Scale. Patients who received care through group visits showed an improvement in the sense of trust and accepted this method of care more than the traditional visit (Clancy et al., 2003a).

Clancy, Cope, Magruder, Huang, and Wolfman, (2003b) discussed the effectiveness of a managed care approach to evaluate health care delivery and group visits in the management of uninsured and inadequately insured patients with T2DM. A traditional visit was compared to a group visit over a six month period. The 10 process-of-care indicators recommended by ADA were evaluated through chart abstraction. The indicators include HbA1c levels, lipid profiles, urine for microalbumin, appropriate use of ace inhibitor or angiotensin receptor blockers, use of lipid lowering agents, daily aspirin use, annual foot examinations, annual referrals for retinal examinations, and immunizations against flu and pneumonia. The results showed that the patients who received care in group visits showed a significant improvement in concordance with these 10 process-of-care indicators (Clancy et al., 2003b).

Jaber et al., (2006) completed a qualitative review of current research on group visits. According to the authors, the group visit model is one solution posed by the limitations of current structures of care and the demands of a growing chronic illness. A summary of research articles on current group visit research and developed suggestions for furthering the care model was included in the review. The group visit intervention was subsumed under larger primary or hospital-based interventions and to have an evaluative component. Data has shown that group visits help to improve, patient and physician satisfaction, quality of life, emergency department visits, and specialist visits. The authors concluded that group visits are a promising approach to chronic care management for the motivated patient (Jaber et al., 2006).

According to Steinsbekk, Rygg, Lisulo, Rise, and Fretheim (2012), researchers discovered that diabetes self-management education (DSME) delivered in a group setting

is cheaper and has added advantages of having patients meet and discuss with each other. The group setting was compared to an individual setting on clinical, lifestyle and psychosocial outcomes in T2DM patients. A systemic review with meta-analysis was conducted evaluating group-based DSME for adult patients with T2DM versus routine treatment. The study resulted in group-based DSME in people with T2DM helped to improve clinical, lifestyle and psychosocial outcomes (Steinsbekk et al., 2011).

Trento et al., (2004) discussed time course changes in knowledge, problem solving, and quality of life in patients with T2DM managed by a group compared with individual care and education. The results revealed that adults with T2DM can acquire specific knowledge and conscious behaviors if exposed to educational procedure and settings tailored to their needs. Traditional one-on-one care was associated with progressive deterioration of knowledge, problem solving ability, and quality of life (Trento et al., 2004).

Patients with chronic diseases other than DM have also benefited from SMAs. Older adults with various chronic diseases treated in a primary setting participated in group visits and had decreased inpatient admissions, decreased emergency room visits, and self-efficacy. Group visits have been widely used and studied involving patients with DM seen in a primary care setting. These visits have shown to improve adherence to standards of care, a sense of trust in the provider, HbA1C levels, and self-efficacy in patients with DM (De Vries, Darling-Fisher, Thomas, & Belanger-Shugart, 2008).

According to Sikon and Bronson (2010), when implementing SMAs, the leader must always keep in mind that these visits can be organized in many ways. The basic premise demands a combination of witnessed and private individualized interactions

between patients and their providers, as well as an educational component (Sikon &
Bronson, 2010).

Diabetes Self-management Education and the American Association of Diabetes
Education (AADE7)

Patient behavior is an outcome to look for when educating individuals with DM;
therefore, change in patient behavior should be the focus of all DSME. The AADE's
vision for DSME is for individuals to successfully self-manage DM and its related
conditions. This vision has shaped AADE's scope and direction of practice for educating
individuals on self-management of DM. AADE supports the framework of the AADE7
Self-Care Behaviors and the National Standards of Diabetes Self-Management Education.
The guidelines were developed for DM educators and organizations that offer DSME to
patients. They are able to use the guidelines to assist them in educating patients at risk for
DM or patients already diagnosed with DM. These guidelines can also be used to
educated family members who assist their love ones with the self-management of DM
(AADE, 2009). DSME is a collaborative process through which people with or at risk for
DM obtain the knowledge and skills needed to modify their behavior and self-manage the
disease and its related conditions (AADE, 2009). AADE7 Self-Care Behaviors is an
intervention supported by Healthy People 2020 to increase the number of individuals who
receive DSME. This type of education helps to empower patients to achieve optimal
health status, obtain a better quality of life, and reduce the need for costly health care.

The AADE7 framework is recommended for clinical practice (AADE, 2009). The
framework consists of seven specific self-behaviors developed by AADE that helps to
guide the process of DSME and helps patients achieve behavior change (AADE, 2009).

The AADE identifies the AADE7 as a framework that is patient-centered diabetes education and care. The AADE7 framework provides a plain view of where diabetes education fits into the diabetes care continuum (AADE, 2008). The AADE7 Self-care Behaviors include healthy eating, being active, monitoring blood glucose, taking medication, problem solving, risk reduction activities, and healthy coping (AADE, 2008). These seven self-care behaviors have been identified as being essential for effective and successful diabetes self-management in individuals with diabetes. These self-care behaviors are incorporated in all 15 areas of the National Standards of Diabetes Self-Management Education (AADE, 2009). The following paragraphs will discuss the benefits of each self-care behavior.

According to the AADE (2009), evidence shows the benefits of healthy eating and exercise for individuals with diabetes to maintain improvement in glycemic control and lipid profiles, blood pressure, and weight loss. The AADE (2009) reported that nutrition and education should start with an assessment of an individual's current eating habits and preferences. After this has been done, the appropriate nutritional education program and goals can be set by collaborating with the individual (AADE, 2009). In addition to nutrition education, patients should engage in an active lifestyle. Being active refers to individuals engaging in regular exercise. This may help to improve the glycemic control and decrease the risk for diabetic complications, decrease stress, and increase insulin sensitivity. Monitoring includes self-monitoring of blood glucose levels, blood pressure, foot checks, weight, and achievement of goals. This behavior aims to prevent or slow the progression of diabetic complications (AADE, 2009). Another way to maintain glucose control is by taking medications. The key is for individuals to adhere to taking

medications on a daily basis. Healthy eating habits, exercise, glycemic control, and self-monitoring maintains control of the diabetes to achieve optimal diabetic outcomes.

According to the AADE (2009), the self-care behavior is used to assist individuals in achieving the other self-management behaviors. Problem solving involves individuals taking a series of rational steps. This self-care behavior is considered a major component in having effective diabetes self-management. Healthy coping affects metabolic control of diabetes. It is important for individuals with diabetes to not experience psychological distress for a long period of time and learn how to cope when distress does arise. Psychological distress may cause individuals to be less motivated in controlling their diabetes. Lastly, reducing risks involves individuals implementing effective risk reduction behaviors in order to prevent or slow the progression of diabetes complications. These self-care behaviors are all a part of the AADE7 and is a framework used to teach individuals with diabetes how to self-manage this disease to help decrease diabetes complications (AADE, 2009). DSME uses this framework of the AADE7 self-care behaviors that allows individuals to gain optimal health (AADE, 2009).

DSME will help to prevent diabetes-related clinical problems and improve quality of care in patients with diabetes who attend these group visits to promote behavior change and increase knowledge. In order to make these changes, patients must be motivated to become more active in promoting their own health. In return, this will help increase positive DM outcomes and decrease the amount of money it takes to treat complications caused by this chronic disease.

Diabetes Self-management Education and Behavior Change

Behavior change is considered a critical outcome of diabetes education and the primary focus of DSME (Burke & O'Grady, 2012). Burke and O'Grady (2012) define behavior change as a process that occurs over time. It involves a sequence of stages. When it comes to individuals making dramatic lifestyle changes, knowledge plays a major role in this process. Patients must first be motivated to become more involved in making the decision to promote their own health. This will then bring about a change for these individuals (Burke & O'Grady, 2012).

It is important for primary health care providers to encourage healthy behaviors for individuals with T2DM and stress that a healthy diet and physical activity helps to improve glycemic control (Jansink et al., 2009). Effective diabetes care is based upon structured care that is patient centered. Change occurs when an individual sees the need or has a desire for change and takes responsibility for changing. Three elements that motivate change are readiness, willingness, and ability (Richardson, 2012).

Literature reveals that preintervention and postintervention measurements may be sufficient to evaluate behavior change. According to the AADE (2003), the best measurement of behavior change may vary with the behavior of the individual. Even though evaluation intervals of three to six months are appropriate for most practice settings, the interval of measurement must be customized to the individual's unique management plan and needs, recognizing that behavior change should be practiced for at least two weeks before re-evaluation (AADE, 2003).

This project measured intermediate outcomes of behavior change. Intermediate outcomes result over time and require more than a single measurement. This type of

outcome can be measured through self-reporting (AADE, 2003). The Diabetes Self-management Assessment Report Tool (D-SMART) is a self- report instrument and will be used to measure intermediate outcomes for this project (see Appendix A). This tool was developed to collect, measure, analyze, and report patient self-management. The D-SMART assess behavior change and assists the APN in the development of a plan for DSME. This tool measures behavior change that is self-reported (Peeples et al., 2007). This tool contains assessment information on demographics, diabetes health status, knowledge, skill confidence, barriers, and current self-management behaviors. The tool is guided by the AADE7 Self-care Behaviors and reflects a combination of behavioral models including the transtheoretical model. The stages of change are embedded within this tool. This tool has been tested and shown that it can be easily completed, content is clear, and individuals were generally satisfied with the wording of questions and selection of answers contained on this instrument (Charron-Prochownik et al., 2007).

According to AADE, the D-SMART has been used more than 1,400 times in over 29 diabetes education centers nationwide. This tool was tested for face, content, and concurrent validity. An expert panel convened, defined outcomes, and developed the D-SMART. Content validity index was high with greater than 90% of the panel agreeing to survey questions. Concurrent validity is an ongoing assessment. The AADE reports that reliability was high test-retest reliability. Patients completed the D-SMART twice within a two-week period prior to an intervention. There were no significant differences in 97% of responses. There was also high inter-item consistence in which questions related to certain domains were highly correlated (e.g., coping with diabetes) (AADE, n.d).

Theoretical Framework

The Transtheoretical Model of Health Behavior Change (TTM) was developed by Prochaska and DiClemete (Highstein, O'Toole, Shetty, Brownson, & Fisher, 2007; Rickheim et al., 2002). This model is associated with behavior change, which plays a major role in diabetes education. DM is a complex disease and requires continuous patient involvement and management by a team of health care professionals. The APN with a DNP degree is able to use the TTM as a tool and apply it to the management of care when treating individuals with DM. The model allows the APN to function in a leadership role and improve the quality of care to individuals with diabetes. The NP is able to identify gaps, define needs, and develop and integrate new health care strategies to improve patient outcomes with diabetes. The model has been adopted by the AADE to help define best practices for the delivery of care among individuals with diabetes. The TTM can be applied to group care with individuals diagnosed with the same disease, who are seen together by a provider. A group setting allows individuals to interact with one another and ask questions regarding similar concerns or needs they each might have about their illness (Dancer & Courtney, 2010).

The TTM of behavior change can be used in group visits to assist the NP to help motivate individuals with diabetes to make healthier choices and implement problem-solving strategies in their daily management of their diabetes. The NP should be cognizant that patients are in control of their own care and will decide when they want to re-evaluate their behaviors. The TTM consists of five stages that an individual must go through to adopt a healthier lifestyle. These stages consist of pre-contemplation, contemplation, preparation, action, and maintenance. In the pre-contemplation stage, the

individual is not considering changing their behavior regarding diabetes in the next six months. The individual may not believe behavior change is important and feel they are incapable of the change (I can't or I won't). In the contemplation stage the individual is considering changing their behavior about diabetes some time within the next six months (I might). The APN is not able to motivate the individual in making a change in behavior (Highstein et al., 2007). According to Richardson (2012) about two thirds of patients seen in primary care are in the pre-contemplative and contemplative stages.

In the preparation stage the NP acknowledges that the individual is planning to change their behavior about diabetes in the next 30 days (I will). At this time the NP can suggest small steps what will lead to the desired behavior change. The action stage involves the individual making a change in behavior related to their diabetes and the change has proven to produce a certain benefit (I am). This is the time for the NP to assist the individual in setting a goal. Lastly, the maintenance stage is where an individual with diabetes has made a behavior change and has maintain it for at least six months (I still am) (Highstein et al., 2007).

The TTM's stages of change moves an individual from pre-contemplation to action by using cognitive learning concepts. The group support concept serves to enhance the support system, which moves the individual from action to continued compliance (Rickheim et al., 2002). The TTM allows the NP to stage individuals and then focus on the behavior the individual is most ready to change. For example, if an individual is in pre-contemplation for blood glucose monitoring, contemplation for exercising, and preparation for eating more fruits and vegetables, the intervention should focus on eating

more fruits and vegetables. Blood glucose monitoring and exercising would be behaviors for the APN to address later (Highstein et al., 2007).

The TTM of behavior change illustrates stages of change, explaining how people change behavior. This model will help the NP to know which self-care behavior she or he should start with in order to motivate individuals to change their behavior to help self-manage their disease. Understanding where each individual is in regards to change assists the APN in helping individuals in setting their goals to prevent or delay diabetes complications. It is important to not overestimate the patient's readiness to change as this often leads to resistant behavior. Interventions must be matched to the appropriate stage of change. Clinicians typically only have brief periods with patients and motivational interviewing techniques can help them make the most of this time (Richardson, 2012).

In summary, the review of scientific literature suggests a benefit from SMAs for patients with diabetes. Some positive outcomes include an increase change in health care behaviors, a decrease in urgent care visits, emergency visits, hospitalizations, and specialty care visits. These outcomes suggest a similar decrease in costs due to SMAs. Other positive outcomes included improved glycemic control, increased patient and provider satisfaction, increased productivity, and a decrease in HbA1C, blood pressure, cholesterol levels, and diabetic related complications (Burke & O'Grady, 2012).

<center>Project and Doctorate of Nursing Practice Essentials</center>

Implementing an evidenced-based program is an essential role of the NP with a DNP degree. Implementation of this capstone project met the DNP Essentials of Doctoral Education for Advanced Practice Nursing through development and evaluation of new practice (see Appendix B). This capstone project was based on evidenced-based

knowledge, organizational and systems leadership, clinical scholarship for evidence-based practice, improved health care delivery and outcomes, interprofessional collaboration for improving a client's outcome, clinical prevention for developing, implementing and evaluating interventions to address health promotion, and advanced nursing practice (American Association of Colleges of Nursing, 2006). This project offered the NP the opportunity to improve behavior changes of patients with diabetes.

CHAPTER III

METHODS

The purpose of this project was to promote behavior changes in patients with
T2DM through the implementation of SMAs and incorporating DSME. The
NP/researcher implemented small group visits with participants who had a diagnosis of
T2DM and met inclusion criteria of: age 21 or above; had a recent HbA1C level greater
than 7.5%; considered an established patient at the clinical site (in Mound Bayou, MS);
and were able to attend two SMAs. The purpose of the small group visits was to promote
changes in behaviors, which included healthy eating, being active, self-monitoring of
blood glucose, taking medications, problem solving, reducing risks, and healthy coping.
The Transtheoretical Model of Health Behavior Change (TTM) guided the project and
the NP/researcher to assist the participants with T2DM to set goals in order to achieve
positive behavior changes at the completion of the two SMAs. At the completion of the
project, quantitative data was used to help determine if the goal of behavior changes
occurred with implementation of SMAs and DSME.

Description of Project

The project intervention consisted of two patient encounters. The first encounter
was a short one-on-one visit with the NP/researcher for purposes of conducting an
assessment and treatment of each participant individually. The second patient encounter
consisted of a prolonged session in which participants with T2DM interacted with each
other and the NP/researcher about the management of their disease and learn self-care
behaviors in a group setting. The setting for the project was a community healthcare
center in a rural area located in Mound Bayou, a small delta town in the Northern part of

Bolivar County, MS. The SMAs took place in the conference room located at the healthcare center in Mound Bayou.

Instrument

The D-SMART (see Appendix A) is the cornerstone of the AADE's Education Outcome System. Permission to use this tool was obtained from AADE prior to conducting this project (see Appendix C). It is a data collection tool that guides the educator in the facilitation of patient behavior change. The D-SMART is a patient self-report instrument that captures assessment information about diabetes health status, knowledge, skill confidence, barriers, and current self-management behaviors. It is organized around the American Association of Diabetes Educator 7 (AADE7) Self-care behaviors (health eating, being active, monitoring, taking medication, problem solving, healthy coping, and reducing risks).

According to AADE, the D-SMART was tested for face, content, and concurrent validity. An expert panel convened, defined outcomes, and developed the D-SMART. Content validity index was high with greater than 90% of the panel agreeing to survey questions. Concurrent validity is an ongoing assessment. The AADE reported that reliability was high test-retest reliability and has been used more than 1,400 times in over 29 diabetes education centers nationwide (AADE, n.d). An evidence-based educational curriculum known as *AADE Diabetes Education Curriculum: Guiding Patients to Successful Self Management* was followed to educate the participants on DSME. The AADE7 Self-Care Behaviors Goal Setting Form was used to track the intermediate outcomes of the participants who participated in the SMAs. The AADE7 Self-Care Behaviors Goal Setting Form is based on self-care behaviors developed by the AADE

Outcome System. The self-care behaviors included healthy eating, being active, monitoring blood glucose, taking medication, problem solving, risk reduction activities, and healthy coping. This tool helped to measure patients' behaviors and identified if the individual achieved, continued, or modified the behavior they set as their goal. Baseline behaviors and post-intervention behaviors (two weeks apart) were compared to determine if evidenced-based diabetes education offered through SMAs made a difference in changing the behavior of patients with diabetes.

<div align="center">Procedures</div>

Once participants were accepted and informed consent was obtained (see Appendix D), the D-SMART was completed by the participants with the assistance of the NP/researcher for the purpose of obtaining demographics, baseline behaviors, barriers, and desired outcomes of each participant. The completion of the D-SMART took approximately thirty to forty-five minutes. This project was divided into four phases. The first phase involved the recruitment of participants, which took approximately two weeks. Participants were a convenience sample of patients with T2DM who met the inclusion criteria and were able to attend both SMAs.

Phase One

Before this project could be implemented, a letter of request was written to the Chief Executive Officer of the clinic to obtain permission to conduct the project at the clinic (see appendix E). After obtaining Institutional Review Board (IRB) approval through The University of Southern Mississippi (see Appendix F) and approval from Delta Health Center (see Appendix G) in Mound Bayou, MS, recruitment of participants was done. Participants were recruited using a flyer that was posted in the clinic (see

Appendix H). Fliers were also passed out by the clerk who worked at the registration desk to established diabetic patients that were seen by the providers who worked at the clinic. The flyer included information such as the inclusion criteria, dates, and the time and location of both SMAs. Participation was on a voluntary basis. Participants expressed interest by signing the sign in log located at the front desk with the clerk.

Prior to the start of this project, a nurse manager was trained on how to review charts to determine if participants met the inclusion criteria to participate in this project. Once a participant indicated interest in participating in the project, their chart was reviewed by the nurse manager for acceptance or rejection for participation in the project. After reviewing the chart, if the individual met all inclusion criteria, they were informed if they were eligible to participate in the study before leaving the clinic. Informed consents and an agreement to maintain confidentiality within each SMA was obtained from each participant following acceptance into the study. The first 12 individuals who indicated interest by signing up, met inclusion criteria, and provided an informed consent were selected to participate in this capstone project. The nurse manager explained to potential participants when signing consents that participation in the group visits was voluntary (see Appendix D) and that all information would be held in confidence by the participants and the NP/researcher. Each participant was then directed to the NP/researcher, and the pre-treatment D-SMART was completed by the participant with the assistance of the NP/researcher. Each participant was assigned an identification number to place on the D-SMART. The D-SMART was used to collect demographic information as well as to determine present behaviors, desired behaviors, and goals that each participant wanted to accomplish by the completion of this project. After the D-

SMART was completed, it was placed in a sealed envelope and kept in a locked box. The master list of patients and consents was placed in a sealed envelope and kept in a locked box. Each locked box was kept in a separate locking file cabinet drawer in the nurse NP's/researcher's office. Barriers to self-management of diabetes were identified and discussed with the participants while assisting them with completing the D-SMART.

Phase Two

The second phase involved the nurse manager calling each participant the day before the first of the two scheduled SMAs to remind each individual of the upcoming SMA and obtain confirmation that they will attend the group session. Educational packets along with a copy of both consents that each participant signed were prepared to be given to participants at the first SMA.

Phase Three

Phase three involved the implementation of the first SMA which included the presentation of DSME before their individual medical appointments with the NP/researcher. The first SMA was held on December 11, 2013. Once each participant arrived, they were given an education packet and a copy of their signed consents. The NP/researcher welcomed the participants, explained the purpose of the project, presented objectives, and went over the group meeting schedule and activities. The *AADE Diabetes Education Curriculum: Guiding Patients to Successful Self Management*, which is considered to be evidence-based, was used to educate the participants on self-management of diabetes during each SMA. During the first SMA, topics such as "What is Diabetes?," "Healthy Eating," "Being Active," and "Monitoring" were discussed within the group session. The participants participated in group discussions, activities, and

talked about some of their experiences with DM. Participants were asked to set the desired goal they wanted to achieve at the end of this project. After the SMA, individuals were seen for medical appointments using usual care methods. Phase three took approximately three hours to complete.

Phase Four

The fourth phase involved implementing the second SMA. The second SMA was held two weeks after the first SMA on December 27, 2013. Topics such as "Taking Medications," "Problem Solving," "Reducing Risks," and "Healthy Coping" were discussed within the group session. The educational session lasted two hours. The SMA included group discussions, activities, and answers for anyone about diabetes. At the completion of the second SMA, each participant was given an appointment by the clerk to return for a follow-up visit with NP/researcher in two weeks to fill out the D-SMART post-intervention to determine if they met their goal. In the event that an individual was not able to make this appointment, the clerk scheduled a time with the participant for the NP/researcher to contact them via phone in order to fill out the D-SMART questionnaire.

Necessary Resources

The necessary resources needed for the project included a computer, printer, ink, paper, projector and screen, lock box, separate examination room, and large space to conduct the SMAs. The NP/researcher provided healthy snacks and water for the participants to have as refreshments during each meeting. No budget was required for this project. The AADE7 Self-Care Behaviors Curriculum was offered by the AADE free of charge to members of AADE. The NP/researcher is a member of the AADE.

Ethics and Human Subjects Issues

This project involved the participation of human subjects. The University of Southern Mississippi Institutional Review Board (IRB) approval was obtained prior to implementing the project. A letter of approval from the clinical site was obtained granting permission to conduct this project prior to implementation of this project. Consents were signed by interested participants prior to the study and promoted confidentiality to comply with Health Insurance Probability and Accountability Act requirements, because other patients were involved in these group appointments. Medical records were reviewed for the most recent HbA1C levels to determine which participants were eligible to participate along with other criteria. No risks of subjects were apparent during review of medical records. All information gathered was obtained without patient identifiers. Information was held in strict confidence and results reported in aggregate fashion. Any individual exemplars used had no participant's identifiers. The timeframe of this study took approximately two months (see project timetable in Appendix I).

CHAPTER IV

RESULTS

Analysis of Data

The aim for this project was to determine if SMAs with DSME promote behavior change in patients with T2DM. Data analysis strategies were used to promote rigor. Quantitative analysis of data was essential for a high quality analysis. The data collected was reviewed and coded for entry into SPSS version 22. Data was collected from December 2013 through January 2014. The D-SMART instrument was used to collect data prior to the first SMA (Pre-treatment D-SMART) and two weeks after the second SMA (Post-treatment D-SMART). The D-SMART tool was used to record participants' demographics, diabetes self-management practices, barriers, goals, and desired behavior changes. Descriptive statistical analysis was used to determine the frequency of responses, demographics and outcomes from the D-SMART instrument.

Participants (n=7) in the study were diagnosed with T2DM and established patients seen by the providers at the rural clinic. A total of 12 individuals signed up to participate in this study, but only seven participants met the requirements to remain in the study. Graphs and tables are included to help present results of this project. The findings of this capstone project indicates that the participants were interested in seven areas of behavior changes prior to the start of the SMAs, but when it came time to set individual goals, the majority of the participants desired to change their behaviors in two areas: healthy eating and activity which occurred after implementing SMAs.

Self-management education through group visits increased behavior outcomes of patients who participated in this learning environment. A NP implementing DSME in a

group setting promoted healthy outcomes and improved quality of life, through positive behavior changes. The NP assumed the role of the leader to enhance the knowledge of the collaborative team to promote a positive outcome.

Demographics of the Sample

Analysis of the demographic variable-age, gender, and race of the participants indicated 100% of participants were African American and females (See table 1) between the ages of 52 to 75 years of age with a median age of 63 years. Most of the participants (57%) were in the age group of 63-65 years, followed by 52-55 years with 28.6%, and 75 years with 14.3%. Approximately 70% of the participants had some college education, and greater than 50% were retired. All participants reported receiving diabetes education in the past. Five participants reported having diabetes greater than 15 years, one participant greater than 8 years, and one participant an unknown amount of years.

Table 1

Demographics of Participants

Variable	Number of Participants	Percentage of Participants
Gender		
Male	0	0%
Female	7	100%
Level of Education		
Elementary Education	1	14.3%
High School Diploma	1	14.3%
Some College	2	28.6%
College Graduate	2	28.6%
Post Graduate Education	1	14.3%
Occupation		
Retired	4	57.1%
Other	2	28.6%
Unemployed	1	14.3%

Pre and post test data obtained from the D-SMART were analyzed using descriptive statistics to determine if there were any behavior changes in the participants. Descriptive statistics was analyzed to determine if there were any changes between pre and post behaviors. Many individuals reported no ER visits due to DM and its complications. Table 2 shows the responses of how often participants visited the emergency room or hospital admission for problems with their diabetes. This was a very positive response with 100% of participants reporting no emergency visit or hospital admission from problems with their diabetes. Tobacco and alcohol usage was also a remarkable low percentage rate. Only one participant smoked, and none of the participants admitted to drinking alcohol. Four of the participants saw an eye doctor within the last six months.

Table 2

Health Status of Participants

	N	Min	Max	Mean	Std. Deviation
			Descriptive Statistics		
Health History					
Weight	7	162.0	217	191.300	23.0300
Tobacco use	7	1	3	2.57	.787
Alcohol use	7	1	1	1.00	.000
Diabetes Health Status					
Diabetes education	7	1	1	1.00	.000
Number of ER visits in last 3 months for diabetes	7	0	0	.00	.000

Table 2 (continued).

Risk Factors Reduction					
How often do you examine your feet	7	1	4	2.00	1.155
Saw a diabetes educator	7	1	5	3.29	1.380
Saw a healthcare provider	7	3	5	3.57	.787
Health Prevention Services					
Saw a dentist	7	1	5	3.57	1.272
Had eyes checked by eye doctor	7	1	4	3.14	1.069
Had feet checked by healthcare provider	7	3	4	3.29	.488
Had cholesterol checked	7	3	5	3.29	.756
Had triglycerides checked	7	1	5	3.00	1.155
Had blood pressure checked	7	3	3	3.00	.000
Had an A1c	7	1	4	2.71	.951
Had a flu vaccine	7	3	5	3.43	.787
Had a pneumonia vaccine	7	1	4	2.29	1.254

Notes: N= the sample size. Min= Minimum number, Max = Maximum number, Std. Deviation = Standard Deviation

The data was reviewed and coded for entry into SPSS version 22. A descriptive analysis was used to determine the frequency of responses, demographics and outcomes from the D-SMART instrument. The areas the participants focused on for goal setting were being active, healthy eating, blood glucose monitoring, taking medication, problem solving, healthy coping and reducing risks. However, all areas were not chosen as desired outcomes. Participants chose healthy eating and activity as outcomes because they felt

these were the areas behavior changes were needed the most to help self-manage their DM. Frequency data was generated for the number of days participants exercised per week and the amount of times participants checked their blood glucose, to determine levels of frequency for these behaviors. Table 2 shows some these results. Two or 28.6% of the participants exercised zero times per week, while another two or 28.6% exercised three times per week prior to the first SMA. Other participants represented one or 14.3% each exercised four, six, and seven times a week respectively.

A frequency distribution for the number of days participants exercised per week and the number of times participants checked their blood glucose was calculated to determine levels of frequency for these behaviors. 28.6% of the participants exercised zero times per week, while another 28.6% exercised three times per week prior to the first SMA. 14.3% of participants each exercised four, six, and seven times a week respectively. Data from the pre D-SMART showed that 66.7% of the participants exercised between one and fifteen minutes at each session, while 16.7% of the participants exercised between 16 and 30 minutes or 46-60 minutes respectively (see Figure 1). Another area that participants identified as an area for desired improvement was monitoring of blood glucose. Seven or 85.7% reported checking their blood glucose while one or 14.3% indicated they do not check their blood glucose.

Figure 1. Frequency distribution of days participants exercised. This chart shows the frequency, mean, and standard deviation of the number of days participants exercised pre SMAs.

Table 3 shows participants' statistics for barriers when it came to participants trying to make changes and includes pre and post means and standard deviations. According to the pre and post D-SMART, improvement was seen in four major areas listed as barriers. Prior to the intervention, participants reported not knowing what to change or how to make a change. Two (28.5%) selected not at all, a little, and some respectively, and one (14.3%) selected a lot. The post treatment D-SMART showed improvement. Findings after the interveniton showed three (42.9%) of the paticipants selected not at all, two (28.5%) selected a little, and one (14.3%) selected both some and a lot, respectively. Prior to the intervention, three (42.9%) of the participants selected not all in response to the barrier, "I can not see well enough to do it," and one (14.3%) participant selected a lot. Post-intervention, this barrier also showed improvement with four (57.1%) of the paticipants selected some and three (42.9%) selected not at all. Prior to the intervention, the barrier "my family and friends do not support me," was selected

by five (71.4%) of the participants, and one (14.3%) of participants selected a lot and not at all respectively. Again, post intervention improvement was seen with 71.4% of participants selected some and 28.5% of participants selected a lot. No participant selected not at all. Finally, pre-intervention, for the barrier "it is too uncomfortable," four (57.1%) of participants selected not at all, and two (28.5%) of the participants selected some and a little respectively. Post-intervention response to this barrier showed improvement with 42.9% of the paticipants selected both "not at all" and "some" respectively, and 14.3% of participants selected a little. These barriers were discussed in detail during the SMAs to assist participants to overcome these barriers in order to promote behavior change.

Table 3

Barriers to Making Changes

	Mean		Standard Deviation	
Barriers	Pre	Post	Pre	Post
I do not know what to do or how to do it	2.43	2.71	1.272	1.113
It is too hard	2.29	2.29	.951	.951
I do not have time	2.57	2.57	.976	.976
My health is not good	2.57	2.57	1.134	.787
I can not see well enough to do it	2.43	2.71	1.134	1.125
I can not afford it	2.0	2.0	.577	.577
No place to do it	2.71	2.71	1.254	1.254

Table 3 (continued).

will power				
My family & friends do not support me	2.14	2.43	.900	1.134
I can not remember to do it	3.00	2.29	1.000	.951
It is too uncomfortable	2.86	3.14	1.215	.900

Note: Scale for the Mean is 1= A lot, 2= Some, 3= A little, 4= Not at all

Table 4 shows statistical data obtained on the pre-treatment D-SMART and Table 5 shows data statistics obtained from the post treatment D-SMART. Both of these tables include participants' present behaviors along with some of the risk factor reduction practices participants followed to help to prevent complications of diabetes. Both tables also include the means and standard deviations of each area listed. There were several improvements seen in some of these areas listed in the post treatment D-SMART. Prior to the SMAs, participants ate foods high in fat; took medications later than planned; did not check their blood sugar daily; did not wear an diabetic identification bracelet; felt diabetes interfered with their life; and felt overwhelmed about diabetes. Post-intervention sampling showed improvement with fewer participants eating foods high in fat. Additionally, participants took medications on a daily basis and at the scheduled time; monitored blood sugar daily; began wearing a diabetic identification bracelet; reported diabetes interfered with their life less; and did not feel overwhelmed by their diabetes.

Table 4

D-SMART Questionnaire Pre-Intervention

Pre-Intervention				Descriptive Statistics	
	N	Min	Max	Mean	Std. Deviation
Eating					
Frequency of skipped meals	7	1	4	2.86	1.464
Frequency of high fat foods	7	1	5	3.14	1.464
Frequency of eating more than you should	7	1	4	2.86	1.215
Taking Medications					
Frequency of diabetic medications	7	2	5	3.57	1.134
Frequency of missed or skipped medications	7	1	2	1.14	.378
Take medication later than planned	7	1	2	1.14	.378
Take an aspirin daily	7	1	6	3.00	1.732
Monitoring of Glucose					
Do you check your blood sugar	7	1	2	1.43	.535
How often do you check your blood sugar	7	1	4	3.43	3.101
Use a meter to test blood sugar	7	1	8	1.86	.378
Frequency of blood sugar checks	7	3	6	3.86	.378
Frequency of checking BS later than planned	7	1	2	1.29	.488
Frequency of missed/skipped checking BS	7	1	5	2.14	1.574
Problem Solving					
Frequency of high blood sugar	7	1	5	3.71	1.380
Action of high blood sugar	7	2	6	3.86	1.464
Frequency of low blood sugar	7	1	4	1.71	1.254
Action of low blood sugar	7	1	4	2.71	1.604
Wear identification that you have diabetes	7	1	4	2.29	.951
Action when you are sick and can not eat usual food	7	1	3	1.86	.900
Living with Diabetes					
Diabetes interfere with my life	7	1	4	2.71	1.604
Diabetes reduce your wellbeing	7	1	4	2.34	1.272
Diabetes seems out of control	7	1	4	2.14	1.069
Afraid you will get complications	7	1	3	1.71	.756
Feel overwhelmed about your diabetes	7	1	4	2.57	1.512
Feel depressed	7	1	4	3.14	1.464
Valid N	7				

Table 4 (continued).

Note. Baseline responses of participants (n=7)

Table 5

D-SMART Questionnaire Post-Intervention

Post-Intervention	Descriptive Statistics				
	N	Min	Max	Mean	Std. Deviation
Eating					
Frequency of skipped meals	7	1	5	1.00	.000
Frequency of high fat foods	7	1	4	3.14	1.464
Frequency of eating more than you should	7	1	5	3.00	1.291
Taking Medications					
Frequency of diabetic medications	7	1	4	3.00	1.414
Frequency of missed or skipped medications	7	4	5	4.00	.816
Take medication later than planned	7	2	5	4.00	1.155
Take an aspirin daily	7	1	2	2.43	1.512
Monitoring of Glucose					
Do you check your blood sugar	7	1	2	1.43	.535
How often do you check your blood sugar	7	3	4	4.00	.577
Use a meter to test blood sugar	7	1	2	1.14	.378
Frequency of blood sugar checks	7	1	5	3.00	1.528
Frequency of checking BS later than planned	7	1	5	3.86	1.345
Frequency of missed/skipped checking BS	7	1	5	3.86	1.345
Problem Solving					
Frequency of high blood sugar	7	1	6	3.57	1.988
Action of high blood sugar	7	1	8	4.43	3.101
Frequency of low blood sugar	7	1	6	4.00	.577
Action of low blood sugar	7	1	8	2.57	2.370
Wear identification that you have diabetes	7	1	2	2.14	.900
Action when you are sick and can not eat usual food	7	2	6	3.86	2.543
Living with Diabetes					
Diabetes interfere with my life	7	1	4	2.71	1.604
Diabetes reduce your wellbeing	7	1	4	2.43	1.272
Diabetes seems out of control	7	1	4	2.14	1.069
Afraid you will get complications	7	1	3	1.71	.756

Table 5 (continued).

Feel overwhelmed about your diabetes	7	1	4	2.57	1.512
Feel depressed	7	1	4	3.14	1.464
Valid N	7				

Note. Baseline responses of participants (n=7)

Areas participants were able to choose for goal setting were being active; healthy eating; blood glucose monitoring; taking medication; problem solving; healthy coping; and reducing risks. However, all areas were not chosen as desired outcomes. According to the pre treatment D-SMART, all seven participants were interested in behavior changes in all seven areas. When the participants were asked to set individual goals, only four areas of behavior changes were chosen by the participants. For goal setting participants focused on healthy eating (100%) and being active (86.7%). Monitoring of blood glucose was selected as a goal by 28.5% of the participants and problem solving was chosen by only one of the participants. The remaining behavior changes, which were taking medications, healthy coping, and reducing risks, were not chosen as desired goals by any of the participants. Table 6 indicates the interests of participants before the SMAs and the desired outcomes (goals) at the completion of this project. Each individual outcome is listed along with the number of participants who desired the outcome. Each participant was able to choose as many outcomes as they wanted. All seven participants set at least two goals but no more than three.

Table 6

Desired Behavior Changes Pre and Post SMA

Behavior Changes	Number of Participants Prior to SMA	Number of Participants Post SMA	Percentages of Participants n=7
Healthy Eating	6	7	100%
• Follow an eating schedule	5	3	
• Eat better food	5	5	
• Overeat less often	4	1	
Activity	4	6	86%
• Exercise more often	5	4	
• Exercise longer	3	2	
Medication Taking	5	0	0%
• Miss fewer meds	5	0	
• Take meds on time	5	0	
Monitoring of Blood Glucose	1	2	28.5%
• Check BS more often	4	2	
• Miss fewer BS	5	0	
• Check BS on time	5	1	
Problem Solving	2	1	14.1%
• Prevent high BS	5	1	
• Prevent Low BS	5	0	
• Manage DM when sick	5	0	
Reducing Risks	2	0	0%
• Check feet	5	0	
• Lose weight	5	0	
• Stop smoking	1	0	

Table 6 (continued).

Healthy Coping	2	0	0%
• Cope with DM	4	0	
• Getting family support	4	0	

Table 7 indicates the goal achievements of the participants at the completion of this project along with the number of participants who selected the goal and percentage rates of goal achieved following the intervention. All seven of the participants selected healthy eating as a goal, 85.7% selected activity, 28.6% selected monitoring, 14.3% selected problem solving, and no participants selected medication taking, problem solving, and healthy coping respectively. Healthy eating activities included eating smaller portions, overeating less often, and eating better foods. Eating smaller portions and overeating less often showed 100% (n=7) goal achievement, whereas eating better foods indicated 40% goal achievement by participants at the completion of this project. Six participants or 85.7% selected activity as a goal. Desired changes in activity included the desire to exercise more and exercise longer. Exercise more and exercise longer both indicated 50% in goal achievement of participants post SMAs. The remaining categories monitoring and problem solving both had a zero percentage rate for goal achievement respectively.

Table 7

Goal Achievement Post SMAs

Goals	Number of Participant's Goal Selection Post SMA	Number of Participants who Met their Goal	Percentage of Participants who Met their Goal
Healthy Eating	7		
•Smaller Portions	3	3	100%
•Eat Better Food	5	2	40%
•Overeat Less Often	1	1	100%
Activity	6		
•Exercise More Often	4	2	50%
•Exercise Longer	2	1	50%
Problem Solving	1		
•Prevent High BS	1	0	0%
Monitoring	2		
•Check BS More Often	2	0	0%

Evaluation Plan

The goal of the intervention was to educate participants with T2DM through

SMAs using DSME. The D-SMART instrument was administered to identify

demographics, patient behaviors, and evaluate behavior changes in patients with T2DM

before and after implementing SMAs. The pre--reatment SMA recorded present

behaviors of participants. The post-treatment SMA recorded the behavior changes that

were self reported by participants. The evaluation plan (s (see Appendix ee Appendix J))

included partipants with T2DM who participatedd in SMAs for a total of two sessions to

help promote behavior changes. The SMAs was provided utilizing an evidence-based

DSME curriculum to promote behavior changes. The D-SMART was filled out pre- and post- intervention and then compared to determine if there was behavior changes in participants. The project objectives for this project included behavior changes, increase self-management of DM, and increase positive long term outcomes. The project objectives for this project included behavior changes, increase self-management of DM, and increase positive long term outcomes.Over time this will be evaluated by the decrease number in individuals who suffer from complications as a result of DM.

Summary

The evaluation of the data showed positive behavior changes in two areas of the participants achieving their stated goals, with 100% (n=7) in healthy eating and 50% in activity. Data analysis after the invervention revealed SMAs do have the potential to change behavior in patients with T2DM. During the project, all of the participants were able to make strides towards at least one of their set goals. Although two participants selected glucose monitoring and problem solving as goals, they did not achieve their goals. These participants did report they were still working on the goals and plan on meeting these goals in the future. With more time, there is a possibility that positive outcomes would have been seen in these participants in other areas. Due to the small sample size of this project, the evaluation of data (*P-value*) was not able to be calculated and, thererfore, it was not able to show was not able to be calculated and therefore it waablstastical significance, but the data did the datashow practical significance, which indicates that SMAs with DSME have the potential to change behavior.

CHAPTER V

DISCUSSION

The following sections will discuss links between current findings and the
literature, describe limitations for the project and its appliation for future practice. The
purpose of this study was to promote behavior changes in patients with T2DM through
SMAs with the use of DSME. According to the literature review, SMAs also improve
DM knowledge as well as health behavior change; the slower pace of SMAs allows time
for learning and increased knowledge and behavior change skills; the NP is able to
provide expert advice and support; and the patient is able to obtain clarity on their goals,
values, and motivations. According to Funnell and Anderson (2004), group visits
typically include group education, shared problem-solving, private medical evaluations
that allow individualized medication adjustment, and ordering of preventive services and
referrals (Funnell & Anderson, 2004). These visits include educational interventions that
focus on behavior changes through cognitive and behavioral tactics to improve the way
individuals cope and problem-solve (Ridge, 2012b). The project showed that SMAs
works with a racially diverse popultion with a higer education level. Future investigations
can also address motivation for behavior change and satifaction with SMAs.

A total of two SMAs were implemented along with DSME to promote behavior
change in T2DM. All seven of the AADE7 Self-Care Behaviors were discussed during
both SMAs. A change in behavior was measured two weeks after the completion of the
second SMA. This allowed a month for behavior changes to be initiated on the first topics
that were discussed during the first SMA. According to AADE (2003), the evaluation
intervals of three to six months are appropriate, but the interval of measurement must be

customized to fit one's unique management plan, realizing that behavior change should be practiced at least two weeks before reevaluaion is done by the provider. These evaluation intervals have been validated through scientific expertise (AADE, 2003). The research question was to determine if the implementation of SMAs with DSME helped to promote behavior changes in individuals with T2DM (see Appendix K).

SMAs are considered to be changes in primary care systems intended to overcome the challenges of separate traditional office visits and self-management education. The desirable outcome was to facilitate positive lifestyle and behavior changes by creating a supportive clinical and shared environment between primary care providers and patients and between patients. The SMA model intergrates group-based DSME with a primary care visit that takes place during or immediately after a group session (Burke & O'Grady, 2012).

<div align="center">Interpretation of Results</div>

Participants reported benefits in participating in this study. One benefit was that the participants reported changes in behavior as a result of attending these SMAs. This was also seen in the analysis of data generated for the pre-treatment and post-treatment D-SMART. Some of the participants were open in discussing their experience with DM and the desired outcomes they wanted to achieve at the completion of the project. Although knowledge was not an outcome for this project, participants reported increased knowledge about ways to self-manage this chronic disease. This allowed them to feel better about overcoming the barriers identified at the beginning of this project in order to change their behavior and eventually improve their health status. According to Jaber et al. (2006), SMAs helped to reduce preceived barriers to behavior changes. The results from

data analyisis of the post-treatment D-SMART showed a reduction in barriers, which is consistent with other research findings.

HbA1C ranged from 7.5% to 10.3% with a mean HbA1C of 8.4%. This is considered a high level, and it is very important that participants decrease their HbA1C levels to control their diabetes and prevent complications. Some of the participants' self-management practices of DM incuded checking their feet daily and getting their influenza and pneumonia vaccines. Prior to the start of the first SMA, results from the D-SMART instrument indicated that some participans had not received their flu and pneuronia vaccine. Therefore, the influenza and pneumonia vaccine waere offered during the first SMA. A total of two participants received both the influenza and the pneumonia vaccines durign the first SMAs as a result of the initial assesment.

SMAs are considered a transdisciplinary model that provides motivation and support to individuals who attend these meetings. The ultimate goal is to assist individuals with DM to cope and help them to learn how to self-manage their illness. They are also able to share their life expeirences with group members (Burke and O'Grady, 2012). Findings from the doctoral capstone project are consistent with research findings by Ridge (2012b) that showed SMAs promote behavior changes by improving the knowledge of DSME in patients. Participants reported making behavior changes in healthy eating and activity as a result of participating in these SMAs. Earlier researchers (Funnell & Anderson, 2004; Ridge, 2012b) reported encouraging results from SMAs and showed modest gains for patients who participated in these types of visits. Studies have also shown that individuals who participated in SMAs have fewer emergency room visits, fewer days missed from work, and a better general health status (Jaber et al., 2006).

Sikon and Bronson (2010) reported that in a group setting the patient is able to learn from the mangement of others participating in the group visits.

The AADE7 Self-Care Behaviors is a framework supported by the Healthy People 2020 that is recommended in clinical practice for DSME (AADE, 2009). The AADE (2009) also reported SMAs conducted by a NP makes the appointments more effective when behavior changes are the desired outcomes. The NP must always keep in mind that when trying to assist individuals with any behavior changes, it is imperative for he or she to identify what stage each individual is in, in order to help set achievable goals. Barriers must be identified and discussed to make sure individuals are willing to overcome them in order to make a change in their behavior.

<div align="center">Limitations</div>

Limitations identified during the evaluation of this project were time and the lack of a control group. The length of time between pre-test and post-test may not have been long enough for the participants to have a change in behavior. If given more time to work with the participants, there may have been more gains made in the identified areas. The project may have been broadened to include multi-states and facilities to help compare the difference of each. There is limited generalizability of the project results because the sample size was small (n=7). The sample population for this project included female African American patients over the age of 50. Therefore, the participants may not represent the entire population at large. The lack of a control may be considered as limitations of this study. A control group could have been helpful for comparison to determine if the SMAs were the cause for the change or was it due to some other factor not considered in this study.

Implications for Practice, Research, and Education

Diabetes affects many individuals today and the numbers are increasing on a daily basis. This is causing a major problem in the medical care system due to the billions of dollars it takes to treat this chroinc disease (both direct and indirect). The shared medical appointment model is considered a new solution for the management of T2DM that is appropriate for the APN to implement when providing care to patients with DM. This format is also beneficial because it is comprehensive, time efficient, and reimbursable (Hodorowicz, 2012). With the shared appointment model and the use of the D-SMART, the APN is able to assess behavior changes in patients and provide care in a more relaxed environment, which in the long run may increase patient satifiaction and decrease DM complications. Although behavior changes were not reported in all seven areas, the areas that were selected did show a practical significance in behavior changes of participants. SMAs allows the APN to use his or her strengths as a patient educator more efficiently because they are able to provide quality education to several patients in less time compared to an individual visit. The DNP prepared NP serves as the leader within the organization and is able to initiate change by implementing SMAs and DSME. This will help to bring about improvement in patients with diabetes including increasing their quality of life, increasing their overall health status, decreasing diabetic related complications, and decreasing the costs of health care associated with diabetes.

Applying the TTM framework helped the clinician/researcher to understand how behavior changes occured in the participants in this project. The TTM helped to illustrate the stages of changes that each participant were in and helped the clinician/reseracher to identify what interventions were needed for the participants to successfully achieve their

goals set during this project. In order to be successful in meeting the set goals, interventions must be matched to the appropriate stage to result in behavior change. After completing the D-SMART, it was identified that all participants were in the preparation stage of change by being able to develop realistic goals with a timeline. A majority of the participants moved to the next stage of change, which was action, but a small number of participants did not. The NP/researcher must always keep in mind and understand the attitudes, beliefs, values, and readiness all affect change. The clinician/researcher must also provide reinforcement during the action stage and help the participants who met their goals to maintain the new behavior.

Other implications for future practice could include adding other health care professionals from other disciplines to participate in the educational portion of the SMAs (Brower, 2010). This would lead to more activities such as exercise classes, cooking demonstrations, and visits to the grocery store. A referral system could also be developed within the clinic to allow other providers who work at this clinic to refer the diabetic patients that are seen by them. These would allow all diabetic patients seen at this clinic the opportunity to participate in SMAs to help improve changes in their behavior, whereby increasing diabetes outcomes. This project met all eight of the DNP essentials for the APN. This appendix address each essentioal and how this project releates to each DNP essential (see Appendix G).

<center>Future Research</center>

The findings from this study provided several insights pertaining to SMAs and the affects these appointments have on behavior change. Although behavior change was not seen in all areas with high pecentages, it is imperative to include both qualitative and

quantiative research when dealing with participant's experiences and outcomes. Future investigations are needed to implement this project in a larger number of patients with T2DM and could be offered in multiple facilities comparing the results at the completion of each study. Intermediate outcomes were the focus of this project, but if given a longer time period, both post-imtermediate and long term outcomes (improved health status, increased quality of life, decreased diabetic complications, and decreased health care costs) could be measured by the NP/researcher. Futhermore, other clinical indicators (e.g. blood glucose levels, HbA1C, lipid panel, and blood pressure) could also be used to test what affects SMAs have on them. A study by Devries et al. (2008) reported that SMAs demonstrated significant decreases in HbA1C levels and increased self-efficacy. This would require a longer time period for data collection due to the collection of labwork.

<div align="center">Conclusion</div>

Due to the health care system shifting to more cost-effective solutions when it comes to treating DM, SMAs have been recognized as an alternative and considered a more economical way to deliver health care (Hodorowicz, 2012). One major advantage of SMAs is the provider is able to see a day's worth of patients within a shorter time frame (Sikon & Bronson, 2010). This helps to increase reimbursement for the organization. Billing for SMAs can be approached by using the office visits E&M billing codes 99214 or 99215 if the clinician is not a CDE. It important for the NP to provide the proper documention in the chart if he or she is not a CDE. This assist the NP in reimbursement of these services.

This project was implemented by a NP who was pursuing a DNP degree. This assisted the NP in the leadership role and assisted in encouraging the participants in

behavior change. Despite the small sample size and short time frame, these improvements were evident in two areas of behavior change in the majority of the participants who participated in this project. SMAs may be the practical way to improve patient care. SMAs may be the practical way to improve patient care. DM affects many individuals and causes many complications that can be prevented if this chronic illness is self-managed by individuals with T2DM and co-managed by the clinician. It is imperative that the appropriate DSME and goal setting techniques be implemented in SMAs to help promote behavior changes. The D-SMART helped to guide the DSME along with the AADE7 framework and the TTM, which provided a platform for the NP, to help facilitate behavior changes in the participants of this project.

Although a more detailed analysis of the impact of SMAs is needed, several broad conclusions can be drawn from the results of this study. All participants were able to set realistic and time sensitive goals; a majority of these participants were able to achieve these goals; and behavior changes did occur as a result of the SMAs and DSME. This project supports the benefits of using SMAs with DSME to promote behavior changes in patients with T2DM. Results are sufficiently positive to justify implementing SMAs and spreading it to additional sites but may have better results with a larger randomized, controlled methodology over a longer period of time to draw more conclusions about the direct benefits of SMAs and behavior changes. Shared medical appointments have the potential to work in a variety of ways with different chronic diseases. In order to be successful these SMAs must be modified to the needs of individuals attending these appointments and have support from administration and other health care professionals of other disciplines.

APPENDIX A

AADE PATIENT SELF-ASSESSMENT TOOLS

D-SMART Version 2.0

Identification #: _____   Age: _____

Gender: _____ Male _____ Female

Primary Language: _____

Demographic Information

What is your race? (check all that apply)

____ American Indian or Alaskan Native	____ Asian/Chinese/Japanese/ Korean/Pacific Islander
____ Black/African American	____ Hispanic/Chicano/Cuban/ Mexican/Puerto Rican/ Latino
____ White/Caucasian	____Other
____ Don't Know	____ None of the above

Education (mark highest level completed)

____ Elementary school	____ Some high school
____ High school degree	____ Some college
____ College degree	____ Post graduate

What is your occupation? (mark only one)

____ Clerical	____ Homemaker
____ Sales	____ Professional / Managerial
____ Skilled labor	____ Other labor

_____ Student   _____ Unemployed

_____ Retired   _____ Disabled

_____ Other

Do you have any physical limitations? (check all that apply)

_____ Hearing problems   _____ Vision loss (not corrected by
                                                  glasses or contacts)

_____ Problems with use of hands   _____ Problems with use of feet

_____ None of the above

Health History

Have you ever been diagnosed, ever been told, or have you had problems with the
following (check all that apply)

_____ High Blood Pressure   _____ Heart Disease/Chest Pain

_____ Stroke   _____ High Cholesterol

_____ Thyroid Disease   _____ Problems with sexual function

_____ Kidney/Bladder problems   _____ Asthma

_____ Shortness of Breath   _____ Eye or vision problems

_____ Numbness/pain/tingling of hands/   _____ Other foot problems
      feet

_____ Frequent nausea, vomiting,   _____ Depression or anxiety
      constipation, diarrhea

_____ Other health problems   _____ Surgery in the last 5 years

_____ Drug Allergies   _____ None of the above

What is your height?   _____ feet   _____inches

What is your weight? _____

Do you currently smoke cigarettes, cigars, or use tobacco?

_____ Everyday   _____ Some days   _____ Not at all

Have you smoked within the last 6 months?   _____Yes   _____ No

How often do you drink alcohol?

    _____ Never   _____ Less than once a week

    _____ Once a week   _____ Once a day

    _____ Two or more drinks every day

Women's Health (check all that apply)

    _____ Using birth control   _____ Planning pregnancy

    _____ Fertility drugs   _____ Pregnant

    _____ Sexually inactive   _____ Infertile

    _____ Menopause   _____ History of gestational diabetes

    _____ Other   _____ Had counseling about what to
                                                do before getting pregnant

    _____ None of the above

Diabetes Health Status

Have you had diabetes education?   _____ Yes _____ No

What year were you told you had diabetes? _____

Number of emergency room visits or 911 calls to paramedics for high or low blood sugar within the last 3 months? _____

Number of days missed from work, school or usual routine because of diabetes within the last 3 months? _____

Number of hospital admissions for diabetes within the last 3 months? _____

Risk Factor Reduction

How often do you closely examine or look at your feet with your socks off?

_____ Daily   _____ Several times a week   _____A few times a month

____Once in a while   ____Never

When was the last time you had the following health services to prevent problems? (mark all that apply)

Saw a diabetes educator   _____ Never   _____ Last 6 months

                                             _____ Last year   _____ Over a year ago

                                             _____ Don't know

Saw a health care provider (doctor, nurse practitioner, physician's assistant)   _____ Never   _____ Last 6 months

                                             _____ Last year   _____ Over a year ago

                                             _____ Don't know

Saw a dentist   _____ Never   _____ Last 6 months

                                             _____ Last year   _____ Over a year ago

                                             _____ Don't know

Saw a dietitian   _____ Never   _____ Last 6 months

                                             _____ Last year   _____ Over a year ago

                                             _____ Don't know

Had my eyes checked by an eye doctor   _____ Never   _____ Last 6 months

                                             _____ Last year   _____ Over a year ago

                                             _____ Don't know

Had my feet checked by a health care provider   _____ Never   _____ Last 6 months

                                             _____ Last year   _____ Over a year ago
                                             _____ Don't know

Had my cholesterol checked   _____ Never   _____ Last 6 months

_____ Last year   _____ Over a year ago

_____ Don't know

Results: Total _____   Results: HDL _____   Results: LDL _____

Had my triglycerides checked   _____ Never   _____ Last 6 months

_____ Last year   _____ Over a year ago

_____ Don't know

Result given to you by the health care provider _____

Had my blood pressure checked   _____ Never   _____ Last 6 months

_____ Last year   _____ Over a year ago

_____ Don't know

Result given to you by the health care provider   _____ OVER _____

Had an A1C test   _____ Never   _____ Last 6 months

_____ Last year   _____ Over a year ago

_____ Don't know

Result given to you by the health care provider   _____ Never   _____ Last 6 months

_____ Last year   _____ Over a year ago

_____ Don't know

*Had my urine checked for protei*n   _____ Never   _____ Last 6 months

_____ Last year   _____ Over a year ago

_____ Don't know

Had a flu vaccine   _____ Never   _____ Last 6 months

                                       _____ Last year   _____ Over a year ago

                                       _____ Don't know

Had a pneumonia vaccine   _____ Never   _____ Last 6 months

                                       _____ Last year   _____ Over a year ago

                                       _____ Don't know

Had counseling about what to   _____ Never   _____Last 6 months
do before getting pregnant
(if female and   _____ Last year   _____ Over a year ago
able to get pregnant)
                                       _____ Don't know

Had a complete physical exam   _____ Never   _____ Last 6 months

                                       _____ Last year   _____ Over a year ago

                                       _____ Don't know

Past Three Months

Exercise / Physical Activity

During a week, how many days do you exercise?

         0   1   2   3   4   5   6   7

How long do you usually exercise?   _____ 1-15 minutes   _____ 16-30
minutes

                                           _____ 31-45 minutes   _____ 46-60
                                                                        minutes

                                           _____ More than an hour

Type of Exercise (check all that apply)   _____ Walking   _____ Running

_____ Swimming   _____ Golfing

_____ Dancing   _____ Bike
          riding

_____ Tennis   _____ Sports
          (basketball,
          softball,
          etc.)

_____ Weight lifting/   _____ Aerobics
       Strength training

_____ Other   _____ None of
          the above

Eating

How often do you miss or skip a meal or scheduled snack?

_____ Daily   _____ Several times a week   _____ A few times a month

_____ Once in a while   _____ Never

How often do you eat foods high in fat, like fried foods or lots of butter?

_____ Daily   _____ Several times a week   _____ A few times a month

_____ Once in a while   _____ Never

How often do you eat more then you think you should?

_____ Daily   _____ Several times a week   _____ A few times a month

_____ Once in a while   _____ Never

Medication

Do you take diabetes medication?

_____ Don't take medication   _____ Pills only   _____ Pills and insulin

_____ Insulin only

How often do you miss or skip a dose of your diabetes medication?

_____ Daily   _____ Several times a week   _____ A few times a month

_____ Once in a while   _____ Never

How often do you take your diabetes medication later than planned?

_____ Daily   _____ Several times a week   _____ A few times a month

_____ Once in a while   _____ Never

Do you take aspirin daily, or every other day?   _____ Yes _____ No

Do you have glucagon?   _____ Yes _____ No

Problem Solving High Blood Sugar

Do you check your blood sugar?   _____ Yes _____ No

When you check your blood sugar, what blood sugar level do you consider too high?

_____ I don't know   _____ Over 100   _____ Over 125   _____ Over 150

_____ Over 175   _____ Over 200   _____ Over 250

How often do you have high blood sugar?

_____ Daily   _____ Several times a week   _____ A few times a month

_____ Once in a while   _____ Never   _____ Don't know

When your blood sugar is too high, what do you usually do? (check all that apply)

_____ Change diet   _____ Change exercise   _____ Increase diabetes medication

_____ Check meter / strips   _____ Call my health care provider

_____ Test my ketones   _____ Not Sure   _____ None of the above

When your blood sugar is high, how often are you able to get it back down to where you want it?

_____ Every Time   _____ Most Times   _____ Some Times   _____ Never

Problem Solving Low Blood Sugar

When you check your blood sugar, what blood sugar level do you consider too low?

_____ I don't know   _____ Under 100   _____ Under 90   _____Under 80

_____ Under 70   _____ Under 60   _____ Under 50   _____ (I don't check my sugar)

How often do you have low blood sugar?

_____ Daily   _____ Several times a week   _____ A few times a month

_____ Once in a while   _____ Never   _____ Don't know

Do you wear a bracelet to or keep something with you to identify that you have diabetes?

_____ Yes   _____No

When your blood sugar is too low, what do you usually do? (check all that apply)

_____ Eat more   _____ Stop exercise   _____ Reduce diabetes medication

_____ Call health care provider   _____ Check meter or strips   _____ I take glucose

_____ Not sure   _____ None of the above

When your blood sugar is low, how often are you able to get it up to where you want it within 1/2 hour?

_____ Every Time   _____ Most Times   _____ Some Times   _____ Never

Monitoring

Do you use a meter to test your blood sugar?   _____Yes _____No

How often do you usually check your blood sugar?

_____ 4 or more times a day   _____ 3 times a day   _____2 times a day

_____ Once a day   _____ Once a week or less   _____ Never

How often do you check your blood sugar later than planned?

_____ Daily   _____ Several times a week   _____ A few times a month

_____ Once in a while   _____ Never

How often do you miss or skip checking your blood sugar?

_____ Daily   _____ Several times a week   _____ A few times a month

_____ Once in a while   _____ Never

Problem Solving Sick Days

When you are sick or can't eat your usual foods, what do you usually do? (check all that apply)

_____ Replace usual food with carbohydrates   _____ Drink more water
        or sugar

_____ Take diabetes medication   _____ Check ketone level

_____ Check blood sugar more often   _____ Contact health care provider

_____ Not sure   _____ None of the above

Living with Diabetes

Please tell us how you feel about your diabetes (mark one for each question).

How sure are you that you can manage your diabetes?

_____ A lot   _____ Some   _____ A little   _____ Not at all

How much do you feel your family/friends support your efforts for diabetes control?

_____ A lot   _____ Some   _____ A little   _____ Not at all

How much do you feel your medical team supports your efforts for diabetes control?

_____ A lot   _____ Some   _____ A little   _____ Not at all

Please tell us how diabetes affects your life (mark one for each question).

How much does diabetes interfere with your job, school, or daily activities?

_____ A lot   _____ Some   _____ A little   _____ Not at all

How does diabetes reduce your well being?

_____ A lot   _____ Some   _____ A little   _____ Not at all

How much does your diabetes seem out of control?

_____ A lot _____ Some _____ A little _____ Not at all

How much are you afraid you will get complications?

_____ A lot _____ Some _____ A little _____ Not at all

How often do you feel overwhelmed by your diabetes?

_____ A lot _____ Some _____ A little _____ Not at all

How often do you feel depressed?

_____ A lot _____ Some _____ A little _____ Not at all

How much does your diabetes interfere with sexual function?

_____ A lot _____ Some _____ A little _____ Not at all

Making Changes Part 1

Having diabetes means you may need to make changes. What changes, if any, would you like to make now? (check all that apply)

_____ Activity   _____ Reducing risks of diabetes complications

_____ Eating   _____ Living with diabetes

_____ Medication taking   _____ I don't know what to change

_____ Monitoring   _____ None of the above

_____ Problem solving for blood sugars
       and sick days

Activity

Exercise more often   _____ I am interested in making this change

How confident are you that you can exercise more often

_____ Sure I can   _____ Think I can   _____ Not sure I can

_____ Don't think I can

Exercise longer   _____ I am interested in making this change

How confident are you that you can exercise longer

      _____ Sure I can   _____ Think I can   _____ Not sure I can

      _____ Don't think I can

Eating

Follow my eating schedule better   _____ I am interested in making this change

How confident are you that you can follow your eating schedule better

      _____ Sure I can   _____ Think I can   _____ Not sure I can

      _____ Don't think I can

Eat better food   _____ I am interested in making this change

How confident are you that you can eat better food

      _____ Sure I can   _____ Think I can   _____ Not sure I can

      _____ Don't think I can

Overeat less often   _____ I am interested in making this change

How confident are you that you can overeat less often

      _____ Sure I can   _____ Think I can   _____ Not sure I can

      _____ Don't think I can

Medication taking

Miss fewer medications   _____ I am interested in making this change

How confident are you that you can miss fewer medications

      _____ Sure I can   _____ Think I can   _____ Not sure I can

      _____ Don't think I can

Take medications on time more often   _____ I am interested in making this change

How confident are you that you can take medications on time more often

_____ Sure I can _____ Think I can _____ Not sure I can

_____ Don't think I can

Monitoring

Check my blood sugar more often _____ I am interested in making this change

How confident are you that you can check your blood sugar more often

_____ Sure I can _____ Think I can _____ Not sure I can

_____ Don't think I can

Miss fewer blood sugar checks _____ I am interested in making this change

How confident are you that you can miss fewer blood sugar checks

_____ Sure I can _____ Think I can _____ Not sure I can

_____ Don't think I can

Do my blood sugar checks on time more often _____ I am interested in making this change

How confident are you that you can do my blood sugar checks on time more often

_____ Sure I can _____ Think I can _____ Not sure I can

_____ Don't think I can

Problem solving for blood sugars and sick days

Prevent high blood sugars _____ I am interested in making this change

How confident are you that you can prevent high blood sugars

_____ Sure I can _____ Think I can _____ Not sure I can

_____ Don't think I can

Treat high blood sugars _____ I am interested in making this change

How confident are you that you can treat high blood sugars

_____ Sure I can   _____ Think I can   _____ Not sure I can

_____ Don't think I can

Prevent low blood sugars   _____ I am interested in making this change

How confident are you that you can prevent low blood sugars

_____ Sure I can   _____ Think I can   _____ Not sure I can

_____ Don't think I can

Treat low blood sugars   _____ I am interested in making this change

How confident are you that you can Treat low blood sugars

_____ Sure I can   _____ Think I can   _____ Not sure I can

_____ Don't think I can

Manage diabetes when sick   _____ I am interested in making this change

How confident are you that you can manage diabetes when sick

_____ Sure I can   _____ Think I can   _____ Not sure I can

_____ Don't think I can

Reducing risks of diabetes complications

Get preventative help   _____ I am interested in making this change

How confident are you that you can get preventative help

_____ Sure I can   _____ Think I can   _____ Not sure I can
_____ Don't think I can

Stop smoking   _____ I am interested in making this change

How confident are you that you can stop smoking

_____ Sure I can   _____ Think I can   _____ Not sure I can

_____ Don't think I can

Check my feet   _____ I am interested in making this change

How confident are you that you can check your feet

_____ Sure I can   _____ Think I can   _____ Not sure I can

_____ Don't think I can

Lose weight   _____ I am interested in making this change

How confident are you that you can lose weight

_____ Sure I can   _____ Think I can   _____ Not sure I can

_____ Don't think I can

Get blood pressure under control   _____I am interested in making this change

How confident are you that you can get blood pressure under control

_____ Sure I can   _____ Think I can   _____ Not sure I can

_____ Don't think I can

Learn to have a safe pregnancy   _____ I am interested in making this change

How confident are you that you can learn to have a safe pregnancy

_____ Sure I can   _____ Think I can   _____ Not sure I can

_____ Don't think I can

Living with diabetes

Being able to cope with diabetes   _____ I am interested in making this change

How confident are you that you can cope with diabetes

_____ Sure I can   _____ Think I can   _____ Not sure I can

_____ Don't think I can

Get support from my medical team   _____ I am interested in making this change

How confident are you that you can get support from my medical team

_____ Sure I can   _____ Think I can   _____ Not sure I can

_____ Don't think I can

Get support from family/friends   _____ I am interested in making this change

How confident are you that you can get support from family/friends

_____ Sure I can   _____ Think I can   _____ Not sure I can

_____ Don't think I can

Making Changes Part 2

How much do the following things keep you from making the changes you want? (mark one answer for each question)

I don't know what to do or how to do it

_____ A lot   _____ Some   _____ A little   _____ Not at all

It's too hard

_____ A lot   _____ Some   _____ A little   _____ Not at all

I don't have the time

_____ A lot   _____ Some   _____ A little   _____ Not at all

My health is not good

_____ A lot   _____ Some   _____ A little   _____ Not at all

I can't see well enough to do it

_____ A lot   _____ Some   _____ A little   _____ Not at all

I can't afford it

_____ A lot   _____ Some   _____ A little   _____ Not at all

No place to do it

_____ A lot   _____ Some   _____ A little   _____ Not at all

I don't have the will power

_____ A lot   _____ Some   _____ A little   _____ Not at all

My family / friends don't support me

_____ A lot   _____ Some   _____ A little   _____ Not at all

I can't remember to do it

_____ A lot   _____ Some   _____ A little   _____ Not at all

It's too uncomfortable

_____ A lot   _____ Some   _____ A little   _____ Not at all

It's not that important

_____ A lot   _____ Some   _____ A little   _____ Not at all

I don't enjoy it

_____ A lot   _____ Some   _____ A little   _____ Not at all

Miscellaneous

This form was completed by?

_____ Me   _____ Other (preferably not a health care provider)

Date completed _____

APPENDIX B

DNP ESSENTIALS AND OUTCOMES

DNP Essentials	DNP Capstone Essentials Outcomes
Essential I: **Scientific Underpinning for Practice**	This project implemented SMAs within a clinic setting for individuals with T2DM. This intervention can be considered an example of a quality improvement project that allows the NP to show leadership skills to help decrease diabetic complications.
Essential II: **Organizational & System Leadership for Quality Improvement & System Thinking**	DM is such a complex disease that requires the NP to effectively use their advance skills to help promote self-management in individuals with this disease. The long term outcomes of this project could help to increase quality of care, increase the patient's and clinician's satisfaction, and decrease the amount of money it takes to mange this illness, whereby releasing the financial burden this illness has placed on the health care system.
Essential III: **Clinical Scholarship and Analytical Methods for Evidence-Based Practice**	This project disseminated findings from evidence-based research to improve outcomes in patients with T2DM who participate in SMAs that incorporated DSME.
Essential IV: **Information Systems/Technology for the Improvement and Transformation of Health Care**	This project has the potential to help develop a system to track and monitor outcomes of patients with T2DM who participate in SMAs and learn how to self-manage their illness. This could help to promote behavior changes whereby helping to decrease DM complications.
Essential V: **Healthcare Policy for Advocacy in Health Care**	This project demonstrated leadership skills by the NP that was needed to help influence organizations in the development of new policies. The new policy will help to improve the way health care is delivered to patients with diabetes at this rural clinic.
Essential VI: **Interprofessional Collaboration for Improved Patient**	This project allows the NP to establish a multidisciplinary team within the

and Population Health Outcomes	organization to promote collaboration between these individuals in order to help mange diabetes through the SMAs.
Essential VII: **Clinical Prevention and Population Health for Improving the Nation's Health**	This project analyzed epidemiological, biostatistical, environmental, and other scientific data related to patients with T2DM who participate in SMAs to determine the significance of SMAs and their affects on the healthcare system.
Essential VIII: **Advanced Nursing Practice**	This project established and can sustain therapeutic relationships/partnerships with patients and other professionals to facilitate optimal care and patient outcomes in patients with T2DM who participate in SMAs to learn how to self-manage their diabetes and increase provider's and patient's satisfaction.

APPENDIX C

PERMISSION TO USE TOOL

AADE American Association of Diabetes Educators

AADE 7 Self-Care Behaviors ™

Permission Request Form: Publications

Shonda Williams _____ requests use of the following copyrighted AADE material:
(Requestor)

AADE Copyrighted Publication/Project/Program Title(s)/Material(s)/Logo(s): ___Diabetes Self-Management

Assessment Report Tool(D-SMART)_____

Chapter/Article Title(s): _____
(If applicable)

Page Number(s): _____

Use of this material is requested for the following:

Project, Program or Publication: ___Project_____

Type of Project, Program or Publication: Capstone Project (for a Graduate Nursing Program)_____

Projected Date(s) Project, Program or Publication: _____July – September 2013_____

Estimated number of copies to be printed or produced: _____25_____

Number of times will the product be printed or material be used within 1 year: For this project only_____

Do users have to pay for this project, program, or publication? ___no_____

By signing the line below, the signer understands that, if granted permission, the signer must:
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- Notify the AADE of any attempts to reproduce this material in quantities greater then listed above

Shonda Williams   _7_ / _12_ / _13_
SIGNATURE   Date

Shonda Williams, FNP-BC_____   (662)741-8844/slcjbw@hotmail.com____
PRINTED NAME and TITLE   Telephone Number/Email

Permission is granted by the AADE to use the material listed above.

Margaret Maloney   _7_ / _16_ / _13_
Margaret Maloney, Publications Manager, AADE   Date

Please complete and return this form to Margaret Maloney
Email: mmaloney@aadenet.org or Fax: 312.424.2427

APPENDIX D

INFORMED CONSENTS

THE UNIVERSITY OF SOUTHERN MISSISSIPPI
AUTHORIZATION TO PARTICIPATE IN RESEARCH PROJECT

INFORMED CONSENT

TITLE OF RESEARCH: Promoting Behavior Changes in Patients with Type 2 Diabetes Through Shared Medical Appointments and Diabetes Self-Management Education

Researchers: Shonda Williams, MSN, FNP-BC

Research Sponsor: Melanie Gilmore, PhD, CFNP

Explanation of Procedures
You are invited to participate in a research study designed to determine if behavior changes in diabetics are promoted using shared medical appointments and diabetes self-management education. Standard, usual medical appointments along with group diabetes management will be implemented to promote positive behavior changes in patients with diabetes. In order to participate in the study you must be age 21 or above, diagnosed with type 2 diabetes mellitus, have a hemoglobin A1c level of greater than 7.5, and be an established patient at Delta Health Center, in Mound Bayou, MS. Confidentiality will be maintained at all times. Any information that is obtained in connection with this study that can be identified with you will remain confidential and will be disclosed only as required by law. Personal information will be kept in a locked file and only the nurse practitioner/researcher will have access. All data (excluding the individualized medical appointment) collected will be shredded upon completion of this project no later than February 2014. The final data may be presented at professional conferences or submitted for publication in a professional journal if permission is given by participants. But no one person or group will be identified in those presentations or publications. Only group information will be reported. If you meet these requirements, and after hearing about the study, if you decide to be in the study, you will be asked to 1) sign 2 informed consents (a consent to participate and a consent to maintain confidentiality within the group), 2) complete a questionnaire requesting personal information about you and your behaviors regarding your management of diabetes, prior to the first shared medical appointments and 1 month after the second shared medical appointments (this will take 30 to 40 minutes), and 3) attend 2 shared medical appointments two weeks apart that will last approximately 2 hours each.

Risk and Discomforts
You may withdraw from this study at anytime without any consequences. This study involves only minimal risks. The risk involves individuals talking to others outside the group about what takes place in each group sessions. To help avoid this, informed

consents will be signed by each participant to ensure confidentiality within the group sessions. If anyone breaks this consent, the individual will no longer be permitted to continue in the study. If any questions on the survey cause any worry, the participant can contact the researcher immediately. Healthy snacks and water will be provided during each shared medical appointments. Excuses for work will also be provided if participants request them for work purposes.

Benefits
You may not personally benefit from your participation in this research; however your participation may provide valuable information to the healthcare community about behavior changes and shared medical appointments.

Alternatives
You have the right not to participate without any interference with your regular care.

Confidentiality
The information gathered during this study will be kept confidential to the extent permitted by law. No individual identities will be detectable in any reports or publications resulting from the study. Information from your regular medical appointment will not be used in this study, only your responses on the surveys that relate to the group education sessions.

Withdrawal Without Prejudice
You may withdraw from this study at anytime without any consequences or interference with your health care.

Cost of Participation
There will be no cost to you for participation in the educational part of this research project. Usual charges will apply for the individualized medical appointment. The extra time for the diabetes self-management education will be provided to you at no charge.

Payment for Participation in Research
You will not be paid for participating in the research.

Questions
If you have questions about the research Shonda Williams will be glad to answer them. Shonda Williams number is (662)741-8844 or her project chairperson, Dr. Melanie Gilmore can be reached at (601) 266- 5462. If you have questions about your rights as a research participant, you may contact the Chair of the Institutional Review Board (IRB) at The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, and by phone at (601) 266-6820.

Legal Rights
You are not waiving any of your legal rights by signing this consent form.

Signatures
Your signature below indicates that you agree to participate in this study. You will receive a copy of this signed informed consent.

Signature of Participant   Date

Signature of Witness   Date

If you have questions concerning this study please feel free to contact Shonda Williams at

the above phone number.

Sincerely,

_____

Shonda Williams, Primary Researcher

INFORMED CONSENT FOR SHARED MEDICAL APPOINTMENTS

Group counseling can be a powerful and valuable setting for education and growth. It is the desire of your group facilitator(s) that you reap all the benefits this group has to offer. To help this occur, groups are structured to include the following elements:

- A safe environment in which you are able to feel respected and valued as you communicate with one another
- An understanding of group goals and group norms
- Investment by both your facilitator(s) and members to produce a consistent group experience

A safe environment is created and maintained by both the facilitator(s) of a group and its members. Primary components are mutual respect and a chance to create trust. Another primary component for a safe environment has to do with confidentiality. Your group facilitator(s) are bound by law to maintain confidentiality, as group members are bound by honor to keep what is said in the group in the group. We realize that you may want to share what you are learning about yourself in group with a significant other. This is fine as long as you remember not to talk about how events unfold in group discussions or compromise the confidentiality of other group members.

LIMITS OF CONFIDENTIALITY:
- In the event that you are a threat to yourself or others (showing suicidal or homicidal intent), your facilitator(s) may need to report your statements and/or behaviors to family or other appropriate mental health or law enforcement professionals in order to keep you and others safe.
- Any elder abuse is required to be reported to the appropriate authorities.
- If a court of law orders a subpoena of case records or testimony, your facilitator(s) will first assert "privilege" (which is your right to deny the release of your records although this is not available in all states for group discussions). Your facilitator(s) will release records if a court denies the assertion of privilege and orders the release of records.
- Records may also be released with your written permission. Records will include only your personal progress in group—not information about other group members.
- Facilitators may consult with other professionals regarding group interactions. This allows a freedom to gain other perspectives and ideas concerning how best to help you reach your goals in group. No identifying information is shared in such consultations unless a release has been obtained from you as a group member.

OTHER SAFETY FACTORS:
- Members of a group may not use drugs or alcohol before or during group
- Members of a group should not engage in discussion of group issues outside of Group
- Members of a group should remember that keeping confidentiality allows for an

environment where trust can be built and all members may benefit from the group experience

- Your group facilitator(s) will monitor discussions and maintain a respectful environment to keep safety and trust a priority

ATTENDANCE

Your presence in group is highly important. A group dynamic is formed that helps create an environment for growth and change. If you are absent from the group, this dynamic suffers and affects the experience of you and other members of the group. Therefore, your facilitator(s) would ask that you make this commitment a top priority for the duration of the group. It is understood that occasionally an emergency may occur that will prevent you from attending this group session. If you are faced with an emergency or sudden illness, please contact your facilitator(s) before group begins to let them know you will not be present. We also ask members to call and notify the researcher when they decide to withdraw from the group. We ask this because each member of a group is important--your presence and your absence impacts members and facilitators--and we want to allow time for members to process when members choose to leave.

WHAT TO EXPECT

Group time consists of both teaching and processing time. Processing may revolve around an issue one member of the group is working on with time for structured feedback and reactions by other members of the group. At times the group may focus on a topic with all members verbally participating. In either case, the group dynamic offers a place where you can experience support, give support, understand more clearly how you relate to others, and examine your own beliefs about yourself, your spirituality, and the world around you. These dynamics provide a very powerful environment for change. Remember, the more you give of yourself during the sessions, the more you will receive. The more honest and open you are, the more you allow for insight and growth.

FEES

A fee for the individualized appointment will be charged the usual amount depending on the individual's sliding scale fee or copayment required by their insurance company. This fee will be collected by the front desk clerk when the individual checks in. There will be no cost to you for participation in the educational part of this research project.

CONSENT

Group Consent Form—Name of Group:
Promoting Behavior Changes in Patients with Diabetes Through Shared Medical Appointments and Self-Management

I have read the above information, understand the information, and agree to the terms of group participation.

_____ Date: _____
Signature of Group Member:

_____ Date: _____

Printed Name of Group Member:

APPENDIX E

LETTER OF REQUEST

Delta Health Center, Inc.
703 Martin Luther King Road
Mound Bayou, MS 38762

March 20, 2013

RE: Letter of Permission for Research Project

Dear Mr. John Fairman, Chief Executive Officer

My name is Shonda Williams, a Master's Degree Registered Nurse pursuing my Doctoral Degree in Nursing at The University of Southern Mississippi in Hattiesburg, Mississippi. As part of my degree requirements, I will be conducting a research project on promoting behavior changes in patients with type 2 diabetes mellitus through shared medical appointments and diabetes self-management education. I would like to ask your permission to conduct my project at your facility.

With your permission, I would like to conduct shared medical appointments and invite patients with type 2 diabetes to participate in order to promote behavior changes to decrease diabetic complications and increase positive outcomes in patients this population of individuals who are seen at your facility. All information gathered will be coded and kept in strict confidence to ensure protection of the patients. No part of the project will interfere with the patient's time for medical necessities. I would like to emphasize that participation is strictly voluntary.

I will need written consent from you either granting or denying my permission to use your facility to gather data for my research. The tentative date for initiation of this project is July 2013 through August 2013. I would like to thank you for your consideration of supporting me in my research.

Respectfully Submitted,

Shonda Williams, FNP-BC

APPENDIX F

IRB APPROVAL

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

INSTITUTIONAL REVIEW BOARD
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.6820 | Fax: 601.266.4377 | www.usm.edu/irb

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
  Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **13111903**
PROJECT TITLE: **Promoting Behavior Changes in Patients with Type 2 Diabetes Through Shared Medical Appointments**
PROJECT TYPE: **New Project**
RESEARCHER(S): **Shonda Williams**
COLLEGE/DIVISION: **College of Nursing**
DEPARTMENT: **Systems Leadership and Health Outcomes**
FUNDING AGENCY/SPONSOR: **N/A**
IRB COMMITTEE ACTION: **Expedited Review Approval**
PERIOD OF APPROVAL: **12/05/2013 to 12/04/2014**

Lawrence A. Hosman, Ph.D.
Institutional Review Board

APPENDIX G

LETTER OF SUPPORT

Delta Health Center

702 Martin Luther King Road • Mound Bayou, Mississippi 38762 • (662) 741-8800 • Fax (662) 741-8882

"Health Care with Care"
Since 1967

March 26, 2013

Dean Katherine Nugent
Attn: IRB
College of Nursing
The University of Southern Mississippi
118 College Drive #5095
Hattiesburg, MS 39406

Dear Dean Nugent and IRB Members:

I have read over Shonda's proposal for a research project to be carried out at Delta Health Center. I understand that this student is conducting this project as part of their requirements for the Doctorate of Nursing Practice program at The University of Southern Mississippi, and will have the opportunity to present their research findings in other venues.

I understand that the Institutional Review Board for the Use of Human Subject's in Research (IRB) at the University is concerned with protecting the confidentiality, privacy and well-being of research participants. Further, it is my understanding that the student will additionally be advised in this project by their academic advisor and the USM field liaison, both of whom will have regular contact with this student.

I do not have concerns about the study the student has proposed based on conversations with the student and after reviewing their research project proposal. The agency supports this student's plan and approves of the projects, including recruitment of participants and data collection, through our agency.

Should you have additional questions or concerns, you may contact me at (662) 741-2151 or ceo1@deltahealthcenter.org.

Sincerely,

John A. Fairman

John A. Fairman
Chief Executive Officer

Satellites: Greenville - Phone #(662) 335-3991 • Fax #(662) 332-1736
Moorhead - Phone #(662) 246-8029 • Fax #(662) 246-5847
Cleveland - Searcy - Phone #662-843-7373 • Fax #662-843-7510

APPENDIX H

SMA FLIER

APPENDIX I

TIMEFRAME FOR PROJECT

`MONTH	ACTIVITIES
January 2013	• Obtain guidelines to begin working on proposal for capstone project
February/March 2013	• Prepare and submit capstone proposal for chair to review
April 2013/May 2013	• Revise proposal after reviewed by chair • Resubmit proposal for review after corrections • Organize Proposal and meet with stakeholders from organization that the project will take place
June 2013	• Defend proposal • Apply for IRB approval • Make final revisions for capstone proposal and submit to chair and committee member for review
July	• Apply for application for degree (deadline July 5, 2013)
November /December 2013/January 2014	• Identify volunteers to participate in Capstone Project • Organize Capstone Proposal for implementation • Implement Capstone Proposal • Collect data for project
January/February 2014	• Evaluate and analyze outcomes of capstone project • Begin writing capstone defense
March 2014	• Compete final copy of defense to submit for review by chair and committee member • Revise paper for final review • Defend capstone project • Submit hard copy of Capstone Project to graduate reader
April 2014	• Final copy of paper to graduate reader
May 2014	• Graduate

APPENDIX J

EVALUATION PLAN

Project Objectives	Evaluation/Activities	Results
Promote behavior changes in patients with diabetes through SMAs.	Patients with T2DM participated in SMAs for a total of 2 sessions in the months of December of 2013. Individuals participated in group discussions and learning activities that helped to increase their knowledge about DM to promote behavior change.	Positive behavior changes was seen in two areas of the participants achieving their stated goals, with 100% (n=7) in healthy eating and 50% in activity.
Increase the self-management of DM in order to promote behavior changes in to prevent complications caused by this DM.	Provide evidence-based DSME on the 7 different behavior changes that patients can adopt and apply in order to set goals to assist with the self-management of their DM. This results in positive behavior change. Participants were evaluated after receiving DSME in SMAs. A pre-treatment and post-treatment D-SMART was compared to determine if there were behavior changes in participants after attending the two SMAs.	The post-treatment D-SMART did show some positive behavior changes in participants after implementation of SMAs and the evidenced-based DSME. The self-management of participants was increased as a result of the SMAS. This will help to prevent complications caused by diabetes.
Increase positive outcomes in patients with T2DM to help decrease complications caused by DM.	Increased behavior change is the ultimate goal for this project. Over time behavior changes will lead to long term outcomes. These long term goals will help to decrease diabetes complications, whereby decreasing the amount of money it takes to manage diabetes in patients who suffer from this illness.	Positive outcomes were seen through the positive behavior changes of participants with T2DM. This will eventually lead to long term outcomes of improved health status, quality of life, decrease in complications, and decrease healthcare cost.

APPENDIX K

STATEMENT OF THE PROBLEM (PICOT)

Clinical Problem: DM is a chronic disease that affects millions of individuals worldwide. DM is considered an epidemic and has caused many deaths due to the chronic complications that result from this disease. DM is as disease that can be prevented and managed through proper implementation of DSME and individuals willing to make positive behavior changes. By changing behavior and living healthier lifestyles could help decrease diabetic complications. Therefore it is essential for individuals with T2DM to learn how to implement the proper diabetes self-management to make the appropriate behavior changes to decrease diabetic complications.

Population: The population will consisted of adults, all African American female aged 50 and above with a diagnosis of T2DM. These individuals were established patient seen by the providers who work at this rural clinic.

Intervention: Participants with T2DM were recruited to participate in two SMAs in a clinical setting, providing DSME in order to promote behavior change. The TTM model along with the AADE7 Self-Care Behaviors was used to help promote behavior changes in this population.

Comparison: With the implementation of SMAs and DSME, individuals with T2DM who attend these SMAs tend to have improved diabetes related outcomes. A pre and post treatment D-DMART was used to compare findings and helped to determine if SMAs help to promote behavior changes in patients with T2DM.

Outcome: The intervention of SMAs with DSME increased the self-management skills of individuals with T2DM and promoted behavior changes in the individuals who participated in this project.

Timing: This project took approximately 2 months to complete.

Question: Will the implementation of SMAs incorporating DSME help promote positive behavior changes in individuals with T2DM?

REFERENCES

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