2018

A Patient-Centered Approach to Diabetes Education in a Rural Clinic

Paul Okpuzor
Walden University

Walden University

College of Health Sciences

This is to certify that the doctoral study by

Paul Okpuzor

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Diane Whitehead, Committee Chairperson, Nursing Faculty
Dr. Rosaline Olade, Committee Member, Nursing Faculty
Dr. Faisal Aboul-Enein, University Reviewer, Nursing Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2018

Abstract

A Patient-Centered Approach to Diabetes Education in a Rural Clinic

by

Paul Okpuzor

RN-MS, Walden University, 2014

RN, School of Nursing, Benin-City, 1983

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

May 2018

Abstract

Type 2 diabetes mellitus (T2DM) is a heterogeneous metabolic disease impacting more than 8.3% of adults in the United States. Diabetes-related care accounts for more than 11% of all patient care expenditures. The purpose of this project was to identify the primary concerns of members of the T2DM patient population in an underserved clinic in rural southcentral United States and to make recommendations for a staff diabetes education program to address these concerns. Orem's theory of self care outlined the importance of educating and supporting patients in their efforts to manage their own healthcare. Knowles's assumptions of how adult's learn guided the design and provided guidelines for the planning and implementation of the education program. The practice-focused question explored the major concerns of T2DM patients receiving care at the primary care clinic. Clinic providers completed the Diabetic Care Concern Assessment (DCCA) with all adult patients (n = 45) diagnosed with T2DM during primary care patient visits. DCCA responses were placed on an excel spreadsheet and analyzed for themes. Major themes from qualitative analysis of participant responses included fear of the disease, managing daily diabetes control, having additional education on diabetes, learning more about control strategies for diabetes, and helping with daily diabetes management. Findings will promote positive social change at the clinic as providers target specific concerns of their individual patients. T2DM patients may experience improved quality of life as they become empowered to manage their disease. The education program will also lead to the development and implementation of patient treatment plans that potentially decrease complications associated with diabetes.

A Patient-Centered Approach to Diabetes Education in a Rural Clinic

by

Paul Okpuzor

RN-MS, Walden University, 2014

RN, School of Nursing, Benin-City, 1983

Proposal Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

May 2018

Dedication

First, I must dedicate this work to our Father in Heaven for providing me the strength and the knowledge to complete this journey. I also dedicate this proposal to my children Paisley and Presley and my wife Dr. Priscilla for their support throughout this journey. Thank you, guys.

Acknowledgments

The completion of this DNP proposal was made possible with the help of family, friends, and colleagues. I would like to acknowledge Dr. Moe Zaw, my practicum preceptor, for his support and encouragement. I would also acknowledge Dr. Diane Whitehead for her support throughout this journey for her regular and articulated feedbacks. You are an amazing instructor. Thank you. You have played a tremendous role in my growth and development especially in this scholarly work. Once again, thank you.

Table of Contents

List of Tables

Section 1: Nature of the Project

Introduction

Type 2 diabetes mellitus (T2DM) is a frequently diagnosed chronic endocrine disease. It is a growing epidemic in the United States (U.S.), with 29 million Americans currently diagnosed (Lemoine, 2015). T2DM is defined as a cluster of clinical and genetic form of symptoms characterized by abnormally high blood glucose levels due to insulin deficiency or cellular resistance to the action of insulin (Arcangelo & Peterson, 2013). Diabetes affects more than 8.3% of adults in the U.S., and diabetes-related care accounts for 11% of all U.S. health care expenditures (White, Manning, Brawer, & Plumb, 2014). It is estimated that by the year 2030, an increase of up to 7.7% is predicted within the 20-79 years old age group (Duprez, Pover, Spiegelaere, & Beeckman, 2014). Diabetes affects all races; however, it disproportionately affects African American and the Latinos population (Van Dyk, 2010). According to Trief et al. (2013) and Steinhardt et al. (2015), 13.2% of African Americans (AA) and 12.8% of Latinos or Hispanic Americans (HA) have the highest percentage of incidences of diabetes. The annual cost of diabetes in the United in 2012 was $245 billion, with $176 billion in direct medical care costs and $69 billion in reduced productivity (Lemoine, 2015). A diabetes educational program enables patients with T2DM to make daily decisions about their diabetes care with an emphasis on reducing glycosylated hemioglobin (A1C) levels. Diabetes self-management education and support (DSME/S) provides the foundation to help people with diabetes to navigate these decisions and activities and has been shown to improve health outcomes (Powers et al., 2015). T2DM

has a negative impact on the life of patients and their compliance with their treatment, thereby preventing them from making changes in their lives. As a result, individuals with T2DM must be repositioned from passive recipients of care to active consumers who make informed choices and share responsibility for their health care (Brady, Segar, & Sanders, 2017). It is imperative that providers empower these patients to manage their own chronic disease, thus improving their quality of life. Understanding the barriers that prevent T2DM patients from managing their illness and addressing these concerns will promote a positive social change in the lives of these patients.

Problem Statement

T2DM is one of the leading causes of foot amputations and end-stage disease in the Southwest Houston area. The Southwest Houston area has a high population of AAs and HAs and is plagued by high poverty and unemployment with limited access to health care. At the clinic, the majority of the patients are aware that T2DM cannot be cured and personal care management of diabetes is an important part of diabetes care. However, for many patients, there is a knowledge deficit related to diabetes management and self-care. Diabetes self-management education improves hemoglobin A1C by 1% in people with T2DM (Powers et al., 2015). The evidence exists that lowering the hemoglobin A1C to less than 7% reduces the occurrence of micro vascular, neuropathic, and macro-vascular complications (American Diabetes Association [ADA], 2014; Powers et al., 2015). Patients with T2DM receive diabetes self-management education at diagnosis and during subsequent visits (ADA, 2014).

Many patients live with the disease without being diagnosed or are diagnosed when complications of the disease are already evidenced in their lives. The significant rise in the number of people affected by diabetes and insufficient health care resources make it progressively necessary to improve education on the prevention of diabetes complications (Green-Morris, 2014). People with diabetes-related issues use significantly more health services than those without T2DM (Green-Morris, 2014). According to the ADA (2014), it is important that patients with T2DM receive diabetes health education both at diagnosis and during a subsequent office visit.

In order to determine the health of individuals, it is important to perform needs assessments of those individuals. According to Kettner, Moroney, and Martin (2013), in order to determine if individuals have a need, it is important to evaluate existing conditions against some socially established standards. By doing so, individuals' needs are identified and supported to assume responsibility for their needs and existence in order to improve their quality of life.

This project sought to identify personal barriers impacting patients' abilities to manage their T2DM. Based on the identification of these personal barriers, clinic providers were provided with an evidence-based education related to the major themes identified by the patients. Bradshaw (2010) stated that evidence-based practice (EBP) informs caring and clinical practices with the best available knowledge, ensuring that nursing remains a profession grounded in science. EBP has shown to improve patient outcomes by decreasing patient mortality (Emparanza, Cabello, & Burls, 2015). According to Brower (2017), EBP has thus evolved into a dynamic practice that is rooted

in bettering patient outcomes. With a basic understanding of EBP and the motivation to do better, all professionals have the opportunity to ground their clinical decision making in EBP (Brower, 2017).

T2DM plays a significant role in the inability of patients with diabetes to perform daily activities. This project focused on assisting patients to acknowledge their own concerns and help them achieve their goals. Patients with diabetes must learn to evaluate themselves and decide what action is needed to attend to their needs (Surucu & Turkey, 2012). Therefore, the project was significant to nursing practice by identifying the concerns of patients with T2DM and then developing diabetes education to address those concerns.

Purpose

The purpose of this project was to identify the major concerns of the T2DM clinic patient population in Southwest Houston area and make recommendations for a patient-centered diabetic education program. A gap existed between diabetic education expectations and the provision of this education. Fragmented education programs result in high failure rates in the attempt to prevent T2DM (Green-Morris, 2014). With the limited time available for patient education, identifying the major concerns of the patient and addressing these concerns may lead to a more motivated patient and improved outcomes (University of Michigan Diabetes Research Center, 2014). The project question was: What are the major concerns of the T2DM patients receiving care at the primary care clinic?

The purpose of this project was to identify the major concerns of the T2DM clinic patient population and make recommendations for a diabetic education program to address these concerns. Providing patient-centered diabetes education will achieve the following: (a) Help improve the knowledge of the patients, (b) improve the patients' overall health, (c) reduce complications associated with diabetes, (d) reduce diabetes costs for both the individual and the government, and (e) improve patients' quality of life and their health behaviors.

In this project, the clinic providers sought information from their patients related to their concerns in managing their T2DM. This deidentified information was provided to me. I reviewed the concerns and identified the major themes. Using this information, a staff education program was developed using current best practice guidelines and evidence related to T2DM.

Nature of the Doctoral Project

This project met the *Essentials for Doctoral Education for Advanced Nursing Practice* as defined by the American Association of Colleges of Nursing (AACN). Specifically, this project will meet Essential VII – Clinical Prevention and Population Health for Improving the Nation's Health. Utilizing this essential, nursing professionals were involved in analyzing and integrating appropriate secientific data in promoting the principles of population health. The clinic staff were able to integrate the principles of population health, after understanding the implications of individual and the community lack of knowledge about diabetes, provided education to improve the health of the community they serve.

To understand the concerns of T2DM patients at the clinic, clinic providers interviewed each patient. Using an assessment form (see Appendix A), this deidentified information was provided to me. Orem's theory which focuses on self-care and self-care deficit and Malcolm Knowles' theory of adult learning were used as frameworks for the education program.

The aim of diabetes education is to improve patient outcomes. Diabetes education improves hemoglobin A1C (HbA1c) by 1% in people with T2DM (Powers et al., 2015). Diabetes education provides the foundation to help people with diabetes navigate decisions and activities and has been shown to improve health outcomes (Powers et al., 2015).

Significance

Diabetes is a major problem within this Southwest Houston community, and is one of the leading reasons for foot amputations and end-stage disease. People with diabetes-related issues use significantly more health services than those without T2DM (Green-Morris, 2014). According to the ADA (2014), it is important that patients with T2DM receive diabetes health education both at diagnosis and during a subsequent office visit. Due to the limited time for office visits, it is imperative that providers assess the major concerns of T2DM patients and assist these patients to address these concerns. This project will improve the ability of the clinic's providers in Southwest Houston to identify personal barriers and concerns regarding self-care of their T2DM patients and families. An individualized approach to education based on identified barriers will allow

the providers to do specific education in the time allotted for office visits. This approach could be transferred to dealing with patients with other types of chronic illnesses.

Summary

Diabetes is a chronic metabolic disease with increasing incidence. Diabetes self management education DSME has emerged as a significant intervention to promote disease management, especially in a high-risk population (White et al., 2014). Assessing the concerns of the T2DM clinic population demonstrated the clinic provider's interest in the patient as well as identification of areas that the patient may be more highly motivated to change (University of Michigan Diabetes Research Center, 2017).

T2DM patients need to learn self-management skills and about diabetes and how it affects them now and in the future. Education in patient-centered care should build on the findings that focus more on current and future burden of symptoms and treatment than blood glucose levels (Woodcock & Kinmonth, 2001). Education programs for patients with diabetes have led to significant benefits in glycemic control (Hayek et al., 2013) Section 1 introduced the clinical practice program, the practice question, and the significance of this project to nursing practice and social change. Section 2 discusses the theoretical framework and evidence-based literature supporting this project in Southwest Houston.

Section 2: Background and Context

Introduction

The main focus of diabetes education is to encourage patients to make knowledgeable healthcare decisions and identify their self-care activities. Diabetes is a chronic long-term disease with an increasing number of people have diabetesMaltinsky, Hall, Grant, Simpson, & MacRury, 2013). During the last 20 years, the prevalence of T2DM has increased dramatically in many parts of the world, and the disease is now a worldwide public health problem (Laursen, Christensen, Christensen, & Frølich, 2017). Given the key role of practice nurses in diabetes care, it is important to discover whether they could identify their patient's main concerns at the end of their care within a month.

The purpose of this project was to identify the major concerns of the T2DM clinic patient population and develop a staff education program based on these concerns. The practice-focused question was: What are the major concerns of the T2DM patients receiving care at the primary care clinic?

Management of diabetes requires a continuous efforts of patients and practitioners as they may view illness in different ways, which may prevent the uptake of health advice. Therefore, health education on diabetes should focus on a platform where patients can always freely express their views and concerns about diabetes. Patient-centered care with an emphasis on the provision of advice on lifestyle changes, modifying diet, and daily eating habits changes should be part of diabetes education. Patients are often devastated with the news of being diagnosed with diabetes. The diagnosis of diabetes is said to be accompanied by considerable shock, and it can toy with

emotions (Woodcock & Kinmonth, 2001). Section 2 discussed the models framing this project and the evidence-based literature on T2DM and patient education.

Concepts, Models, and Theories

Two models will represent the theoretical framework for this project: Knowles' adult learning theory and Orem's theory of self-care.

Theory of Adult Learning

Malcolm Knowles' theory was used to guide the design of the project and emphasize the relationship between the provider and the patient. Knowles began developing a model of adult education in the 1962 in response to the needs of the field at the time. Chesbro and Davis (2002) stated that the term Knowles used to identify his model of adult education was andragogy, defined as the art and science of teaching adults. Knowles also indicated that the theory will be based on the following assumptions that are related to the qualities of life minority patients in this Southwest Houston community possess.

- As a person matures, his or her self-concept moves from that of a dependent personality towards one of a self-directed human being.
- An adult accumulates a growing reservoir of experience, which is a rich resource for learning.
- The readiness of an adult is closely related to the developmental task of his or her social role (Chesbro & Davis, 2002).

Thus, an adult is more problem-centered than subject-centered (Chesbro & Davis, 2002). Knowles' theory of andragogy is based on the concept that participation and

experience lead to self-directed learning and adults are not dependent upon others to teach them all they need or want to know about a subject; however, they do often need a facilitator to promote and guide learning (Chesbro & Davis, 2002).

Orem's Theory of Self-Care

In nursing, self-care is considered essential in the management of chronic disease such as diabetes. Orem's theory has made a significant contribution to care provision and knowledge development in nursing (Olivella-Fernandez, Bastidas-Sanchez, & Castiblanco-Amaya, 2012). Hashemi et al., (2014) stated that many attempts have been made in nursing using Orem's theory in the provision of care based of evidence. Mohammadpour, Rahmati Sharghi, Khosravan, Alami, & Akhond, (2015) reported that this theory could help nurses improve patients' self-care abilities. According to Hashemi et al. (2014), Orem's self-care theory provides factors that influence self-care such as experience, skill, motivation, confidence, culture and habbits in the planning and implementation of the principles of self-care that are used as a framework in guiding self-care programs. Orem's theory of self-care helps to identify internal and external factors requiring modifications for patients with T2DM to maintain healthy lifestyles. Orem's theory of self-care was also used to provide family and staffs supportive diabetic education. Green-Morris (2014) indicated that Orem's theory of nursing has three dimensions: Theory of self-care, the theory of self-care deficit, and theory of nursing systems. For patients with diabetes, diabetes self-care is necessary for the maintenance of daily activities as well as promoting their well-being. The diabetes education that is provided in the clinic in Southwest Houston during each visit will assist patients to

accomplish goals individualized to each patient. In the context of Orem's self-care deficit, Orem refers to it as a relationship between the patient and the provider rather than the patient's condition. In this regard, the need for the care provided by the nurse is identified for the provision of care not only for the preexisting deficit but also for the potential deficit.

Orem's theory of nursing systems impacts patients with T2DM through the supportive-educative efforts. The inability of patients to make informed care decisions about diabetes is partly related to poor supportive education. Lack of proper supportive diabetic education can result in a situation where patients are unable to attain the knowledge necessary to maintain healthy daily activities. The supportive-educative efforts help individuals reduce their self-care deficit, improve their self-care ability, and fulfill their universal, developmental, and health deviation self-care needs. In this system, a nurse acts mainly as a regulator, educator, supporter, and counselor (Meleisebrahim, 2007; Mohammadpour et al., 2015).

According to Hodges and Videto (2011), theory likes Orem's are an integral part of a DNP project, as they help students with the understanding of the influence of health behaviors on the care nurses provide. Poor self-care activities lead to poor health and its comorbid complications. It is therefore important to evaluate the diabetes education knowledge gained by the patients to determine their level of understanding of the education and the effectiveness of education provided by nurses and other staff members. The project proves the concept that assessing patients' knowledge of T2DM is vital during the planning, development, and implementation stages of an educational program.

Orem's theory is relevant in any setting for guiding the practice that is used to organize care for the identified population such as AAs and HAs based on their ability and willingness to learn.

Relevance to Nursing Practice

T2DM

Diabetes mellitus (DM) is both a metabolic syndrome that is characterized by hyperglycemia as well as a cause of disturbances in the metabolism of carbohydrates, proteins, and lipids (Beibei et al., 2017). Factors that contribute to T2DM include obesity, genetics, and knowledge deficit regarding education and exercise (Beibei et al., 2017). The worldwide prevalence of diabetes for all age groups was 2.8% as estimated in 2000, and this was projected to increase to 4.4% by 2030 (Tan, Cheng, & Wang, 2015). Vieira-Potter, Karamichos, and Lee (2016) pointed out that the complications of T2DM such as heart disease, stroke, and kidney failure are part of impaired microvascular function such as atherosclerosis, whereas impaired microvascular function leads to nephropathy, retinopathy, and neuropathy and are also as a result of untreated T2DM. Yuncken (2014) estimated that $548 billion was spent worldwide to treat 382 million patients with T2DM. Loucks et al. (2016) suggested that patients should be educated regarding behaviors that will improve glycemic control such as diet, glucose monitoring, and physical activity, as well as adherence to hyperglycemic medications.

T2DM is an incurable disease that affects multiple organ systems when not therapeutically managed and excessively high levels of blood glucose create a group of symptoms that causes life-threatening complications (Green-Morris, 2014). T2DM is a

chronic disease that is characterized by hyperglycemia or elevated blood sugars (Lemoine, 2015). It has been estimated that the global burden of all types of diabetes will be about 300-400 million in 2030 (Eborall et al, 2016). However, advancement in modern technology and medicine has given patients the opportunity to control the debilitating effects of the disease and to live a better life. Maintaining glycemic control is a major factor in the prevention of diabetes micro and macrovascular complications, which can lead to poor quality of life (Lemoine, 2015). Otero, Zanetti, and Ogrizio (2008) measured knowledge before and after diabetes education to show that there is a significant increase ($p < 0.05$) in participants' knowledge regarding their disease (Green-Morris, 2014). This result of the study indicates that there is a need for diabetes education especially for patients with low educational status. Diabetes education improves A1C (HbA1c) levels by 1% in people with diabetes (Powers et al., 2015).

Approximately 4.9 million African Americans >20 years of age have type 1 or T2DM (diagnosed and undiagnosed), with the highest rate (31%) among those >64 years of age (Peña-Purcell, Luohua, Ory, & Hollingsworth, 2015). African Americans experience marked disparities in diabetes care and outcomes compared to other populations, especially non-Hispanic Whites (Peña-Purcell et al., 2015). African Americans as noted by Peña-Purcell et al. (2015) are estimated to be 2.2 times more likely to die from diabetes than Whites. Diabetes mellitus affects approximately 29 million adults in the United States [1]. African-Americans have a higher prevalence of T2DM mellitus (T2DM), poorer metabolic control, and greater risk for complications and death compared to White Americans (Williams, Lynch, Knapp, & Egede, 2014).

A recent study by Geiss et al. (2014) stated that while trends for diabetes incidence and prevalence among Whites Americans have plateaued in the last several years, the number of patients diagnosed with T2DM is still high among Hispanics. Latinos have higher rates of renal disease and retinopathy, have poorer glycemic control, and receive fewer diabetes monitoring tests compared to Whites (Rothberg, Greene, Ferez-Pinzon, Mejia, & Umpierrez, 2016).

The prevalence of diabetes among the Hispanic population of all ages in the United States is 13.3% for all Hispanics and 14.3% among those of Mexican decent (Brunk, Taylor, Williams, Cox, & Clark, 2017; Schiller, Lucas, Ward, & Peregoy, 2012). Gucciardi, Chan, Manuel, and Sidani (2013) stated that there is a growing ethnic disparity in the prevalence of diabetes and its related complications. In the United States, the 2004-2006 national survey data indicated that the prevalence of diabetes was greater in non-Hispanic Blacks (11.8%) and Hispanics (10.4%) compared to non-Hispanic Whites (6.6%). The primary goal in the management of diabetes mellitus is to control the level of glycosylating hemoglobin HbA1C at less than 7% as concluded by Scott (2014). Yuncken, (2014) suggested that patients with T2DM are encouraged to monitor closely their blood glucose levels and adhere to their dietary and lifestyle changes in order to avoid neurovascular complications that kill individuals with diabetes mellitus every 6 seconds.

Patient Perceptions of Diabetes

Patients and practitioners may view illness in different ways, which may prevent the uptake of health advice. Therefore, health education on diabetes should focus on

patients expressing their views and concerns freely. A patient-centered care with emphasis on lifestyle changes by modifying diet and daily eating habits changes should be encouraged. There is an understanding that different perceptions by patients are the most important cause of patients' non-adherence to diabetes treatment. Therefore, understanding the behavior of persons towards their problems requires knowing their attitudes about it (Aboighsami & Sedaghat, 2015). In order to successfully implement education and therapeutic community programs, providers need to be informed by understanding patient's attitudes and beliefs (Aboighsami & Sedaghat, 2015). Participants' perception of diabetes is related to the practitioners' constant emphasis on diabetes rather than addressing their primary concerns during their office visits. They wish practitioners first addressed their concerns about diabetes before addressing the clinical aspect of their care. Many patients lamented the inadequate explanations for disease and treatment, and among those who considered themselves informed, there appears to be little awareness of the need for personal changes in lifestyle and health promotion practices as stated by Couras Corrêa et al. (2017). Some clinical experts have proposed a new patient-centered clinical method to deal with their perceptions and recommends paying more attention to patients' expectations, thoughts, feelings, and ways he or she experiences illness and seeing them as collaborators (Lai, Lew-Ting, & Chie, 2005). Nurse education in patient-centered care should build on the findings that patients focus more on current and future burden of symptoms and treatment than on blood glucose levels (Woodcock & Kinmonth, 2001). Some of the patients perceived T2DM as a disease with severe complications with long-term use of medications.

Diabetes Education

The primary goal in the management of diabetes mellitus is to control the level of glycosylating hemoglobin HbA1C at less than 7% as concluded by Scott (2014). Control of the HbA1C allows for control of the damaging effects of T2DM. Diabetes is a concern throughout the world, and a comprehensive education program should include patient's attitudes, their concerns, and the underlying cause of their concerns. (Anderson, Donnelly, Funnell, & Johnson, 1991). The educating personnel will use acquired knowledge and strategy to assist the participants in the process. The strategies include providing the participants with the education for informed decision making, assisting participants in weighing costs and benefits of various treatment options, setting self-selected behavioral goals, and providing them with the importance of role playing in their self-management efforts. The skills the nurses will need in order to play the roles include asking questions in order to understand the participants' fears, concerns, and priorities; listening to their responses; and educating and supporting them through the education process (Funnell, 2004). In any successful educational and therapeutic programs in meeting a particular community, providers need to be informed by understanding patients' attitudes and beliefs (Aboighsami & Sedaghat, 2015). Providing education and knowledge to patients with T2DM is a mainstay in management (Rice, Cranch, Littlemore, Mortimer, Platts & Stephens, 2017). There is strong evidence that self-management interventions that include diabetes education and skills training are effective at improving metabolic control in diabetes (Williams et al., 2014). Diabetes self-management education (DSME) is the first line of defense to mitigate diabetes

complications (Peña-Purcell et al., 2015). African-Americans with T2DM have higher morbidity and mortality partly attributed to poor glucose control and lack of formal diabetes self-management education and support (DSMES) programs compared to Whites (Gaillard, Amponsah, & Osei, 2015).

Green-Morris (2014) stated that over the years, diabetes education has been recognized as one of the best practices for effective diabetes care. The ADA (2015) stated that standards of care recognize diabetes management education as an important aspect of care for people with diabetes. Powers et al. (2015) espoused the fact that diabetes is a chronic disease that requires a person with diabetes to make a multitude of daily self-management decisions and to perform complex care activities. Diabetes education has been shown to provide the platform to assist people with diabetes to navigate through these decisions and has proven to be effective with their health outcome. One approach to address this problem is to provide DSME programs that are appropriate, empowerment-based interventions and translating evidence-based practices and programs.

Literature supports the opinion of Brunk et al, (2017), that clear evidence exists that culturally tailored educational interventions are effective in improving knowledge and glycemic control in Hispanic diabetic populations. A descriptive qualitative study design and phenomenological analysis by Brunk et al. (2017) were used in an educational program that focused on low-glycemic food choices, physical activities, and glucose self-monitoring. Findings indicated that diabetes education helped provide good information about diabetes and also improved their knowledge and motivation to improve barriers to

change. Gaillard et al. (2015) conducted a randomized control group standard care study of African Americans with T2DM for 6 months, measuring body weight, blood pressure, random blood sugars and point-of-care (POC) hemoglobin A1C (A1C) and lipids/lipoproteins. The authors' finding indicates that after 6 months, DSMES, supplemented with POC testing, was associated with significant improvements in glycemic control

Peña-Purcell et al. (2015) designed an exploratory study that was culturally appropriate for African-American audiences and assessed the efficacy of the "Wisdom, Power, Control" diabetes self-management education (DSME) program with regard to diabetes knowledge, self-efficacy, self-care, distress level, and A1C in an African-American population. A total of 103 participants were recruited from the intervention counties, and 14 were identified from the control counties. Findings indicated that participants in the intervention group reported a significantly higher level of diabetes knowledge ($\Delta = 9.2\%$, $p < 0.0001$), higher self-efficacy ($\Delta = 0.60$, $p < 0.0001$), more self-care behaviors ($\Delta = 0.48$, $p < 0.0001$), lower distress level ($\Delta = –0.15$, $p = 0.05$), and higher health status ($\Delta = 0.49$, $p = <0.0001$).

Latinos have higher rates of renal disease as a result of diabetes. The incidence of diabetes in Latinos is 12.8%, compared to 9.3% of the general population, and they suffer from a higher prevalence of diabetic complications and mortality than Whites with diabetes (Rothberg et al., 2016). Due to high levels of patients diagnosed with T2DM in the Hispanic community, diabetes self-management education (DSME), and behavioral support has emerged as effective strategies to improve the outcomes of control and

management of T2DM in this population (Rotberg et al., 2016). Rothberg et al. (2016) conducted a quasi-experimental study conducted over 5 years with a sample of 142 Latinos with T2DM mellitus. These patients received culturally appropriate diabetes self-management education and support (DSME/S) and came from seven primary care clinics in Georgia. Findings from this study, according to the authors, showed that A1C was lowered from 9.1% at baseline to 7.8% at follow-up (p .001), blood pressure decreased from 135/85 to 128/79 mmHg (p .001), and home blood glucose monitoring increased from 63% to 85% (p 001).

Dizdar et al. (2016) performed a cross-sectional study to assess patients' knowledge of diabetes care and indicated that education about diabetes can significantly improve knowledge of self-care management and can help in achieving glycemic control. This study showed that the reason for poor diabetes control with its associated complications is due to poor level of education. Continuing education about self-care management and complications are crucial, and this should be accompanied by a regular assessment of patients' diabetic knowledge (Dizdar et al., 2016). The study showed that it is important to provide patients with diabetes continuous assessment, follow-up and support during this difficult time.

Cortez et al. (2017) conducted a clustered randomized trial of educational programs based on empowerment use a participatory process that allowed people with diabetes to be responsible for their own condition, sharing that responsibility with health care professionals, and having their actions in care management acknowledged. The educational program involved a questionnaire that evaluates knowledge (DKN) using 15

multiple-choice questions about different aspects related to general knowledge about diabetes (Cortez et al., 2017). The authors concluded that the empowerment program based on individualized goals for changing psychosocial, behavioral, and clinical aspects was effective in improving self-care practices and metabolic control of diabetes mellitus in Brazilian users.

Education Program Evaluation

Improving the quality of chronic disease care is contingent, in part, on accurately measuring and reporting current performance, according to McCoy et al. (2016). Since the focus of diabetes education is now based on outcome rather than content, a need exists to evaluate the disease management projects and measure its impact on patients' care. Education program evaluation includes monitoring and collection of data that involves both the funding and payment for products and services delivered. Diabetes education is an ongoing process of encouraging diabetes knowledge and skills required for diabetes care.

The effectiveness of diabetes education components has been evaluated by various studies. In a controlled trial in Iran by Shakibazadeh, Bartholomew, Rashidian, and Larijani (2016) statistically significant improvements were seen in DSME patients for self-care behaviors, health beliefs, attitudes toward diabetes, stigma, and self-efficacy and patient satisfaction. An evaluation using the context, input, process, and product (CIPP) model by Green-Morris (2014), shows that the basic foot care knowledge of the participants improved with diabetes education.

For this project, the five guiding principles established by ADA as stated by Funnell, Brown, Childs, Haas, Hosey, Jensen, & Weiss, (2010) will be used to develop recommendations for diabetes education for this population.

The five guidelines include:

- Diabetes education is effective for improving clinical outcomes and quality of life, at least in the short term. This principle helps explain the effect of education gained by patients within a short period of time.
- DSME has evolved from primarily didactic presentations to more theoretically based empowerment models. The second guideline explains the progression of diabetic education from a mere presentation to creating huge opportunities to improve patient care.
- There is no one "best" education program or approach; however, programs incorporating behavioral and psychosocial strategies demonstrate improved outcomes. Guideline three shows how the program incorporating both behavioral and psychosocial strategies lead to better patient outcomes.
- Ongoing support is critical to sustaining progress made by participants during the DSME program. The fourth guideline emphasizes the interrelationship between the diabetic education provided to patients and changes in behavior changes of the participants and its impact on their outcomes

- Behavioral goal-setting is an effective strategy to support self-management behaviors. The fifth guideline explains how patients' defined goals, as well as their outcomes, can help evaluate the diabetic education they received.

Local Background and Context

The setting of this project was a primary care clinic located in the south central United States. This clinic offered services to low-income patients from different ethnic groups. There were approximately 150 patients registered at the clinic, 80 of whom have T2DM. This significant rise in the number of people diagnosed with T2DM and the lack of resources by the patients within this area, made it important to improve their knowledge of diabetes through education while at the same time demonstrating a personal interest in the concerns of the individual.

Definition of Terms

T2DM: A chronic disease that requires a person with diabetes to make a multitude of daily self-management decisions and to perform complex care activities (Powers et al., 2015).

A1C (HbA1c): A test that determines how well blood sugar is under control. Hemoglobin A1c is a test that indicates the average level of blood sugar over the past 2 to 3 months. Patients diagnosed with diabetes need to have this test done regularly to see whether their blood sugar levels have been staying within a target range. Effective diabetes treatment offers the patients opportunities to address the complications of the disease.

Established patients: Patients who had at least one visit with the clinic prior to the commencement of the project.

Role of the DNP Student

My role as a DNP student was to obtain the de-identified data related to patient concerns from the providers and develop recommendations for an evidence-based diabetes education program for the clinic providers. The providers used the assessment form in the Appendix A to interview patients related to their major concerns in dealing with their T2DM. The clinic provided the deidentified forms to me. I analyzed the concerns and identified major themes. Using current best practices from the literature, I developed a staff education program. To be effective in the process, I sought the cooperation of all staff members at the clinic site and provided a leadership role in implementing change within the system. After due consultation and collaboration with the staff at the clinic, it was determined that interviewing patients regarding their major concerns would be an effective way to identify education topics for the providers.. Due to the limited time that providers have to spend with the patients, identification of major concerns and an education program targeting those concerns was both time and cost effective.

Summary

Diabetes is a chronic disease with a growing epidemic in the United States. Twenty-nine million people are currently diagnosed with T2DM (Lemoine, 2015). It was important to provide consistent, personalized diabetes education focusing on patient

concerns at each patient visit. Emphasis was on the patients' lived experiences in the implementation of programs that have shown to improve their health outcomes. An understanding of the individual patient concerns helped providers position themselves in improving diabetic care and patients' overall quality of life.

The expectation of diabetic care is to improve patient outcomes; however, the fragmented education provided led to high rates of failed attempts in the prevention of the disease (Green-Morris, 2014). Another reason for the gap according to Green-Morris (2014) is a lack of consistency, which substantiated the need to empower patients regarding diabetic care. For the success of this project, all stakeholders had an understanding of the vision as well as the mission of the project so that no one will be left out of the process.

Section 2 discussed the theoretical framework and current evidence supporting this project. Section 3 discussed the collection and analysis of the evidence supporting the development of this project.

Section 3: Collection and Analysis of Evidence

Introduction

DM imposes economic burdens on the United States due to direct and indirect medical costs, which include loss of work productivity as a result of its complications and premature mortality (Lemoine, 2015). The purpose of this project was to identify the major concerns of the T2DM clinic patient population and develop a provider diabetic education program to address these concerns. such as fear of diabetes, cost of treating diabetes and the daily managem,ent iof diabetes

Practice-Focused Question

The project question was: What are the major concerns of the T2DM patients receiving care at the primary care clinic? This information guided a diabetes education program presented to the clinic providers.in Southwest Houston who were in daily contact with the patients.

Sources of Evidence

Evidence Generated for the Doctoral Project

The evidence generated for this project was the deidentified assessment forms from T2DM patients collected by the clinic providers. These forms were provided to me. I reviewed the concerns and barriers identified by the patients and identified major themes. Based on these themes, I developed an education program for the providers.

Participants

The participants for this project were the providers at the clinic who assessed the T2DM adult patients and documented their findings on separate deidentified data sheets.Adults over 18 years of age with a diagnosis of T2DM were assessed for one month.

Procedures

The clinic providers reviewed the Guidelines for Diabetes Care Concerns Assessment Form (see Appendix A). The assessment form to be used in this project was developed by the University of Michigan Diabetes Research Center and was available on their website. Each chart had a separate sheet with no identifying patient information that the providers completed upon assessing the patient for diabetes care concerns (see Appendix A). The providers assessed all adult patients with T2DM seen in the clinic for one calendar month. At the end of that month, the providers gave me the deidentified data sheets. Information data was tabulated using an Excel spread sheet (see Appendices D and E) and major themes identified (see Table 2). The staff education program was developed to address evidence-based recommendations for the T2DM patients' concerns. The relationship between the guiding principles established by the ADA and the staff education program are described in Table 1.

Table 1

Relationship Between ADA Standards and Education Program

ADA Standard	Education Program
Diabetes education is effective for improving clinical outcomes and quality of life.	An education program provided current evidence based practices to share with patients.
Diabetes education should be an ongoing opportunity to improve patient care.	The fact sheet is available for ongoing review for providers in order to have ongoing patient education
There is no one best education program	Patients were surveyed about their concerns and the education program tailored to meet patient needs
Ongoing support is critical for patients	Recommendations include continued review of patient concerns and adjustments to patient education.
Patient defined goals are important to improving outcomes	Patients identified their concerns; providers should help patients set goals based on concerns.

Protections

This project involved only deidentified data provided by the clinic. All data sheets and summary information will be kept in a secured and locked location at the clinic for 3 years. Documents will be shredded after 3 years. A letter of cooperation from the Enwil Medical Association was obtained. The Walden University Institutional Review Board (IRB) approval number is 02-21-18-02300260.

Analysis and Synthesis

The project question was: What are the major concerns of the T2DM patients receiving care at the primary care clinic? The purpose of this project was to identify the major concerns of the T2DM clinic patient population in Southwest Houston and make recommendations for a diabetic education program to address these concerns. The clinic providers spent one calendar month exploring the adult T2DM patients' concerns about their disease using the Guidelines for Diabetes Care Concerns Assessment Form (see Appendix A). Responses were placed on an Excel spread sheet (see Appendices D and E) and major themes identified (Table 2). Based on the data analysis, a staff education program was developed, implemented, and evaluated.

Four participants took part in the diabetes education program aimed at addressing the patients' concerns about diabetes. The education was provided through an interactive discussion using a handout (see Appendix C). The handout will be available for current and future providers.

Summary

The purpose of this project was to identify the major concerns of the T2DM clinic patient population and develop a staff diabetic education program to address these concerns. Developing patient-centered and evidence-based recommendations for clinic providers to address these concerns will promote quality of life and social change such as income, education, housing and access to nutrition within this clinic and the community it serves. Section 3 discussed the review of the deidentified information provided by T2DM patients to their providers at the clinic related to their concerns for managing their chronic disease. The process of reviewing the assessment forms and identifying themes to develop an education program was discussed. Section 4 provides the analysis of the assessment forms and the major themes identified. The development, implementation, and evaluation of the education program are also discussed in Section 4.

Section 4: Findings and Recommendations

Introduction

Diabetes is a chronic disease with increasing prevalence worldwide. In 2014, an estimated 422 million adults representing 8.5% of the global population were living with diabetes (Dogba, Dipankui, Chipenda Dansokho, Légaré, & Witteman, 2018). The disease and its complications account for a high percentage of local and federal government budgets.

The current diabetes literature supports the importance of diabetes education. However, in the short time that providers have with patients, it is important to address patient concerns during that time. The purpose of this project was to determine T2DM patients' concerns, and evaluate whether diabetic education provided to the clinic providers had any impact on the clinic patients. The Diabetes Care Concerns Assessment Form was used for data collection. The project question was: What are the major concerns of the T2DM patients receiving care at the primary care clinic? The purpose of this project was to identify the major concerns of the T2DM clinic patient population and implement a diabetic education program to address these concerns.

Four clinic providers participated in the data collection about the participants' diabetes concerns and recieved education on how to address the patients concerns.(see Table 2)

Findings and Implications

Using the form in Appendix A, four clinic providers obtained information about the participants' diabetes concerns. The first question revealed the major concerns the participants cited about T2DM. Nineteen out of 45 participants were concerned with complications of diabetes. Fifteen participants reported cost of treatment as their main concern. Two participants feared getting worse. Additional concerns included daily blood sugar monitoring, fear of being diagnosed with diabetes, and regular taking of medications. The second question led to the following responses: 14 participants responded that monitoring their blood sugar frequently was their main issue. Nine participants responded that regular doctor visits were their main issue, while eight participants cited food as their main difficulty. Seven of the participants claimed they had difficulties taking medications (including oral medications and insulin) on a daily basis. Two participants cited exercise as their most difficult issue while the remaining four participants chose other issues such as regular doctors' visit and choice of meal. On the question regarding what changes make patients feel better, 22 participants chose exercising more, seven said visiting their doctor regularly, nine cited eating healthy, three said stop smoking, and four cited other issues. On the question of what other steps they could take, 16 participants stated that learning more about diabetes would be their next step, nine participants stated that getting their meal well planned would be their next step, eight participants felt that getting their regular routine care was a challenge, while four chose other. On the question of what nurses can do for them,13 participants said helping them plan their diabetes diet was their priority, 16 participants chose helping lower their

blood sugar, four chose helping plan their exercise routine, two said helping with foot care, two stated helping with resources to fund their bills, three said to help reduce insulin use, and five participants chose other. The following table identifies the major themes from the patient responses.

Table 2

Patient Responses to Diabetes Concerns

Question	Theme Identified
What is causing the most concern?	Fear
What is difficult about diabetes?	Managing daily diabetes control
What would you change to feel better?	Having more education on diabetes Incorporating healthy habits
What are the next steps you could take?	Learning more about controlling diabetes
What can I do to help you?	Help with planning daily diabetes management

The education program developed followed the Walden University Staff Education Manual. The program followed the steps in the manual for planning, implementation, and evaluation. During the planning stage, I set the objective, methodology, budget, and the project procedure. I also developed the appropriate goals and priorities of the project during the implementation stage. At the end, I evaluated the project by assessing whether objectives were achieved.

Planning

Planning for the education program included conversations with the clinic providers on the best way to address improving the care of patients with T2DM. Based on the limited time available to provide care for each patient, it was decided to first assess each patient about their primary concerns related to the disease. The education program was developed using the ADA guidelines and patient concerns.

Implementation

Four participants took part in the diabetes education program aimed at addressing the patients' concerns about diabetes. The education was provided through an interactive discussion using a handout. The handout will be available to current and future providers.

The staff education program was provided to the staff on February 26, 2018. Since the education program covered all the concerns identified in the data collected, staff were provided with a copy of the education program to use as a reference while counseling T2DM patients that receive treatment in the clinic.

Evaluation

An evaluation of the program was completed by the four participants (see Appendix B). Results of the evaluations indicated that participants agreed or strongly agreed with all items on the survey. In the first category (content), all three participants chose strongly agree.with the contents. In the second category (setting), three participants chose strongly agree while one participant chose agree. In the third category (effectiveness of the education) all four participants chose strongly agree. In the fourth category (instructional materials) all four participants chose strongly agree.

Feedback from the participants included expanding the role of staff in providing support and care for diabetes patients within the clinical setting. In addition, participants suggested the clinic make diabetes education more accessible and identify community resources for the patients. Feedback from the participants also suggested that they were happy with both the delivery and the content of the diabetes education program in Southwest Houston.

Recommendations

Patient education for T2DM has been proven to be an important component of disease management. Guiding staff to understand the importance of addressing T2DM patient concerns and establishing a staff educational program is important to the success of a diabetic care delivery system. Recommendations include that providers continue to use the Diabetes Patient Concerns Assessment Form with new patients, as well as review yearly with continuing patients. The diabetes education checklist should be updated yearly or when new evidence is published and staff education provided.

The clinic should also be mindful of the Institute for Healthcare Improvement (IHI) Triple Aim initiative. This initiative aims to improve the patient experience of care, improve he health of populations; and reduce healthcare costs (IHI, 2018). The IHI recommends new models of population health management be explored. The clinic should continue to use the assessment survey with T2DM new patients as well as review the initial responses of current patients and explore any changes. This new model of population health management should be evaluated as to the capability for improving the health of this population at the clinic.

Strengths and Limitations

Strength

One strength of the project was the use of the Diabetes Care Concerns Assessment by the University of Michigan. The assessment form helped to identify the major concerns of the patients.. Another strength of this project the identification of the need of providers to address patient concerns. Asking patients their concerns encouraged patients to be more engaged in their care. The support obtained from the medical director of the clinic was strength

Given that the cost of diabetes in the United States was reported to be $245 billion (Powers et al, 2015), offering T2DM patients education to self-manage their care offers hope to help decrease this cost. Diabetes education has been shown to be an effective way of reducing hospital admissions and readmissions thereby reducing the cost to stakeholders and the consumers from the associated complications.

Limitations

The limitation of this project was the small size of the clinic with only four providers.The patients (n = 45) sample consisted of patients who had appointments over a four week period.

Section 5: Dissemination Plan

-For effective dissemination of findings, the target audience for this project included the stakeholders and staff at the clinic who contributed to the success of the project. The information was disseminated through an oral interactive discussion. At the end of the discussion, members of the audience received copies of the diabetes education program. Given the large number of people with T2DM and the many health care issues caused by this disease, disseminating information on T2DM at local churches and health fairs should be considered. Speaking to advance practice nursing groups and nursing programs regarding the need to explore patient concerns and address them at each visit should be encouraged.

Analysis of Self

Throughout the course of this project, I discovered that my leadership skills as a nurse scholar and practitioner have grown. The planning and implementation of the DNP project helped improve my confidence as a scholar as well as a practitioner, especially when dealing with issues regarding organizational change. I know that obtaining a Doctorate of Nursing Practice (DNP makes one an expert in nursing field; however, pursuit of excellence in nursing never ends.

The professional knowledge and skills I acquired from this project have led to improvements in my ability to lead a multidisciplinary team in planning, designing, and evaluating programs that lead to better patient' outcomes. My leadership qualities have helped my ability to lead, plan, design, collaborate with stakeholders, and evaluate a project. Working on the this DNP program, I realized that my leadership ability

continued to evolve as a result of the knowledge I acquired about program planning, design, evaluation, and collaborating with stakeholders in developing solutions to issues in the organization.

I also came to the realization that evidence-based nursing is an important component within the clinical setting for patient safety and better health outcomes. I am now able to bring evidence-based nursing knowledge acquired during this journey into any clinical setting for better patient outcomes. Asignificant change that has occurred during this journey, is my ability to translate theory and research into evidence-based practice. This is in line with Walden University practice goal.

During the completion of this project, some challenges were encountered. The first challenge was because I was unable to listen to the poits of view of others. I have realized that listening and learning from others adds not only value to the nursing profession but helps collaborative efforts to improve outcomes. This DNP project will continue to help my quest through a collaborative effort with patients and other professionals to improve patient care and better outcomes.

Summary

DM is commonly referred as a group of metabolic disorders in which there is presence of high blood sugar level for a prolonged period (Patodiya, Joshi, & Dumbare, 2017). DM is a silent disease and is now recognized as one of the fastest growing threats to public health in almost all countries in the world (Patodiya et al, 2017). This project shows that patients diagnosed with T2DM in the clinic had concerns about diabetes that required attention. In order to provide adequate patient care, the clinic providers were

provided education programs to address the concerns of the clinic populations with diabetes. It has been noted that diabetes education programs should involve all aspects of patient' concerns about diabetes so that success could be achieved during its application. When an individual or group is empowered, promotion of social change is enhanced, leading to better health outcomes for mankind.

References

Abolghasemi, R., & Sedaghat, M. (2015). The patient's attitude towards type 2 diabetes mellitus: A qualitative study. *Journal of Religion & Health, 54*(4), 1191-1205. doi:10.1007/s10943-014-9848-9

American Association of Colleges of Nursing. (2006). The essential of doctoral education for advanced nursing practice. Retrieved from http://www.aacn.nche.edu/dnp/Essentials.pdf

American Diabetes Association. (2014). Standards of medical care in diabetes—2014. *Diabetes Care, 37*(Supp. 1), S14-S80.

American Diabetes Association. (2015). Foundations of care: Education, nutrition, physical activity, smoking cessation, psychosocial care, and immunization. *Diabetes Care, 38,* S20-S30.

Anderson, R. M., Donnelly, M. B., Funnell, M. M., & Johnson, P. D. (1991). The continuing education needs of diabetes nurse educators. *Journal of Continuing Education in Nursing, 22*(4), 163-166.

Arcangelo, V. P., & Peterson, A. M. (Eds.). (2013). *Pharmacotherapeutics for advanced practice: A practical approach* (3rd ed.). Ambler, PA: Lippincott Williams & Wilkins.

Beibei, W., Juan, D., Zhao, Z., Zhihong, M., Songlin, W., & Zhaochen, S. (2017).

Evaluation of parotid salivary glucose level for clinical diagnosis and monitoring type 2 diabetes mellitus patients. *Biomed Research International*, 1-5. doi:10.1155/2017/2569707

Bradshaw, W. G. (2010). Importance of nursing leadership in advancing evidence-based nursing practice. *Neonatal Network: NN*, *29*(2), 117-122.

Brady, E., Segar, J., & Sanders, C. (2017). Accessing support and empowerment online: The experiences of individuals with diabetes. *Health Expectations, 20*(5), 1088-1095. doi:10.1111/hex.12552

Brower, E. J. (2017). Origins of evidence-based practice and what it means for nurses. *International Journal of Childbirth Education, 32*(2), 14-18.

Brunk, D. R., Taylor, A. G., Williams, I. C., Cox, D. J., & Clark, M. L. (2017). A culturally appropriate self-management program for Hispanic adults With T2DM and low health literacy skills. *Journal of Transcultural Nursing, 28*(2), 187-194. doi:10.1177/1043659615613418

Centers for Disease Control and Prevention. (2011). Diabetes prevention and control: Self-management education. Retrieved from https://www.cdc.gov/nchs/data/hus/hus11.pdf

Chesbro, S., & Davis, L. (2002). Applying Knowles' model of andragogy to individualized osteoporosis education. *Journal of Geriatric Physical Therapy*, *25*(2), 8-11

Cortez, D. N., Lopes Macedo, M. M., Silva Souza, D. A., dos Santos, J. C., Afonso, G

. S., Reis, I. A., Torres, H. C. (2017). Evaluating the effectiveness of an empowerment program for self-care in T2DM: A cluster randomized trial. *BMC Public Health, 17*(1), 110. doi:10.1186/s12889-016-3937-5

Couras Corrêa, P. C., Martins Farias, L., Gomes de Lima, G., Rodrigues de Souza, A., Rodrigues Feitoza, A., Assis Moura, A. D., & Chaves Rouberte, E. S. (2017). Perception of cared for at the family health strategy, about diabetes mellitus type 2. *Journal of Nursing UFPE / Revista De Enfermagem UFPE, 11*(4), 1645-1651. doi:10.5205/reuol.9763-85423-1-SM.1104201712

Dogba, M. J., Dipankui, M. T., Chipenda Dansokho, S., Légaré, F., & Witteman, H. O. (2018). Diabetes-related complications: Which research topics matter to diverse patients and caregivers?. *Health Expectations*, 21(2), 549-559. doi:10.1111/hex.12649 .-

Duprez, V., Pover, M., Spiegelaere, M., & Beeckman, D. (2014). The development and psychometric evaluation of a set of instruments to evaluate the effectiveness of diabetes patient education. *Journal Of Clinical Nursing*, 23(3/4), 429-439 11p.

Dizdar, O. S., Gul, O. O., Baspınar, O., Cander, S., Sisman, P., Eker, B., & Ersoy, C. (2016). Assessment of factors related to the understanding of education and knowledge of self-care among patients with diabetes mellitus: A cross-sectional prospective study. *Advances in Therapy, 33*(9), 1565-1578. doi:10.1007/s12325-016-0378-6

Eborall, H. C., Virdee, S. K., Patel, N., Redwood, S., Greenfield, S. M., & Stone, M. A. (2016). "And now for the good news..." the impact of negative and positive messages in self-management education for people with Type 2 diabetes: A qualitative study in an

ethnically diverse population. *Chronic Illness, 12*(1), 3-17. doi:10.1177/1742395315577965

Emparanza, J. I., Cabello, J. B., & Burls, A. J. (2015). Does evidence-based practice improve patient outcomes? An analysis of a natural experiment in a Spanish hospital. *Journal of Evaluation of Clinical Practice, 21*, 1059-1065. doi:10.1111/jep.12460

Funnell, M. M., Brown, T. L., Childs, B. P., Haas, L. B., Hosey, G. M., Jensen, B., … Weiss, M.A(2010). National standards for diabetes self-Management education. *Diabetes Care,* 33(Suppl 1), S89–S96. http://doi.org/10.2337/dc10-S089

Funnell, M. (2004). Patient empowerment. *Critical Care Nursing Quarterly, 27*(2), 201-204.

Gaillard, T., Amponsah, G., & Osei, K. (2015). Patient-centered community diabetes education program improves glycemic control in African-American patients with poorly controlled T2DM: Importance of point of care metabolic measurements. *Journal of National Black Nurses Association* 26(1):50-7

Geiss L. S, Wang, J., Cheng, Y. J., Thompson, T. J., Barker, L., LiY., & Gregg, E. W (2014). Prevalence and incidence trends for diagnosed diabetes among adults aged 20 to 79 years, United States, 1980-2012. *Journal of the American Medical Association, 312,* 1218-1226.

Green-Morris, G. (2014). An evaluation of the effectiveness of providing foot care education in a rural clinic setting. Evaluation of the Effectiveness of Providing Foot Care Education in a Rural Clinic Setting, *Unpublished doctoral dissertation*: The University of Southern Mississippi

Gucciardi, E., Chan, V. W., Manuel, L., & Sidani, S. (2013). A systematic literature review of diabetes self-management education features to improve diabetes education in women of Black African/Caribbean and Hispanic/Latin American ethnicity. *Patient Education & Counseling*, 92(2), 235-245. doi:10.1016/j.pec.2013.03.007

Hashemi, F., Doltalabad, F. R., Yektatalab, S., Ayaz, M., Zare. N., & Mansouri, P. (2014). Effect of Orem self-care program on the life quality of burn patients referred to Ghotb-al-Din-e-Shirazi Burn Center, Shiraz, Iran: A Randomized Controlled Trial. *International Journal of Community-Based Nursing and Midwifery* v *2(1): 40–50.*

Hayek, A. A., Robert, A. A., Dawish, M. A. A., Zamzami, M. M., Sam, A. E., & Alzaid, A. A. (2013). Impact of an education program on patient anxiety, depression, glycemic control, and adherence to self-care and medication in type 2 diabetes. *Journal of Family and Community Medicine, 20*(2), 77-82. doi:10.4103/2230-8229. 114766

Hodges, B., & Videto, D.M. (2011). *Assessment and planning in health programs* (2nd ed.). Sudbury, MA: Jones & Bartlett Learning.

Institute for Healthcare Improvement (IHI) (2018). Triple aim for populations. Retrieved from http://www.ihi.org/Topics/TripleAim/Pages/default.aspx

Kettner, P, M., Moroney, R, M., & Martin, L, L. (2013). *Designing and managing programs: An effectiveness-based approach* (4th ed.). Thousand Oaks, CA: -

Lai, W. A., Lew-Ting, C., & Chie, W. (2005). How diabetic patients think about and manage their illness in Taiwan. *Diabetic Medicine: A Journal Of The British Diabetic Association*, 22(3), 286-292.-

Laursen, D. H., Christensen, K. B., Christensen, U., & Frølich, A. (2017). Assessment of

short- and long-term outcomes of diabetes patient education using the health education impact questionnaire (HeiQ). *BMC Research Notes, 10*(1), 213. doi:10.1186/s13104-017-2536-6

Lemoine, L. M. (2015, January). Effects of biweekly advanced practice registered nurse phone calls on improvement of A1C and self-efficacy in adults with type 2 diabetes: *Unpublished doctoral dissertation*: Southeastern Louisiana University Hammond, Louisiana Effects of Biweekly Advanced Practice Registered Nurse Phone Calls on Improvement of A1c & Self-Efficacy in Adults with Type Diabetes

Loucks, E. B., Gilman, S. E., Britton, W. B., Gutman, R., Eaton, C. B., & Buka, S. L. (2016). Associations of mindfulness with glucose regulation and diabetes. *American Journal of Health Behavior, 40(*2), 258-267. doi:10.5993/AJHB.40.2.11

Maltinsky, W., Hall, S., Grant, L., Simpson, K., & MacRury, S. (2013). Pilot project and evaluation of delivering diabetes work-based education using video conferencing. *Rural & Remote Health, 13*(1), 1-6.

McCoy, R. G., Tulledge-Scheitel, S. M., Naessens, J. M., Glasgow, A. E., Stroebel, R. J., Crane, S. J., Shah, N. D. (2016). The method for performance measurement matters: Diabetes care quality as measured by administrative claims and institutional registry. *Health Services Research*, 51(6):2206-2220 doi:10.1111/1475-6773.1245

Meleis, A. I. (2007). *Theoretical nursing: Development and progress*. Philadelphia: Lippincott Williams & Wilkins.

Mohammadpour, A., Rahmati Sharghi, N., Khosravan, S., Alami, A., & Akhond, M.

(2015). The effect of a supportive educational intervention developed based on the Orem's self-care theory on the self-care ability of patients with myocardial infarction: a randomized controlled trial. *The Theoretical Nursing Development & Progress 24*(11/12), 1686-1692 doi:10.1111/jocn.12775

Olivella-Fernandez, M. C., Bastidas-Sanchez, C. V., & Castiblanco-Amaya, M. A. (2012). Adherence to self-care among persons with cardiovascular disease: An approach based on the Orem model of nursing. *Aquichán.* 12. 53-61. Doi:10.5294/aqui.2012.12.1.5.

Otero, L. M., Zanetti, M. L., & Ogrizio, M. D. (2008). Knowledge of diabetic patients about their disease before and after implementing a diabetes education program. *Revista Latino-Americana De Enfermagem, 16*(2), 231-237.

Patodiya, V., Joshi, S., & Dumbare, D. (2017). Effect of family care education on type-2 diabetes mellitus management among type- two diabetes mellitus patients in urban and rural community. *International Journal Of Nursing Education*, 9(4), 70-76. doi:10.5958/0974-9357.2017.00099.X

Powers, M. A., Bardsley, J., Cypress, M., Duker, P., Funnell, M. M., Hess-Fischl, A., & Vivian, E. (2015). Diabetes self-management education and support in T2DM: A joint position statement of the American Diabetes Association, the American Association of Diabetes Educators, and the Academy of Nutrition and Dietetics. *Journal of the Academy of Nutrition & Dietetics, 115*(8), 1323-1334. doi:10.1016/j.jand.2015.05.012

Peña-Purcell, N. C., Luohua, J., Ory, M. G., & Hollingsworth, R. (2015). Translating an

evidence-based diabetes education approach into rural African-American communities: The "Wisdom, Power, Control" Program. *Diabetes Spectrum, 28*(2), 106-115. doi:10.2337/diaspect.28.2.106

Rice, S., Cranch, H., Littlemore, K., Mortimer, J., Platts, J., & Stephens, (2017). A pilot service-evaluation examining change in HbA1c related to the prescription of internet-based education films for type 2 diabetes. *Primary Care Diabetes, 11*(3), 305-308.

Rothberg, B., Greene, R., Ferez-Pinzon, A. M., Mejia, R., & Umpierrez, G. (2016). Improving diabetes care in the Latino population: The Emory Latino diabetes education program. *American Journal of Health Education, 47*(1), 1-7. doi:10.1080/19325037.2015.111117

Scott, L. (2014). Empagliflozin: A review of its use in patients with T2DM. *Drugs, 74*(15), 1769-1784. doi:10.1007/s40265-014-0298-1

Schiller, J. S., Lucas, J. W., Ward, B. W., & Peregoy, J. A. (2012). Summary health statistics for U.S. adults: National Health Interview Survey, 2010. Vital and Health Statistics. Series 10, Data From The National Health Survey, 252, 1-207.

Shakibazadeh, E., Bartholomew, L. K., Rashidian, A., & Larijani, B. (2016). Persian diabetes self-management education (PDSME) program: Evaluation of effectiveness in Iran. *Health Promotion International, 31*(3), 623-634. doi:10.1093/heapro/dav006

Steinhardt, M. A., Brown, S. A., Dubois, S. K., Harrison Jr., L., Lehrer, H. M., & Jaggars, S. S. (2015). A Resilience Intervention in African-American Adults with Type 2 Diabetes. *American Journal Of Health Behavior*, 39(4), 507-518 12p. doi:10.5993/AJHB.39.4.7

Surucu, H, A., & Turkey, S, K. (2012). Use of Orem's self-care deficit nursing theory in

the self-management education of patients with type 2: A case study. *Self-Care, Dependent-Care & Nursing, 19*(01), 53-59

Tan, C. L., Cheng, K. F., & Wang, W. (2015). Self-care management program for older adults with diabetes: An integrative literature review. *International Journal Of Nursing Practice,* 21115-124. doi:10.1111/ijn.12388

Trief, P. M., Izquierdo, R., Eimicke, J. P., Teresi, J. A., Goland, R., Palmas, W Weinstock, R. S. (2013). Adherence to diabetes self-care for White, African-American and Hispanic-American telemedicine participants: 5-year results from the IDEATel project. *Ethnicity & Health, 18*(1), 83-96. doi:10.1080/13557858.2012.700915dw

University of Michigan Diabetes Research and Training Center. (2014). Diabetes Knowledge Test. Retrieved from http://www.med.umich.edu/borc/profs/survey.html

Van Dyk, E. J. (2010). *Improving outcomes of persons with T2DM through self-management education* (Order No. 3407032). Available from ProQuest Nursing & Allied Health Source. (288349419).

Vieira-Potter, V. J., Karamichos, D., & Lee, D. J. (2016). Ocular complications of diabetes and therapeutic approaches. *Biomed Research International*, 20163801570. doi:10.1155/2016/3801570

White, N., Manning, M. L., Brawer, R., & Plumb, J. (2014). Using accreditation standards as a framework to evaluate and improve a community-based diabetes self-management education program. *Population Health Management, 17*(1), 8-12. doi:10.1089/pop.2013.0044

Williams, J. S., Lynch, C. P., Knapp, R. G., & Egede, L. E. (2014). Technology-intensified Diabetes Education Study (TIDES) in African Americans with T2DM: Study protocol for a randomized controlled trial. *Trials, 15*(1), 460. doi:10.1186/1745-6215-15-460

Woodcock, A, & Kinmonth, A, L. (2001). Patient concerns in their first year with type 2 diabetes: Patient and practice nurse views. *Patient Education and Counseling, 42*(3), 257-270.

Yuncken, J. (2014). Barriers to implementing change within diabetes care. *Wound Practice & Research, 22*(1), 50-55. Retrieved from http://library.waldenu.edu

Appendix A

Diabetes Patient Concerns Assessment Form

1. What is hardest or causing diabetic patients the most concern about caring for their diabetes?
2. What is difficult about diabetes?
3. What would have to change in other for them to feel better?
4. What are the steps they could take to help make things better for themselves?
5. What can I do to help you?

Appendix B:

Education Activity Evaluation Form

Activity Title: Education on Patient Diabetes Concerns Date: 02/26/2018

As a learner please assist in the evaluation of this presentation. Please circle the number beside each statement that best reflects the extent of your agreement. Thank you.

1 = strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree

Content						
1.	The content was interesting to me.....	1	2	3	4	5
2.	The content extended my knowledge of the topic.....	1	2	3	4	5
3.	The content was consistent with the objectives.....	1	2	3	4	5
4.	The content was related to my job.....	1	2	3	4	5
Objectives were consistent with purpose/goals of activity.....		1	2	3	4	5
Setting						
1.	The room was conducive to learning.....	1	2	3	4	5
2.	The learning environment stimulated idea exchange.....	1	2	3	4	5
3.	Facility was appropriate for the activity.....	1	2	3	4	5
Presenter Effectiveness: (Paul Okpuzor)						
1.	The presentation was clear and to the point.....	1	2	3	4	5
2.	The presenter demonstrated mastery of the topic.....	1	2	3	4	5
3.	The method used to present the material held my attention.....	1	2	3	4	5
4.	The presenter was responsive to participant concerns.....	1	2	3	4	5
Instructional Methods						
1.	The instructional material was well organized.....	1	2	3	4	5
2.	The instructional methods illustrated the concepts well.....	1	2	3	4	5
3.	The handout materials given are likely to be used as a future reference.....	1	2	3	4	5
The teaching strategies were appropriate for the activity.....		1	2	3	4	5
Learner Achievement of Objectives						
1	What is causing the most diabetes concern	1	2	3	4	5
2	What is difficult about diabetes	1	2	3	4	5
3	What would you change to make you feel better	1	2	3	4	5
4	What are the steps you could take	1	2	3	4	5
5	What can I do to help you	1	2	3	4	5

Appendix C

Staff Education Program

The staff diabetic education focused on the followings:

Fear of the disease

Most patients have fear of the disease getting worse

Fear of following dietary advice

Fear of the associated complications

Basic diabetes education

What is diabetes mellitus?

Diabetes is a chronic condition in which there is excess blood glucose or blood sugar

Types of diabetes

Type 1 diabetes: occurs when the pancreas fails to produce enough insulin

Type 2 diabetes: occurs when the cells fail to properly respond to insulin (more common)

The associated signs and symptoms

Increased urination, increased thirst, blurred vision, fatigue, weight loss, nausea and vomiting

How diabetes is diagnosed.

Through 2 separate blood tests

Blood sugar (fasting) of 100-125 is prediabetes

Blood sugar of 126 of higher in 2 seperates tests means that you have diabetes

Managing daily diabetes control

Checking blood sugar regularly

Taking medications as prescribed

Diet (Chose food low in calories, saturated fat, trans fat, sugar snd salt. Also, eat food with fibers, whole grain, cereals and crackers).

Incorporating health habits

Exercise regularly

Weight management

Smoking cessation

Other

Complications of diabetes

End-stage renal disease (ESRD)

Amputations

Cardiovascular disease

Nerve damage

Eye damage

Skin disease

Hearing impairment

Social services

Services are available through the following groups in our community

Local Churches

Charity Organizations

Community Centers

National Diabetes Education Program (NDEP) a social agency that can help support and locate some of the above groups when the need arises.

Doctor visits

Keep your doctor's appointment

Appendix D

Data Sheet

No	What is causing the most concern?	What is difficult about diabetes?	What would you change to feel better?
1	Fear of complications	Daily blood sugar monitoring	Get check-up regularly
2	Fear of it getting worse	Going to see the doctor	Does not have to pay for treatment
3	Fear of being blind	Daily blood checks	Start exercising
4	The cost of treating diabetes	Taking medications	Lose weight
5	Amputaions	Daily insulin use	Get check-ups
6	Fear of taking long- medications	Daily monitoring of blood sugar	Eat healthy food
7	Fearof being told I havediabetes	The food	Eat healthy
8	Having to chech blood sugar daily	Checking blood sugar daily	Exercise
9	Food	Doctor visiting	Stop smoking
10	Cost	Monitoring blood sugar daily	Exercise more
11	High blood glucose levels	Taking medications	Exercise often
12	Following dietary advice	Financial burden	Exercise
13	Cost of treatment	The food	Keep my doctor's appoinment
14	Cost	Monitoring blood sugar regularly	Eat healthy
15	Cost	The food	Get regular chech-ups
16	Complications	Insurance issues	Exercise more
17	Fear of developing poor vision	The food selection	Eat healthy
18	Cost	Monitoring my blood sugar regularly	Stop smoking
19	Vision loss	Going to see the doctor	Lose weight
20	Costs	Doctor's regular visits	Exercise
21	Cost of food	Checking my blood regularly	Exercise well
22	Diabetes getting worse	Visiting the doctor	Exercise more
23	Complications	Monitoring my blood sugar daily	Keep my appoinment
24	Blindness	Monitoring my blood sugar daily	Exercise more
25	Cost of diabetes treatment	Costs of treatment	Stop drinking alchohol
26	Complications	Paying for insurance	Exercise
27	Cost	Daily meditaion use	Keep my doctor's appoinment
28	Cost of treatment	Keeping up with the food	Eat healthy
29	Blindness	Monitoring my blood sugar daily	Eat healthy
30	Amputaions	Visiting the doctor	Exercise more often
31	Poor vision	Cost of diabetes treatment	Lose weight
32	Cost of treatment	The cost of treatment	Exercise
33	Complications	Fear of what the future holds	Keep doctor's appointment
34	Poor vision	Daily monitoring of blood sugar	Eat healthy
35	Cost of treating diabetes	Doctor's visit	Exercise
36	Blindness	Daily blood sugar monitoring	Exercise more

37	Cost of treatment	Doctor visiting	Lose weight
38	Cost	Self-monitoring	Eat healthy
39	Amputations	Exercise	Exercise more
40	Poor health	The food	Manage stress well
41	Being blind	Medication taking	Exercise more
42	Amputations	Doctor visiting	Stop smoking
43	Complications	Exercise	Exercise more
44	Being blind	The food	Lose weight
45	Fear of having diabetes	Self-minitoring	Eat healthy

Appendix E

Data Sheet

No	What is causing the most concern?	What are the steps you could take?	what can I do to help you?
1	Fear of complications	Establishing my diabetes target	With monitoring my blood sugar
2	Fear of it getting worse	Learn diabetes	Arrange my nutritional therapy
3	Fear of being blind	Learn how to live with diabetes	Teach proper diet
4	The cost of treating diabetes	Know the diabetes ABCs	Proper exercise methods
5	Amputaions	Get regular check-up	How to monitor my eating habbits
6	Fear of taking long-medications	Keeping a diabetes care chart	How to monitor my blood sugar
7	Fearof being told I havediabetes	Learn diabetes	Show me how to choose my meals
8	Having to chech blood sugar daily	Learn how to live with diabetes	Teach foot care
9	Food	Get regular check-up	Teach diabetic diet
10	Cost	Learn the disease	Show me diabetic diet
11	High blood glucose levels	Be active	Help identify resources to help with care
12	Following dietary advice	Exercise regularly	Identify strenght and weakness of T2DM
13	Cost of treatment	Exercise regularly	Teach proper eating habbits
14	Cost	Be active	Help reduce my blood sugar
15	Cost	Learn diabetes	How to keep my blood sugar down
16	Complications	Learn the disease	How to keep away from complications
17	Fear of developing poor vision	Learn diabetes	Teach about diabetic diet
18	Cost	Get a meal plan	Teach alternative to daily insulin
19	Vision loss	Get a diet plan	Help with meal selection
20	Costs	Get a meal plan	How to reduce daily insulin uae
21	Cost of food	Learn the disease	Keep my blood sugar down
22	Diabetes getting worse	Know what to remember about diabetes	Keep my blood sugar down
23	Complications	Learn diabetes	Teach diabetic diet
24	Blindness	Be active	Help keep my blood sugar down

25	Cost of diabetes treatment	Get routine care	Show me diabetic meal
26	Complications	Exercice more	Show me diabetic meal selection
27	Cost	Be more active	Reduce my blood sugar level
28	Cost of treatment	Get a meal plan	Show me available resources
29	Blindness	Learn diabetes	How to keep my blood sugar down
30	Amputaions	Get to know the diasease	How to avoid complications
31	Poor vision	Get a meal plan	Reduce diabetes complications
32	Cost of treatment	Do more exercise	Reduce my blood sugar level
33	Complications	Get routine care	Reduce daily insulin use
34	Poor vision	Be more active	Show me diabetic diet
35	Cost of treating diabetes	Learn diabetes	To reduce my blood sugar levels
36	Blindness	Learn the disease	Reduce my insulin
37	Cost of treatment	Be more active	Keep my blood sugar under control
38	Cost	Exercise more	Keep blood sugar low
39	Amputations	Get regular check-up	Keep my target number
40	Poor health	Get a meal plan	Prevent complications
41	Being blind	Learn diabetes	Teach foot care
42	Amputations	Get routine care	Keep my blood sugar down
43	Complications	Get routine care	How to select diabetic meal
44	Being blind	Learn diabetes	Keep my target
45	Fear of having diabetes	Know the disease	Reduce my blood sugar level