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Improving Self-Management in Patients with Diabetes: A Staff Education Project

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Walden University

College of Nursing

This is to certify that the doctoral study by

Tanja Ganues

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.

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Walden University
2023

Abstract

Improving Self-Management in Patients with Diabetes: A Staff Education Project

Tanja Ganues

MS, Walden University 2016

Project Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Nursing Practice

Walden University

November 2023

Abstract

By improving diabetic self-management and providing patients with the appropriate resources, it may be possible to reduce the amount of emergency room (ER) visits with diabetes-related illness, therefore reducing the financial burden on health care and society. Patients may be better prepared to care for their diabetes, establish a trusting relationship with their primary care provider, and actively participate in their care, therefore achieving a healthier and improved life. The practice-focused question was designed to determine if a staff education project on self-care management of diabetes would be validated using the Likert Scale by an expert panel and if improved staff's knowledge would be demonstrated. The purpose of this doctoral project was to validate a staff education project regarding effective self-management of diabetes and improve staff knowledge. Orem's theory of self-care was used, and sources of evidence were obtained through peer-reviewed scholarly journals and articles based on evidence-based practice and organized using the John Hopkins evidence tool. The expert panel was provided the Likert Scale, PowerPoint presentation and a pre/posttest and the staff education project was validated and approved for delivery to the staff. Thirty-five staff participants attended the educational session over two sessions and using a paired samples test via EXCEL the pre/post-test scores demonstrated a p value of < 0.05 showing significance for staff knowledge improvement. This education project can potentially create positive social change. The nursing implications includes preparation of the ER staff to provide diabetic patients with the care they deserve, provide valuable patient education, and improve the self-management of diabetes.

Improving Self-Management in Patients with Diabetes: A Clinical Practice Guideline

by

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MS, Walden University, 2016

Project Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Nursing Practice

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Dedication

I would like to take this opportunity and dedicate this project to my late husband Warren. I was in my second week of the Doctoral program, when my husband suddenly passed away. I was ready to give up, but I remembered his constant encouragement to obtain a higher education. He was always so supportive. He was my inspiration. Thank you for 30 years of happiness. I will graduate with your memory in my heart.

Acknowledgment

My greatest appreciation and biggest thank you goes to my professors Dr. Whitehead and committee chair, Dr. Minnick. Thank you for always pushing me to get the project done. Thank you for your encouragement, your guidance, and your friendship. I have made it to this point because of you. I would also like to thank my children, Felicia, Selena, and Warren Jr., for your encouragement, patience, and especially all of your help with many of my assignments. Additional thanks go to my best friend, Tammi. You kept me motivated, whether you know it or not. You were always so supportive and the biggest compliment you could have given me was to return to school yourself. I am flattered that I motivated you to obtain a higher education. You truly are my best friend.

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Section 1: Nature of the Project

Introduction

Diabetes affects millions of people not only in the United States, but worldwide. It is estimated that 700 million people worldwide will have diabetes by the year 2045 (Saeedi et al, 2020). Although many patients have a primary care provider to help manage their diabetes, there are those without health insurance and resources to adequately manage their diabetes. A survey performed in 2020 showed that 54% of all survey respondents paid out of pocket for all their diabetes care (Single Care, 2022). The lack of adequate resources and insufficient self-management of diabetes puts patients at risk of developing secondary problems, such as hyperglycemia, diabetic ketoacidosis, renal failure, and the need for hemodialysis. Between 2017-2019, 33.8% of adult emergency room (ER) visits were due to complications related to diabetes and hypertension (Santo et al., 2022). Poor self-management of diabetes is not just a problem for the uninsured, but also for those who do not have a primary care provider (PCP). Research shows that Asians, Black and African Americans, Latinos, males, and people living in the southern United States are less likely to have a primary care provider (Radley et al., 2021).

Problem Statement

There are seven elements that contribute to effective self-management of diabetes: (a) a healthy diet, (b) exercise, (c) monitoring of blood sugar (d) compliance with medications, (e) good problem-solving skills, (f) coping skills, and (g) risk-reduction behaviors (Association of Diabetes Care and Education Specialists, et al, 2021). These

seven behaviors have been positively associated with good glycemic control, reduction of complications, and improvement of quality of life (Association of Diabetes Care and Education Specialists, et al, 2021). Missing one or more of these elements makes it difficult to manage the disease, improve quality of life, and adhere to an effective treatment plan. In 2021, it was estimated that more than 29 million people currently reside in Texas (Texas Population, 2021). Texas is a state that is well known for ranking first in exports and energy production; however, it is also the state with the highest number of uninsured residents in the nation (Chavez, 2022). In 2019, the U.S. Census data revealed that 18.4% of Texans were uninsured (Chavez, 2022). The outbreak of the Covid 19 pandemic increased those numbers in 2020 (Grubbs et al., 2020). In 2018, there were approximately 17% of Southern Texas residents under the age of 65 who were uninsured (SA to DC, 2019). It is likely that this number has risen since the start of the Covid 19 pandemic in 2020. The ability to obtain and maintain health insurance coverage is one of the essential elements to effectively self-manage chronic diseases, including diabetes. Lack of insurance can lead to improper care by a primary care provider, inability to adhere to a prescribed medication regimen and consume a proper diet, as well as lack of diabetic education, which is essential to proper disease management. The lack of insurance causes many patients to seek care at ERs due to secondary illness, such as ketoacidosis, hyperglycemia, hypoglycemia, as well as acute renal disease. Although it is impossible to assure health insurance coverage for every patient, the hospital has patient care coordinators (PCC), who can provide the uninsured with useful resources, such as prescription discount programs like Good Rx and Single Care. Rural hospitals use

systems dedicated to providing services for the uninsured and those on Medicaid and Medicare. Billing for their services is based on annual income. Many (PCPs and specialists are offering their services to provide affordable health care to those less fortunate, therefore assisting in the proper management of chronic illness.

Purpose

Many patients with chronic diseases do not have the financial means to obtain health insurance and seek routine care from a PCP. Chronic diseases are often inadequately managed, and patients are unable to adhere to a proper diet and medication regimen. Emergency departments (ED) become overwhelmed with the influx of patients seeking primary care in an emergency setting. Diabetic patients often arrive with problems secondary to diabetes due to poor management and lack of primary care. Education is an important building block of disease management and many patients do not receive enough education to effectively manage their diabetes. Many patients are not aware of the resources available to them through their community PCPs, insurance, and pharmaceutical companies. It is up to the provider to make patients aware of the available resources and how to obtain them. Caring for diabetes and secondary disease in the ED is a great financial burden on our health care systems and society. Making patients aware of available resources may not eliminate that burden, but it could significantly decrease it. The proper resources could improve self-management of diabetes, prevent secondary illnesses, improving health and reducing the workload in the ED. PCPs have an obligation to point out community resources, prescription discount programs, workshops, and other educational events. This is especially important regarding effective self-

management of diabetes. The practice question for this DNP project was *Based on current evidence, will a staff education project on self-care management of diabetes be validated using the Likert Scale by an expert panel and will staff knowledge increase?*

Improving diabetic self-management and providing patients with the appropriate resources may reduce the amount of ED visits with diabetes related illness, therefore reducing the financial burden on health care and society. Patients would be better prepared to care for their diabetes, establishing a trusting relationship with their PCP and actively participate in their care, therefore achieving a healthier and improved life (Association of Diabetes Care and Education Specialists, et al, 2021).

Nature of the Doctoral Project

When improving self-management of diabetes, it should be evidenced by fewer patients visiting the ED for secondary problems related to a poorly controlled chronic disease. The population served in the ED in an underserved area in south Texas that serves approximately 2400 patients per month alone. A quick meeting with the QI department located at the facility identified the patient volume to be represented by 36% (866) Hispanic, 39.7% (953) Black or African American, and 25.7% (617) White or Caucasian during that month. The purpose of the doctoral project was to validate a staff education project that would improve self-management of diabetic patients and improve staff knowledge. This in turn has the potential to hopefully reduce the number of recurring visits to the ED related to lack of self-management of diabetes. One major reason for repeat visits to the ED is dysglycemia, or poorly controlled blood sugars in diabetics, evidenced by poorly controlled hyperglycemia or hypoglycemia (Zimmermann

Young, 2017). While dysglycemia is one reason to return to the ED, others may include diabetic ketoacidosis (DKA), peripheral vascular disease (PVD) and diabetic foot ulcers potentially leading to amputation. Research shows that proper discharge instructions, follow-up visits with a PCP, and diabetic education can help reduce the number of repeat visits and potential admission to the hospital (Zimmermann Young, 2017). To fill the gap-in-practice, nurse practitioners (NPs), physicians, and ancillary staff of the ED will have the opportunity to attend a PowerPoint (PPT) presentation concerning self-management of diabetes, existing barriers to effective self-management, as well as solutions to overcome these barriers. Current evidence-based practice (EBP) and validated research articles/journals were considered for the validation of a staff education and used to develop a pre- and posttest with a PPT presentation for the ED staff to provide to these patients and assist with the self-management of diabetes. Evidence on self-care strategies and community resources for patients with diabetes will be explored to develop the staff education, which will follow the staff education development manual. Evidence from the online databases and Walden University library were reviewed for the past 5 years. Keywords included but are not limited to self-care and diabetes, patient education, and diabetes. The goal was to validate a staff education project on patients' self-management of their diabetes to be dispersed and improve knowledge of staff and hopefully in turn have the potential to decrease ED visits of diabetic patients. Clinical practice guidelines (CPGs) have been developed to assist practitioners to provide the appropriate care for specific clinical circumstances, such as diabetes. The AGREE II tool was designed to validate the effectiveness and quality of these guidelines, assuring that

the guidelines were appropriately designed to effectively care for chronic conditions, such as diabetes (see AGREE II, 2010-2014).

Significance

By addressing the lack of resources and education needed to effectively self-manage diabetes, the patients are provided with everything they need to achieve a healthy lifestyle, prevent secondary illness, and live a long and healthy life. The healthcare system has the potential to be freed from the burden of overrun EDs, leaving time and resources to care for those who need emergency care. Healthcare systems and society are also potentially relieved of the financial burden that mismanaged diabetic patients place on healthcare and society.

This doctoral project can be a turning point in the way diabetic patients receive care. Nurses and providers can effectively care for those with limited resources, financial means, and health insurance. Patients are cared for in a manner that is most beneficial for their health by improving the self-management of their diabetes. Nurses and providers in every area of the medical profession can follow a new set of guidelines regarding the care of diabetic patients and effective self-management.

The doctoral project can be applied in any medical setting and patients in various stages of their disease. There is no wrong time to be proactive and participate in one's healthcare. The doctoral project may improve collaboration between patients and providers, increase patient's educational level, and promote active participation by patients.

Summary

Many patients do not have the proper resources to effectively care for their diabetes. They lack financial resources, education, are unable to adhere to a medication regimen, and cannot afford health insurance and the care of a primary physician. These patients often acquire secondary medical problems due to poor management of their diabetes. They become a financial burden on healthcare and society by seeking primary care in ED's. The uncompensated care for the uninsured averaged more than \$42 billion dollars between 2015 and 2017. These costs only started to decline from \$62 billion dollars after implementing the Affordable Care Act (Coughlin et al, 2021). This places a strain on hospitals, medical staff, and those who have health insurance. The substantial number of uninsured patients raises the premiums of those who are insured to offset the cost those patients place on the healthcare system. A study performed by the consumer organization Families USA showed that providing care to the uninsured by doctors and hospitals raises the insurance premium of the privately insured by an average of \$1,502 (The Commonwealth Fund, 2022). It is the responsibility of every nurse and physician to provide the necessary resources to enable patients to care for their diabetes in the most cost effective and beneficial manner.

In Section 1, I discussed the purpose of the project and nature of this DNP project. The practice question for this project was *Will a staff education project on self-care management of diabetes be validated using the Likert Scale by an expert panel and will staff knowledge increase on the use of selfcare management of diabetes?* Providing a

staff education project for ED providers, can be used to educate patients about diabetes and will promote positive social change for this population.

Section 2: Background and Context

Introduction

Lack of adequate diabetes related resources is a problem across the United States. These resources include access to health care, proper medications, and education. Proper education should be provided with every doctor's visit to assure medication adherence, proper diet, and preventing secondary illness. Lack of knowledge often leads to additional medical problems, which cause patients to seek care at EDs. Additional patient visits place additional workload on ED staff, often spending time treating nonemergent problems that could have been prevented. These additional visits also place a huge financial burden on health care systems and society. The goal of this project was to develop a staff education module on selfcare and diabetes management to be validated by an expert panel for use on patients presenting in the organization's ED. Along with the current evidence explored for this project, results were used to create an educational PPT with a pretest and posttest for diabetic patients to be validated by an expert panel. After the validation it will be administered to staff in the ED for knowledge assessment. The practice question for this project was *Based on current evidence, will a staff education project on self-care management of diabetes be validated using the Likert Scale by an expert panel and will staff knowledge increase?*

Concepts, Models, and Theories

Effective self-care is essential in the management of diabetes. Orem's theory of self-care focuses on self-care maintenance, self-care monitoring, and self-care management. People with chronic illnesses are faced with various challenges, such as

being able to focus their attention on making rational decisions. Orem's theory also includes assumptions that patients with chronic illnesses and healthy individuals make different self-care decisions and that comorbidities can influence a patient's decision making. Cultural beliefs and subjective experiences can also influence one's values, confidence, habits, self-care decisions, and motivation (Onyishi et al., 2021).

Table 1

Relationship of Model to Project

Orem's model	Relationship to model
People should manage their care	Patients need information and resources on how to maintain self-care
Cultural beliefs and subjective experiences are important	Provide resources that reflect cultural beliefs and language
Chronic illness can affect patient decision making	Patients may need nursing care assistance

Relevance to Nursing Practice

Evidence Summary

A John Hopkin's literature matrix (Appendix A) was created, and I used 10 articles on diabetes and self-care management with a focus on nutrition, lack of knowledge of disease, and self-management strategies. The materials identified in the literature matrix were used to create an educational PPT (Appendix B) and a 15 question pre/posttest (Appendix C) that assesses the learner's knowledge. Due to its created nature, validation is sought prior to administration by a five-member expert panel using the Likert Scale (Appendix D).

Likert Scale

The Likert scale (Appendix E) is a unidimensional scale that researchers use to collect respondents' attitudes and opinions and to understand the views and perspectives towards a brand, target market, or product (Fleetwood, 2023).

- Question 1: Does the material support EBP of diabetic patient care in the ED?
- Question 2: Are materials clear and easy to follow?
- Question 3: Does the material address all aspects of diabetic patient care in the ED?
- Question 4: Does the material support the nursing staff regarding the care of the diabetic patient in the ED?
- Question 5: Does the material meet educational objectives?

Expert Panel

The five-member panel consists of nurse educators (NE), NPs, and medical content experts to include:

- Panel Member A: A doctoral prepared NP, board certified in acute care (ACNP) and family medicine (FNP), with over 20 years as registered nurse (RN) and over 12 years as a provider (NP/DNP) practicing on and with diabetic patients in acute care, emergency services, long term care, military, and civilian medicine areas. This panel member is published and has spoken at multiple conferences. The panel member is also a professor in a doctoral university program as an academic core faculty member for over 9 years.

- Panel Member B: A NP, board certified as an emergency department nurse practitioner (ENP), with over 15 years as a registered nurse and 12 years as a provider in the ED, caring for patients with various acute and chronic illnesses, including diabetes.
- Panel Member C: A board-certified ED physician with over 20 years of experience as an ED physician in the United States Airforce, as well as 10 years as an ED physician in a civilian Level 1 trauma center. He has been serving as a mentor for medical students and interns throughout his professional career. He serves as a member on various committees and enjoys sharing his knowledge and expertise with the nursing staff of the ED.
- Panel Member D: A board-certified ED physician with over 20 years of experience as an ED physician in the United States Army, as well as 12 years as an ED physician in a civilian Level II trauma center. He has served as an educator and mentor throughout his career and has dedicated his life to emergency medicine.
- Panel Member E: A master's level registered nurse with more than 30 years of combined nursing experience. Employed in various areas of the nursing profession, including managing a medical/surgical unit as well as telemetry unit. This panel member has been the director of the emergency department for the past 7 years.

Local Background and Context

The staff education project was implemented after validation in an ED of a major city in Texas. Most patients seen in this busy ED are of Hispanic and African American descent with a low socioeconomic status. They make up 63% and 6.95% of the city's population respectively (Texas Population, 2022). Approximately 14% of the city's residents have diabetes. That is higher than the state average of 11.4% and the national average of 10.5% (Diabetes Care & Education, University Health System, 2023).

Texas is known for its population to suffer from the trifecta of hypertension, diabetes, and elevated cholesterol (Texas Department of Health [TDH], 2023). It is not unusual to see patients suffering from all three chronic illnesses, which complicates the self-management of diabetes. While there are various programs available to assist with and educate about diabetes, prevention, and management, current practice is to use one resource that offers a free self-management program based on an evidence-based self-management Stanford workshop developed at Stanford University. It provides a series of healthy living workshops, teaching patients the skills needed to safely manage the symptoms of diabetes, while sharing their experiences with other participants. Family members and caregivers are also encouraged to participate (Metropolitan Health District, 2022).

Deidentified survey data provided by the facility revealed major concerns around four major themes: diet, access, managing blood sugar and lack of knowledge of the disease in the preplanning phase of this DNP project. A staff education project was developed and will be validated for staff and providers that encompasses materials that

will address these major concerns for clients and will promote a positive social change for both patients and providers.

While working on the project development, a list of terms was identified and defined in previous sections. This includes Likert scale, panel members, diabetes, self-care management, and diabetic nutrition to name a few. They are listed and defined in section 1 and section 2.

Role of the DNP Student

While working as a NP in the ED, I can care for many patients suffering from diabetes and associated illnesses. During their visit, I can enquire about current medication regiments, dietary habits, and self-management strategies. I noticed that many patients are seen repeatedly for the same issues and realized that these patients simply lack the appropriate education and resources to effectively manage their diabetes. As the DNP student, I developed a PPT (Appendix B), a pre/posttest (Appendix C) and provide them to the expert panel for evaluation and feedback using the Likert scale (Appendix D). After it is evaluated, I will analyze the results and present findings to my team to modify the staff education unit for approval and dissemination.

Role of the Project Team

An expert panel including nurse practitioners, registered nurses, and physicians served as expert panelists to review the proposed staff education module. The expert panelists reviewed the staff education module (PPT, pre and posttest) and provided constructive criticism and suggestions for changes to the module.

Summary

There are currently more than 4.3 million Texans without health insurance (Texmed, 2022). Lack of insurance is a contributing factor to the inability of obtaining primary care and the resulting mismanagement of chronic diseases, such as diabetes. Patients who are unable to follow a medication regimen, a proper diet, and do not receive important education, may visit the emergency room with secondary complications. The additional burden on emergency rooms and financial burden on health care systems and society could significantly be reduced by making patients aware of available resources in their community. Staff education modules are developed with a focus on identified needs using current EBP and guidelines to disseminate information. Once created these education modules need to be validated prior to administration so the evaluation process is in place to confirm validity, reliability, and current recommendations. These recommendations are useful in the creation of a staff education project, which includes diabetes education about medications, diet, and the disease process. This staff education module has the potential to be a helpful resource to improve management of diabetes, reduce emergency room visits due to secondary complications, thus reducing patient volume in emergency rooms and financial burden on health care systems and society.

Section 3: Collection and Analysis of Evidence

Introduction

Type 2 diabetes is a chronic condition that can lead to serious secondary complications, if not managed effectively. Some of these complications are heart and kidney disease, eye damage, nerve damage to limbs, and slow healing (Mayo Clinic, 2022). It is essential that patients receive as many resources as possible to effectively manage their diabetes and minimize secondary complications.

The purpose of this doctoral project was to provide staff education in the ED, regarding effective self-management of diabetes, and providing education and available resources to their patients, thus reducing the amount of ED visits related to secondary complications of diabetes. The education was provided in form of a PPT presentation (Appendix B) and a pre/posttest (Appendix C). After providing the education, the staff should have an in depth understanding of the current problems related to effective self-management of diabetes and will be able to provide the diabetic patient with the necessary education and available resources to effectively manage their chronic illness.

Practice-Focused Question

During my employment as a nurse practitioner in a Texas ED, I noticed that staff would frequently care for diabetic patients who came to the hospital with secondary complications. These patients would visit the hospital frequently and I soon realized that these patients lacked the proper education and resources to effectively manage their diabetes at home. The DNP project question was *Based on current evidence, will a staff*

education project on self-care management of diabetes be validated using the Likert Scale by an expert panel?

Sources of Evidence

Databases were useful when I was trying to locate peer reviewed scholarly articles that provide already existing data regarding a specific subject. For this doctoral project, I used the following databases: MEDLINE, CINAHL Plus, EMBASE, and Google Scholar. Organizational websites provide an abundance of information regarding current statistics, medical management, education, and local resources. Organizational websites accessed for this project included American Diabetes Association (ADA), Centers for Disease Control and Prevention (CDC), Diabetes Educator, as well as local health department and hospital systems. Key words used for my search include *diabetes, self-management, diabetic diet, diabetic education, emergency room, and staff education*. I also used the Boolean Phrase “AND” to maximize search results. These databases provided me with the necessary information regarding diabetic education, diabetic diet, patient and staff education, disease process, and secondary complications to create an effective staff education project to improve self-management of diabetes.

The results from the literature review were reviewed and summarized into three main themes: nutrition, lack of knowledge of disease, and self-management strategies. These three categories framed the content for the staff education module (Appendix B).

Evidence Summary

Evidence was summarized using the Johns Hopkins Individual Evidence Tool and the Johns Hopkins Evidence Synthesis and Recommendation Tool (Appendix A).

Staff Education Development

The process for developing this staff education module followed the guideline development process in the Walden University DNP Manual for Staff Education Module Development.

Analysis and Synthesis

The evidence was analyzed and graded using the Likert scale (Appendix D). The Likert scale includes a score of 1-5 (strongly disagree to strongly agree) and is assigned to address the domains reviewed of the staff education module (Fleetwood, 2023). The scale included:

- Score of 1 (Strongly Disagree): There is no information that is relevant to the AGREE II item or if the concept is very poorly reported
- Score of 5 (Strongly Agree): Full criteria and considerations articulated in the User's Manual have been met
- Scores between 2 and 4: The reporting of the Likert Scale item does not meet the full criteria or considerations

Summary

Providing adequate education and the proper resources is essential in the effective self-management of diabetes. When a large group of diabetic patients visits the ER repeatedly because of secondary complications and poor self-management, it triggers the need to identify the reason for these visits and find a way to remedy the problem. By providing proper patient education and available resources to help manage diabetes, patients can be empowered to better manage their disease, avoid secondary

complications, and eliminate repeat visits to the ED. Poor self-management of diabetes leading to repeat visits to the ED was identified as a practice problem. A staff education project allowed me to provide useful information to the ED staff regarding effective self-management of diabetes, which in turn can be used to better care for the diabetic patient and reduce the number of visits to the ED related to secondary complications.

Section 4: Findings and Recommendations

Introduction

Effective self-management of diabetes can prevent secondary complications and reduce associated visits to the ER, thus improving the quality of lives and reduce the rising cost affecting patients and healthcare systems. It is important to provide proper education and training for health care personnel regarding proper management of diabetes and caring for the diabetic patient in the ER. ERs are frequently busy, and many providers are not aware of the challenges that diabetic patients face. Due to high patient volume and high acuity, healthcare providers lack the time to appropriately assess the diabetic patient and discover the true reason for their ER visit.

This staff-education project was implemented to enhance knowledge about caring for the diabetic patient in the ER, recognizing current barriers to effective self-management, and identify available patient resources. The acquired knowledge can then be passed on to the patient to help them effectively manage their diabetes, improve their quality of life, and prevent future visits to the ER with secondary complications. The DNP project question was *Will a staff education project on self-care management of diabetes be validated using the Likert Scale by an expert panel and will staff knowledge increase?*

The implementation of this project was a two-step process. The initial validation was completed by the expert panel before it was presented to the participants. The presentation was given in two sessions. One presentation was delivered immediately following shift change at 7am, the second presentation was delivered immediately

following shift change at 7pm. Providers of the ED with varying levels of education attended a PPT presentation, which provided extensive education regarding care for the diabetic patient in the emergency room, barriers to effective self-management of diabetes, available patient resources, as well as education that can be provided to the patient. A pretest was administered prior to PPT presentation to assess the providers' understanding, knowledge, skills, and attitudes toward caring for the diabetic patient in the ER. The PPT presentation was followed by a posttest to assess for retained knowledge. Due to its created nature, validation was sought prior to administration by a five-member expert panel using the Likert Scale. After unanimous approval it was distributed to 35 participants and knowledge was demonstrated with a p value of < 0.05 showing statistical significance using EXCEL.

Findings and Implications

Prior to the PPT presentation, a pretest was administered to every participant of the staff education project to assess their current level of knowledge. Following the PPT presentation, a posttest was administered to assess for newly retained information. Evaluation and grading of pre/posttest occurred immediately following the PPT presentation. The sections below present a detailed discussion of the results, findings, and implications related to this staff education program.

Descriptive Data

A total of 35 participants attended the educational session. The first PPT presentation was attended by 20 participants, and the second presentation was attended by 15 participants. Data was analyzed using EXCEL and statistical significance was

explored. Representation of each professional group is depicted in Table 1 and 2 below. The highest possible score for pre/posttest was 100%. Data depicted in Table 2 and 3 shows that posttest scores increased after PPT presentation. The p -value of the first PPT presentation was 0.04052. The p -value of the second PPT presentation was 0.01613. These values indicate that the scores of the pre- and posttest of each presentation increased because of the information that was shared during the PPT presentations. The overall p -value of both sessions was less than 0.05 shows statistical significance (see Gray & Grove, 2020). The medical staff was provided with additional information/resources regarding the care of the diabetic patient in the ED and effective self-management of diabetes (Appendix E). The staff is better prepared to effectively care for this group of patients and improve self-management of this chronic disease.

Table 2

Data for Presentation 1

Stub heading	Group A	Group B	Group C	Group D
People attended	2 Physicians	4 NPs	4 PCTs	10 RNs
Pretest score	85	90	80	95
Posttest score	100	95	95	100

Table 3

Data for Presentation 2

Stub heading	Column A	Column B	Column C	Column D	Group E
People attended	1 Physician	2 NPs	2PCTs	8RNs	2LPNs
Pretest	100	90	85	90	90
Posttest	100	100	95	100	100

Evaluation of the DNP Project

The purpose of this project was validation and implementation of a staff education program that provides the staff of an ED with additional information regarding the effective care of the diabetic patient in the ED setting and to educate the patient how to improve self-management of their chronic disease to decrease or eliminate visits to the ED due to secondary complications brought on by poor self-management of diabetes. The PPT presentation provided facts about diabetes, barriers to effective self-management, secondary complications as a result of poor self-management, as well as available resources for the diabetic patient to improve self-management of diabetes and life and longer, healthier life.

This project has the potential to significantly benefit various healthcare settings and the community. Future providers and medical staff can use the information, literature, and findings of this project to increase their knowledge and gain additional insight into caring for the diabetic patient in the ED and promote effective self-management. Ultimately, diabetic patients in the ED setting will receive improved care and education regarding effective self-management of diabetes, thus improving their quality of life. This project also has a social influence and provides an opportunity for healthcare leaders to implement policies and procedures, such as regular training and educational programs for healthcare professionals to increase their knowledge, competence, and overall care for the diabetic patient in the ED and effective self-management of this chronic disease.

Recommendations

Insufficient self-management of diabetes often leads to secondary complications, such as hypo/hyperglycemia, ketoacidosis, diabetic ulcers leading to sepsis, as well as a drastic decline in renal functions and the need for hemodialysis. This leads to repeat visits to the ED, which poses a financial burden on patients and healthcare organizations.

Because healthcare professionals often lack the proper education regarding the care of the diabetic patient in the ED and proper self-management of the disease, the issue is often not addressed, and patients are not adequately cared for. This education project prepares the ED staff to provide diabetic patients with the care they deserve, provide valuable patient education, and improve the self-management of diabetes. This education should be used during orientation of inexperienced staff members and every 6 months as part of continuing education. It should become a permanent part of the educational protocol of not only the ED, but any healthcare setting caring for diabetic patients.

Contribution of the Doctoral Project Team

The participants of the PPT presentation allowed me to score the pre/and posttest and show the positive influence the presentation had on the ED staff. The director of the ED provided me with the opportunity to share my PPT presentation and pass on valuable knowledge to the ED staff. The 5-member expert panel validated the project and deemed it as a useful contribution to the educational component of the ED staff. The combined participation and cooperation allowed me to share valuable information, which is going to benefit not only the ED staff, but most importantly, the diabetic patient.

Strengths and Limitations of the Project

One of the strengths of this DNP project is that it was presented to a large group of medical professionals in a single ED. The total number of participants represented many of the ED staff members. It was also comprised of various medical professions, such as registered nurses, licensed practical nurses, nurse practitioners, patient care technicians and physicians. All participants were eager and willing to participate in answering the questions of the pre/posttest and attend the PPT presentation. The DNP project was implemented cost-effectively in a medium-sized ED, which eliminated the need for significant financial resources to be invested. This DNP project will be available to future DNP students and in their quest to develop future practice improvement projects and research studies. The pre/posttest were reliable tools to assess knowledge pre-and post PPT presentation. One of the major strengths of this DNP project is that the PPT presentation can become a permanent part of staff education, assuring that diabetic patients are cared for appropriately and provided with the necessary education and resources to effectively self-manage their diabetes. Making the PPT presentation a permanent part of staff education will assure that present and future staff members are provided with the proper education to effectively care for their diabetic patients.

There were also weaknesses identified with this DNP project. It was presented in only one ED. In the future, it would be more beneficial to present this DNP project in several EDs to reach a larger amount of healthcare professionals, reach a larger group of patients, and maximize results. The DNP project was also presented over a 2-day period. Future projects should be presented over several days to ensure participation of the

majority of staff members. Future DNP students should be encouraged to present their DNP project in larger settings, and, if possible, in more than one healthcare facility.

Section 5: Dissemination Plan

Analysis of Self

The purpose of this doctoral project was to increase the education of diabetic patients in the ED, therefore improving self-management and reducing the number of ED visits due to secondary complications. This project was validated by an expert panel comprised of physicians, nurses, and a nurse practitioner to educate the nursing staff by using a PPT presentation containing valuable education regarding the care of the diabetic patient in the ED, current roadblocks to effective self-management, and how to overcome these hurdles. The goal of this project was to improve self-management of diabetes, providing patients with opportunities to have longer and healthier lives, and reduce the number of diabetic patients coming to the ED with secondary problems, such as hyper/hypoglycemia, ketoacidosis, infected foot ulcers, sepsis, and the need for hemodialysis. This can also have the potential for diabetic patients to decrease their visits to the ED leading to decreased patient loads in the ED, and a decreased financial burden on healthcare systems and patients.

This validated staff education material will be presented to nurses, NPs, physicians, and ancillary staff of an ED in a 110-bed hospital in a city in Texas. At this ED, there is an influx of diabetic patients with secondary complications related to poor self-management of their chronic illness. Barriers to effective self-management include lack of knowledge of the disease and disease process, lack of understanding regarding diabetic medications, lack of a PCP access, language barriers, as well as lack of adequate financial resources. This doctoral project has the potential to provide the staff with the

necessary tools and knowledge to effectively care for the diabetic patient in the ED, promote longer and healthier lives, and encourage patients to actively participate in their own care by providing them with valuable education and resources.

Completing this doctoral project has been extremely rewarding and has reminded me of the challenges and the memories that are attached to it. Two weeks into the doctoral program, my husband passed away. He was my rock and provided me with so much encouragement and strength. He always believed in me and my success and, instead of giving up, my loss pushed me even harder to complete this project in my husband's honor. Thanks to him, I was able to complete a project that is very dear to my heart. It is important that patients receive education with every encounter. It is the only way to achieve active patient participation and successful self-management of chronic diseases. Patients deserve our knowledge so they can live a longer and healthier life.

Summary

The future repeated implementation of this staff education project will provide the current and future staff of an ER with the ability to provide important education to their diabetic patients, thus promoting active participation in their health care and enable the patient to effectively manage their diabetes at home. But the staff education project is not limited to the ED. It can be passed on to staff of other medical facilities, inpatient units, doctor's offices, and urgent care clinics to reach a large group of medical professionals and maximize positive patient outcomes. This project can be the turning point in the way healthcare staff care for the diabetic patient population.

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Appendix A: Johns Hopkins Individual Evidence Tool and the Johns Hopkins Evidence Synthesis and Recommendation Tool

EBP Question: Based on current evidence, what information should be included in a clinical practice guideline toolkit for providers to assist patients diagnosed with diabetes?							
Article Number	Author and Date	Evidence Type	Sample, Sample Size, Setting	Findings That Help Answer the EBP Question	Observable Measures	Limitations	Evidence Level
1	Misra, R., & Fitch, C., (2020).	Longitudinal pre-test and post-test study. Empirical Study. Quantitative Study	2745 Diabetics in community-based settings across West Virginia as an educational program.	Group sessions can be effective in supporting individuals with diabetes to change knowledge, dietary behaviors, adherence to self-management and follow-up provider visits for diabetes care.	<i>Nutrition Knowledge</i> was assessed by correct response for twelve questions that assessed the participant's knowledge of calories per gram, reliable source of calcium, protein, and carbohydrates, low and trans-fat foods, labeling (ingredient list and facts panel) information, macro- and micro-nutrient sources	First, the generalizability is limited to West Virginia residents. In addition, there were a higher number of females in the program. The study did not analyze other lifestyle behaviors such as social support and coping that are important for diabetes self-management. Furthermore, the surveys were administered in English and likely included only English-speaking adults. Lastly, the findings from the survey were self-reports, plausibly introducing recall	Level III

						bias and social desirability bias.	
2	Bowen, M., et al, (2018).	Empirical Study; Quantitative Study	150 Adults with Type 2 Diabetes.	The study suggests that CDE-delivered DSME/S utilizing carbohydrate counting or the modified plate method of nutrition can significantly improve glycemic control independent of increased healthcare interactions for individuals with HbA _{1C} s between 7 and 10% (53–86 mmol/mol). Consistent with national DSME/S guidelines, our study also suggests that approaches to diabetes education may need to be customized to specific patient characteristics – including numeracy level.	Improved glycemic control as measured by A1C	This study was conducted in an academic setting with English speaking patients and may not generalize to other settings or populations. Second, because only two CDEs were available for this study, each CDE provided instruction on both the carbohydrate counting and modified plate methods during the study, which may contaminate the intervention arms. Although CDEs were not blinded to group assignment, they were trained to deliver only the assigned approach to limit potential bias. Additionally, we utilized highly experienced CDEs, and our findings may not generalize	Level III

						to all CDEs. Third, since the duration of the study was only 6 months, we were unable to assess the long-term impact and sustainability of the interventions on glycemic outcomes. Fourth, our study was not designed to evaluate the role of weight loss and other mechanisms by which DSME/S interventions improve glycemic control. Finally, while our exploration of the role of numeracy was pre-specified, this study was not adequately powered to examine differences in intervention effectiveness by diabetes numeracy.	
3	Zhongming, et al, (2018).	A single-center, 6-month follow-up, randomized, controlled trial with two-group design	51 Adults aged 30-70 with poor glycemic control.	Preliminary evidence suggests that PTP education strategy is acceptable for facilitating the outcome of glycemic control. Patient sense of complications may work	A1C	Future studies are needed to investigate whether the findings of this study are replicable in a similar setting and population, and, if	Level III

				on A1c reduction		so, to see if the findings can be generalized to other settings and populations, and whether it can be scaled up to a large number of people.	
4	Choi, et al, (2018).	Qualitative Study	24 Older Adults participating in diabetes-self-management programs or self-help groups within the community-based senior centers.	Six major themes under three categories were identified. Under the information category, the recurrent themes were: 1) repeatedly offering detailed knowledge regarding self-management, 2) providing information about current health status, and 3) identifying experiential knowledge of blood glucose control. The recurrent themes in the motivation category were: 1) ensuring a positive attitude regarding self-management, and 2) encouragement or feedback from significant others. Furthermore, in the skills category, we found that the following theme emerged: hands-on skills training with numerical standards.	Glucose, A1C	The limitation of this study was that participants may not be representative of all community-dwelling older adults because they were sampled from only one geographic area in a large metropolitan area. Thus, the transferability of these findings to diabetes older adults in other regions might be limited.	Level III

5	Kumar, L., & Mohammadnezhad, M., (2022).	Qualitative Study	Using semi-structured interviews conducted amongst T2DM patients attending clinics in 3 randomly selected health facilities in Labasa, Fiji from 15 th March to 5 th April 2021. Nonprobability purposive sampling was used to recruit 30 T2DM patients.	The results of this study highlighted numerous factors such as poor knowledge of diabetes and its complications, inadequate family support, financial burden and strong cultural beliefs and social norms affecting diabetes self-management.	Knowledge and perception on diabetes self-management	The limitation of the study is that the study is based in urban setting and may not fully identify social determinants of health that may be prevalent in rural communities such as strong cultural beliefs and the remoteness that may affect the accessibility, availability, and affordability of the health care. Finally, there were few difficulties in getting patients as some were busy with their work schedule. It was also time consuming in requesting patients to participate in the study as they had other commitments.	Level III
6	Swaleh, R., & Yu, C., (2021).	Qualitative Study	43 Adults with Type 1 and Type 2 Diabetes. Data were collected through focus groups and interviews.	Low perceived severity of diabetes and its complications is a crucial factor that needs to be addressed within this community through peer education and development of culturally	Illness Behavior	Participants were recruited around the Greater Toronto Area and thus the study was limited by geographic location. As well, given the nature of	Level III

				appropriate education materials. Providing culturally appropriate care in the form of incorporating African-Caribbean diets into the food guide and dietary advice provided to patients, engaging patients during individual clinical encounters to better understand their cultural context.		the study and sample size, we were not able to stratify our results to reveal possible differences in participant experiences based on age, socioeconomic status, education level or country/continent of origin.	
7	Miller et al, (2018).	A prospective randomized controlled trial with two parallel interventions	Adults 35 to 65 years old with type 2 diabetes for ≥ 1 year not requiring insulin therapy. The impact of a group-based 3-month mindful eating intervention (MB-EAT-D; $n = 27$) to a group-based 3-month DSME “Smart Choices” (SC) intervention ($n = 25$) postintervention and at 3-month follow-up was evaluated.	The change in body weight was significantly associated with the change in self-efficacy for overcoming barriers to self-management, cognitive control, disinhibition of control, hunger, and eating self-efficacy (all $p < .05$; Table 3). Improvement in diabetes knowledge, outcome expectations, self-efficacy regarding promoters of diabetes management, and cognitive restraint were significantly associated with increased fruit consumption (all $p < .05$). In contrast, the change in diabetes knowledge, disinhibition of control, susceptibility to hunger,	Increased consumption of fruits and vegetables. Weight Loss	The sample had limited racial and ethnic diversity. Did not screen individuals for severe psychopathology or cognitive impairment prior to study enrollment. 24% of participants enrolled in the study withdrew prior to completing the interventions. The study required a considerable time commitment with a predefined group schedule. Of the 16 participants who withdrew, 7 withdrew due to scheduling conflicts	Level III

				eating self-efficacy, and mindful observing were significantly associated with the change in vegetable consumption (all $p < .05$).		and competing time demands. The impact of the MB-EAT-D and SC interventions beyond 3 months is not known; future research should evaluate the long-term impact on outcomes.	
8	Im et al, (2022).	Qualitative interviews and an online cross-sectional survey.	Community-dwelling adults ≥ 18 years of age with either type 1 or type 2 diabetes and living in Ontario, Canada, and those part of patient networks in Canada. Individual Interviews: n=47 Cross Sectional Surveys: n=153	Results suggest that the impacts of the pandemic have varied across sociodemographic and clinical groups, and that clinicians and educators can target resilient coping, diabetes self-efficacy and diabetes distress to minimize COVID distress. Therefore, this study has highlighted the need to evaluate and contextualize the psychosocial well-being of persons with diabetes at routine checkups	Women with diabetes expressed more anxiety and distress than. Participants of lower SES were unable to use the same glycemic control strategies as those of higher SES. Participants of lower SES also reported greater anxiety and distress due to a loss of daily routine and control over their life circumstances and had greater difficulties managing stressors	Participants were not completely balanced in terms of sociodemographic characteristics. A higher proportion of participants were of higher SES, and thus their perspectives may not be representative of all persons with diabetes. Second, data were collected across different periods of public health restrictions, which may have led to differences in perceptions, experiences, and levels of distress. In the quantitative component, causality cannot be inferred from the	Level III

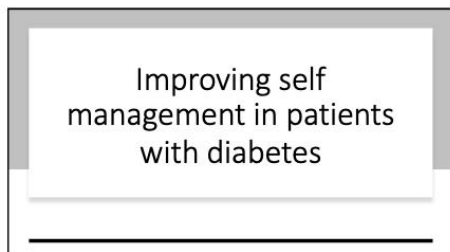
						relationships examined given the cross-sectional nature of this study. In addition, these data may not be generalizable to the general population of persons with diabetes in Ontario. Older adults, women and those of high SES were over-represented in our sample. In the qualitative component, we were unable to assess whether differences in observed themes were attributable to other, or intersecting, participant characteristics due to sample size limitations.	
9	Chepulis et al, (2021).	Qualitative Study	A subset of 100 people with T2DM with poor glycemic control (HbA1c > 11.3%; 100 mmol/mol) was selected at random from the two general	Study shows that while the participants in this study experienced many of the same psychosocial barriers as those reported elsewhere, they can also experience barriers directly associated with their hyperglycemia	Adherence to medication regimen. Financial Resources.	Participant population was derived from two primary care practices in a single region. Therefore, given that diabetes management and care in primary care	Level III

			practices (50 from each)	(e.g., cognitive impairment) which may impact on their ability to remember to take medication, etc. It was also identified that financial concerns and a lack of access to locally relevant resources were key barriers for the participants of this study, and these should be explored further in other people with poorly managed T2DM. Accordingly, financial support for people with diabetes and creating more targeted education resources for disease management (including patient education on where/how to access them) may be areas that could be focused on, both in New Zealand and in other countries, particularly those with indigenous population groups		is highly dependent on and varied based on the provider and the regional District Health Board (DHB), barriers may vary across different practices/DHBs. Accordingly, an avenue for future research could be to explore barriers to T2DM management at a national level, with participants from a broad array of GP practices from across New Zealand.	
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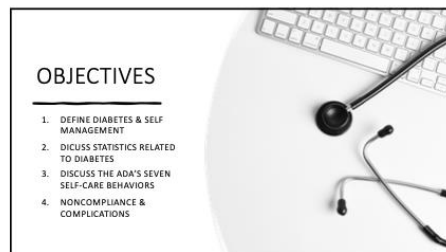
10	Rojas-Guyler et al, (2019).	This exploratory study utilized a convenience sampling. The study was specifically designed to address the potential diabetes self-management health education needs of military veterans who utilize a community homeless shelter. Survey	27 Male Diabetics residing in a homeless shelter.	Results indicate that there are gaps in knowledge, negative attitudes about prevention of complications in diabetes and a need for improving self-management skills among this sample of veterans experiencing homelessness. Shelters play a significant role in the lives of homeless veterans and in their management of diabetes. Specifically veterans in this study reported positive environmental factors to improve self-management and disease management as well as opportunities for health educators to address and improve knowledge and skills through onsite programs and support.	Self-Management Behaviors. Management of Diabetes	The findings presented here should be interpreted with caution as results are based on an exploratory study utilizing a small convenience sample. Further, results are limited by the following: the non-representative sample; the potential effect of socially desirable answers, especially considering the face to face nature of the interview; and the nature of self-report and memory recall data. It is important to point out that scales had low reliability coefficients which may impact the validity of results with such a small sample. Lastly, although this study did not specifically	Level III
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						address substance addiction, residents of the selected shelter are recovering or recovered from addiction. It is possible, although not observed, that this may have affected responses. Conclusion	
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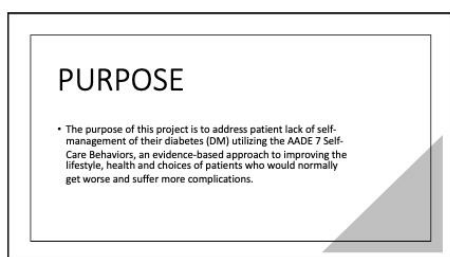
Appendix B: Educational Materials (PPT)



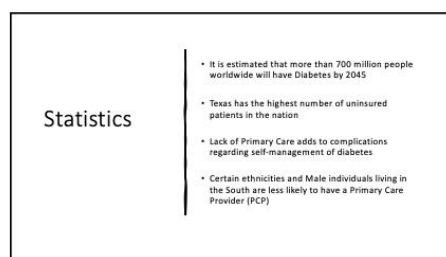
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2



3



4

Statistics

- In 2016, 16 Million Patients ages 18 and older, visited the ER with Diabetes related problems (Centers for Disease Control and Prevention (CDC), 2020).
- Dysglycemia is a major reason for frequent visits to the ED
- Dysglycemia is noted with Hyperglycemia and Hypoglycemia is present
- PCP are pivotal in reducing the frequent visits to the ED, however lack of available same day appointments and complication medical conditions result in patients seeking treatment in the ED

5

Poor Self-Management of Diabetes Leads To:

- Secondary illnesses
- Increase in hospitalizations
- Increased workload on emergency departments (ED's)
- Providing primary care in an ED Setting
- Places a large financial burden on patients, health care systems, and society.

6

The American Association of Diabetes Educators (AADE)

- Need to define and discuss "briefly" the white paper on 7 Self Management of DM elements

7

Seven Elements of Effective Mgmt of DM

- SEVEN ELEMENTS OF EFFECTIVE SELF-MANAGEMENT OF DIABETES:
- HEALTHY EATING
- BEING ACTIVE
- MONITORING
- TAKING MEDICATION

8

Seven Elements of Effective Mgmt of DM

- SEVEN ELEMENTS OF EFFECTIVE SELF-MANAGEMENT OF DIABETES:
 - PROBLEM-SOLVING SKILLS
 - HEALTHY COPING
 - REDUCING RISK

9

HEALTHY EATING

Portion Control

- At restaurants, ask for a To-Go box and take half of your meal to go. You can eat it for lunch the following day.
- Substitute fries with fruit at your favorite Fast- Food restaurant.
- Baked vs. Fried
- Sodas are tasty, but why not add your favorite flavor packet to your water?
- Eat all your favorite foods, in moderation

10

BEING ACTIVE

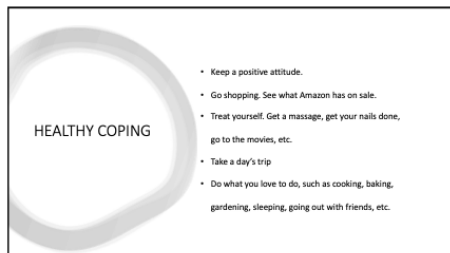
- The internet offers everything, including free yoga classes.
- Get your friends and co-workers to compete in a Fitbit challenge. It may be old-fashioned, but an effective and fun way to get your steps in.
- Park as far away as possible from any business or establishment. Not only is it great exercise, but possibly a safer place for your car to park.
- Use your lunch break for a short walk.
- Walk a few laps around the court or field while you attend your children's sport practice.

11

PROBLEM SOLVING SKILLS

- Take diabetes medications as directed.
- Check blood sugar before each meal and at bedtime
- Keep doctor's appointments as scheduled
- Plan when taking a trip/vacation:
 - Bring extra medication
 - Do not place medications in checked-in luggage
 - Avoid eating out and cook your own meals if possible.

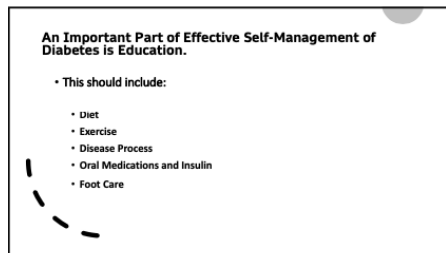
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HEALTHY COPING

- Keep a positive attitude.
- Go shopping. See what Amazon has on sale.
- Treat yourself. Get a massage, get your nails done, go to the movies, etc.
- Take a day's trip
- Do what you love to do, such as cooking, baking, gardening, sleeping, going out with friends, etc.

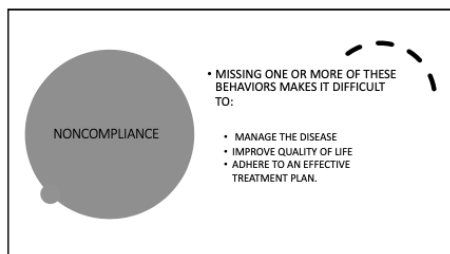
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An Important Part of Effective Self-Management of Diabetes is Education.

- This should include:
 - Diet
 - Exercise
 - Disease Process
 - Oral Medications and Insulin
 - Foot Care

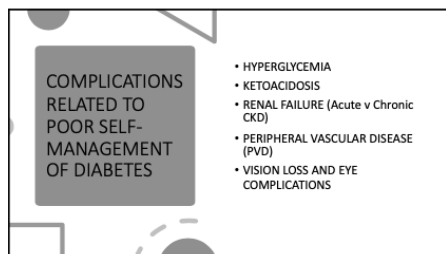
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NONCOMPLIANCE

- MISSING ONE OR MORE OF THESE BEHAVIORS MAKES IT DIFFICULT TO:
 - MANAGE THE DISEASE
 - IMPROVE QUALITY OF LIFE
 - ADHERE TO AN EFFECTIVE TREATMENT PLAN.

15



COMPLICATIONS RELATED TO POOR SELF-MANAGEMENT OF DIABETES

- HYPERGLYCEMIA
- KETOACIDOSIS
- RENAL FAILURE (Acute v Chronic CKD)
- PERIPHERAL VASCULAR DISEASE (PVD)
- VISION LOSS AND EYE COMPLICATIONS

16

COMPLICATIONS RELATED TO POOR SELF-MANAGEMENT OF DIABETES

- DIABETIC FOOT ULCERS
- CELLULITIS
- OSTEOMYELITIS
- AMPUTATION
- DEATH

17

Healthy Eating

Barriers

- Environmental factors
- Financial (food security)
- Cultural and family influences
- Food and health beliefs

18

Being Active

Barriers

- Lack of social support
- Self-efficacy
- Perceived lack of time
- Lack of enjoyment

19

Taking Medication

Barriers

- Financial (medication costs, co-pay)
- Worried about side effects
- Having to take multiple medications each day

20

Resources

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Appendix C: Educational Materials (Pre/Posttest)

Pre/Posttest

Answer the following questions by circling the correct answer.

MULTIPLE CHOICE:

1. Type 1 diabetes mellitus (DM) is caused by:
 - a. The pancreas is making less insulin than is required to maintain homeostasis and blood sugar regulation, so the adrenal gland attempt to correct and cause increased destruction of pancreatic cells.
 - b. Chronic kidney failure (CKD) and chronic urinary tract infections (UTI) lead to uncontrolled labs (BUN|CREAT|GFR) that in turn causes the liver to fail.
 - c. Increased liver functions caused by alcohol abuse result in hypoglycemia with chronic pancreas destruction leading to Type 1 DM.
 - d. Pancreas not producing insulin

2. Why is insulin not the first-line preferred long-term treatment for Type 2 DM?
 - a. Patients are scared and object to the use of needles.
 - b. Patients prefer to use oral hypoglycemics over insulin as first line due to cost-effectiveness.
 - c. HgbA1c can only be lowered with oral hypoglycemics.
 - d. Patients with Type 2 DM suffer from insulin resistance and goal of treatment is stabilized trends of blood sugars with oral hypoglycemics that also have renal protective properties.

3. The American Association of Diabetes Educators (AADE) developed the 7 self-care behaviors to improve diabetic patient's awareness of lifestyle, dietary and health choices using an evidenced-based approach to improve their health, disease management and awareness. Which behaviors are included:
 - a. Healthy eating, taking medication, problem-solving skills, coping
 - b. Healthy Eating, being active, taking medication, mental health care
 - c. Being active, healthy eating, monitoring, good sleep hygiene
 - d. Reducing risk, taking medication, coping, annual mammogram, or testicular/prostate exams

4. (True/False) It is expected with proper management and medication adherence a significant reduction of the incidence of Type 1 diabetes will occur over the next 20 years.
5. (True/False) Factors related to lack of access to primary care providers (PCP) for diabetic patients in the south are attributed to lack of transportation, financial hardship, work schedules, and/or fear of further medical problems being identified.
6. Frequent reasons for diabetic patients to seek care in the ER include:
 - a. Short wait times in the ER and quick access to a provider and prescription refill advantages make the ER lucrative to the diabetic patient.
 - b. Temperatures in the southern region of the United States have extreme weather temperatures, (ex. heat in the summer), causing diabetics to require fluid hydration (IV boluses) to help balance the blood sugars and improve their HGBa1c results.
 - c. Diabetic patients are able to see multiple specialties in one location (ER) and address multiple problems in one visit opposed to their PCP addresses one complaint at a time.
 - d. Diabetics patient with limited resources, limited medication access and jobs that limit their availability for office visits will cause patients to delay care leading to ER need medical care and admission for stabilization.
7. Which behavior is critical for mastery of the other six behaviors to be successful in Self Care Management of their diabetes?
 - a. Mental Health Awareness
 - b. Being Active
 - c. Healthy Coping
 - d. Medication Adherence and Beliefs
8. Medication adherence remains an essential component of management of chronic disease with barriers such as insufficient treatment choices, “subpar” therapeutic inertia, and/or avoidance of the practice of skipping doses. These consequences lead to all but:
 - a. increase in availability of resources to address complications
 - b. inferior quality of life for persons with chronic diseases such as diabetes
 - c. increased healthcare costs and overuse of the ERs
 - d. adverse outcomes

CASE STUDIES:

A 46-year-old diabetic female arrives at the emergency room with complaints of feeling weak, tired, and is experiencing blurred vision. Her initial blood glucose (BG) by accuchecks upon arrival is 600. Her most recent hemoglobin A1C was 8.4, which was more than 3 months ago. She also shared that she was recently treated for bronchitis with a Medrol Dose pack and completed treatment 2 days ago. She stated that she tries to take her Metformin as directed but does not always remember to do so. Her vital signs (VS) are as follows: BP 85/55, HR 135, Resp 32, Temp 101.6 F orally.

9. Which tests/labs should initially be ordered?
 - a. PT/PTT/INR, d-dimer, albumin
 - b. Hgb/Hct/Platelets, and Thyroid Panel, VBG
 - c. Recheck the BG, CBC, serum ketones, VBG, albumin CMP, CXR, UA, EKG
 - d. CBC, CMP, Hemoglobin A1C (Hgb A1c), EKG

10. What initial therapy(s) need to be considered to treat HYPERTHYCEMIA should include:
 - a. Normal Saline (NS) 0.9 % IVF bolus x 2 liters
 - b. Lasix 40 mg IVP x 1, repeat BMP in 1 hour
 - c. DuoNeb q 4 hours x 2, repeat. CXR
 - d. Tylenol 1 GM po x 1 now, Zofran 4 mg OFT x 1, ice pack under the armpits/neck for 15 minutes increments till temp < 100.5F orally.

11. Secondary treatment in the ER for hyperglycemia/DKA includes:
 - a. Glucophage, restrict oral water intake, continuous pulse oxygen monitoring.
 - b. Hourly BG monitoring, ultrasound (US) of pancreas, UA, 1 gram of Rocephin.
 - c. IV Normal Saline (0.9 %) 2-liter Bolus, recheck BG in 30 minutes after 10 units of regular Insulin IV, continuous VS monitoring with cardiac monitoring.
 - d. 15 units regular insulin IV, IV D5NS (0.9%) 1 liter bolus, PO challenge.

A 30-year-old Type 2 DM male patient arrives at the emergency room and is requesting a prescription to refill his oral diabetic medications, which he uses daily to treat his diabetes. Patient states is unable to get in to see PCP.

12. What is not one of the main reasons patients present to the ER for medication refills to manage their diabetes?
- Patients do have insurance or funds to see a primary care provider.
 - Patient is unable to make an appointment with his PCP due to unavailable appointments and long wait times to see the provider.
 - Using the ER for medication refills has been shown to be a reliable, effective, and quick way to manage socioeconomic hardships that many patients are facing that cause medication noncompliance.
 - Patient has transportation issues and is unable to go to PCP's office for appointments.
13. What should be included in the triage process?
- Vital signs, UA, EKG
 - Fasting blood glucose, VS, CXR
 - Blood glucose check, VS, medical/surgical history
 - ABG, VS, IV NS 0.9% 1-liter bolus
14. When the patient is seen by an ER provider, what information warrants additional evaluation?
- The patient admits to taking his oral hypoglycemics every day as ordered.
 - The patient's blood glucose check is 300 and patient states he ran out of his medications 3 days ago.
 - The patient's blood glucose is 100 and he states he has a scheduled follow-up appointment with his PCP in 3 days.
 - Patient has no complaints and states he ran out of his medications by mistake, believing he had additional refills available.
15. The diabetes care and education specialist notices that one of his patients is very frustrated, because he is not self-monitoring his blood glucose and is not taking his medication as ordered. He states that he feels overwhelmed and depressed most of the time.

All of the following are methods of measurement of healthy coping skills, except:

- a. Use of cognitive impairment tools, such as Saint Louis University Mental Status (SLUMS)
 - b. Beck Depression Inventory (BDI)
 - c. Patient Health Questionnaire-9 (PHQ-9)
 - d. Montreal Cognitive Assessment (MOCA)
16. At the 3-months follow-up, the patient shows a greater interest in taking care of his health. All of the following show a positive behavior change, except:
- a. Treating depression with antidepressant.
 - b. Keeping a log of self-monitored blood glucose levels.
 - c. Creating a book of diabetic recipes, which include excessive amounts of fruits, vegetables, and carbohydrates.
 - d. Taking medications as instructed.
17. Tom is a diabetic and is sharing his food and blood-glucose record with the diabetes care and education specialist. He is having problems with inconsistent food intake and does not plan for eating meals/snacks when away from home.
- (True/False) Diabetics who have difficulty with consistent food intake and do not plan ahead regarding their meals and snacks, can solve the problem only by ordering meal delivery kits, so they can eat when and what they want?
18. Susan shares with her diabetic care and education specialist that she is having a tough time reaching her goal of increased activity, and she believes it is nearly impossible to stay active, because it is just too expensive to join a gym.

When addressing financial barriers, all the following are true, except:

- a. Free exercise programs can be found on various internet websites.
- b. Wearable devices can be used to track activity, calculate calories burnt, and monitor heart rate and blood pressure.
- c. Virtual exercise groups, personal exercise challenges, and walking at least 10000 steps per day are essential for success and meeting goals.
- d. Set attainable goals, develop an exercise routine, and reward yourself when goals have been reached.

19. Peter is sharing with his diabetes care and education specialist, that he is experiencing frequent episodes of hypoglycemia. He did not keep a log of his blood glucose levels and stated that he often skips lunch at work, because he is too busy.

All of the following are effective interventions to reduce episodes of hypoglycemia, except:

- a. Pack a lunch the night before and be sure to take a lunch break.
 - b. If skipping lunch, be sure to include extra food for dinner, containing starch and carbohydrates.
 - c. Keep a log of regularly monitored blood glucose levels and share them with the provider.
20. This presentation covered a lot of information about diabetes, diabetes self-management, barriers to effective self-management, as well as available technology to ease diabetes self-management. The most important reason for this presentation is:
- a. To give everyone a break that is longer than 15 minutes.
 - b. To pass the next ER arrival on to a different provider
 - c. To increase knowledge about self-management of diabetes, to educate diabetic patients coming to the ER, and to reduce ER visits related to poor self-management of diabetes, by educating and providing available resources.
 - d. To finally have the time to eat lunch.

Appendix D: Likert Scale

Participant: A B C D E

LIKERT SCALE: QUESTIONS	1	2	3	4	5	TOTAL
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
1. Does the material support EBP of diabetic patient care in the ED?						
2. Are materials clear and easy to follow?						
3. Does the material address all aspects of diabetic patient care in the ED?						
4. Does the material support the nursing staff regarding the care of the diabetic patient in the ED?						
5. Does the material meet educational objectives?						

Key:

- Score of 1 (Strongly Disagree). There is no information that is relevant to the AGREE II item or if the concept is very poorly reported.
- Score of 5 (Strongly Agree). Full criteria and considerations articulated in the User's Manual have been met.
- Scores between 2 and 4. The reporting of the Likert Scale item does not meet the full criteria or considerations.

Appendix E: Additional Resources

Nutrition

This site is a great resource for healthy nutrition and managing blood glucose levels.

Information also available in Spanish.

<https://www.cdc.gov/diabetes/managing/eat-well.html>

This site provides recipes for diabetics as well as education about nutrients, carbohydrates, and what types of food to consume.

<https://diabetes.org/healthy-living/recipes-nutrition>

This website is addressing Diabetes Diet, Eating, and Physical Activity. Information also available in Spanish

<https://www.niddk.nih.gov/health-information/diabetes/overview/diet-eating-physical-activity>

Exercise

This site provides ample information about blood sugar and exercise, as well as helpful links to various exercise programs.

<https://diabetes.org/healthy-living/fitness/getting-started-safely/blood-glucose-and-exercise>

This site provides extensive information about various exercises and exercise programs for Diabetics.

https://journals.lww.com/jaapa/fulltext/2016/01000/exercise_recommendations_for_patients_with_type_2.3.aspx

This link provides the 10 Best Exercises for Diabetes and Blood Sugar Management

<https://www.goodrx.com/conditions/diabetes/best-exercise-for-diabetes-blood-sugar-management-weight-loss>

Education

This site provides the most valuable information about Diabetes. Also available in Spanish.

<https://www.uptodate.com/contents/the-abcs-of-diabetes-the-basics>

This link provides helpful education and provides additional links to other educational programs related to Diabetes.

<https://diabetes.org/>

This site provides many tip sheets regarding living with Diabetes.

<https://www.diabeteseducator.org/living-with-diabetes>

Prescription Discount Programs

https://www.singlecare.com/?utm_medium=paid-search&utm_source=google-sc-generic&utm_campaign=8718285010&utm_adgroup=87981281717&utm_term=prescription%20discount%20programs&utm_content=409692453826&matchtype=e&pos=&device=c&mkwid=slc_pcrd_409692453826_pkw_prescription%20discount%20programs_pmt_e&segments=&gclid=EAIaIQobChMI9e_qqrWY_QIV0xbUAR32ogJdEAAAYASAAEgJCevD_BwE

https://www.goodrx.com/go/sem-prescriptions?utm_campaign=11601593411&utm_content=124506047715&utm_source=google&utm_medium=cpc&utm_term=kwd-302461471855&gclid=EAIaIQobChMI9e_qqrWY_QIVOxbUAR32ogJdEAAYAiAAEgJ0EvD_BwE&gclsrc=aw.ds

<https://texasdrugcard.com/>