2017

Educational Module Toolkit to Assist Adult Patients with Type II Diabetes Mellitus

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This is to certify that the doctoral study by

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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
2017

Abstract

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by

Dometrives Armstrong

MS, University of San Diego, 2004

BS, University of Phoenix, 1998

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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December 2017

Abstract

Diabetes is a challenging chronic disease for adult patients to manage effectively. Poor adherence to prescribed medications treatment is one of the main reasons for poor blood sugar control. Despite healthcare providers' efforts to emphasize the importance of taking medications, adult patients with Type II diabetes frequently present with complications related to persistent failure to adhere to prescribed medication regimen. These patients should thoroughly understand why adhering to a strict medication regimen to maintain control of their blood sugar is so important. The purpose of this project, guided by Orem's self-care deficit nursing theory, was to develop an educational module toolkit that identifies best practices for nurses to address issues of medication adherence with adult patients with Type II diabetes. Future implementation of these toolkit resources may enhance nurses' ability to teach adult patients how to adhere to their medication regimen. Five participants, all considered professional diabetes content experts, were invited to evaluate the educational module toolkit subject matter. The completion response rate was 100% (*n = 5)*. The content experts rated survey items using a 5-point Likert scale where 1= *strongly disagree*, 2= *disagree*, 3= *not applicable*, 4 = *agree* and 5= *strongly agree* and responded to 2 questions that allowed for narrative feedback. The experts were satisfied with the content of the educational module toolkit; suggesting that the toolkit may serve as a functional guide for nurses assisting adult patients with diabetes. Improved medication regimen compliance may produce cascading effects; helping these patients achieve a better quality of life while producing positive social change within their families and communities.

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Dedication

I dedicate this DNP evidence-based proposed project to my amazing husband, Willie, my two sons, Juwan and Jalen, my parents, Leonard and Julia Mae Brown, Sr., and my family and friends. I thank you all for your encouragement, understanding, support, and patience during this journey.

This is also in loving memory of Mrs. Eugene Favors (great auntie), Mrs. Ruth Anderson (grandmother), Mr. Ned Brown (grandfather), Mrs. Arcenia Anderson (great-grandmother), Mr. Willie Rogers, Sr. (grandfather), Mrs. Nemmie Rogers (grandmother), Mrs. Catherine Armstrong (mom-in-law), Mr. Willie Frank Armstrong, Sr. (father-in-law), Mr. Brian Clayton (brother), Mr. Kale Mobley (brother-in-law), Mr. Miles Hale (friend), and Mr. George Oliveri (friend). I dedicate this project in your remembrance for always believing in me and continuously giving me steadfast support and encouragement.

Finally and again, to my awesome husband and best friend, Willie: without your wholehearted support and love, this achievement would not have been possible.

Acknowledgments

I owe my deepest gratitude to the Almighty God for empowering me to complete this DNP project.

I would like to express thanks to Drs. Andrea Jennings-Sanders, Jeff Smith, and Tracy Scott for their expertise and providing me with the knowledge to understand and assume my new role as a Doctor of Nursing Practice (DNP), and to my preceptor and mentor, Dr. Crisamar J. Anunciado, for providing me with the leadership skills and directions to be successful with my career pathway and with my evidence-based DNP project. I appreciate Dr. Domenica Oliveri of Grossmont College Nursing Education and my classmates for their assistance and guidance throughout this journey. I would also like to extend gratitude and recognition to my professional content experts for sharing their knowledge and providing guidance to improve and validate the educational module toolkit for nurses to potentially enhance medication adherence for patients with diabetes.

I thank my colleagues and staff at San Diego City College, Nursing Education—Dean Emeritus Deborah Berg, MSN, RN, Associate Dean of Nursing/Director of Nursing Education, and Professor Kris Hale, MSN, RN, Chairperson of Nursing/Assistant Director of Nursing Education—who supported me from day one to achieve this point in my academic career. I also send a special thanks to my peer and colleague at Walden University, Edna Green, for her unconditional support and friendship.

Finally, I thank my loving husband and my two adorable sons for being my cheerleaders and inspiring me from the beginning to the end of this journey, and I extend

my heartfelt appreciation to my friends and family for their support and encouragement to persevere.

"Love recognizes no barriers. It jumps hurdles, leaps fences, penetrates walls to arrive at it destination full of hope." — *Maya Angelou*

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Section 1: Nature of the Project

Introduction

According to Theofilou and Saborit (2012), Type II diabetes mellitus (DM) is a complex disease to manage. The prevalence of diabetes and the fact that patients do not adhere to medication treatment plans is a growing health concern globally (Mulvaney, 2009). Type II DM is a multifaceted, chronic endocrine disorder that interrupts the lives of millions of people worldwide (Guariguata et al., 2014) and needs to be continuously assessed to identify potential complications. The World Health Organization predicted that by 2030, approximately 350 million people will be diagnosed with Type II DM (Office of Disease Prevention and Health Promotion, 2017).

Diabetes is the seventh leading cause of death in the United States and is quickly becoming a widespread epidemic (American Diabetes Association [ADA], 2014; Lewis, Ruff-Dirksen, Heithkemper, Bucher, & Camera, 2014; Nguyen, Nguyen, & Felicetta, 2008). The Centers for Disease Control and Prevention (CDC) estimated that approximately 29.1 million Americans have been diagnosed with diabetes, and the number is expected to double by 2030 (CDC, 2014). In the United States, the direct and indirect cost of diabetes care in 2012 was approximately $245 billion (CDC, 2014). Stiffler, Cullen, and Luna (2014) the highlighted cost for adult patients with diabetes was approximately $100 billion per year related to medication nonadherence.

It is critical for adult patients with Type II DM to adhere to their medication regimen. Sousa and Zausniewski (2005), Asche, LaFleur, and Conner (2011), and Teofilou and Saborit (2012) emphasized the costly and severe complications related to

diabetes that occur from poor blood sugar control among those who do not follow the medication guidelines and adequately manage their diabetes care. Among the significant consequences for adult patients with diabetes who do not adhere to their medication regimen are hyperglycemia, renal disease, eye disease, mortality and morbidity rates, and nontraumatic amputations (ADA, 2014; Gibson et al., 2010; Lewis et al., 2014; Sousa, Zauszniewski, Price Lea, & Davis, 2005).

According to the literature, medication adherence can help adult patients with Type II diabetes regulate their blood glucose levels (ADA, 2014; Asche et al., 2011; Freeland, 2014). Gibson et al. (2010) argued that medication regimen adherence is the key component for inhibiting diabetes-related complications. According to Delamater (2006), Mulvaney (2009), and Sürücü and Kizilci (2012), early identification of medication adherence improves adult patients with diabetes outcomes. Mulvaney believed that when limitations are identified first, an educational plan can improve medication adherence among adult patients with diabetes. Nonetheless, many adult patients with diabetes fail to take their medications consistently (Delamater, 2006; Freeland, 2014). Freeland (2014) discussed that adult patients with diabetes are categorized as either "noncompliant" or "nonadherent" when they do not follow the prescribed treatment recommendations.

According to Delamater (2006) and Garcia-Perez, Alvarez, Dilla, Gil-Guillén, and Orozco-Beltrán (2013), nurses play a vital role in caring for adult patients with Type II DM. Not only are nurses required to continuously evaluate and supervise these patients, but they must also assess and understand reasons why patients are nonadherent in taking

their medications. Part of the nurse's role is to explore the reasons why adult patients with Type II DM are nonadherent to their prescribed medication regimen, which includes examining potential barriers that may prevent patients with Type II DM from following their daily medication treatment and implementing interventions to help overcome those barriers. Interventions consist of patient counseling, education, and self-care skills training that assist patients to maintain the recommended medication adherence (ADA, 2014; Brown & Bussell, 2011; Clark, 2004; Clarke 2009; Cramer, 2004; Evan, 2010; Sousa & Zausniewski, 2005). In addition, the ADA (2014) stated that medication therapy and lifestyle changes, including diet and physical activity, are key interventions for adult patients with diabetes to manage their prescribed medication regimen effectively and remain healthy.

Delamater and Garcia-Perez et al. discussed factors related to adult patients with diabetes regimen to nonadherent problems, and one factor is limited social support. Family members and friends play an important role in diabetes management (Delamater, 2006; Garcia-Perez et al., 2013). Thus, including family members, friends, and significant others in the plan of care may provide adult patients with Type II DM with social support to have better medication adherence (Delamater, 2006; Garcia-Perez et al., 2013). Nurses need to incorporate these and other interventions in the patients' plan of care to improve their knowledge about medication adherence and limit this persistent problem.

Problem Statement

Failure of adults with Type II DM to adhere to prescribed medication regimens is the clinical problem of the focus for this project. There is an increased rate of poor medication adherence among adult patients with diabetes (Mann, Ponieman, Leventhal, & Halm, 2009), and these patients can experience an increase in their morbidity and the mortality (Delamater, 2006; Garcia-Perez et al., 2013). The proposed educational module toolkit was developed to assist nurses to identify adult patients with Type II diabetes who are at risk for medication nonadherence and teach patients and families the importance of adhering to the prescribed medication regimen. Nurses are accountable and responsible for educating patients and families about medication nonadherence. Nurses need to evaluate any obstacles that may prevent adult patients with Type II diabetes from adhering to their prescribed medication schedule. To modify the behaviors of adult patients with diabetes behaviors, nurses need to assess and implement a standardized plan of care for patients who do not adhere to their medication regimen.

An educational module toolkit for diabetes prevention is one method for nurses to teach high-risk adult patients with Type II DM about the importance of medication nonadherence. The CDC (2008) reported that a toolkit could be customized to meet the needs of the healthcare providers in helping adult patients with Type II diabetes to manage their diabetes successfully. Yu et al. (2014) reported adopting a patient-centered shared decision-making model of care as a toolkit allowed patients with diabetes to set goals with the support of healthcare providers. This model allows patients to learn how to self-manage their medication regimen and make decisions about their plan of care. The

model also focuses on patient-centered outcomes for nurses to evaluate patients adhering to their medication therapy plan (Yu et al., 2014).

Purpose Statement

The purpose of the DNP project was to develop an educational module toolkit to aid nurses in educating adult patients with Type II DM about their medication adherence. Nurse evaluation and assessment of medication nonadherence among adult patients with Type II DM is one of the main factors toward effective management for medication adherence. Identifying the reasons why adult patients with Type II DM do not take their antidiabetics medications as prescribed is essential for the development of potential interventions to enhance and improve adherence. The development of this proposed educational module toolkit for nurses will increase awareness and empower patients and their families to improve medication nonadherence.

In 2014, the ADA created evidence-based standards for nurses to assist adult patients with Type II DM to improve medication adherence. These standards are as follows:

1. Teach adult patients with Type II DM to organize their medications, which will help patients to remember to take their medications as prescribed;
2. Teach adult patients with Type II DM how to use a pill chart to help them write down the name of the medication(s), what time to take their medication(s), and how many pills to take per day;
3. Teach adult patients with Type II DM how to fill a pillbox. The pillbox will aid in helping patients to take the correct amount of their medication(s); and

4. Encourage adult patients with Type II DM to bring a family member to each healthcare provider appointment.

The educational module toolkit was designed by me and evaluated by content experts. The toolkit provided resources to guide nurses to assess adult patients with Type II DM for medication adherence and reduce the gap related to medication nonadherence. The toolkit includes an educational module with an outline of instructions that focus on medication adherence, activities for nurses to assess and educate patients using a Preintervention and Postintervention Questionnaire Assessment Tool, information about medication adherence for nurses, and patient-centered learning activities and objectives. I also reviewed the Morisky Medication Adherence Scale 8-Item (MMAS 8-Item) tool that is typically used to measure and assess medication adherence (see Appendix A*).* I received permission to use this tool (see Appendix B).

Project Objectives

The first objective of this DNP project was to develop an educational module toolkit as a resource for nurses. The second objective of this project was for content experts to evaluate the educational module toolkit.

Nature of the Doctoral Project

The focus of this project was to develop an educational module toolkit to help nurses teach adult patients with Type II DM and their families how to improve medication adherence. The toolkit provides a blueprint for nurses to teach adult patients with diabetes the importance of adhering to their medication regimen. The toolkit also provides tools that nurses can apply in their daily clinical practice to teach adult patients

with diabetes how to successfully self-manage their medication adherence. Many researchers have indicated that medication nonadherence is an ongoing problem for diabetic patients (Bailey & Kodack, 2011; Bradshaw, 2010; Duquenne & Le Moguen 2012). It is important for nurses to assess cognitive processes and behavioral changes of patients with Type II DM to identify any problems with medication adherence.

Significance to Nursing Practice

Nurses provide endless opportunities to assist with improving awareness of medication adherence for adult patients with Type II diabetes. Staff nurses, diabetes educators, nurse educators, and DM nurse practitioners (DM-NPs) can use the educational module toolkit to assess and evaluate patients' and families' knowledge related to medication nonadherence. Nurses may use the educational module toolkit for adult patients with Type II DM on the second day of admission and follow up two to four days post discharge from the hospital. Bradshaw (2010) suggested that with nursing assistance, patients follow teaching guidelines implemented at discharge regarding medication adherence.

Nurses play a significant role in healthcare in decision-making and fostering positive change in the facility to educate patients adequately (Bradshaw, 2010). The implementation of this DNP project can enhance nurses' and patients' knowledge and allow nurses, patients, and family members to collaborate to make healthcare decisions to adhere to patients' prescribed medication regimen. The toolkit will enable nurses to teach patients and their families how to self-manage their diabetes and will improve nurses' confidence in providing quality education for adult patients with Type II DM.

Kirk, Ebert, Gamble, and Ebert (2013) believed that adult patients with Type II DM who had social support from their families and friends showed behavior changes to meet their health outcomes, suggesting that social support is key to success for adult patients with diabetes. The provision of valuable teaching resources for individuals with Type II DM along with their family members, partners, friends, and nurses including the provision of care, love, encouragement, motivation, and teaching are all included in the term *social support* (Kirk et al., 2013; Sousa, Zauszniewski, Musil, McDonald, & Milligan, 2004). Kirk et al. concluded from their research that having a social support system in place that includes families and friends makes a difference in the treatment plan of care for adult patients with Type II DM adhering to their medication regimens. Families and friends who provide social support to their loved ones with diabetes create a positive impact for patients' to manage their diabetes effectively (Kirk et al., 2013).

Problem Question

The DNP project question is, *Will content experts rate the educational module toolkit as an effective means for nurses to address medication adherence?*

Evidence-Based Significance of the Project

The educational module toolkit for nurses included evidence-based practice to improve medication adherence for adult patients with Type II DM. This evidence-based project provided direction for nurses making clinical decisions on a day-to-day basis that affect patient outcomes for medication adherence. Evidence-based studies have recognized the significance of medication adherence among patients with diabetes (A1-Qazzaz et al., 2011; Clark, 2004; Lau & Nau, 2004; Sousa et al., 2005; Theofilou &

Saborit, 2012). Healthcare costs have increased to billions of dollars each year due to diabetes-related complications resulting from patients with diabetes failing to adhere to their medication treatment plan (Abebe, Berhane, & Worku, 2014; Brown & Bussell, 2011; Ho et al., 2006). Due to the recent economic recession leading to the increased cost of healthcare in general and the increased cost of diabetic care, nurses and administrators must be concerned with cost containment (Asche et al., 2011; Ho et al., 2006). Every dollar saved in patient education is a cost-benefit to hospitals (Brown & Bussell, 2011; Clarke, 2009; Delamater, 2006). This educational module toolkit is intended to help defray the cost of diabetic-related healthcare costs by improving adult diabetic patients' understanding of medication adherence.

The role of nurses is to educate adult patients with Type II diabetes and their families on how to effectively manage their diabetes. Decision-making, problem-solving, and supportive services to sustain the quality of life to prevent diabetes-related complications are essential to the nursing role in potentially improving patients' and their families' understanding of the concept of medication management (Johnson & Raterink, 2009). Nurses must also help identify barriers in the early stages to teach patients with Type II DM how to self-manage their prescribed medication regimen to prevent diabetes-related complications that could result from medication nonadherence (Mulvaney, 2009). Many researchers have discussed that family and friend support are critical for adult patients with Type II DM to understand the concept of making positive social lifestyle changes to manage their diabetes (Kirk et al., 2013). Psychosocial barriers such as depression, financial hardship, attitudes about illness, stress, and anxiety related to

diabetes, and forgetting to take prescribed medications can lead to medication nonadherence (ADA, 2014; Asche et al., 20111; Mulvaney, 2009). To improve medication adherence among adult patients with Type II diabetes, nurses can facilitate well-crafted social support strategies, such as using a daily schedule, communicating concerns to nurses, using a calendar, including families and friends in the teaching process, and using a pillbox (Kirk et al., 2013).

Bailey and Kodack (2011) examined critical elements to improve medication adherence for lowering blood glucose and preventing complications in patients with diabetes. To avoid long-term complications associated with diabetes, they recommended significant lifestyle changes, education, and medication therapy to assist with the management of blood sugar control (Bailey & Kodack, 2011). They suggested decreasing the number of tablets per day to daily dosing to deter patients from missing their medications, which helps patients to achieve goals (Bailey & Kodack, 2011). Mulvaney (2009) believed that when patients report being unable to take their medications as prescribed, an educational plan must be initiated to teach patients the purpose of adhering to a medication schedule. Patients who self-reported their deficits in taking their medication face challenges that nurses may help overcome. To help patients remember to take their medication as prescribed, the educational module toolkit includes nurse-led activities and important reminders on topics such as how to use an alarm clock, pillbox, and calendar (Mulvaney, 2009; Pfizer Inc., 2003).

Implications for Social Change in Practice

According to White, Smith, Hevey, and O'Dowd, (2009), medication adherence has a positive effect on the quality of life and the well-being of adult patients with diabetes and their families. Nurses are in a unique position to influence a positive social change in adult patients with Type II diabetes by identifying barriers early that prevent patients from adhering to their prescribed medication regimen. This educational module toolkit enhances nurse, patient, and family member awareness and knowledge about adhering to the patient's prescribed medication regimen. Based on the assessment of content experts, the toolkit successfully allows nurses to assess barriers preventing adult patients with diabetes to follow their prescribed medication treatment. Once these obstacles have been identified, nurses may implement a customized educational plan based on the toolkit and develop interventions that will potentially guide adult patients with Type II DM and their families to follow the prescribed medication treatment plan successfully.

Definition of Terms

The terms used in this evidence-based DNP project are:

Adherence: Adherence is the process whereby patients display an understanding of and comply with the treatment plan (Theofilou & Saborit, 2012).

Adult: An adult is a person who has reached a particular age, such as 18 years old. In the eyes of the law, an adult can manage his or her affairs (Farlex Inc., 2017).

Barrier(s): A barrier is a problem that can inhibit self-care management and prevent patients from moving forward in facing a situation (Mulvaney, 2009).

Commitment: Commitment is the state of being determined to follow a cause or obligation, or the act of making a pledge or promise to be obligated for a cause (Dictionary.com LLC, 2017).

Diabetes mellitus (DM): DM is a chronic disease that can lead to severe vascular complications. Insulin insensitivity can lead to insulin resistance secondary to the insufficiency of the production of the pancreatic hormone insulin, which results in the body's inability to break down sugars and starch that can cause hyperglycemia (ADA, 2014; CDC, 2014; Lewis et al., 2014).

Healthcare provider(s): Licensed healthcare professionals who provide care to patients. For this project, healthcare providers include physicians, nurse practitioners, pharmacists, nurses, dietitians, and phlebotomists (Terry, 2012).

Hemoglobin A1C: Hemoglobin A1C is a blood test that measures the amount of glycosylated hemoglobin in the blood. The glycosylated hemoglobin test displays the result of patients' average blood glucose levels over a period of 2 to 3 months and is used to diagnosis diabetes (Lewis et al., 2014).

Nonadherence: Nonadherence is the act of not complying with a treatment plan, suggesting patients do not display an understanding of the treatment plan (Brown & Bussell, 2011; Clark, 2004; Cramer, 2004; Glasgow, Toobert, & Gillettee, 2001).

Self-care: Patients are said to partake in self-care when they are in control of their health and maintain an ideal lifestyle in their activities of daily living (Burns & Grove, 2009; Evans, 2010; Guo, Lin, Chen, Kao, & Chang 2013; Orem, 2001; Sousa et al., 2005).

Self-care deficit: A self-care deficit exists when patients lack the skills or ability to perform self-care practices based on age, development, experiences, a combination of social and cultural factors based on health, or accessibility to resources (Burns & Grove, 2009; Evans, 2010; Orem, 2001; Sousa et al., 2005).

Self-care management: Self-care management is the method by which patients demonstrate and verbalize an understanding of how to manage a long-term chronic health condition effectively (Goldstein, 2004; Sousa et al., 2005).

Toolkit: A toolkit is an assortment of educational materials or documents used to educate patients about a subject of interest to prevent disease-related complications (CDC, 2008; Yourdictionary.com).

Type II DM: Type II DM is a metabolic disorder that leads to hyperglycemia secondary to insulin resistance due to the lack of insulin produced by the pancreas (ADA, 2014; CDC, 2014; Lewis et al., 2014).

Assumptions and Limitations

The assumption was that the content experts evaluated the proposed educational module toolkit accurately using a particular tool. The limitation was that the toolkit was not implemented.

Summary

Evidence-based studies have established the importance of medication adherence among patients with Type II DM (Brown & Bussell, 2011; Clarke, 2009; Delamater, 2006; Duquenne & Le Moguen, 2012; Kocurek, 2009; Sürücü & Kizilci, 2012). The purpose of this project was to develop an educational module toolkit for nurses to teach

adult patients with Type II DM to adhere to their medication regimen. Medication nonadherence is an ongoing problem that needs to be addressed with adult patients with Type II DM to prevent diabetes-related complications.

Section 2: Background and Context

Introduction: Review of Scholarly Evidence

In this literature review, I focus on scholarly evidence used to develop an educational module toolkit for nurses to potentially improve medication adherence among adult patients with Type II DM.

The literature search was conducted using the e-Journal of the Walden University Library. The databases searched were the Cumulative Index to Nursing and Allied Health Literature, Cochrane Database of Systematic Review, Google Scholar, ProQuest Dissertations and Theses Database, MEDLINE, ADA, Ovid Nursing Journals, PsycINFO, and PubMed (1989 to 2016). I retrieved relevant articles from these databases after evaluating the abstracts. The keywords searched were *education*, *interventions, healthcare cost*, *barriers, diabetes mellitus, evidence-based practice, self-care management, behavior, toolkit, medication adherence,* and *blood sugar.* Other keywords were *Hemoglobin A1C, self-care theory, theory of self-care agency, theory of nursing system, Orem's self-care deficit nursing theory (SCDNT),* and *social support*.

Inclusion and exclusion criteria were developed to outline the appropriateness of each article to be included in the general and specific literature review. The inclusion criteria were that studies were written in English with full text available, that study participants were adult patients with Type II DM who reported medication nonadherence, and that the studies concerned adult patients with Type II DM, a toolkit used for educating nurses, and educational interventions. Any articles not meeting the inclusion criteria were excluded. Pediatric literature was also excluded.

Review of Literature

The database search returned 100 articles; of these, 58 studies met the inclusion criteria. The following review of the literature consists of two sections: a general and a specific literature review.

General Literature Review

Sweileh et al. (2014) conducted a study that focused on the serious health problems associated with DM and medication nonadherence. The main goal of this study was to improve medication adherence among adult patients with Type II DM. Sweileh et al. interviewed 405 patients who were diagnosed with Type II DM using the Morisky MMAS 8-item tool and found that approximately 42.7% of the participants were considered nonadherent to their medication regimen. As a result of the study, adult patients with Type II DM showed significant improvement in awareness about their medications and knowledge about their illness, which was displayed in a positive change in their medication adherence.

Ahmad, Ramli, Islahudin, and Paraidathathu (2013) conducted a study that evaluated medication adherence and distinguishing factors associated with medication nonadherence in patients with Type II DM located at the Primary Health Clinics of the Ministry of Health in Malaysia. The study was conducted using a cross-sectional survey to assess patient adherence to medication in primary health clinics. Medication adherence was measured using the Medication Compliance Questionnaire, which consisted of seven questions. Of the total 557 patients recruited to participate in this study, approximately 53% were found to be nonadherent to their medication regimen. The researchers

conducted a logistic regression analysis to predict each variable associated with nonadherence. The variables associated with nonadherence were the patients' age (odds ratio 0.967; 95% CI: 0.948-0.986), medication knowledge (odds ratio 0.965; 95% CI: 0.946-0.984), and comorbidities (odds ratio 1.781; 95% CI: 1.064-2.981). Ahmad et al. reported that adherence to medication in patients with Type II DM in the primary health clinics was poor. Based on their findings, Ahmad et al. concluded there were concerns about medication nonadherence that could lead to patients' diabetes getting worse secondary to medication nonadherence and lack of awareness. Therefore, the goal of this study was to improve medication knowledge and adherence by paying specific consideration to patients' age groups and their comorbidities, which could potentially help to improve medication adherence (Ahmad et al., 2013).

Kripalani, Yao, and Haynes (2007) discovered that 20% to 50% of patients are nonadherent to medical therapy. The aim of this study was to develop interventions to improve medication adherence in patients with chronic medical conditions such as diabetes. Kripalani et al. conducted a systematic review of 37 randomized controlled trials designed to improve medication adherence in patients with chronic medical conditions. The trials varied in nature; of the 37 eligible for evaluation, 12 were informational, 10 were behavioral, and 15 combined informational, behavioral, and/or social investigations. In total, 20 trial studies provided a significant enhancement in at least one adherence measure, and 11 studies (four informational, three behavioral, and four combined) confirmed the improvement of one clinical outcome. Kripalani et al. concluded that although several interventions may help improve medication adherence in

patients with chronic medical conditions such as diabetes, the majority did not significantly influence clinical outcomes.

Abebe et al. (2014) conducted a study that evaluated diabetic patients' self-reporting of low adherence to their prescribed antidiabetic medications. The methodology of this study was a cross-sectional design to assess patients with diabetes in northwest Ethiopia. Abebe et al. evaluated and measured medication adherence using the MMAS-8 tool with a total of 391 patients with diabetes (response rate 96.1%) and found that patients' self-reported adherence to diabetic medication was low for 25.4% of the patients (95% CI: 21, 29), medium for 28.7%, and high for 45.9% of the patients. Abebe et al. concluded that the majority of adult patients with diabetes were not adhering to their medication regimen. They found that medication adherence was poor among adult patients with conventional diabetes treatment and adult patients who were dissatisfied with services provided by nurses. The researchers suggested that developing rigorous communication strategies between nurses and adult patients with diabetes (to include lifestyle changes, family support, and education) could improve the quality of nursing services, the level of patients' medication adherence.

Al-Qazaz et al. (2011) conducted a study to explore several factors associated with knowledge and medication adherence in patients with Type II DM with glycemic control. They used a cross-sectional design that included a sample of 540 adult patients who had been diagnosed with Type II diabetes. Al-Qazaz et al. assessed baseline knowledge, hemoglobin A1C, and medication adherence for these patients. A nursing educational plan was created to increase and improve patients' medication adherence.

The assumption of knowledge was a factor that affected the treatment regimen. Al-Qazaz et al. used several tools that included a questionnaire to validate the Michigan Diabetes Knowledge Test and the MMAS-8 with a dichotomous response (yes/no). Patients' electronic medical records were used to obtain hemoglobin A1C results and other disease-related information. Patients displayed a significant increase ($p < 0.05$) in knowledge, hemoglobin A1C, and medication adherence, and patient knowledge and medication adherence associated with diabetes were found to be indicative of an improvement in diabetes management.

Guo et al. (2013) created services to support patients with diabetes using Orem's self-care theory model. A nurse support team facilitated a plan of care to assist patients with their self-care management in a multidisciplinary setting. Guo et al. found self-care support for diabetic patients was important for patients to achieve a healthy lifestyle. They proposed that insufficient support for self-care would increase the probability of hospitalization for patients with diabetes due to diabetes-related complications. Guo et al. used a questionnaire with eight items rated on a 4-point Likert scale (1 = *strongly dislike* to 4 = *strongly like*). The 27 patients who completed this study responded favorably to the interventions that were intended to help patients adhere to their diabetes management. Of note, the researchers asserted that self-care theory is part of the groundwork of science and art that characterize patient-centered care.

Morisky, Green, and Levine (1986) conducted a historical study of self-reported medication adherence in patients with a chronic illness such as diabetes or hypertension. A 4-item structured, self-reported adherence scale was administered during medical visits

that addressed barriers for medication taking and allowed nurses to design an educational plan to make changes in patient adherence behaviors based on their scores. Morisky et al. discussed that adherence to medication therapy continued to rank as the main clinical problem in care management for patients with a chronic illness. They reviewed psychometric properties and tested the concurrent and predictive validity of the 4-item self-reported adherence measure (alpha reliability = 0.61) that was easily combined with the medical visits. The researchers reported an improvement in patients' self-reported adherence to their prescribed medication regimen.

White et al. (2009) conducted a study that examined the relationship between psychological and social factors and diabetes goals in patients with Type II DM and their families. A total of 153 patients with Type II DM participated in the study, and patients were assessed based on their knowledge, social support, well-being, and illness perception. Family members who participated in the study were sent postal questionnaires. Compared to the patients, the families of patients with diabetes families reported lower positive well-being and lower levels of satisfaction with support. This study highlighted the importance of social context and illness belief in diabetes management as well as the benefit of including families in the plan of care that involves education about diabetes management.

Specific Literature Review

Gonzalez and Schneider (2011) examined whether an accurate assessment of medication adherence was a critical requirement to improve adherence. They examined eight methods that included an educational intervention plan. The educational plan

featured communication that involved direct patient observation, medication level in biologic fluids, biologic markers, healthcare provider estimates, pharmacy claim data, electronic monitoring, pill count, and self-reported adherence (patient education, patient interviews, diaries, and self-report measures). The participants were 526 adults who demonstrated poorly controlled diabetes related to medication adherence. Pharmacy claims provided information from the medication possession ratio and self-report data from the 4-item Morisky adherence scale was used to create an education plan based on the patients' scores. The results revealed significance ($p = 0.21$) in the correlation with the Spearman and medication possession ratio with the self-reporting of taking medications as scheduled. Gonzalez and Schneider discovered that education was significant for patients with Type II DM to understand the main factors for adhering to their medication regimen.

Sapkota, Brien, Greenfield, and Aslani (2015) conducted a systematic review to evaluate interventions to promote adherence to antidiabetic medications. Sapkota et al. developed a variety of interventions to endorse antidiabetic medication adherence, and the interventions were successful for the prediction of medication nonadherence. The researchers reviewed 49 studies to assess interventions: of those, 46 employed patient-level interventions, two employed provider-level interventions, and one employed both. The interventions had the following areas of focus: educational ($n = 7$), behavioral ($n = 3$), economic ($n = 3$), and multifaceted (a combination of educational, behavioral, and economic; $n = 40$). The interventions were also identified as patient-related ($n = 35$), condition-related ($n = 31$), and therapy-related ($n = 20$). These components were

primarily defined by the World Health Organization; fewer of these interventions were addressed by the healthcare system (n = 5) and socioeconomic-related factors (n = 13; Sapkota, et al., 2015).

For their study of the self-management interventions used by older adults with Type II DM, Moser, Bruggen, Widdershoven, and Spreeuwenberg (2008) used a qualitative descriptive and exploratory design with an inductive approach. The researchers collected information was collected by in-depth interviews, which were nurse-led in a share-care setting. Moser et al. found that patients with Type II DM diabetes used three kinds of self-management interventions: daily, off-course, and preventive. Daily self-management interventions involved the steps of adhering, adapting, and acting routinely. Off-course self-management involved becoming aware, reasoning, deciding, acting, and evaluating. The final phase of self-management, preventive interventions, involved experiencing, learning, being, and putting into practice. The older adult participants described these interventions as short-term (off-course) and long-term (daily and preventive) self-management strategies. Moser et al. concluded the goal of diabetes self-management education was to teach and encourage patients with Type II DM to become actively involved in their care with nurse guidance.

In a study conducted by Brundisini, Vanstone, Hulan, DeJean, and Giacomini (2015), medication nonadherence increased adverse outcome for patients with Type II DM. The authors reported that improving medication adherence was an increasing main concern for clinicians and healthcare systems. They assessed the difference between patients and providers about understanding medication adherence related to barriers

impacting patients with Type II DM. The authors completed a systematical search for empirical studies published from 2002-2013 that focused on barriers to medication adherence in patients with Type II DM. From the published studies Brundisini et al. identified seven classifications of barriers: (a) emotional experiences as positive and negative motivators to adherence, (b) intentional non-compliance, (c) patient-provider communication, (d) information of knowledge, (e) medication administration, (f) social and cultural beliefs, and (g) financial issues. Patients and providers expressed different opinions about the requirements to assist patients in improving medication adherence. The researchers concluded the fundamental incongruities in patients' and providers' understanding barriers to medication adherence were misunderstanding the span of cultural and care that involved 86 qualitative studies. The researchers noted that improvement in patients' perspectives and values regarding medication adherence might be possible with counseling and interventions aimed at improving medication adherence among patients with Type II DM.

Social Support

Social support is defined as the exchange of valuable resources between family members, partners, friends, and nurses to provide a caring, loving, encouraging, motivating, and a teaching environment for patients who need support (Kirk et al., 2013; Sousa et al., 2004). Schiotz, Bogelund, Almdal, Jensen, and Willaing (2012) conducted a study involving social support using self-administered questionnaires for 2,572 patients with Type II DM. This study provided education, highlighted gender and age of patients, and used the Tobit and logistic regression models to observe interactions between family

members and friends. Schiotz et al. found positive scores related to the assessments of care among patients and families and concluded that a social support system was necessary for the association of health promotion, behavior changes, self-care management, and medication adherence for patients with Type II DM.

Mayberry and Osborn (2012) used a mixed-methods approach to evaluate the relationship between patients' insights about family members' diabetes self-care knowledge, family members' diabetes-specific supportive and non-supportive behaviors, and patients' medication adherence and glycemic control (A1C). This study assessed adult patients with Type II DM who completed surveys ($n = 61$) and/or participated in a focus group to discuss barriers and organizers to manage diabetes care ($n = 45$). The data collected included patients' demographic information, diabetics' medication adherence measures, family members' knowledge, and family members' diabetes-specific supportive and non-supportive behaviors. The researchers concluded that family members who displayed supportive behaviors demonstrated a clear, concise understanding of diabetes awareness. In addition, demonstrating supportive behaviors for patients with diabetes to adhere to their medication schedule allowed patients to exhibit glycemic control.

Conceptual Model/Theoretical Framework

The conceptual model/theoretical framework most appropriate for this DNP project was the Orem's Self-Care Deficit Nursing Theory (SCDNT; see Appendix C). This grounded theory model provided a conceptual model/theoretical framework related to nursing practice and the patient-centered concept of self-care support. Evans (2010)

and Orem (2001) identified self-care as a human regulatory function that individuals must be able to maintain life, health, and independently care for themselves. The SCDNT has three categories relevant to this project: the theory of self-care, the theory of self-care deficit, and the theory of nursing systems (Evans, 2010; Orem, 2001). The SCDNT deals with how patients would able to care for themselves (Burns & Grove, 2009). Orem (2001) focused on self-care to be the prodigy to basic nursing practice. Interventions by nurses have been based on assessing patients' ability to be responsible for their self-care needs, and the SCDNT model helps to reinforce the educational module toolkit guidelines (Burns & Grove, 2009).

The SCDNT model is a key component for helping nurses develop effective educational interventions for adult patients with Type II DM and their families. Orem's conceptual model enables patients and their families/friends to participate in patient care by collaborating with nurses. Promoting self-respect and self-esteem are vital concepts for adult patients with Type II diabetes to adhere to their prescribed medication regimen with minimum guidance from nurses. Self-care is a behavior that is learned and adult patients with Type II DM must be able to demonstrate how to use their self-care skills to manage their diabetes effectively (Evans, 2010; Orem, 2001). The self-care deficit theory describes the limitation of maturity of patients to perform their self-care independently (Orem, 2001; Tomey & Alligood, 2006). It is important for nurses to assess and identify problems and develop nursing interventions that assist adult patients with Type II diabetes to achieve their outcomes and overcome any deficits.

This project allows nurses to customize nursing interventions based on patients' individualized scores from the Taking Medication Preintervention using the Morisky Medication Adherence Scale 8-Item (MMAS 8-Item). The nursing interventions may possibly improve patient outcomes by decreasing hospital cost and readmission and teaching adult patients with Type II DM to potentially teach patients how to take their scheduled medications to prevent diabetes-related complications (Evans, 2010). One of the SCDNT models includes self-care agency, focusing on patients with the ability to manage their plan of care independently (McEwen & Willis, 2011; Orem, 2001; Sousa et al., 2005; Tomey & Alligood, 2006). Patients can apply self-care agency into their daily living activities to successfully manage and prevent medication nonadherence.

The conceptual model/theoretical framework for this project focuses on patient-centered care and in particular, patient self-care. The self-care model allows nurses to teach patients how to modify their medication regimen successfully. Self-care agency allows nurses to provide patients with the knowledge and skills to manage their medication regimen effectively. The nursing agent discusses how nurses plan to coordinate patients' plan of care to develop an educational plan using the educational module toolkit to evaluate medication adherence (Guo et al., 2013; Orem, 2001; Sousa et al., 2005).

Role of the DNP Researcher

As the DNP researcher, I was responsible for creating an educational module toolkit and collecting and summarizing professional content experts' evaluations of the toolkit as an effective means for nurses to address medication adherence among adult

patients with Type II DM. I also selected the appropriate conceptual model/theoretical framework for with the intended outcomes and objectives of this project. I invited five professional content experts to participate in the project and hand-delivered the toolkit in a folder explaining the purpose of this project. The participants assessed and evaluated the toolkit using a 10-item survey with questions requiring Likert scale rating and questions requiring narrative feedback. The participants were given one week to complete the educational module toolkit evaluation.

Summary

The conceptual model/theoretical framework for this DNP project was based on the SCDNT model. The first step toward improving medication adherence is for nurses to assess for any obstacles. Once obstacles have been identified, nurses can implement interventions based on the guidelines from the educational module toolkit. The educational module toolkit enables nurses to utilize interventions related to the concepts related to the SCDNT model to promote a positive social change for adult patients with Type II DM.

The educational module toolkit may potentially enhance interaction between nurses, patients, and patients' families, friends, and significant others and increase understanding of the concepts for managing medication adherence (Duquenne & Le Moguen 2012; Kirk, et al., 2013; Mayberry & Osborn, 2012). Nurses will be able to teach patients and their loved ones the key concepts of medication adherence related to evidence-based practice and best nursing practice.

Section 3: Collection and Analysis of Evidence

Introduction

The primary purpose of this DNP project was to develop an educational module toolkit to equip nurses to better to address issues of medication adherence with adult patients with Type II DM. To evaluate the clinical problem addressed in this project, I created an educational toolkit and five professional content experts evaluated the toolkit.

Project Design/Methods

The intended outcome of this educational module toolkit is for nurses to assist patients and families in the improvement of medication adherence for adult patients with Type II DM. It is important for nurses to understand why nonadherence occurs with adult patients with Type II DM to prevent diabetes-related complications; therefore, it was vital that the toolkit help nurses assess for and identify early any barriers that inhibit patient adherence to a medication regimen (Heisler & Resnicow, 2008). Among the many obstacles to following a prescribed medication regimen are demographic factors such as ethnic minority, socioeconomic status, and level of education (Brundisini et al., 2015; Delamater, 2006; Freeland, 2014; Mulvaney, 2009; Petek, Rotar-Pavlic, Kersnik, & Svab, 2009). The demographic factors associated with socioeconomic descriptions of a population with Type II diabetes include culture, education level, age, income, and gender. Psychosocial behavior and social support are additional barriers to medication adherence. Psychosocial problems involving stress, denial, and depression have been linked to medication nonadherence and affect the medication regimen in adult patients with diabetes (Brundisini et al., 2015; Delamater, 2006; Freeland, 2014; Mulvaney, 2009;

Petek et al., 2009). Social support influences medication nonadherence when adult patients experience a lack of support from their families and friends related to social isolation secondary to a lack of awareness about diabetes (Brundisini et al., 2015; Delamater, 2006; Freeland, 2014; Mulvaney, 2009; Petek et al., 2009).

I developed an evidence-based educational module toolkit from relevant literature reviews. Each survey in the toolkit supports the literature to validate the toolkit contents, and each item in the toolkit is described with rationales. The educational module toolkit features a clinical practice plan that supports nurses to assist adult patients with Type II DM with medication adherence and includes the following nursing resources (all items created by me with the exception of the Medication Adherence Pre-/Postintervention Questionnaire):

1. Objectives and Learning Outcomes for the Educational Toolkit(Appendix D);
2. Sample Patient's Medication List (Appendix E);
3. Sample Medication Label (Appendix F)
4. A Diabetes Demographic Form (Appendix G)
5. Medication Adherence Commitment Contract (for original, see Appendix H; for revision based on content expert feedback, see Appendix I);
6. Medication Adherence Pre-/Postintervention Questionnaire (Appendix A); and
7. Medication Adherence Social Support Assessment Checklist (Appendix J)

Descriptions and Rationales for Toolkit Resources

The educational module toolkit includes interactive learning material and learning

objectives for nurses, patients, and patients' families, friends, and significant others. Providing education to families, friends, and significant others is an important factor that may potentially improve medication adherence among patients with Type II DM (Schiotz et al., 2012). The toolkit also includes a sample medication list because it is important for nurses to explain to patients why having a correct list of medications is vital to ensure the transition of care. Creating a medication list promotes patient safety and decreases the rising occurrence of medication errors that occur in the hospital setting. A medication list helps patients and their families and friends track the patients' past and current medications. In addition, the medication list displays a patient-centered focus that will enhance nurses to gather information about the patients' medication history (Lesselroth et al., 2013).

Information on reading a medication label is included in the toolkit because patients who understand how to read their medication labels may be better able to improve their medication adherence. According to Shrank et al. (2009), prescription medication labels contain valuable health information, and labels that are easy to read may enhance patients' medication adherence to chronic illness. Unfortunately, many patients have a challenging time understanding and reading a medication label. With the sample medication label in the educational module toolkit, nurses can help patients and their families, friends, and significant others with the process of understanding the content on the medication label. This process will enhance patients' understanding about the safe use of their medication and may encourage better medication adherence (Shrank et al., 2009).

The Diabetes Demographic Form allows nurses to assess and gather confidential information such as age, gender, and type of diabetes. The demographic form is intended to help establish what factors may impact patients' responses (Burns & Grove, 2009). The demographic form provides vital information for the research (Sweileh et al., 2014), as it will help to define the target population being assessed and, as it serves as a plan for collecting and interpreting research data, it may be helpful for future projects as well.

The Medication Adherence Comitment Contract form I developed is an agreement that each patient will read and agree to the terms of the contract before partaking in the medication adherence teaching. The form allows patients to demonstrate their commitment to self-managing their diabetes by making the necessary lifestyle changes to comply with their medication adherence regimen (Evans, 2010; Freeland, 2014; Gibson et al., 2010; Goldstein, 2004). According to Bosch-Capblanch, Abba, Prictor, and Garner (2011), a contract may be a verbal or written agreement between patients and nurses that allows patients to commit to setting a change of behaviors related to their plan of care. Establishing a contract between patients and nurses may potentially improve medication adherence among adult patients with Type II diabetes.

The MMAS 8-item scale was included in the toolkit to assess medication adherence and potentially develop interventions to improve medication adherence in patients with Type II DM who demonstrate nonadherence. The MMAS 8-item scale is one of the foremost commonly used, self-reported medication adherence measuring tools (Sakthong, Chobunthom, & Charoenvisuthiwongs, 2009). The scale has three dimensions: forgetting to take medications, stopping medications when feeling better or

worse, and the complexity of the medication regimen. Sakthong et al. (2009) concluded that the MMAS 8-item was an informative self-report medication adherence-measuring tool used in Thai people with diabetes based on its moderate internal consistency reliability (Cronbach's $\alpha = 0.61$) and excellent test–retest reliability (intra class correlation coefficient = 0.83; $p < 0.001$). The concerning convergent validity of the MMAS had a high correlation with the 3-item Morisky scale ($r = 0.77$; $p < 0.01$) and a medium correlation with medication adherence visual analog scale results ($r = 0.57$; $p < 0.01$). The results also included known groups validity and a significant association between the MMAS 8-item and A1C levels was found ($\chi 2 = 6.7$; $p < 0.05$). The sensitivity, specificity, positive predictive value, and negative predictive value of the MMAS 8-item were 51%, 64%, 71%, and 43%, respectively.

The MMAS 8-item questionnaire consists of eight yes/no questions used as both pre and postintervention to evaluate patients' knowledge about medication adherence in order to identify barriers inhibiting medication adherence. The preintervention questionnaire is administered to obtain a baseline assessment to build interventions while patients are hospitalized, and the postintervention may potentially evaluate any improvement in patients' medication regimen adherence posteducation, approximately two to four weeks after discharge. Based on patients' scores, nurses can create individualized educational plans.

The Social Support Assessment Checklist on Medication Adherence form was designed for nurses to assess patients' social support systems awareness about medication adherence. Patients' social support systems are vital to participation in health promotion,

behavior changes, self-care management, and medication adherence. The Social Support Assessment Checklist helps nurses evaluate family members' awareness and understanding of diabetes self-care knowledge, diabetes-specific supportive and nonsupportive behaviors, and medication adherence. Including family members, friends, and significant others as social support may potentially enhance medication adherence among adult patients with Type II DM (Mayberry & Osborn, 2012).

Population and Sampling

To validate the educational toolkit, five local professional diabetes content experts, each with five years of experience, were invited to participate in the evaluation phase. The context experts were a diabetes nurse practitioner, a diabetes educator, two nurses, and a clinical nurse specialist who dealt directly with adult patients with Type II diabetes. The content experts were asked to complete a survey anonymously to evaluate the educational toolkit via SurveyMonkey.

The sampling method used in this project was expert sampling, which is a form of purposive sampling. Purposive sampling entails soliciting participation from individuals who have specific expertise (Burns & Grove, 2009), and thus it was an appropriate method to select qualified participants to evaluate the educational module toolkit. I selected five local professional healthcare providers who care for patients with Type II diabetes. Once identified, these providers were invited to review and examine the educational module toolkit and then complete an online survey to evaluate the toolkit's effectiveness. Each content expert received an email with a hyperlink to complete the anonymous survey via SurveyMonkey.

Protection of Human Subjects

I communicated with each professional content expert in person and via e-mail. Each expert received instructions for evaluating the educational module toolkit.

Data Collection

Data were collected via SurveyMonkey surveys completed by the five professional content experts to evaluate the educational module toolkit. The evaluation tool was rated on a five-point Likert scale, and two open-ended questions were included for content experts to provide narrative feedback about the educational module toolkit (see Appendix K). I delivered the educational module toolkit in a folder to each professional content expert, along with a consent form and a participation request letter (see Appendix L). The participants were given one week to complete their assessment and evaluation of the educational module toolkit and submit their survey responses. The survey responses were compiled into a computer-generated report from Survey Monkey.

Data Analysis

I employed quantitative and qualitative research designs in this project. The quantitative research design was a blueprint to develop a body of knowledge needed for evidence-based practice and best practice for nursing interventions to assist adult patients with Type II DM to achieve medication adherence. The qualitative research used in this project is mainly exploratory research. Qualitative research is used to gain knowledge of the underlying reasons, opinions, and motivations that help provide insight into a problem in order to develop ideas to resolve the problem (McEwen & Wills, 2011).

After the professional content expert participants evaluated the educational module toolkit, I collected, scored, and organized the data to facilitate data analysis. In addition to providing narrative feedback, participants responded to the survey using a five-point Likert scale where 1 = *strongly disagree*, 2 = *disagree*, 3 = *not applicable*, 4 = *agree,* and 5 = *strongly agree*. Each domain and the sample were described based on the mean scores. The mean is the total of the scores that is divided by the number of the scores being summed (Burns & Grove, 2009). Descriptive statistics were used to report the mean values obtained for each domain and the total scale, and all data were input into data tables, histograms, and/or graphs, providing a visual demonstration of the results. The survey findings are summarized in Chapter 4.

Evaluation Plan

Evaluation of the educational module toolkit by professional content experts revealed that the toolkit may potentially be incorporated into future research. The submitted project consists of two phases: (a) the development of the educational module toolkit and (b) the assessment of and feedback on the toolkit by five professional content experts. Evaluation of this project was necessary for several reasons, including an assessment of the strengths and weaknesses of the educational module toolkit and its potential contribution to nursing practice.

Outcome Evaluation

The educational module toolkit was reviewed for completeness and accuracy after evaluation data were obtained from the professional content experts regarding the toolkit's areas of strength and weakness. Based on the expert feedback, it was determined

nurses could incorporate the educational module toolkit information in their clinical practice.

Summary

It has been recognized in the literature that successful education may improve medication adherence among adult patients with Type II DM. A collaborative effort between nurses, patients, families, and friends is critical to improving medication adherence. The primary goal for this project was to create an educational module toolkit for nurses to identify and understand barriers that affect medication adherence among adult patients with Type II DM in order to overcome those barriers and potentially improve medication adherence. The second goal for this project was to have the toolkit evaluated by a panel of professional content experts for quality and effectiveness.

Based on the evaluation of the content experts, this educational module toolkit provides nurses with a clinical practice plan to educate patients and those in their support system about medication adherence. Nurses must have evidence-based educational resources to provide effective teaching and implement interventions and individualized treatment plans of care to improve medication adherence among adult patients with Type II DM. Data from this project were used to help improve and raise awareness of the ongoing problem of medication nonadherence among adult patients with Type II DM.

Section 4: Findings and Recommendations

Introduction

The purpose of this project was to develop an educational module toolkit for nurses to educate adult patients with Type II DM on medication adherence. The project objectives were to (a) develop an educational module toolkit as a resource for nurses and (b) invite content experts to evaluate the educational module toolkit.

Findings of the Project

Five professional content experts reviewed the educational module toolkit to evaluate its usefulness and provide feedback. Each of the five participants was deemed a diabetes content expert; two participants identified themselves as registered nurses, one as a diabetes clinical specialist, one as a diabetes nurse practitioner, and one as a diabetes educator. All five experts participated and responded in the evaluation phase. They were given verbal instructions and a packet that included a consent form, written instructions, the educational module toolkit, and the SurveyMonkey Checklist. The participants reviewed the educational module toolkit individually with me in a face-to-face meeting lasting approximately 30 to 60 minutes. After the individual meetings, the content experts received an email with an online link to SurveyMonkey to complete an anonymous evaluative survey.

There were 10 items on the evaluation survey (see Appendix K), with eight items using a 5-point Likert scale for responses and two items requesting narrative feedback. Table 1 provides a summary of the participants' results on the Likert items, while Table 2 provides a summary of participants' comments and narrative feedback.

Table 1

Participant Results (N = 5): Rated Items

Question	1-SD Strong Disagree	2-D Disagree	3-N/A	4-A Agree	5-SA Strong Agree	Mean
1. Do you feel that educational module toolkit would help improve nurses' teaching skills to assist patients and their families, friends, and significant others with medication adherence?		1		2	2	4.0
2. The Morisky Medication Adherence Scale (MMAS 8-Item) and the Social Support Assessment Questionnaire on Medication Adherence would help nurses to assess and identify obstacles to create a customized educational plan for patients with diabetes and their families, friends, and significant others to promote medication adherence?				1	4	4.80
3. The educational module toolkit and the sample medical were easy to read.				1	4	4.80
4. Were the educational module toolkit objectives clear and concise?				2	3	4.60
5. Do you feel that the sample medication label would assist adult patients with diabetes on how to read a medication label correctly and would assist with medication adherence?		1		2	2	4.00

Table 1 (continued)

Question	1-SD Strong Disagree	2-D Disagree	3-N/A	4-A Agree	5-SA Strong Agree	Mean
6. Do you feel that Morisky Scale 8-Item (MMAS 8-Item) would assist nurses to develop a customized nursing interventions for patients and their families, friends, and significant others to achieve outcomes for medication adherence?				3	2	4.40
7. Do you feel teaching adult patients with Type II diabetes on how to read a medication label and refill their medication on time, would allow patients to adhere to their medication regimen?				3	2	4.40
8a. Do you feel that the medication adherence commitment contact is a tool that would benefit patients to commit to their medication regimen?				3	2	4.40
8b. As a result of this educational module toolkit, do you feel that nurses we be confident about teaching patients, and their families, and friends, and significant others about medication adherence?				2	3	4.60
10. Overall, I am satisfied with the quality of the educational module toolkit.				2	3	4.60

Table 2

Participant Results (N=5): Comments and Narrative Feedback

Question	Comment
1. Do you feel that educational module toolkit will help improve nurses' teaching skills to assist patients and their families, friends, and significant others with medication adherence?	• Same question asked twice. • If this is just about helping patients take their own medication than it will help nurses. I have found nurses often do not understand diabetes and the medication patients are taking themselves. Nurses need to have a strong diabetes knowledge base as patients. Tool kit may be good for Certified Diabetes Educators (CDEs'). Tool kit is only for oral medications.
2. The Morisky Medication Adherence Scale (MMAS 8-Item) and the Social Support Assessment Questionnaire on Medication Adherence will help nurses to assess and identify obstacles to create customized educational plan for diabetic patients and their families, friends, and significant others to promote medication adherence.	• It needs to be more concise • Patients with diabetes • This be difficulty to use in the inpatient setting –appears to be more an outpatient tool • Language needs to be simple at 4th to 6th grade level
3. The educational module toolkit and the sample medication label were easy to read.	• Recommend patient agreement form be simplified • Great job
4. Were the educational module toolkit objectives clear and concise?	• Recommendations to change the word "understand" as an objective as it's hard to measure/understand. • It needs to have large font more concise and easy to skim through
5. Do you feel that the sample medication will assist adult patients with diabetes on how to read a medication label correctly and will assist with medication adherence?	• Two questions in 5 agree with first and do not know if it will increase adherence • I think it helps • With large patient populations that don't speak English I feel that labels should be printed in the patients' native language but that may be beyond your control.

Table 2 (continued)

Question	Comment
6. Do you feel the Morisky Scale 8-Item (MMAS 8-Item) will assist nurses to develop customized nursing interventions for patients and their families, friends, and significant others to achieve outcomes for medication adherence?	• Nurses often miss questions to ask patients so a list of questions is beneficial. • To some degree. Quick and simple questionnaire is key. If too long, nurses won't do it due to their time constraints.
7. Do you feel teaching adult patients with Type II diabetes on how to read and refill their medication on time, will allow patients to adhere with their medication regimen?	• Many factors play into a patient adhering to their medication regime. The tools utilized by the patient needs to "fit into" the patient lifestyle. • It needs to be in both English and Spanish due to local population.
8a. Do you feel the medication adherence commitment contact is a tool that will benefit patient to commit to their medication regimen? 8b. As a result of this educational module toolkit, do you feel that nurses will be confident about teaching patients and their families, friends, and significant others about medication adherence?	• Two questions 8a. Agree and 8b. SA • I think it may raise level of confidence • This two-part question is confusing. What if I have two different answers? • After assessing whether or not a contract would be understanding what it is.
9a. What do you see as the educational toolkit's strengths and weaknesses?	**Strengths** • Tool kit is excellent and will be a great resource. Is it designed for RNs? LVNs? or MAs? Where do you see this tool kit being used? It is more sophisticated than a MA or CNA would be able to follow without a great deal of instruction. • Detailed Focus. • Easy to read. • Tips on how to stay compliant, i.e., pillbox, alarm, calendar and how to reorder meds automatically

Table 2 (continued)

Question	Comment
9a. What do you see as the educational toolkit's strengths and weaknesses?	**Weaknesses** • Difficult to use in inpatient setting. Would like to have seen some content in outline about teaching patients with language barriers, cultural issues and low health literacy? Like it has items included to demonstrate the use of them- this is very convenient. • Difficult to use in inpatient setting. Would like to have seen some content in outline about teaching patients with language barriers, cultural issues and low health literacy? Like it has items included to demonstrate the use of them- this is very convenient. • Too long
9b. What recommendations would you offer to improve the toolkit?	• Tool kit only discusses oral medications? Is it designed to assist with injectable (s) for the treatment of type 2? Also, patients taking diabetes medications are at risk for hypoglycemia. There is not much written about the need for knowing the side effects of their meds. It would be important because many patients with diabetes (PWD) stop taking their meds when they get their first hypoglycemic reaction. Remember the medications are diabetes medications not diabetic. The contract does not discuss side effects of notifying care provider if the patient believes they are having side effects of the medication. • If nurses are just teaching about adherence this toolkit may be helpful to nurses. Use of this tool kit may open-up the door to other questions about medications. • Simplify. • None, the toolkit was great. • I feel that language is a big barrier with education. Just having material in different languages would be great.

The 10-item survey assessed how well the educational module toolkit content prepares nurses to teach adult patients with diabetes about medication adherence. The feedback of the content experts was positive overall regarding the educational module toolkit. The experts' comments supported the use of the educational module toolkit for nurses to assist adult patients with Type II DM with medication adherence. Minor content revisions were recommended to simplify the medication adherence commitment contact and change the term *diabetic patients* to *patients with diabetes*. The mean score was computed. The completion response rate was 100% ($N = 5$).

Responses to Rated Items

All questions were designed to elicit precise feedback measuring whether the educational module toolkit contained appropriate content. All participants responded to question 1; one participant disagreed with the content as it applies to the educational module toolkit, 2 content experts agreed with the content, and 2 strongly agreed for a mean of 4.00. All participants responded to question 2; one participant agreed with the content, and 4 strongly agreed with the content for a mean of 4.80. Of the 5 participant responses to question 3, 1 agreed with the content and 4 strongly agreed for a mean of 4.80. Of the 5 participant responses to question 4, 2 agreed with the content and 3 strongly agreed for a mean of 4.60. All participants responded to question 5, with 1 who disagreed with the content, 2 who agreed, and 2 who strongly agreed, for a mean of 4.00. All participants responded to question 6, with 3 who agreed with the content and 2 who strongly agreed, for a mean of 4.40. Five participants responded to question 7; of those, 3 agreed with the content and 2 strongly agreed, for a mean of 4.40. Question 8 was a two-

part question and all participants responded; three agreed with the content and 2 strongly agreed, for a mean of 4.40.

Responses to Open-Ended Items

Questions 9a and 9b requested narrative feedback from content expert participants on the strengths and weaknesses of the toolkit and recommendations for improving the toolkit. All participants responded to questions 9a and 9b.

Strengths of the toolkit. The comments provided by the content experts primarily addressed the strengths of educational module toolkit content. The participants stated the toolkit was excellent and would be a great resource, it had detailed focus and was easy to read, the instructions were easy to follow, and it made good use of the pillbox, alarm, and calendar.

Weaknesses of the toolkit. There were a few weaknesses identified in the comments. One of the content experts stated the toolkit was too long for use in inpatient setting and would be best used in an outpatient setting. One participant wanted additional content about teaching with language barriers, cultural issues, and low health literacy. Based on the comment about health literacy, the medication adherence commitment contract was revised to accommodate a third- to fourth-grade reading level (see Appendix I).

Participant recommendations. The recommendations of the content experts related to the educational module toolkit were critical to helping nurses perform best nursing practice. One participant recommended the educational module toolkit discuss injectable medications for the treatment of Type II DM. Another recommendation was

that nurses discuss with patients that taking diabetes medications can lead to hypoglycemia. Other recommendations were to provide written information about understanding medications' side effects and explain to patients the complications that can occur if they stop taking their medications. One participant recommended changing the term *diabetic patients* to *patients with diabetes* and changing *diabetic medications* to *diabetes medications*. Another comment was that the contract did not discuss side effects for notifying a healthcare provider if patients believe that they are having side effects to the medications. One recommendation was to simplify the educational module toolkit reference to the medication adherence commitment contract. Another recommendation was to offer the material in different languages to accommodate the language barrier to education. One content expert participant had no recommendations, commenting the toolkit was "great."

Responses to Overall Quality of the Educational Module Toolkit

Question 10 related to the overall quality of the educational module toolkit. All participants responded to this question, with 2 agreeing they were satisfied with the toolkit quality and 3 strongly agreeing, for a mean of 4.60.

Implementation of the Project

According to Winters and Echeverri (2012), nurses are required to incorporate research findings into clinical practice and utilize evidence-based strategies in their practice. In addition, evidence-based practice (EBP) is a foreseeable core competency for all healthcare clinicians regardless of discipline. EBP means integrating the best research with clinical expertise and patient values to achieve most favorable health outcomes

(Winter & Echeverri, 2012). This educational module toolkit integrated an EBP method to provide a consistent education plan for adult patients with Type II DM and potentially improve nursing practice and enhance the ability of adult patients with Type II DM to successfully self-manage their medication regimen.

This educational module toolkit could potentially be implemented in either an outpatient clinical setting or an inpatient clinical setting. Adult patients with Type II DM need to read and review the commitment contract with the nurse before beginning education. Healthcare facilities could also conduct a pilot study and utilize the educational module toolkit as a structured education opportunity for adult patients with Type II DM and measure the effects of the toolkit. Nurses would assess for barriers preventing medication adherence among adult patients with Type II DM and implement the toolkit as an intervention to potentially improve this problem.

If used in an inpatient setting, this educational module toolkit should be implemented on day 1 or day 2 of admission. Nurses should administer the MMAS 8-item preintervention questionnaire to obtain a baseline assessment to build interventions while adult patients are hospitalized. The MMAS 8-item postintervention questionnaire would measure any improvement in patients' medication adherence regimens 2 to 4 weeks' post education. The significant predictors of successful implementation of the educational module toolkit would include the following:

1. An increase in confidence of adult patients with Type II DM in adhering to their medication regimen;

2. A decrease in apprehension of adult patients with Type II DM with a reduction in taking prescribed medications on time;
3. An improvement in communication between patients, families, and healthcare providers; and
4. An easy transition for adult patients with Type II DM following the recommendations for medication adherence.

Implications for Nursing Practice

The challenges faced by adult patients with Type II DM demand adequate preparation through a well-planned, standardized, evidence-based, structured educational module toolkit. In this project, the integration of an EBP approach in an educational program for adult patients with Type II DM could potentially improve medication adherence by utilizing an effective tool to improve nursing practice. Additionally, an effective implementation and dissemination of the project and its findings may aid in improving nursing practice by emphasizing an EBP approach over the tradition-based approach to nursing care.

Project Strengths and Limitations

One of the strengths of this project was the use of content experts who have worked with adult patients with Type II DM; three of the experts were certified diabetes educators. Rutherford-Hemmings (2015) asserted that selecting content experts helps determine the appropriateness and the constructs of a measure and helps determine a description of the population for which the educational module toolkit is developed.

One limitation is that the toolkit was not implemented as part of this project. Another is utilizing SurveyMonkey led to the need to combine two questions as one in order to keep the survey to the 10 item-maximum and avoid administration fees.

Summary

I developed an educational module toolkit for nurses to educate adult patients with Type II DM on medication adherence. Five professional content expert participants reviewed the educational module toolkit to evaluate its learning content. The participants responded to a 10-item online survey via SurveyMonkey, 8 of which used a 5-point Likert scale and 2 of which required narrative feedback on the toolkit's content. The participants gave overall positive feedback and provided recommendations for using the educational module toolkit in the future.

Providing education to adult patients with Type II DM may lead to increases in self-esteem and confidence that can help patients adhere to the treatment plan. The integration of an EBP approach into a consistent education plan for adult patients with Type II DM utilizing a valid checklist and tool may have other positive effects on nursing practice.

Section 5: Dissemination Plan

Introduction

The DNP program instructs and prepares the future doctoral practicing nurse to design, implement, evaluate, and disseminate findings from research to improve nursing practice and patient outcomes (American Association of Colleges of Nursing, 2006; Zaccagnini & White, 2011). I utilized an online survey via SurveyMonkey to evaluate the educational module toolkit described in this evidence-based project. I invited five local professional content experts who provided care for adult patients with Type II DM to participate in the survey. Overall, the professional content experts were satisfied with the quality of the educational module toolkit, and they provided positive feedback and recommendations for minor changes to the educational module toolkit.

The educational module toolkit may be incorporated in the future with a standardized plan of care for adult patients with Type II DM. The project findings, discussion, and implications may also be disseminated through publication in relevant peer-reviewed journals, including *A Springer Open Journal, Clinical Therapeutics, International Journal of Clinical Practice, European Diabetes Nursing, Clinical Diabetes, The American Journal of Nursing, Journal of Nursing Research,* and *Journal of Professional Nursing.* The journals' target audiences are not only practitioners but a wide-range of professionals within the diabetes network. I plan to disseminate my findings at a DNP conference and a diabetes conference using a poster presentation approach.

Analysis of Self as a Scholar

This DNP program included the DNP practicum experience, which has helped me to become a role model and a leader and has given me the ability to influence others to become social change agents. I am proud to call myself a social change agent who focuses on the root analysis of the issues that are pertinent to improve nursing practice and enhance patient outcomes. As a scholar, I plan to continue to use the nursing process when problem solving. I plan to add the following approaches in problem solving: brainstorming, mapping out the problem, and refinement of the problem.

As a DNP researcher, this project has offered me the opportunity to develop and establish an educational module toolkit for nurses to assist adult patients with Type II DM with medication adherence and include their families as support agents. I encountered many challenges with this project such as where to start, the writing process, proofreading, locating information, knowing the next phase, and organization of the paper. Despite these challenges, I remained completely invested in the development of the proposed educational module toolkit for nurses during my time in the DNP program. I am determined to implement my project based on the evaluation of the content experts. I am a committed and a steadfast practitioner interested in pinpointing the gaps in EBP for nursing. Developing this educational module toolkit has exhibited my ability to function as a clinical project manager, which entails a direct leadership role, inspiring, encouraging, and influencing others to achieve outcomes to improve best practices for nurses and improve quality care for patients. Engaging in this EBP project empowered me to become a pioneer in transforming nursing knowledge into clinical practice.

As a scholar, I was engaged in knowledge application, discovery, integration, teaching, and dissemination. These activities conclude the delivery of best practice for nurses and achievable patient outcomes; these concepts contribute to the nursing profession and enhance nursing practice as a science and an art. As a tenured professor and practitioner, I engaged in EBP to improve the quality of education for prelicensure nursing students and nurses to implement best practices among adult patients with Type II DM regarding medication adherence. Successfully implementing and disseminating these practices may encourage and motivate prelicensure nursing students and nurses who provide care to adult patients with diabetes to engage in applying EBP. This transformation of practice will empower a social change from the traditional practice to EBP.

Summary

The major reason for this proposed project was to promote a social change and improve medication adherence among adult patients with Type II DM. Nurses play a significant role in teaching adult patients with Type II DM who do not follow the prescribed medication regimen. Providing education and care using an evidence-based approach will allow nurses to help improve outcomes of adult patients with Type II DM. As such, an educational module toolkit was developed for nurses to assist adult patients with Type II DM with medication adherence.

Five professional content experts who had five years of experience caring for adult patients with Type II DM participated in evaluating the educational module toolkit, and the results of this evaluation yielded support to the content validity of the educational

module toolkit. When asked if they were satisfied with the overall quality of the educational module toolkit, two content experts agreed and three strongly agreed, with a mean of 4.60. Therefore, this educational module toolkit will be used in the future by nurses to teach adult patients with Type II DM about the benefit of medication adherence.

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Appendix A: Medication Adherence Pre-/Postintervention Questionnaire

Morisky Medication Adherence Scale 8-Item (MMAS 8-item)

Office Staff: Use blue or black ink pen only. Make solid marks that fill the bubbles completely.

Do Not Put Patient Name on This Survey (Nurses Only)
Confidential

1. Do you sometimes forget to take your medicine? Yes❍ No❍
2. Sometimes patients miss taking his/her medicine for many reasons other than forgetting. Thinking over the past two weeks, were any days your forgot or miss taking your medicine? Yes❍ No❍
3. Have you cut back and/or stopped taking your medicine without contacting your doctor because you felt better or worse when you took your medicine? Yes❍ No❍
4. Do you sometimes forget to bring your medicine when your travel or leave home? Yes❍ No❍
5. Do you take your medicine yesterday? Yes❍ No❍
6. Do you sometimes stop taking your medicine when you feel your symptoms are under control? Yes❍ No❍
7. Some patients feel that taking medicine every day is a real inconvenience; do you feel under pressure about following your treatment plan? Yes❍ No❍
8. How often do you have difficulty remembering to take all your medicine?
   a. ___Never/rarely
   b. ___Once in a while
   c. ___Sometimes
   d. ___Usually
   e. ___All of the time

Scoring for Questions #1through #8: Count the number of Yes answers
0: In general, patient takes medicines correctly (high adherence)
1 - 2: Patient doesn't always take medicines correctly, education will begin and healthcare provider will be notified (medium adherence)
3 - 8: Patient needs to work more closely with to help them take medicines correctly education will begin and healthcare provider will be notified (low adherence)

Permission granted by Pfizer, Inc.

Reference: Morisky D. E., Green L.W., & Levine D. M, (1986). Concurrent and predictive validity of a self-reported measure of medication adherence. *Medical Care, 24(1), 67-74.*

Appendix B: Permission Letters

Gmail by Google

Dometrives Armstrong <dometrives.armstrong@waldenu.edu>

Permission

[redacted] Sat, Oct 4, 2014 at 1:01 PM

October 4, 2014

[redacted]

Pfizer Inc,
2712 Ariane Drive # 7
San diego, CA 921117

Subject: Permission Letter

Hello Mr. Carda,

My name is Dometrives Armstrong and I am DNP student at Walden University. I am currently in the process of writing my DNP proposal project. The title of the my proposal project is: The Effect of Medication Adherence in Patients with Diabetes.

I am requesting permission to use Pfizer medication matter tool for my EBP reference by Morisky D. E., Green, L. W., & Levine, D. M. (1986). Concurrent and predictive validity of a self-reported measure of medication adherence. Med Care, 24 (1), 64-74. I may or may not need to make modifications to the questionnaire survey. Please supply me a letter a signed letter granting me permission to use the medication matter tool to support my EBP. You can email me either at darmstro@sdccd.edu, dometrives.armstrong@waldenu.edu., or mail the signed permission letter to [redacted]

If you do not solely control the copyright to the questionnaire survey, I would greatly appreciate any information you will be able to provide or whom should I contact.

In closing, I would like to thank you in advance for your support with my DNP proposal. If you have any questions or concerns, please do not hesitate to contact me at [redacted]

Sincerely yours,
Dometrives

[redacted]

[redacted] 10/6/14

to Eric, me

Hello Mr. Carda,

Thank you for allowing to use the Medication Matters (Morisky) Instrument tool. I will not make any modifications to the tool. Once again, thank you for your support with my education and with my DNP project.

Kindest regards,
Dometrives

[redacted]

[redacted]

7/16/15

Subject: Permission Letter

Hello Mr. Carda,

First, I would like to thank you and Pfizer for allowing me permission to use Morisky Medication Adherence 4-Items Scale (MMAS-4 item tool). I am requesting permission to use Pfizer Morisky Medication Adherence 8-Items Scale (MMAS-8 item tool) instead of the MMAS-4 item tool for my EBP.

In closing, I would like to thank you in advance for your support with my DNP proposal. If you have any questions or concerns, please do not hesitate to contact me at [redacted]

Sincerely yours,
Dometrives

[redacted]

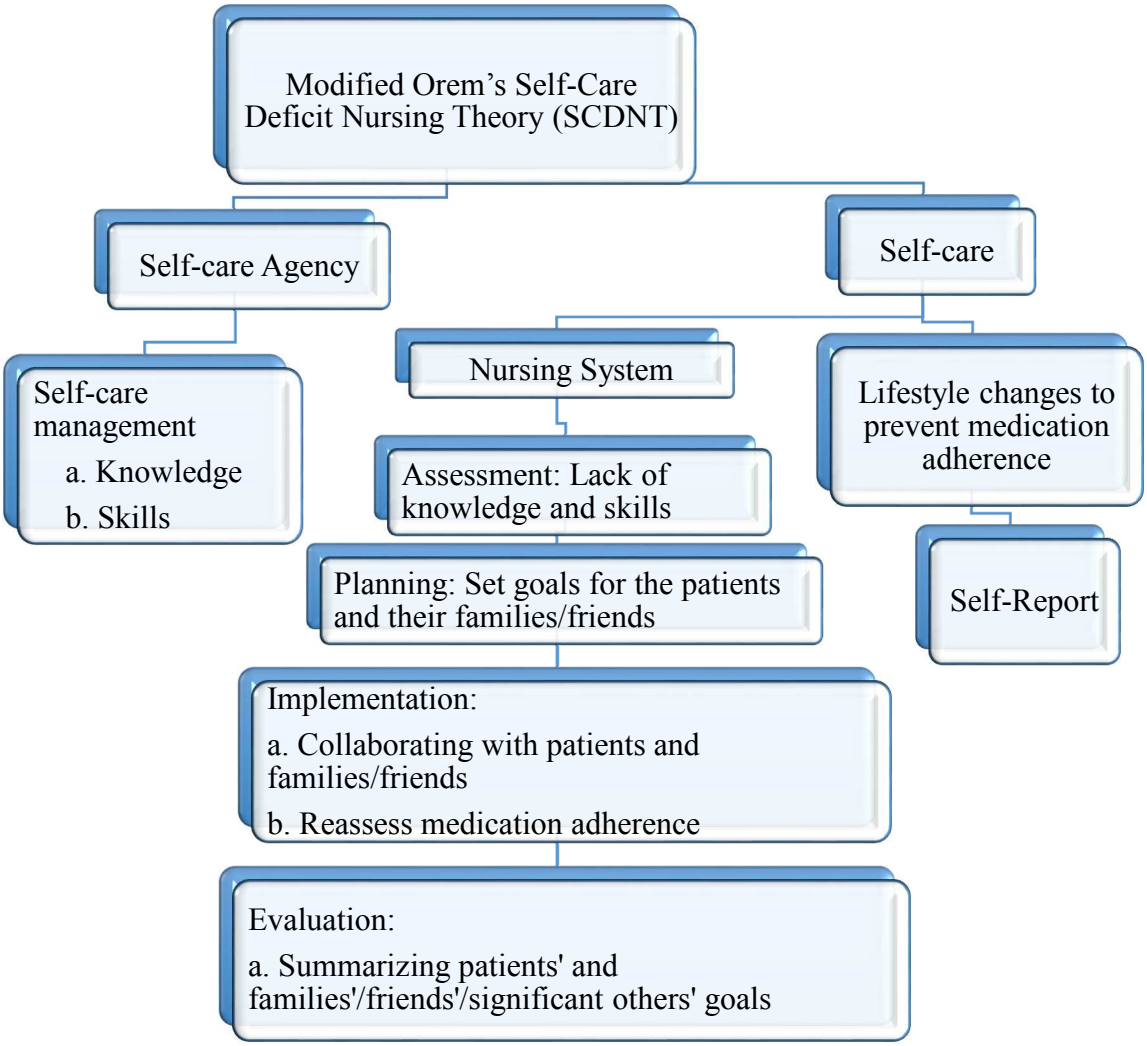
[redacted] 7/20/15

Hi Dee,

Yes, you have permission to use the 8Q version of the questionnaire with the caveat that it is the wording we discussed (via email).

[redacted]

Appendix C: Modified Orem's Self-Care Deficit Nursing Theory (SCDNT) Conceptual/Theoretical Framework



Modified Dorothea Orem's Self-Care Deficit Nursing Theory (SCDNT).
References: Guo, Lin, Chen, Kao, & Chang (2013**);** Orem (2001)*;* Sousa, Zauszniewski, Price Lea, & Davis (2005).

Appendix D: Objectives and Learning Outcomes for the Educational Module Toolkit

Objective for the Toolkit:
This potential educational toolkit will provide guidance for nurses to teach patients and their families/friends/significant others on how to improve medication adherence.

Prerequisites:
Patients who have Type II Diabetes

Nurse Learning Objectives (NLOs):
Upon completion of this educational toolkit, the nurse will be able to:
1. Assess patient medication nonadherence utilizing the Morisky Medication Adherence Scale 8-item (MMAS 8-item) and develop an individual plan of care
2. Discuss purpose of the commitment and agreement contract prior to beginning teaching
3. Discuss the purposed of the Modified Orem's Self-Care Deficit Nursing Theory (SCDNT):
    a. Self-Care
    b. Self-care Management
    c. Self-Care Agency
4. Teach patients and their families/friends how to read a prescription label.
5. Demonstrate to the patients and their families/friends how to use a calendar, set reminder, and a pillbox.
6. Teach the patients and their families/friends how to create a medication list.

Patient Learning Objectives (PLOs):
Upon completion of this educational toolkit, the patient with diabetes and family/friend will able to:
1. Demonstrate a teach-back method on self-care management to adhere to the prescribed medication regimen using the following items:
    a. Pillbox
    b. Calendar
    c. Set Reminder (using an alarm clock)
2. Discuss ways to remember to take anti-diabetic medication (s) as scheduled:
    a. Pillbox
    b. Calendar
3. Discuss the benefits and the expectations for medication adherence.
4. Demonstrate an understanding of how to read a medication label.
5. Discuss the purpose and when to refill his or her medication (s).
6. Discuss the purpose of creating a medication list.

Family/Friend/Significant Other Learning Outcomes (FFSO-LOs):
Upon completion of this educational toolkit, the family/friend/Significant Other will able to:

1. Verbalize or list at least two to three ways to remember to take his or her medications on time by the end of this education session.
2. Verbalize how to obtain a medication refill by the end of the education session.
3. Demonstrate how to prepare his or her diabetes medication (s) using a pillbox by the end of the education session.
4. Verbalize or list at least two or three benefits for medication adherence by the end of the education session.
5. Assist the patient to create a medication list.
6. Understanding the purpose for reading a medication label.
7. Understanding rationale why the patient needs to refill his/her medications in a timely manner.

Learning Content for Nurses:

1. Describe self-care management for medication adherence using the Modified Orem's Self-Care Deficit Nursing Theory (SCDNT):
   a. Self-Care
   b. Self-Efficacy
   c. Self-Care Agency
2. Complete a Morisky Medication Adherence Scale (MMAS) 8-item ***(Confidential).***
3. Demonstrate how to read a medication label.
4. Discuss the prevention of barriers.
5. Complete a commitment contract ***(Prior to implementing education session.)***
6. Demonstrate how to use a calendar.
7. Complete a Demographic Form.

Handouts:

1. Medication List
2. Medication Label
3. Modified Dorothea Orem's Self-Care Deficit Nursing Theory (SCDNT) for Adult Patients with Diabetes Survey

Required Materials: (Will be provided)

1. Calendar
2. Pillbox
3. Medication Label

Recommended Materials:

1. Watch
2. Alarm Clock (Portable)
3. Cell phone (with an alarm clock)
4. Prescription Bottle

Recommendations:

1. The patient will collaborative with a nurse, family member, and a friend about the treatment plan.
2. Read your medication label (s) on your prescription bottle correctly.
3. To take your medications as prescribed.
4. Refill your medication (s) on time.
5. You got this!

Questions and Answer

Lesson Plan

Column I **Patient Learning Objectives (PLOs):**	**Column II** **Learning Content** **(Review Content to better understand the purpose for medication adherence)**	**Column III** **Activities**
1. Demonstrate a teach-back method on self-care management to adhere to the prescribed medication regimen using the following items: • Pillbox • Calendar • Set Reminder (using alarm clock) 2. Discuss ways to remember to take anti-diabetic medication (s) as scheduled: • Pillbox • Calendar 3. Discuss the benefits and the expectations for medication adherence. 4. Demonstrate an understanding of how to read a medication label. 5. Discuss the purpose and when to refill his or her medication (s). 6. Discuss the purpose of creating a medication list.	1. Describe self-care management for medication adherence using the Modified Orem's Self-Care Deficit Nursing Theory (SCDNT): a. Self-Care b. Self-Efficacy c. Self-Care Agency 2. Complete a Morisky Medication Adherence Scale (MMAS) 8-item ***(Confidential)*** 3. Demonstrate how to read a medication label 4. Discuss the prevention of barriers 5. Complete a commitment contract ***(Prior to implementing education session)*** 6. Demonstrate to use a calendar	1. Commitment contract 2. MMAS pre questionnaire 3. MMAS post questionnaire (2-4 weeks post discharge education) 4. Reading a medication label 5. Organizing a pillbox 6. Using a calendar 7. Setting a reminder alarm a. Cell phone alarm b. Alarm clock 8. Creating a medication list

Appendix E: Sample Patient's Medication List

Name: _____ D.O.B:_____

Date:_____

Allergy (ies)/Reactions:

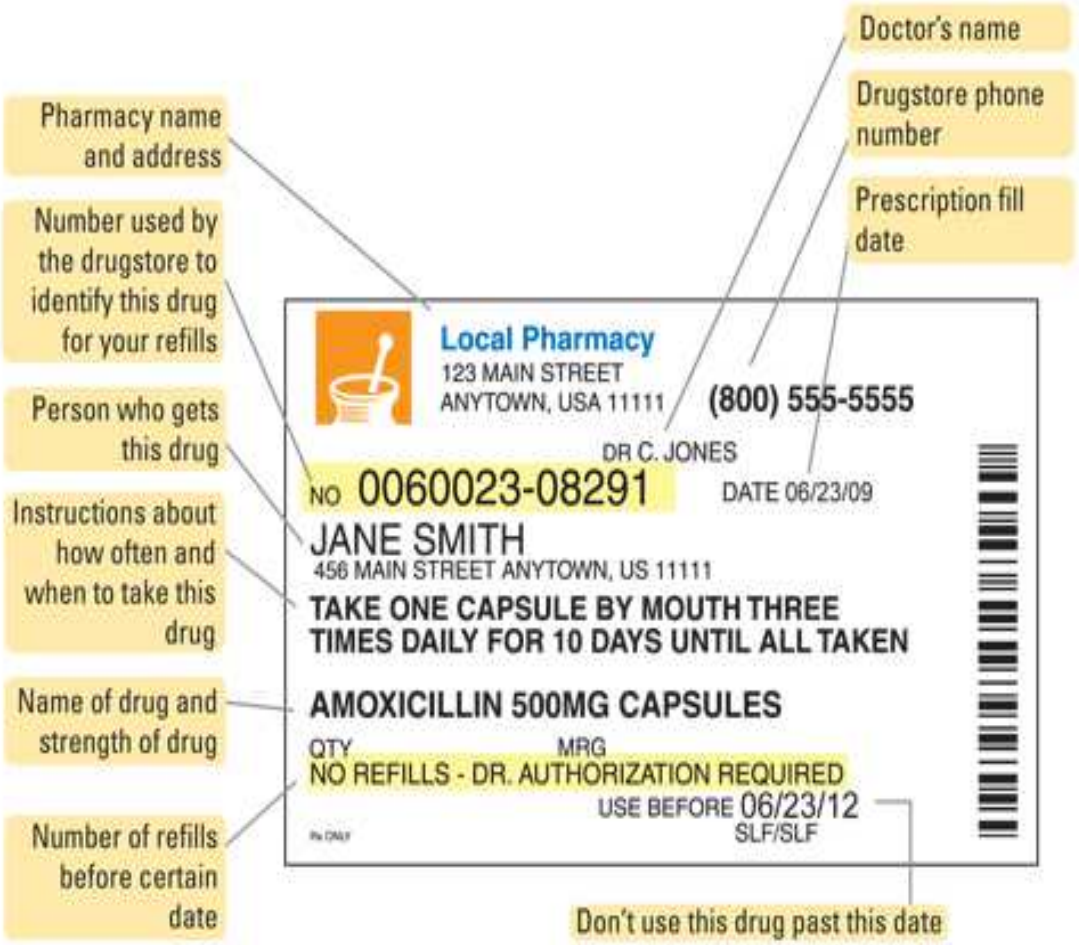
_____

_____

_____

Name of Medication (s)	Medication (s) Dose and Time Per Day	Purpose

Appendix F: Sample Medication Label



Appendix G: Diabetes Demographic Form (Nurses Only)

Do Not Put Patient Name on This Survey *(confidential)*

Office Staff: Use blue or black ink pen only. Print any text field and make solid marks that fill the bubbles completely.

1. Age ___
2. Gender Male ❍ Female ❍
3. Which of the following best represents your racial or ethnic heritage?
   Non-Hispanic White or Euro-American: _____
   Black, Afro-Caribbean, or African American: _____
   Latino or Hispanic American: _____
   East Asian or Asian American: _____
   Other: _____
4. What type of diabetes? Type 1____ Type 2_____
5. Is the most recent A1c greater than 7? Yes❍ No❍
6. If the answer to #5 is yes; what is the most recent A1c value_____ and Estimated Average Blood Sugar level_____?
7. What is the date of the most recent A1c test? ___/____/____
8. How many different prescription medicines do you take daily?
   1___2___3___4___5___6____7____8_____9_____more than 9_____
9. Do you take insulin? ____Yes No____
10. Do you take oral antidiabetic medications? Yes❍ No❍
11. Do you take injectable non-insulin medications? Yes❍ No❍
12. Do you take a combination of injectable and oral medications? Yes❍ No❍, if Yes which injectable*: insulin or non-insulin*

Appendix H: Medication Adherence Commitment Contract (Original)

(For use prior to implementing education)

I, _____ (patient's name), am a responsible patient. I take full responsibility for adhering to my diabetes medication treatment plan that has been prescribed by my healthcare provider. My responsibilities include but are not limited to as follows:

1. I will adhere to my medication schedule and take control of my diabetes.
2. I will ask for help with scheduling my medication (s) from my family members and/or friends if needed.
3. I will promote my own health and wellness to care for my diabetes.
4. I will follow my medication (s) treatment plan as prescribed by my healthcare provider.
5. I will take my medication (s) as prescribed by healthcare provider on time daily.
6. I will contact my healthcare provider prior to stopping my medication (s).
7. I will contact my healthcare provider or my pharmacy if I should have any side effects from taking my prescribed medication (s).
8. I will bring my medication list to every medical appointment.
9. I will refill my medication (s) on time.
10. I will learn how to read and understand my medication (s) labels in order to adhere to the treatment plan.

My health is very valuable to my family members, friends, and me. I plan to work hard to care for myself independently with guidance from my healthcare provider, family, and friends. I recognize that my healthcare provider cannot assist me if I do not manage my diabetes according to the plan of care. I am self-confident that my healthcare provider has my best interest in providing me his/her best advice based on his/her medical training. I understand that without my active participation, my healthcare provider's ability to assist me will be limited. I understand working together as a team we can achieve great goals.

I am committing to take charge of my diabetes and making a positive lifestyle change on managing my diabetes. By checking the boxes below and signing this contract, I am committed to adhering to my medication treatment plan.

Please check here:

☐ I will use a pillbox and a calendar.
☐ I will take my medicine (s) as prescribed.
☐ I will refill my medicine as needed or on time.
☐ I will fill my prescribed medication (s) on time.
☐ I will learn how to read my medicine labels correctly.
☐ I will ask my family members and/or friends for help with my medicines.
☐ I will take charge of my diabetes and commit to adhering to my medication (s).

- ☐ I will continue to take my medication (s) until my healthcare provider tells me to discontinue taking my medicine.
- ☐ I will use an alarm clock or the alarm clock on my cellular phone to remind me to take my medication on time.

Patient Print Name: _____ Signature: _____

Date/Time: _____

Healthcare Provider Witness: Print Name: _____Signature: _____

Date/Time: _____

NOTE: Provide the patient and a copy and place the original copy in the patient's electronic medical records (EMR) or in patient's medical chart.

References: Bosch-Capblanch, Abba, Prictor, & Garner, 2011; Freeland, 2014; Evan, 2010; Gibson, et al., 2010; Goldstein, 2004

Appendix I: Medication Adherence Commitment Contract (Revised)

(For use prior to implementing education)

I, _____ (patient's name) agree to take an active part in my medication plan of care to help me care for my diabetes.

I understand I need to:

1. Follow the medication plan my doctor or nurse has talked with me about.
2. Take my medication(s) on time.
3. Take my medication(s) each day.
4. Learn how to read my medication(s) labels.
5. Ask for help, if needed, from my family members and/or friends when taking medication(s).
6. Call my doctor or nurse before I stop taking any medication(s).
7. Call my doctor or nurse if I should have any side effects from my medication.
8. Bring my medication list to every doctor or nurse visit.
9. Call my pharmacy, one week before I do not have any more medications, to refill my medication(s).

I understand that by working with others, I will be better able to reach my goals. I understand that my doctor or nurse may not be able to help me if I do not follow my plan of care. I am agreeing to working with my doctor or nurse to help me with my medication (s).

By checking the boxes below and signing this form, I agree to follow my diabetes medication plan that my doctor or nurse has given me.

Please check here:

☐ I will use a pillbox and a calendar.
☐ I will take my medicine (s) as prescribed.
☐ I will refill my medicine as needed or on time.
☐ I will fill my prescribed medication (s) on time.
☐ I will learn how to read my medicine labels correctly.
☐ I will ask my family members and/or friends for help with my medicines.
☐ I will take charge of my diabetes and commit to adhering to my medication (s).
☐ I will continue to take my medication (s) until my healthcare provider tells me to discontinue taking my medicine.
☐ I will use an alarm clock or the alarm clock on my cellular phone to remind me to take my medication on time.

Patient Print Name: _____ Signature: _____

Date/Time: _____

Healthcare Provider Witness: Print Name: _____Signature: _____

Date/Time: _____

NOTE: Provide the patient and a copy and place the original copy in the patient's electronic medical records (EMR) or in patient's medical chart.

References: Bosch-Capblanch, Abba, Prictor, & Garner et al., 2011; Freeland, 2014; Evan, 2010; Gibson, et al., 2010; Goldstein, 2004

Appendix J: Medication Adherence Social Support Assessment Checklist

1. What is your relationship to the patient? Select one response.
   a. Spouse
   b. Friend
   c. Child
   d. Significant other

2. What is your role in the patient's care?
   a. Primary caregiver
   b. Meal preparer
   c. Supervisor of medication /activity
   d. Participant in follow-up appointments
   e. All of the above

3. How confident do you feel about your knowledge of the diabetes medications the patient is taking? Circle the number that best answers this question.

1-Not confident 5- Very confident
1 2 3 4 5

4. How confident do you feel about your knowledge of the importance of the diabetes medications the patient is taking? Circle the number that best answers this question.

1- Not confident 5- Very confident
1 2 3 4 5

5. Are you able to identify a barrier to medication adherence?
   Yes No
   If yes explain:

6. I feel confident in explaining to the patient what to do when there is a missed dose of medication, when the patient feels sick, when the patient experiences side effects from the medication, or when the patient wants to stop the medication.
Circle the number that best answers this question.

1- Not confident 5- Very confident
1 2 3 4 5

7. How comfortable are you reading the medication label? Circle the number that best answers this question.

1- Not comfortable 5- Very comfortable

1 2 3 4 5

Note:

a. If the family member circle 1, 2, or 3 for the following questions 3, 4, 6, and 7, education will begin.
b. If the family member answer yes to question 5, education will begin.

References: Guo, Lin, Chen, Kao, & Chang, 2013; Kirk, Ebert, Gamble, & Ebert, 2013; Kocurek, 2009; Mann, Ponieman, Leventhal, & Halm, 2009.

Appendix K: Survey Monkey Content Expert Evaluation Checklist

This Survey Monkey Checklist gives you an opportunity to express your view on the educational module toolkit. This survey will provide data on how well the educational module toolkit will provide guidance for nurses to teach adult patients with Type II diabetes and their families, friends, and significant others with medication adherence. This survey is created on Survey Monkey. The participants will be able to bubble-in their answers and make comments after each question response.

1-SD: You Strongly Disagree (SD) with the content as it applies to the educational module toolkit; **2-D**: You Disagree (D) with the content as it applies to the educational module toolkit; **3-Not Applicable**: The content does not apply to the educational module toolkit; **4-A**: You Agree (A) with the content as it applies to the educational module toolkit; or **5-SA**: You Strongly Agree (SA) with the content as it applies to the educational module toolkit.

	SD 1	D 2	N 3	A 4	SA 5
1. Do you feel that the educational module toolkit would help improve nurses' teaching skills to assist patients and their families, friends, and significant others with medication adherence? Comment:					
2. The Morisky Medication Adherence Scale (MMAS 8-Item) and the Social Support Assessment Questionnaire on Medication Adherence would help nurses to assess and identify obstacles to create a customized educational plan for adult patients with Type II diabetes and their families, friends, and significant others to promote medication adherence. Comment:					
3. The educational module toolkit and the sample medication label were easy to read. Comment:					
4. Were the educational module toolkit objectives clear and concise? Comment:					
5. Do you feel that the sample medication label would assist adult patients with diabetes on how to read a medication label correctly and would assist with medication adherence? Comment:					
6. Do you feel that Morisky Medication Adherence Scale 8-Item (MMAS 8-Item) would assist nurses to develop a customized nursing interventions for patients and their families, friends, and significant others to achieve outcomes for medication adherence? Comment:					

	SD 1	D 2	N 3	A 4	SA 5
7. Do you feel teaching adult patients with Type II diabetes on how to read a medication label and refill their medication on time, would allow patients to adhere to their medication regimen? Comment:					
8a. Do you feel that the medication adherence commitment contact is a tool that would benefit patients to commit to their medication regimen? 8b. As a result of this educational module toolkit, do you feel that nurses we be confident about teaching patients, and their families, and friends, and significant others about medication adherence? Comment:					
9a. What do you see as the educational toolkit's strengths and weaknesses? 9b. What recommendations would you offer to improve the toolkit?					
10. Overall, I am satisfied with the quality of the educational module toolkit.. Comment:					

Appendix L: Content Experts Request for Participation Letter

Dear Diabetes Healthcare Providers,

You are being asked to participate in a proposed future Doctor of Nursing (DNP) project that is designed to educate adult patients with Type II diabetes about adhering to their medication regimen. I have created a short 10 questions survey on SurveyMonkey that will take a few minutes to complete after you have reviewed the educational toolkit. The outcome for the educational toolkit is for nurses to potentially improve medication nonadherence among adult patients with Type II diabetes and their families.

The literature recommends that identifying barriers early can provide guidance for diabetic patients to be able to learn how to take their prescribed diabetes medication (s) effectively. Support is needed for individuals to understand the concepts for making positive social lifestyle changes. Psychosocial barriers can lead patients to forget to take their prescribed medications. The review of the literature indicated several reasons why adult patients with Type II diabetes do not adhere to their medication regimen. These reasons involve forgetfulness, patient-provider communication, and patients' sharing the cost for prescription medications, awareness, self-confidence, knowledge deficit, and lack of social support.

In order to present an accurate picture for adult patients with Type II diabetes, this future project study must capture a clear and concise understanding for medication adherence. I have created an educational toolkit that I could potentially strengthen nurses understanding about medication adherence among adult patients with Type II diabetes, but I will need your professional guidance and direction. The proposed educational toolkit is intended for you to share their knowledge and provide constructive feedback on the educational module toolkit that may be implemented in future. The educational module toolkit will be provided at our one to one meeting and I will email the link to each professional content expert.

I would like to thank you in advance for your participation and being part of this proposed future DNP project.

Best regards,
Dometrives Armstrong, DNP (c), MSN, FNP, PHN, RN
Doctoral Student Candidate, Walden University