

A Quality Improvement Project to Improve Self-Efficacy Using a Diabetes Visit Summary and a
Patient Tailored Diabetes Self-Management Plan

By

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Abstract

Problem: Over 29 million Americans live with diabetes. Eighty-six million are pre-diabetic, and 90% to 95% of newly diagnosed diabetic cases are Type II Diabetes. Even with advancements in medicine, people with diabetes continue to suffer from preventable complications. Literature shows that involving patients with diabetes in the active management of their chronic disease produces better outcomes. While visit summaries have been used in the past to improve care, data combining diabetic visit summaries with patient self-directed goals were inadequate.

Project Aim: The purpose of this quality improvement (QI) project was to determine if establishing patient self-directed goals and having readily available diabetic measures with milestones would improve the patient's confidence in changing behavior to better improve their diabetes.

Project Method: This QI project took place in a primary care clinic. Ten adults age 19 years and older with a diagnosis of Type II Diabetes were recruited from this clinic to participate in the project. Each participant completed a well-validated diabetes tailored Diabetes Empowerment Scale-Short Form (DES-SF) questionnaire before the intervention to assess baseline self-efficacy scores. The participants then received a diabetes visit summary and chose one to two self-directed goals from the diabetes self-management goals that they would like to work on before their next diabetes clinic visit. At the patient three-month diabetic visit, the participants were asked to complete the DES-SF questionnaire again. The outcome of improving self-efficacy scores by establishing patient self-directed goals in this project was measured using DES-SF pre- and post-questionnaire. The Wilcoxon signed rank test was used for statistical analysis.

Results: The Wilcoxon Signed Ranks Test showed that six of the participants had positive ranks meaning their post-questionnaire self efficacy scores were higher than their pre-questionnaire scores. Two participants had negative ranks meaning that their post-questionnaire self efficacy scores were less than their pre-questionnaire scores, and two participants had self efficacy post-questionnaire scores equal to their pre-questionnaire scores.

Conclusions: This project demonstrated that implementing a diabetes visit summary with patient-tailored self-management goals can improve self-efficacy with a statistical significance of $Z = -2.10, p = .04$

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A Quality Improvement Project to Improve Self-Efficacy Using a Diabetes Visit Summary and a Patient Tailored Diabetes Self-Management Plan

Type II Diabetes is a chronic progressive condition that affects many patients and can lead to numerous complications; therefore, it is essential that the management of this condition include prevention of long-term complications (Robertson, 2012). In Type II Diabetes, the body ineffectively uses insulin, resulting in insulin resistance, abnormal insulin secretion, abnormal fat metabolism, and prevalence of visceral and central obesity (A. C. Powers, 2015). Globally the number of patients aged 20-79 years with Type II Diabetes in 2017 was 424.9 million, and this number is expected to rise to 628.6 million in 2045 (International Diabetes Federation, 2017). In the United States, over 29 million Americans live with diabetes, 86 million are pre-diabetic, and 90% to 95% of newly diagnosed diabetic cases are Type II Diabetes (Centers for Disease Control and Prevention [CDC], 2016). Diabetes was the seventh leading cause of death in 2013; it is the leading cause of kidney failure, lower limb amputations, and adult-onset blindness, and more than 20% of healthcare spending goes to the management of diabetes (CDC, 2016).

Type II Diabetes is a lifelong disease that requires behavioral change. Patients who take an active part in the management of their diabetes, and engage actively in managing their healthcare have better outcomes, have a better patient experience overall, and help control the cost of healthcare (Hibbard & Greene, 2013).

One key factor in the successful management of Type II Diabetes is self-efficacy, which gives patients the confidence that they can perform a particular behavior (Gao et al., 2013). The author of this project developed a patient-friendly diabetic visit summary sheet (see Appendix A) inspired by The Standards of Medical Care in Diabetes Management written by the American Diabetes Association (ADA) and the American Association of Diabetes Educators (AADE) 7

Self-Care Behaviors, which provides a framework for diabetes self-management (American Association of Diabetes Educators [AADE], 2014).

The seven AADE self-care behaviors of diabetes self-management are healthy eating, being active, monitoring, taking medications, problem-solving, healthy coping, and reducing risks (AADE, 2014). Because patient participation in managing their chronic illness can improve self-efficacy, it is imperative that providers who manage patients with Type II Diabetes find ways to assist this population by offering up effective means to self-manage their chronic illness. Patients uninvolved in their own care or do not follow the recommendations of their providers consequently have poorer outcomes (Ouyang et al., 2015).

Having a diabetes visit summary with diabetes self-management goals (Community Health Association of Mountain/Plains States, 2018) (see Appendix B) that a patient has chosen themselves, can provide clear communication between the patient and the provider. This clear communication delivers patient-centered healthcare leading to improved quality and patient outcome (Federman et al., 2018). Self-efficacy can have a significant role in helping patients with diabetes live confidently with their chronic disease.

Problem Statement

Over the years, many advances have been achieved to improve management of Type II Diabetes; however, even with these accomplishments, 30% to 50% of patients with diabetes do not meet optimal control of glycemia, blood pressure, lipid profile, or smoking cessation (Ali, Bullard, & Gregg, 2013). Only about 77% of patients take their insulin as prescribed, and only 85% take their medications as prescribed (AADE, 2017). Similarly, fewer than 45% of patients with diabetes check their blood sugars and only 24% to 27 % of these patients exercise or lose weight (AADE, 2017).

These statistics only highlight the need for continued support of patients with diabetes so they can improve self-management and live successfully with Type II Diabetes.

To maintain diabetes control and gain positive outcomes, patients with diabetes must set goals that are achievable and fit their own lifestyle and schedule (Funnell & Anderson, 2004). Our role as providers is to assist patients in making better informed decisions by providing professional advisement. The patient has the role of being an active, well-informed collaborator in the management of their Type II Diabetes (Funnell & Anderson, 2004). Advance Practice Registered Nurses (APRNs) are key players in today's healthcare system. APRNs can help patients with diabetes understand their disease process and in make referrals to other healthcare professionals for comprehensive patient management when necessary (Bartol, 2012).

The Standards of Medical Care in Diabetes support and guide clinicians in the management of Type II Diabetes, and the foundation for the development of the diabetes visit summary for this project (ADA, 2018). These standards advocate for a blood pressure check, weight check, discussion of lifestyle, physical activity, smoking cessation, foot check, and medication check at every visit (ADA, 2018). The standards of care also call for a glycosylated hemoglobin (A1c) every three to six months, a cholesterol check, and assessment for the risk of heart disease. The ADA also calls for the patient to have a flu shot, a dilated eye exam, and microalbumin level drawn annually. Currently, the pneumonia vaccination and hepatitis B vaccination are also recommended (ADA, 2018). Diabetes self-management education (DSME) and support is also a requirement to help patients gain skills to care for their diabetes at diagnosis and continuously as needed (ADA, 2018). According to the ADA, high-quality DSME has been shown to produce positive results. By encouraging DSME, patient knowledge

of Type II Diabetes can increase, and self-care can improve with support on an ongoing basis (M. A. Powers et al., 2015).

The Agency for Healthcare Research and Quality's Prevention and Chronic Care (AHRQ PCC) program reports that patient self-management support is an important part of patient-centered care and care coordination in primary care settings (Agency for Healthcare Research and Quality, 2018). The AHRQ PCC describes patient self-management support as a system of care in which the care team works collaboratively with patients, rather than simply dispensing advice, or writing prescriptions, and hoping that patients will comply. This shifts the care paradigm from reactive symptom management to collaborative health management (AHRQ PCC, 2018).

In the new paradigm, care team members help the patient develop the knowledge, skills, confidence, and motivation to make good daily choices that lead to improved clinical outcomes. The patient participates in developing the treatment plan, which includes patient-tailored self-management goals that the patient has suggested and is more likely to achieve. The team helps the patient develop a written action plan for accomplishing the goals. Success in achieving more realistic goals builds the patient's self-confidence, leading to more success, better daily decisions, and improved outcomes.

Purpose of the Project

This quality improvement (QI) project began by implementing a patient-friendly diabetes visit summary with a patient-tailored self management plan. This provided the patient with an ongoing written plan of behavioral goals as well as self-knowledge of current lab values, blood pressure, dates of ongoing health maintenance exams, and upcoming appointments with specialty providers. The overall purpose of the project was to determine if establishing patient

self-directed goals and having readily available diabetic measures and milestones would improve the patient's confidence in changing their behavior to better improve their diabetes. The concepts addressed in regards to improving self-efficacy in patients with diabetes included self-efficacy, self-care, empowerment, and diabetes visit summary.

Definition of Concepts of Interest

The following is a definition of the concepts that were used in this project.

1. Self-efficacy: people's belief in their capabilities to influence activities that affect their lives and how they motivate themselves and behave (Bandura, 1994).
2. Self-care: what patients can do on their part such as maintaining a healthy diet, regular exercise, and monitoring self-glucose so that they can have favorable outcomes (Ouyang et al., 2015).
3. Empowerment: a way to encourage people to participate actively and take control and responsibility of managing their disease (Scambler, Newton, & Asimakopoulou, 2014).
4. Diabetes visit summary: the document provided to the patient with various elements of their diabetes care and information addressed at the visit such as medications, labs, and so on (Salmon et al., 2016).

Review of the Literature

A literature search was conducted in the following databases: PubMed, CINAHL, and Google Scholar. The following keywords facilitated the search: "Self-empowerment and Type II Diabetes," "Self-efficacy and Type II Diabetes," "Self-care and Type II Diabetes," "After visit summaries." The inclusion criterion used for article selection was as follows: primary studies published within the last five years so that the most recent evidence-based research was used. Some sentinel articles were included in the review. The articles had to be clinical studies,

clinical trials, comparative studies, or randomized controlled trials; they also had to be in the English language and focused on adults 19 years or older. Initially, after reviewing the abstracts, 30 studies met the inclusion criteria, but only 21 articles addressed the four concepts in this project.

The studies excluded from the original 30 articles focused on medication adherence and health literacy regarding how patients understood the information provided to them, but it was the goal of this QI project to improve self-efficacy.

Since Type II Diabetes among adults older than 18 years of age is prevalent in the world, this writer chose to include studies from other countries (World Health Organization, 2016). The synthesis of the literature was organized according to the following concepts self-efficacy, self-care, empowerment, and diabetes visit summary.

Synthesis of the Literature

Self-Efficacy

Self-efficacy is the confidence individuals have that they can carry out a specific behavior to achieve a particular goal (Wichit, Mnatzaganian, Courtney, Schulz, & Johnson, 2017). Patients with higher self-efficacy are more prone to feeling more confident in succeeding in the task of self-management (Ounnampiruk, Wirojratana, Meehatchai, & Turale, 2014). Type II Diabetes is one of those chronic diseases that require the patient to take part in their care if they want to achieve positive outcomes. Increasing patient education and knowledge about diabetes and its risk factors enables the patient to improve on their ability to control their behaviors (Gedik & Kocoglu, 2018; Mehta, Trivedi, Maldonado, Saxena, & Humphries, 2016; Simonds, Omidpanah, & Buchwald, 2017). According to Ounnampiruk et al. (2014) and Wichit et al. (2017), improved self-efficacy scores lead to improved A1c. This review found that

interventions should be established to help low-income populations and rural populations to improve self-efficacy (Gedik & Kocoglu, 2018; Walker, Smalls, Hernandez-Tejada, Campbell, & Egede, 2014). To be successful, patients with Type II Diabetes need to have the confidence that they can accomplish the goals they set for themselves and live successfully with diabetes.

Self-Care

Type II Diabetes is a chronic illness that requires individuals to acquire self-management skills and make behavior changes to improve outcomes (Abidi, Vallis, Raza Abidi, Piccinini-Vallis, & Imran, 2014). Self-care is what patients can do on their part to improve their healthcare; it also includes the decisions they make to prevent long-term complications of Type II Diabetes (ADA, 2018). The literature conveyed that it was essential for patients to be involved in the management of their diabetes to improve outcomes and reduce long-term complications. The literature showed that clinicians needed to do more to communicate the need to improve self-care behaviors among patients with diabetes and to get them more involved in self-care (Beverly et al., 2013; Jutterstrom, Hornsten, Sandstrom, Stenlund, & Isaksson, 2016; Ouyang et al., 2015). Patients with associated higher self-efficacy are better at performing self-care behaviors, show higher health literacy and have better glycemic control overall (Bohanny et al., 2013; Gao et al., 2013; Tharek et al., 2018). Patients need to discuss self-care with their providers, and those providers must gear the dialogues toward improving quality of life, working on self-monitoring of blood sugars, staying on a healthy diet, getting regular exercise, and following the prescribed medical treatment (Ouyang et al., 2015). It is crucial that patients understand that their behavior in disease management and being active participants in their care will affect the overall outcome.

Empowerment

Empowering the patients to become full participants in their healthcare by helping them improve self-care and take charge of their healthcare was a common goal in the literature reviewed (Cortez et al., 2017; Ebrahimi, Sadeghi, Amanpour, & Vahedi, 2016; Hernandez-Tejada et al., 2012; Lamprinos et al., 2016). One way to empower patients was to make an assessment of areas in the patient's life where they would like to achieve desirable individualized goals, thus affecting self-care and improving outcomes (Cortez et al., 2017; D'Souza et al., 2017). Patients that had higher empowerment scores ended up with lower A1c, and better adherence to medication (Cortez et al., 2017; Ebrahimi, Sadeghi, Amanpour, & Vahedi, 2016; Hernandez-Tejada et al., 2012). Also, patients who participated in empowered-based self-management care ended up acquiring enduring self-care behaviors (D'Souza et al., 2017; Ebrahimi et al., 2016). As patients got empowered, they developed a greater sense of self – efficacy with regards to behaviors related to the management of Type II Diabetes, and as they actively got involved in self-management, they started shifting their life priorities and values to reflect better diabetic control (Aujoulat, d'Hoore, & Deccache, 2007). This review conveyed the benefits of empowering patients to build confidence to partake in the management of their own Diabetes.

Diabetes Visit Summary

Clinical after-visit summaries give the patient information on their healthcare that was addressed during the visit such as medications, labs results, goals, and so on, and can be used to reinforce self-management tasks (Federman et al., 2017). After-visit summaries have been shown to improve patient-provider communication (Federman et al., 2017; Pavlik, Brown, Nash, & Gossey, 2014; Salmon et al., 2016). After-visit summaries help engage patients and their

family members in the self-management of their illnesses making them valuable for behavior change and outcomes (Federman et al., 2018; Jiggins, 2016). The literature on after-visit summaries solely focused on diabetes and self-chosen goals was limited, which made this project more appropriate. The diabetes visit summary for this project was based on the concept of after-visit summaries but was individualized and contained information about the management of diabetes as outlined in the Standards of Medical Care in Diabetes 2018.

The literature reviewed had a high level of evidence with four of the studies being randomized clinical trials with level II evidence, and 15 of the studies being cross-sectional studies having level IV evidence. Four of the studies had the limitation of small sample size (Ebrahimi et al., 2016; Lamprinos et al., 2016; Ounnapiruk et al., 2014; Salmon et al., 2016). Three others had the limitation of using a convenience sample for the study (Federman et al., 2018; Lee et al., 2016; Salmon et al., 2016). The studies by Ebrahimi et al. (2016), Hernandez-Tejada et al. (2012), and Walker et al. (2014) could not control for confounding factors such as the duration of Type II Diabetes, disease severity, or cultural backgrounds. These limitations made them unsuitable for generalization to the broader population. Regardless of these limitations, the overlaying message from the studies was patient empowerment and improving self-efficacy for the patient with diabetes would improve outcomes.

This review made a strong case for the implementation of a diabetes visit summary and a Patient Tailored Diabetes Self-Management Plan to help improve self-efficacy in the patient with Type II Diabetes.

Theoretical Framework

Self-Efficacy Theory

The theoretical framework for this project was Albert Bandura's Self-Efficacy Theory (SET). Self-efficacy is the belief in one's ability to accomplish something and individuals who gain self-efficacy and feel that they have more control of their behavior end up more likely to carry out positive behaviors for their well-being (Bandura, 1977). The SET principles served as the underpinnings that guided the implementation of this QI project. According to Bandura (1994) self-efficacy is influenced by the following four principles; (1) Mastery of Experiences, (2) Vicarious Experiences, (3) Verbal Persuasion, and (4) Physical/Emotional Arousal.

Mastery of experiences comes from the confidence one obtains when one attempts something and is successful (Bandura, 1977). In this project, for the patient with diabetes to gain the feeling of confidence and success, they started by choosing small goals that they believed they could accomplish before the next clinic visit. Rationale being that completing a goal would give the patient more confidence to undertake another goal until they came to a point where they were confident in their abilities to self-manage their diabetes. Successes help increase self-efficacy, which, in turn, generalizes to triumph in other situations (Bandura, 1977), in this case, tackling other goals related to diabetes management.

People can develop high self-efficacy vicariously through observing another person's performance (Bandura, 1977). Included in the diabetes visit summary was a referral for diabetes education for those patients that needed it. Patients who have had an opportunity to interact with other patients with diabetes were able to learn from their success. The healthcare provider served as mentors for the patient with diabetes by providing a positive model of success. The

provider reinforced the importance of diabetes education and self-care behaviors during the clinic visit.

Verbal persuasion is where individuals come to believe that they can perform a task and this can increase self-efficacy (Bandura, 1977). Positive feedback and encouragement from the healthcare provider builds self-efficacy for the patient with diabetes so that they could successfully tackle self-management goals that they had chosen. Successful efficacy builders place people in situations where they are likely to succeed (Bandura, 1994). For example, when health care providers helped patients choose for themselves self-management goals that they can accomplish without difficulty, chances for the patient to succeed in the selected goals increased.

The fourth principle that influences self-efficacy is physical/emotional arousal, and this is achieved by reducing the patient's stress reactions (Bandura, 1977). For this project, this was achieved by encouraging the patient to keep up with goals identified in the visit summary and not chastising the patient for not having completed these goals identified in the diabetes visit summary during the follow-up visit. What patients perceive of their self-efficacy affects choices they make regarding change of health habits, personal change, motivation to persevere with the changes made and maintenance of changes achieved (Bandura, 1994).

Implementing a diabetes visit summary with diabetes self-management goals that the patient had chosen and applying the principles from the SET theory, this project expected to help the patients improve self-efficacy leading to improved diabetic control.

Assumptions to Support the Project

This project assumed that

1. The patients with Type II Diabetes at the clinic would demonstrate a higher level of self-efficacy with the use of a diabetes visit summary and a diabetes patient-tailored self-management plan.
2. Self-efficacy scores would improve from baseline in the patients who participated in this project.

Methods

Design of the Study and Rationale

This was an evidenced-based practice QI project with a pre- and post-intervention design intended to improve self-efficacy in patients with diabetes using a diabetes visit summary and a diabetes self-management plan. The project used the diabetes empowerment scale-short form (DES-SF) questionnaire (see Appendix C) to measure baseline self-efficacy scores and scores three months after the patient received the diabetes visit summary with a diabetes self-management plan.

Project Site and Population

The setting for this project was an outpatient family practice primary care clinic. The clinic catered to all age groups across the lifespan, including women's health and urgent care services. The clinic accepted most major insurance companies so that providers could cater to a wide variety of patients insured and uninsured.

With the help of the office manager, the participants for this project were chosen from a purposive sample of 10 patients identified from the electronic health record (EHR). Purposive sampling is a selection of participants by the researcher based on the researcher's needs and

goals and persons who would benefit from the study (Polit & Beck, 2012). The inclusion criteria were any adult age 19 years or older with a diagnosis of Type II Diabetes, patients who had visited the clinic between the dates of 6/1/17 – 6/1/18, and were only English speaking.

Exclusion criteria were people with mental disabilities.

Human Subjects Protection

The anticipation was that the project would pose no more than minimal risk to the participants. The only risk anticipated was with the confidentiality of the patient's health information and care was taken to safeguard patients' protected health information with the project director and committee members following the Health Insurance Portability and Accountability Act laws regarding privacy. As such, no personal information or personal identifiers were collected or stored. Participants eligible and agreeing to take part in the project signed a written informed consent before taking part in the project.

Data Collection Tools

To measure the outcomes of the project, this project utilized the following instrument: The DES-SF Questionnaire from the Michigan Diabetes Research and Training Center, which was developed by Anderson, Fitzgerald, Gruppen, Funnell, & Oh (2003) to allow for a brief overall assessment of diabetes-related psychosocial self-efficacy assessment of patients with diabetes. The questionnaire was in paper form and required less than five minutes to complete.

The original diabetic empowerment scale (DES) contained 37 items but was reduced to the current 28-item DES ($\alpha = 0.96$) and contains three subscales, which are (1.) managing the psychosocial aspects of diabetes with 9 items ($\alpha = 0.93$), (2.) assessing dissatisfaction and readiness to change 9 items ($\alpha = 0.81$), and (3.) setting and achieving goals with 10 items

($\alpha = 0.91$). The DES-SF was created from the 28-item DES and was tested on a sample of $N = 229$ patients for validity and has a reliability of ($\alpha = 0.85$).

The DES-SF questionnaire is comprised of 8 items on a 5-point (0 to 10) Likert scale that measures patients' perceived efficacy in self-care activities. The options for each item were 1. Strongly Disagree, 2. Somewhat Disagree, 3. Neutral, 4. Somewhat Agree, and 5. Strongly Agree. The activities measured were:

In general, I believe that I;

1. ...know what part(s) of taking care of my diabetes that I am dissatisfied with.
2. ...am able to turn my diabetes goals into a workable plan.
3. ...can try out different ways of overcoming barriers to my diabetes goals.
4. ...can find ways to feel better about having diabetes.
5. ...know the positive ways I cope with diabetes-related stress.
6. ...can ask for support for having and caring for my diabetes when I need it.
7. ...know what helps me stay motivated to care for my diabetes.
8. ...know enough about myself as a person to make diabetes care choices that are right for me.

Scoring was based on completed items with higher scores indicating higher self-efficacy capabilities. Each response checked on the questionnaire received the corresponding point, then all 8 items were added together; the resulting value was the score for the DES-SF. The questionnaire was used to measure baseline self-efficacy scores and scores after the intervention. The scores from the DES-SF provided the quantitative data for this project.

Data Collection Procedures

The Plan-Do-Study-Act (PDSA) model for improvement was the implementation strategy that guided this QI project. Associates in Process Improvement developed the PDSA, which is a QI tool used to improve and test the change on a small scale (Institute for Healthcare Improvement, 2017). When choosing a QI project, one should determine at the beginning stage the desired outcomes and the timeline required to complete it (Hall & Roussel, 2017). The project was implemented between June 19, 2018, and January 7, 2019. The desired outcome of this project was improved self-efficacy scores for each participant after three months from baseline.

Plan

The planning stage was established when the clinic where the project took place identified a need to improve diabetes education. The project director approached this need by deciding to use a diabetes visit summary and a patient-tailored diabetes self-management plan to improve self-efficacy. Collaborating with the patient who identified the goals they wanted to work on, DSME on the goals the patient selected was provided. This approach addressed the need for education improvement at the clinic, and the project need to improve self-efficacy using a self-directed diabetic plan. Before the project began, the project director first obtained a formal letter of support from the clinic where the project was taking place (see Appendix D). Then after this was received, the final project proposal, the letter of support from the clinic, and the proposed consent to participate in study form were submitted to the institutional review board (IRB) at the University of Kansas Medical Center (KUMC) for designation as a QI project. The IRB determined that this was a quality improvement project that did not require further IRB review (see Appendix E) and permission was granted to continue with the project.

Do

After approval from IRB to start the project was granted, the project director worked with assistance from the clinic manager to identify patients with Type II diabetes who had upcoming appointments, and who would be eligible to participate in this project. After receiving a list of eligible patients, the project director took one day before the project started to complete a chart review of 14 potential participants. This was done to see what had already been done with the patients in the past, to identify any future needs, determining needed tests, and documenting this on the diabetes visit summary in preparation for the patient's diabetes clinic visit. The following information when available from the previous visits was put down on the diabetes visit summary: weight, body mass index, blood pressure, foot inspection, and A1c. Also included was the date on file for results of dilated eye exams, urine microalbumin/creatinine, renal panel, use of angiotensin-converting enzyme/angiotensin receptor blockers, statins, use of aspirin, and Metformin. Results of a comprehensive foot exam, LDL, screening results for pain, nutrition education, and complications were also noted if they were on file. When the chart review was completed, eligible patients got a call from the office manager and were asked if they would be willing to participate in the diabetes project. Those who agreed had their diabetes clinic visit scheduled or rescheduled to have a bulk of diabetes visits on the same day so that the project director could see multiple patients in one day.

On the day of the diabetes clinic visit, after the patient was roomed, the project director approached the patient, and introduced themselves and explained the project to the patient. If the patient agreed to proceed then a written consent (see Appendix F), which briefly explained the project to patients was given to the participant to sign, and the DES-SF questionnaire was attached to the consent. The project director would then leave the room to

give the patient time to read the consent form and answer the questionnaire while they waited for their provider to come and see them. For each potential participant, the project director notified the provider seeing the patient that day of any tests due on that visit, for example, labs due that day or medication and any other needs identified. When the patient completed their visit with their provider, the project director returned to the room, and together with the patient updated any new information on the diabetes visit summary. Then from a list of 10 diabetes self-management goals (Appendix B), which align to the self-care behaviors for diabetes self-management, the patient noted on each goal listed how confident they felt that they could work on that goal. The scoring for this portion was 1=not confident to 5=very confident. After going through the 10 goals available, each participant identified one to two goals that they felt they could work on before the next diabetes visit. Once the patient self-selected goals were identified, the project director then provided DSME related to the goals chosen. Results obtained on the day of the visit, yearly results, current medication, and patient-tailored self-management goals discussed at the visit, and health maintenance screenings the participant needed to have completed before the next visit were then updated on the diabetes visit summary. The project director also wrote down the last four numbers of the participant's phone number on the DES-SF questionnaire to appropriately pair the pre-questionnaire to the post-questionnaire at the next diabetes clinic visit. Writing down the last four numbers ensured that no identifiable patient data was collected for analysis. Due to time constraints and a busy clinic, at the end of the visit the project director made a copy of the diabetes visit summary and the patient-tailored diabetes self-management plan. The original copies were given to the participant to take home; then copies were given to the office manager who scanned them to the patient EHR and disposed of the copies according to the clinic policy.

Implementation cost of the project to the clinic was minimal; costs included charges for printing the diabetes visit summary and the DES-SF questionnaire that the project director assumed. The cost of the staff was the same as any other day they come to work.

Each of the patients that participated in this project had a three-month follow-up at the clinic. At the follow-up appointment, the project director was able to look at the scanned diabetes visit summary and diabetes self-management goals completed at the previous visit that were available on the EHR. During the follow-up visit, the project director again met with the participants and during the second visit, the project director discussed with the patient the goals that they had been working on the last three months. Then the project director asked the patients to fill out the DES-SF post-questionnaire, which had the same questions as the pre-questionnaire.

Data Analysis

Study

After the completion of the project, the project manager collected all the surveys and uploaded the data into the software program Statistical Package for the Social Sciences (SPSS) (IBM SPSS Statistics 25) for analysis to determine if the diabetes visit summary with diabetes self-management goals was useful to the patients at this clinic who participated in the project. The project director then consulted with an assistant professor from the Biostatistics Department at the University of Kansas Medical Center for recommendations on the best way to complete the data analysis. It was recommended that a nonparametric test for significance be used to see if there was any significant difference in the patient's self-efficacy scores pre- and post-intervention. The Wilcoxon signed rank test, which is a nonparametric test used to compare two related samples, matched samples, or repeated measures (Nisa & Saggu, 2016) was selected. A

p-value of $<.05$ was considered significant. As previously noted, scoring was based on completed items with higher scores indicating higher self-efficacy.

Results

A total of 10 participants who met the criteria for adult patients aged 19 years or older with a diagnosis of Type II Diabetes took part in this project. Each participant responded to the DES-SF pre-questionnaire and post-questionnaire with a 100% response rate (See table 1).

Table 1
Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Pre-Questionnaire	10	100%	0	0.0%	10	100%
Post-Questionnaire	10	100%	0	0.0%	10	100%

Note: Table showing total participants who completed the project.

There were no incomplete surveys. The project continued until all 10 participants had completed their second follow up visit. As noted previously, scoring on the DES-SF was based on completed items with higher scores indicating higher self-efficacy capabilities.

Table 2 shows the average pre-questionnaire score for each participant before they received the diabetes visit summary and the average post – questionnaire score after the project was implemented. Appendix G shows the graphical display of the results presented in table 2.

Table 2
Pre and post Questionnaire total scores

Patient ID	DES-SF Pre-Questionnaire Score	DES-SF Post-Questionnaire Score
0563	31	37
9963	25	38
8897	40	40
6734	31	35
1598	27	25
6524	36	40
5056	30	39

Patient ID	DES-SF Pre-Questionnaire Score	DES-SF Post-Questionnaire Score
5383	40	37
0947	23	23
4116	31	36

Note: Total self-efficacy scores for each individual participant pre-questionnaire and post-questionnaire.

The results from Table 2 were then uploaded into SPSS, and a Wilcoxon's signed rank test was conducted to see if using a diabetes visit summary and a patient-tailored diabetes self-management plan improved the participants' self-efficacy scores. Table 3 shows the number of participants that had improved DES-SF scores after the intervention, how many had a lower score after the intervention and how many of those had scores that remained the same after the intervention. Of the 10 participants who took part in this project, the diabetes visit summary and a patient-tailored diabetes self-management plan helped improve the participant's self-efficacy score in six of the participants; this is represented by the six positive ranks. Two of the participants did not see an improvement and this is represented by the tied ranks. Additionally, two of the participants felt that their efficacy declined and this is represented by the negative ranks.

Table 3

Wilcoxon Signed Ranks Test

		N	Mean Rank	Sum of Ranks
Post- Questionnaire –	Negative Ranks	2 ^a	1.50	3.00
	Positive Ranks	6 ^b	5.50	33.00
Pre- Questionnaire	Ties	2 ^c		
	Total	10		

Note: a. Post-Questionnaire < Pre-Questionnaire, b. Post-Questionnaire > Pre-Questionnaire, c. Post-Questionnaire = Pre-Questionnaire

The intervention of providing patients at this clinic with a diabetes visit summary and a patient tailored diabetes self- management plan elicited a statistically significant improvement in self-reported self-efficacy scores, $Z = -2.10$, $p = .04$ (Table 4), with an increase in the median

post-questionnaire score of 37 compared to the pre-questionnaire score of 31 and a standard deviation of 6.04 and 5.80 respectively (Table 5).

Table 4
Test Statistics^a

	Post-Questionnaire – Pre-Questionnaire
Z	-2.10 ^b
Asymp. Sig. (2-tailed)	.04

Note: a. Wilcoxon Signed Ranks Test, b. Based on negative ranks.

Table 5
Report

	Pre-Questionnaire	Post-Questionnaire
N	10	10
Std. Deviation	5.80	6.04
Median	31.00	37.00

Note: Report of Wilcoxon=pre-questionnaire with post-questionnaire (paired)

The participants responded to each of the eight 5-point Likert scale questions with 1. Strongly Disagree, 2. Somewhat Disagree, 3. Neutral, 4. Somewhat Agree and 5. Strongly Agree. Appendix H shows the descriptive statistics of the responses received from the eight questions in the DES-SF. Appendix I presents a bar graph display of the responses to each of the eight DES-SF questions, Appendix J represents the Test Statistics for the eight DES-SF questions and Appendix K shows the Wilcoxon signed ranks for each measure in the DES-SF.

When each of the eight questions in the DES-SF were individually analyzed, six of the questions had post-questionnaire results that showed more people improved in their self-efficacy scores. This was reflected in the positive ranks and test statistics in regards to the measures asked in the questions although the positive shift was not statistically significant for all six questions (see Appendix J and Appendix K).

Three questions elicited statistically significant responses and they asked the participants about positive ways to relate to the stress of having diabetes, asking for support when one has

diabetes and making the right choices when one has diabetes. ($Z = -2.43$, $p = .02$ for question 5, $Z = -2.12$, $p = .03$ for Question 6 and $Z = -2.12$, $p = .03$ for question 8). Some measures, however, did not produce positive results such as Question 3 which asked about different ways to overcome barriers to diabetes goals and question 4 which addressed feelings of having diabetes. Both of these questions had the most negative ranks of the eight questions, with -3 and -4 ranks, respectively (see Appendix K).

Discussion

This project was implemented to determine if establishing patient self-directed goals and having readily available diabetic measures and milestones would improve the patient's confidence in changing their behavior to better improve their diabetes. The DES-SF, which is a validated tool for use with patients who have diabetes, was used to measure self-efficacy with higher scores showing a rise in patient confidence that they could improve their behavior.

Overall the results of this QI project appear to support that a diabetes-visit summary with a patient-tailored self-management plan helped patients establish self-directed goals, leading to improved self-efficacy in patients with Type II Diabetes. The results are also consistent with the self-efficacy theory that suggests that people with higher self-efficacy carry out more positive behaviors (Bandura, 1977). When the patients worked on personally selected goals, they gained more confidence that they could work on other goals improving on their master of experience, the first principle of the SET. During the second visit the patient and project director discussed the goals achieved and the potential to work on additional goals. This visit touched on the second and third principles of the SET which are vicarious experiences through discussing their goals with the project director, and verbal persuasion, the desire to choose more goals after completing

previously selected goals. The fourth principle of the SET, physical/emotional arousal, will be ongoing as the patient will address self-management goals to work on after each visit.

The DES-SF scores had a median score of 37 post questionnaire vs. 31 pre-questionnaire, implying that patients' confidence level improved promoting behavior changes that would improve their diabetes. The statistically significant results supported the assumptions of this project which were:

1. The patients with Type II Diabetes at the clinic would demonstrate a higher level of self-efficacy with the use of a diabetes visit summary and a diabetes patient-tailored self-management plan.
2. Self-efficacy scores would improve from baseline in the patients who participated in this project.

When the individual items of the DES-SF were analyzed, six of the eight measures showed improvement meaning that overall establishing patient self-directed goals and having readily available diabetic measures and milestones helps patient confidence improve. It was noted that the question item 3 and 4 had higher negative ranks. Question 3 addressed trying out different ways to overcome barriers to diabetes and Question 4 addressed ways to feel better about having diabetes. It is possible that if the project had gone on for longer than three months, a better picture of whether some improvement would be seen in these measures.

Previous studies have not explored the combination of a diabetes visit summary with a patient-tailored self-management plan, and the previous findings showed improvement when patients were involved in their care (Abidi, Vallis, Raza Abidi, Piccinini-Vallis, & Imran, 2014; ADA, 2018). When self-care was reinforced with the support of the healthcare team in the previous research, then care behaviors such as adjusting eating habits, physical activities, and

clinical outcomes improved (Beverly et al., 2013; Cortez et al., 2017; Jutterstrom, Hornsten, Sandstrom, Stenlund, & Isaksson, 2016).

Previous studies have indicated that patients in primary care would like goals relevant to their care added to their visit summaries and that providers would prefer visit summaries tailored to the patient (Federman et al., 2017; Pavlik, Brown, Nash, & Gossey, 2014). The contribution of this project to the literature shows that combining a diabetes visit summary with a patient-tailored self-management plan can improve self- efficacy.

Strengths and Limitations of the Project

This was a QI project, and one of the limitations was the small sample size of $N=10$. Selection bias was another limitation as only willing participants took part in this project, so the samples for the project are not necessarily representative of the general geographical region where the clinic is situated. Relying on the patients to self-report that they worked on the goals they chose was not a reliable and validated way of confirming results as honesty can vary. For example, some of the patients posted high self-efficacy scores but admitted to not exercising three to four times a week that they had hoped to do.

Regarding the length of the project, the participants were followed for only one visit and multiple visits may have shown if the project is sustainable. Filling out the paper form of the diabetes visit summary was time-consuming, which would make it difficult to implement in a busy primary care clinic. The strength of the project was the 100% response rate, the use of a well-validated and reliable tool to collect self-efficacy scores and the opportunity to provide DSME with each goal selected by the patient.

Plan for Dissemination of the Project

Act

The results of this project will be shared with the owner of the clinic, so they may determine if the use of a diabetes visit summary with a patient-tailored self-management plan for their patients with Type II Diabetes is appropriate or best suited. Additionally, the results will be presented to the KUMC School of Nursing at the Doctor of Nursing Practice public presentations on May 6. After the public presentations, the project will be submitted to ProQuest for publication.

Future Implications for Practice.

The implications of this project for practice is that the diabetes visit summary with a patient-tailored self-management plan gives the providers seeing the patient an opportunity to discuss patient-centered goals at every visit. Future considerations would be to integrate the diabetes visit summary into the electronic health record and make it available to the patient in the patient portal, leaving the pre-printed self-management goals sheet as the only handout to give to the patient at the end of the visit. This would reduce the time needed to fill out the visit summary before every visit. Second, a larger sample of patients could be followed over time to determine if this QI can be generalized to the rest of the population. Also, future quality improvement projects could be measuring the goals selected by the patients so as to have measurable achievements as opposed to the self-reported outcome by the patient.

Conclusion

The results of this project show that engaging patients in their care and allowing them to choose their own goals to work on provided patients more confidence in the management of their diabetes. The number of Type II Diabetes patients is expected to rise in the future, and nurse

practitioners are seen as cost-effective providers able to manage this population (Richardson, Derouin, Vorderstrasse, Hipkens, & Thompson, 2014). Patients with Type II Diabetes need regular care and support from multidisciplinary care providers, given that they are usually dealing with more than just diabetes. Research supports finding ways to help patients with diabetes find ways to improve health outcomes and reduce preventable complications. The results of this project were statistically significant. Leading to the value that a simple diabetes visit summary with a self- management plan can help Type II Diabetes patients keep up with their care, improve self-efficacy, and feel more empowered and confident to fully participate in the self-management of their Type II Diabetes.

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Appendix A

Diabetes Visit Summary

Patient Diabetes Visit Summary

Patient Name _____ Today's Date _____

Every Visit						
Date of Visit						
Weight						
BMI (goal: <25 kg/m ²)						
BP (goal: <130/<80)						
Fasting/Random glucose						
Review home blood sugar log						
Foot inspection						
Abdominal Circumference						

Medications	
<input type="checkbox"/> Aspirin if needed:	
<input type="checkbox"/> ACE/ARB:	
<input type="checkbox"/> Statin:	
<input type="checkbox"/> Metformin	
<input type="checkbox"/> Other Medications:	

Yearly Visit		
	Date	Value
Triglycerides (goal: <150 mg/dL)		
HDL-C (Men: >40, Women >50 mg/dL)		
LDL-C (<100 mg/dL)		
BUN/creatinine (normal 10-20:1)		
Microalbumin/creatinine ratio (goal: <30)		
Diabetic eye exam		
Dental exam		
Comprehensive foot exam		
Diabetes education referral		

A1c Every 3 Months (Target: <7 %)				
Date				
Result				
Date				
Result				

Immunizations			
	Date	Date	Date
PCV 13			
PPSV2 3			
Hep B			
Flu Shot			

Instructions before next visit: _____

Diabetes self-management goals discussed at today's visit. Copy of Diabetes Self-Management Goals given to patient at this visit.	
Goal 1	A1C below 7%.
Goal 2	Exercise
Goal 3	Check feet daily.
Goal 4	Diet
Goal 5	Lose weight
Goal 6	Daily ASA
Goal 7	Smoking Cessation
Goal 8	Home Blood Sugar Checks
Goal 9	Yearly eye exam, dental exam every 6 months
Goal 10	Diabetic Support

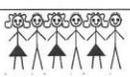
Appendix B

Diabetes Self-Management Goals

HEALTHCARE CLINIC Diabetes Self-Management Goals

Diabetes is a very serious disease which may cause damage to the blood vessels and nerves leading to the brain, eyes, heart, kidneys, toes and feet.

You are the most important person in the management of your diabetes. We will guide you and offer support as you manage your diabetes. The following goals will help you gain and maintain diabetic control to reduce damage to your blood vessels and nerves.

Please choose goals you would like to work on to better manage your diabetes.		How confident are you that you can work on this goal? (1=not confident, 5=very confident)
	Goal 1: I will work hard to keep my HbA1c below 7.	1 2 3 4 5
	Goal 2: I will exercise (walk) 30 minutes _____ days per week. If I notice chest pain, shortness of breath, or chest tightness, I will seek medical attention.	1 2 3 4 5
	Goal 3: I will check my feet daily. If I notice a sore or irritation I will seek medical attention. I will visit the Podiatrist yearly, or as instructed.	1 2 3 4 5
	Goal 4: I will follow my diabetic and low fat diet to reduce my blood sugar and cholesterol.	1 2 3 4 5
	Goal 5: I will try to obtain my ideal body weight. I will lose _____ pounds by my next office visit.	1 2 3 4 5
	Goal 6: I will take a baby aspirin or enteric coated aspirin every day.	1 2 3 4 5
	Goal 7: I will stop smoking.	1 2 3 4 5
	Goal 8: I will have an eye exam every year or as indicated.	1 2 3 4 5
	Goal 9: I will check my blood sugar _____ times a day and will call if the results are consistently below _____ or above _____. (ADA recommendation is to maintain a blood sugar level between 80 and 130.)	1 2 3 4 5
	Goal 10: I will talk about how I feel about having diabetes to my family, friends, and/or chaplain. I will attend the Diabetes Support Group.	1 2 3 4 5

Updated 2016

Note: Used with permission from Community Health Association of Mountain/Plains States.

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Appendix C

Diabetes Empowerment Scale-Short Form (DES-SF)

University of Michigan Diabetes Research and Training Center

Diabetes Empowerment Scale-Short Form (DES-SF)

The 8 items below constitute the DES-SF. The scale is scored by averaging the scores of all completed items (Strongly Disagree =1, Strongly Agree = 5)

Check the box that gives the best answer for you.

In general, I believe that I:

- | | | | | | |
|--|--|--|--|---|---|
| 1. ...know what part(s) of taking care of my diabetes that I am dissatisfied with. | <input type="checkbox"/>
1
Strongly Disagree | <input type="checkbox"/>
2
Somewhat Disagree | <input type="checkbox"/>
3
Neutral | <input type="checkbox"/>
4
Somewhat Agree | <input type="checkbox"/>
5
Strongly Agree |
| 2. ...am able to turn my diabetes goals into a workable plan. | <input type="checkbox"/>
1
Strongly Disagree | <input type="checkbox"/>
2
Somewhat Disagree | <input type="checkbox"/>
3
Neutral | <input type="checkbox"/>
4
Somewhat Agree | <input type="checkbox"/>
5
Strongly Agree |
| 3. ...can try out different ways of overcoming barriers to my diabetes goals. | <input type="checkbox"/>
1
Strongly Disagree | <input type="checkbox"/>
2
Somewhat Disagree | <input type="checkbox"/>
3
Neutral | <input type="checkbox"/>
4
Somewhat Agree | <input type="checkbox"/>
5
Strongly Agree |
| 4. ...can find ways to feel better about having diabetes. | <input type="checkbox"/>
1
Strongly Disagree | <input type="checkbox"/>
2
Somewhat Disagree | <input type="checkbox"/>
3
Neutral | <input type="checkbox"/>
4
Somewhat Agree | <input type="checkbox"/>
5
Strongly Agree |

University of Michigan Diabetes Research and Training Center

- | | | | | | |
|---|--|--|--|---|---|
| 5. ...know the positive ways I cope with diabetes-related stress. | <input type="checkbox"/> ₁
Strongly Disagree | <input type="checkbox"/> ₂
Somewhat Disagree | <input type="checkbox"/> ₃
Neutral | <input type="checkbox"/> ₄
Somewhat Agree | <input type="checkbox"/> ₅
Strongly Agree |
| 6. ...can ask for support for having and caring for my diabetes when I need it. | <input type="checkbox"/> ₁
Strongly Disagree | <input type="checkbox"/> ₂
Somewhat Disagree | <input type="checkbox"/> ₃
Neutral | <input type="checkbox"/> ₄
Somewhat Agree | <input type="checkbox"/> ₅
Strongly Agree |
| 7. ...know what helps me stay motivated to care for my diabetes. | <input type="checkbox"/> ₁
Strongly Disagree | <input type="checkbox"/> ₂
Somewhat Disagree | <input type="checkbox"/> ₃
Neutral | <input type="checkbox"/> ₄
Somewhat Agree | <input type="checkbox"/> ₅
Strongly Agree |
| 8. ...know enough about myself as a person to make diabetes care choices that are right for me. | <input type="checkbox"/> ₁
Strongly Disagree | <input type="checkbox"/> ₂
Somewhat Disagree | <input type="checkbox"/> ₃
Neutral | <input type="checkbox"/> ₄
Somewhat Agree | <input type="checkbox"/> ₅
Strongly Agree |

DES-SF, Diabetes Research and Training Center
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Note: Used with Permission from Michigan Diabetes Research Center “The project described was supported by Grant Number P30DK020572 (MDRC) from the National Institute of Diabetes and Digestive and Kidney Diseases”

Appendix D

Letter of Support



[Redacted]
[Redacted]
[Redacted]
Office [Redacted]
Fax [Redacted]

05/18/2018

To Whom It May Concern,

I am writing this letter on the behalf of [Redacted] Healthcare Clinic (PHC). We are happy to confirm our support of Ms. Catherine Brettmann in the research project: A Quality Improvement Project to Improve Self-Efficacy Using a Diabetes Visit Summary and a Diabetes Self-Management Plan. We anticipate that thru the implementation of this project our patients will improve self-efficacy in care while maintaining diabetic control. At this time [Redacted] Healthcare Clinic will defer to the University of Kansas, IRB.

If I could be of further assistance or answer any questions, please feel free to contact me directly.

Sincerely,

[Redacted Signature]

[Redacted Title]

[Redacted]

Office: [Redacted]

Cell: [Redacted]

Fax: [Redacted]

Appendix E

Quality Improvement Determination

The University of Kansas Medical Center

Human Research Protection Program

May 31, 2018

Project Title: A Quality Improvement Project to Improve Self-Efficacy Using a Diabetes Visit Summary and a Patient-Tailored Diabetes Self-Management Plan

Institutional Contacts: JoAnn Peterson, DNP, APRN, FNP, WHNP
Catherine Brettmann, BSN, RN, CCRN

Sponsoring Department: KU School of Nursing

Quality Improvement Determination

Thank you for your submission. The KUMC Human Research Protection Program (HRPP) has conducted a review of the above referenced project.

The current proposed project plan falls under one or more of the following quality improvement activities:

- Determine if a previously-implemented clinical practice improved the quality of patient care
- Evaluate or improve the local implementation of widely-accepted clinical or educational standards that have been proven effective at other locations
- Gather data on hospital or provider performance for clinical, practical or administrative uses
- Conduct a needs assessment to guide future changes in local health care delivery or to support other improvements at KUMC
- Perform an analysis to characterize our patient population/clients to improve quality of services
- Implement programs to enhance professional development for providers and trainees
- Measure local efficiency, cost or satisfaction related to standard clinical practices
- Develop interventions or educational strategies that improve the utilization of recognized best practices
- Implement strategies to improve communication within our local healthcare environment
- Improve tools for patients that promote education, health literacy or treatment plan compliance

This project will improve implementation of self-care behaviors that are known to be effective in order to meet established national guidelines for managing diabetes. High quality diabetes self-management education has been shown to produce positive results.

Any presentation or publication resulting from this project should explicitly state that it was undertaken as quality improvement.

At this time, IRB review is not required. If a quality improvement protocol is revised to undertake a systematic investigation designed to answer a research question or produce knowledge that would be generalizable beyond the local setting, the HRPP will re-evaluate your project's regulatory status. More information about distinguishing quality improvement from research is available on the OHRP website at: <http://www.hhs.gov/ohrp/policy/fag/quality-improvement-activities/index.html>

Very truly yours,

Director, Human Research Protection Program

Mail-Stop 1032.3901 Rainbow Blvd .. KansasCity,KS66160
PhOne: (913) 588-0942 Fax: (913) 588-5771
kblackwe@kumc.edu

Appendix F

Informed Consent Letter

Dear participant,

Catherine Brettmann is a graduate student at the University of Kansas School of Nursing completing her Doctor of Nursing project here at Phoenix Healthcare Clinic. We are contacting you because you are a patient at this clinic. We are inviting patients to participate in a survey to help determine if patient self-directed goals and having readily available diabetic measures and milestones will improve patient confidence in managing diabetes. Participation involves completing a survey that will take about five minutes. No identifiable information will be collected about you, and the survey is anonymous. In addition to the survey questions, we will request that you write the last four digits of your phone number on the survey as we would like you to complete this survey again on your next follow up appointment. At your visit today, you will receive a diabetes visit summary and you will choose 1-2 goals to work on before your next appointment. When you have completed the survey, please return it to the clinic staff. There are no personal benefits or risks to participating in this study. Participation is voluntary, and you can stop taking the survey at any time. If you have any questions, please contact Catherine Brettmann at (913) 683-XXXX. For questions about the rights of survey participants, you may contact the KUMC Institutional Review Board (IRB) at (913) 588-1240 or humansubjects@kumc.edu

Sincerely, Catherine Brettmann, BSN, RN, CCRN

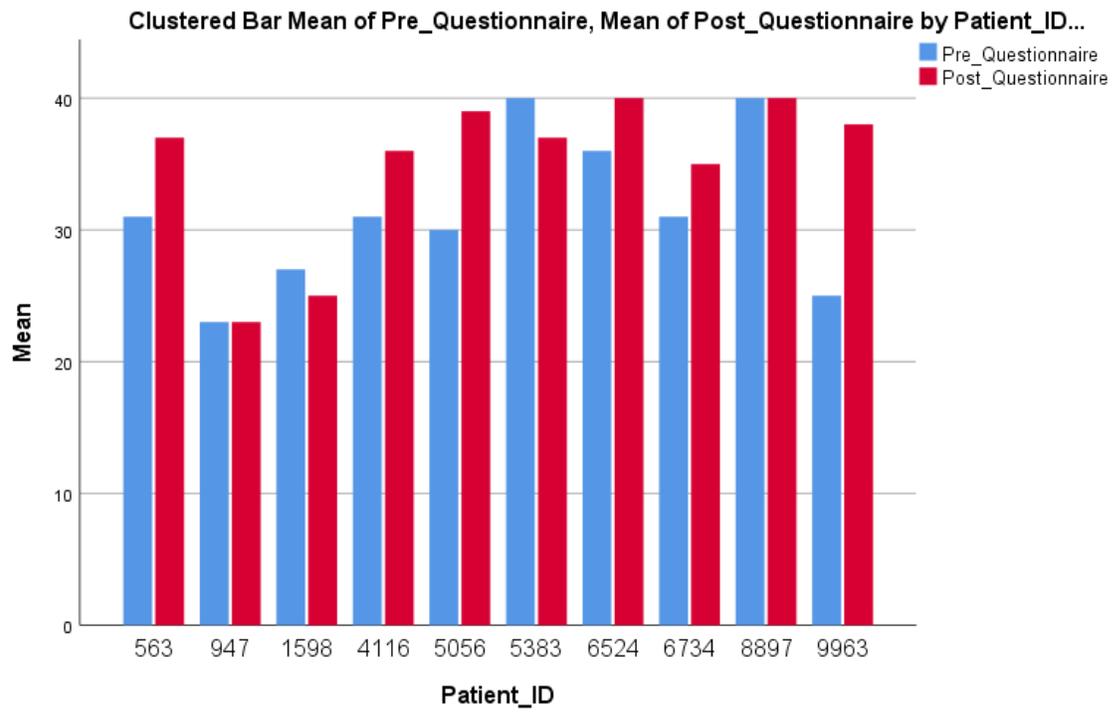
If you agree to be in the study please sign and date below:

Printed name: _____

Signature: _____

Date _____

Appendix G



Appendix H

Table 6
Descriptive statistics for the DES-SF

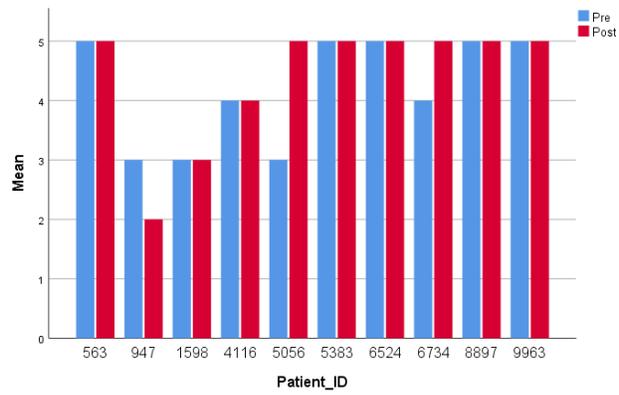
	Mean	Std. Deviation	Minimum	Maximum
1. In general, I believe that I know what part (s) of taking care of my diabetes that I am dissatisfied with.				
Pre - Questionnaire	4.20	.919	3	5
Post - Questionnaire	4.40	1.075	2	5
2. In general, I believe that I am able to turn my diabetes goals into a workable plan.				
Pre - Questionnaire	3.50	1.269	2	5
Post - Questionnaire	4.30	1.059	2	5
3. In general, I believe that I can try out different ways of overcoming barriers to my diabetes goals.				
Pre - Questionnaire	4.40	.843	3	5
Post - Questionnaire	4.30	1.059	2	5
4. In general, I believe that I can find ways to feel better about having diabetes.				
Pre - Questionnaire	3.50	1.581	1	5
Post - Questionnaire	3.60	1.430	1	5

	Mean	Std. Deviation	Minimum	Maximum
5. In general, I believe that I know the positive ways I cope with diabetes-related stress.				
Pre - Questionnaire	3.20	1.135	2	5
Post - Questionnaire	4.20	.919	3	5
6. In general, I believe that I can ask for support for having and caring for my diabetes when I need it.				
Pre - Questionnaire	4.30	.823	3	5
Post - Questionnaire	4.90	.316	4	5
7. In general, I believe that I know what helps my stay motivated to care for my diabetes.				
Pre - Questionnaire	4.20	.789	3	5
Post - Questionnaire	4.50	.707	3	5
8. In general, I believe that I know enough about myself as a person to make diabetes care choices that are right for me.				
Pre - Questionnaire	4.10	.994	2	5
Post - Questionnaire	4.80	.422	4	5

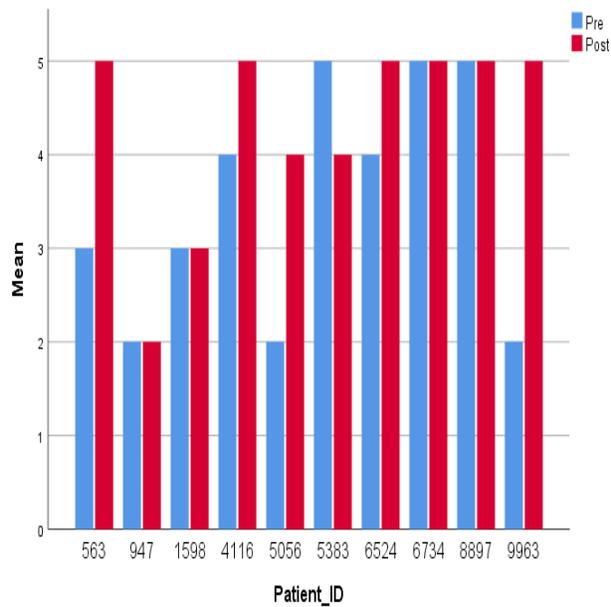
Note: Weighted descriptive statistics for the responses from the eight questions in the DES-SF

Appendix I

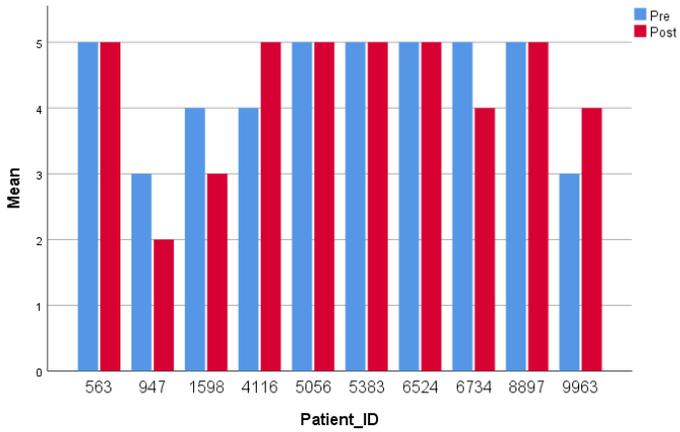
Question 1: In general, I believe that I know what part (s) of taking care of my diabetes that I am dissatisfied with.



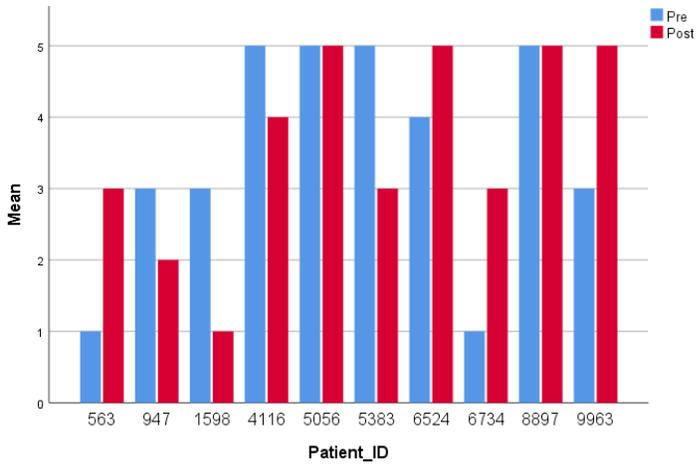
Question 2: In general, I believe that I am able to turn my diabetes goals into a workable plan.



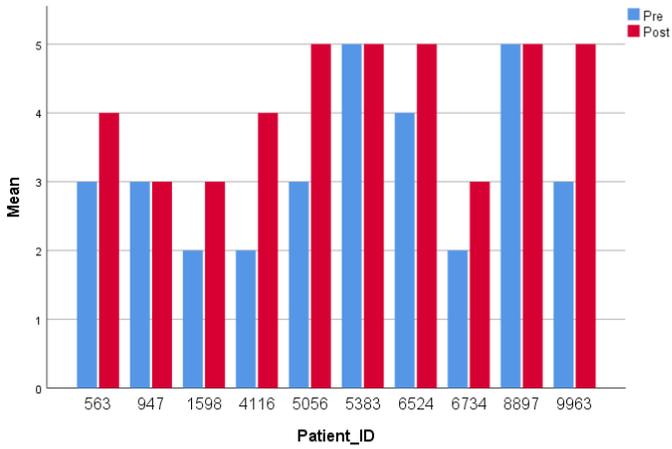
Question 3: In general, I believe that I can try out different ways of overcoming barriers to my diabetes goals.



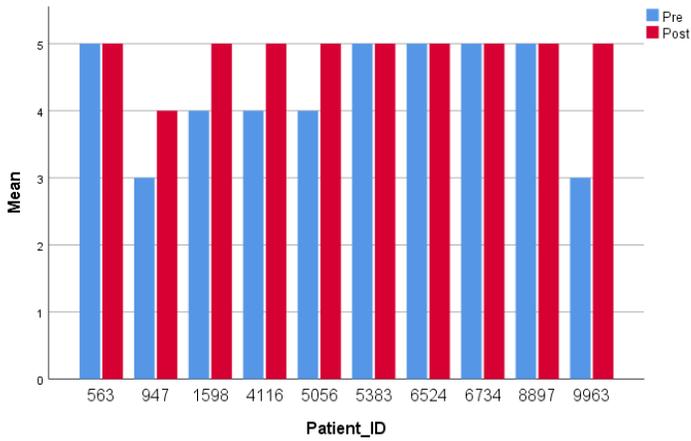
Question 4: In general, I believe that I can find ways to feel better about having diabetes.

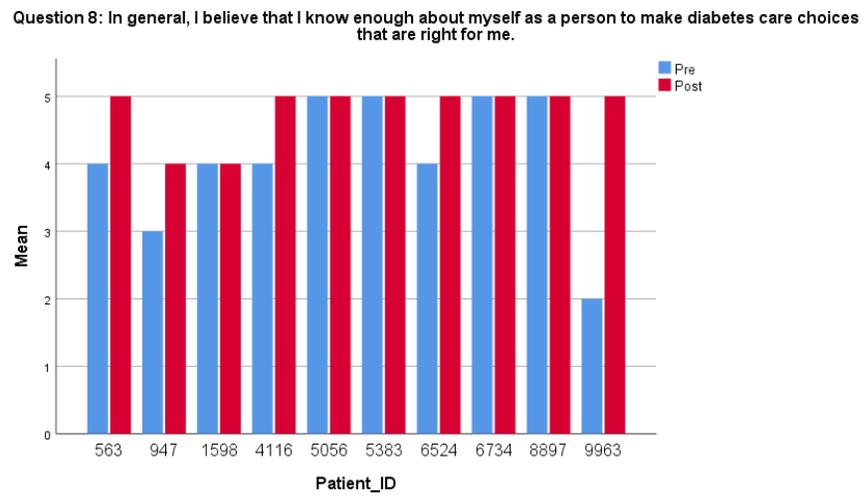
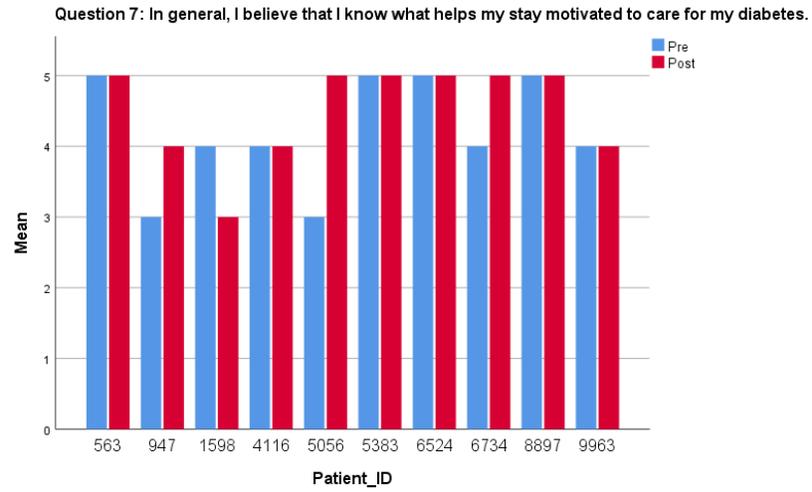


Question 5: In general, I believe that I know the positive ways I cope with diabetes-related stress.



Question 6: In general, I believe that I can ask for support for having and caring for my diabetes when I need it.





Appendix J

Table 7
Test Statistics^a

	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Question 8
Z	-.82 ^b	-1.81 ^b	-.45 ^c	-.29 ^b	-2.43 ^b	-2.12 ^b	-1.13 ^b	-2.12 ^b
Asymp. Sig. (2- tailed)	.41	.071	.66	.77	.015	.034	.26	.034

Note: Test statistics for the eight DES-SF questions.

Appendix K

Table 8
Ranks

			N	Mean Rank	Sum of Ranks
1. In general, I believe that I know what part (s) of taking care of my diabetes that I am dissatisfied with	Post- Questionnaire – Pre- Questionnaire	Negative Ranks	1 ^a	1.50	1.50
		Positive Ranks	2 ^b	2.25	4.50
		Ties	7 ^c		
		Total	10		
2. In general, I believe that I am able to turn my diabetes goals into a workable plan.		Negative Ranks	1 ^a	2.00	2.00
		Positive Ranks	5 ^b	3.80	19.00
		Ties	4 ^c		
		Total	10		
3. In general, I believe that I can try out different ways of overcoming barriers to my diabetes goals.		Negative Ranks	3 ^a	3.00	9.00
		Positive Ranks	2 ^b	3.00	6.00
		Ties	5 ^c		
		Total	10		
4. In general, I believe that I can find ways to feel better about having diabetes.		Negative Ranks	4 ^a	4.00	16.00
		Positive Ranks	4 ^b	5.00	20.00
		Ties	2 ^c		
		Total	10		
5. In general, I believe that I know the positive ways I cope with diabetes-related stress.		Negative Ranks	0 ^a	.00	.00
		Positive Ranks	7 ^b	4.00	28.00
		Ties	3 ^c		
		Total	10		
6. In general, I believe that I can ask for support for having and caring for my diabetes when I need it.		Negative Ranks	0 ^a	.00	.00
		Positive Ranks	5 ^b	3.00	15.00
		Ties	5 ^c		
		Total	10		

		N	Mean Rank	Sum of Ranks
7. In general, I believe that I know what helps my stay motivated to care for my diabetes.	Negative Ranks	1 ^a	2.00	2.00
	Positive Ranks	3 ^b	2.67	8.00
	Ties	6 ^c		
	Total	10		
8. In general, I believe that I know enough about myself as a person to make diabetes care choices that are right for me	Negative Ranks	0 ^a	.00	.00
	Positive Ranks	5 ^b	3.00	15.00
	Ties	5 ^c		
	Total	10		

Note: Wilcoxon Signed Ranks Test for the 8 DES-SF Questions.

a. Post-Questionnaire < Pre-Questionnaire, b. Post-Questionnaire > Pre-Questionnaire, c. Post-Questionnaire = Pre-Questionnaire