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Quality Improvement Initiative to Improve Patient Attendance in Diabetes Self-Management Education Classes

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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,
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Abstract

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MS, McNeese State University, 2009

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Project Submitted in Partial Fulfillment

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Abstract

Diabetes self-management education (DSME) is a key resource in the battle against diabetes and its secondary effects. This quality improvement project was conducted to address the decreased attendance rates of DSME classes in a community health center in the southern United States. The practice question for this project explored process-related strategies to increase patient attendance in DSME classes. Based on review of patient reports of reasons for nonattendance and an evaluation of peer reviewed literature on improving attendance in DSME, the following strategies were implemented: (a) alternative solutions such as providing patients with the dates for a year of initial classes, (b) increased scheduling of 1:1 classes, (c) education of more staff to meet patients' needs, (d) automatic phone call reminders to patients, (e) increased mailing of appointments to absent patients, (f) promoting DSME classes at physicians' meetings, (g) having clinic nurses schedule the patient's first classes at the time of physician visit (h) alteration of class times to compliment patient schedules, and (i) scheduling classes around public transportation schedules. Although there were no pre- and post-attendance data provided by the facility, recommendations of the DSME project team were to continue tracking weekly patient attendance and maintain the current recommendations for increasing enrollment. This project might contribute to positive social change for patients, their families, clinic employees, and the community by improving the health and self-management of the diabetic patients.

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Table of Contents

List of Tables

List of Figures

Section 1: Nature of the Project

Introduction

Diabetes mellitus is a group of metabolic diseases distinguished by hyperglycemia caused by defects in insulin secretion insulin effect. Patients with diabetes experience increased rates of cardiovascular, cerebrovascular, and peripheral arterial disease (ADA, 2017). According to the Centers for Disease Control (CDC), 10.2% of the adult population in a city in Louisiana have been diagnosed diabetes. Diabetes education plays a key role in the management of diabetes and is considered to be 95% of diabetes treatment (Fearon-Lynch & Stover, 2015). Thus, the purpose of this Doctor of Nursing (DNP) project was to develop a quality improvement initiative to increase patient attendance in diabetes self-management education classes (DSME). [sentence on potential social change implication]

Problem Statement

The practice problem for this project was the decreased attendance rates of patients recommended for evidence based DSME classes. These classes were assigned to diabetic patients seen in the primary care clinics of a community care-based health center in the southern United States. This facility has an ADA recognized program that was composed of a series of four classes. However, patients who did not attend any or all the classes did not receive the full benefits of the knowledge needed to make decisions regarding diabetes self-management.

Purpose Statement

The purpose of this DNP quality improvement project was to increase patient attendance in the DSME classes. The gap in practice was that the patients were not attending the evidence-based diabetes education classes. The practice-focused question was "What process related strategies can be implemented to increase patient attendance in DSME classes?"

Nature of the Doctoral Project

A review of literature was conducted to identify strategies to increase patient attendance in DSME classes. The sources of evidence collected for this project consisted of evidence-based guidelines and a literature review using CINAHL, Pub Med, the CDC, the ADA, and ProQuest Nursing, and Allied Health Source. These sources helped to identify strategies to improve patient attendance and identify process barriers not before noted at the facility. Search result parameters were limited to peer-reviewed journals for the past 10 years. Keywords included *diabetes education, diabetes self-management education, barriers to diabetes self-management education*, and *continuous quality improvement model*.

Significance

This DNP quality initiative project held social significance as well as significance to nursing practice. The potential for positive social change includes patients' experiencing improved self-esteem and quality of life (see Ayalon et al., 2008). Patients with elevated blood glucose levels are often labeled "noncompliant"; however, before labeling a patient, it is necessary to assess whether the patients' hyperglycemia is due to

insurmountable barriers or a broken system (Heun, 2010). The information from projects such as this one can then be used to address patient barriers and/or improve system failures, though transferability may be an issue in area unlike the project facility.

This project directly addressed a worldwide health issue that is steadily growing. Diabetes mellitus affects approximately 29.1 million individuals living in the United States, and it is the seventh leading cause of death (Healthy People 2020, 2016). Nursing has an ethical responsibility to properly educate patients regarding their health issues without negatively impacting the patients' sense of control (Redman, 2008). The task of educating patients to self-manage this chronic disease opens opportunities to support the patients in their self-determination and improved quality of care (Redman, 2008).

Summary

Diabetes mellitus is a chronic disease that affects millions worldwide (CDC, 2016). The result of having uncontrolled diabetes can lead to many secondary health issues and death. DSME is a proven effective tool in the management of diabetes; however, success of the program depends on the patients' ability to access this information. Any process that makes patient access to diabetes education difficult will result in decreased class attendance rates. The purpose of this DNP quality improvement project was to identify patient access barriers and implement strategies to promote attendance. The practice-focused question was "What process related strategies can be implemented to increase patient attendance in DSME classes?" Section 2 will introduce the model that was used to guide this DNP quality improvement project.

Section 2: Background and Context

Introduction

The problem identified in this project was lack of patient attendance in the DSME classes assigned to them in the primary care clinics in the southern United States. This DNP project can address this problem through assessment of the process that patients are expected to use to gain access to the DSME classes. This section of the project includes the model that framed this project, relevance of nursing practice, project roles and definitions of terms. The practice-focused question was "What process related strategies can be implemented to increase patient attendance in DSME classes?"

Concepts, Models, and Theories

This project was informed by a continuous quality improvement process. The continuous quality improvement process is defined as any activity whose primary purpose is to improve a local process (American Association of Diabetes Educators [AADE], 2008). There are eight steps to this process:

1. Identify the problem/opportunity.
2. Collect the data.
3. Analyze the data.
4. Identify alternative solutions.
5. Develop an implementation plan.
6. Implement the plan.
7. Evaluate the actions.
8. Maintain the improvement (AADE, 2008).

Based in this process, I followed the following steps. First, I identified the problem to improve a program, which was decreased patient attendance in DSME classes. Next, I collected data. Quality improvement initiatives that are supported by data are more prone to result in lasting results than those that are not. The data used for this project were collected by the facility in every DSME class and entered into the facility's diabetes database. Deidentified attendance records were provided by the facility.

The next step involved analyzing the data. Data extracted from the facility diabetes database were analyzed for reasons patients missed appointed classes. Patients were called back after a missed appointment and asked the reason for missing the class. Problems identified were categorized into personal and process problems. Process problems were used to examine the process patients utilize to gain DSME (AADE, 2008).

After data analysis, I identified possible solutions to the problem. Reviewing the literature for information was helpful in this step. The AADE (2008) recommends choosing strategies that consider clinical importance, cost/benefit ration, time/benefit ration, effectiveness, feasibility of implementing, shortest timeline, solution to the root cause and acceptability to those most affected. After solutions were identified, I developed an implementation plan. I created a flow chart of how patients access DSME along with a proposal for changes, which I presented at the annual diabetes education program planning meeting. Key facility stake holders were present to review, adopt and implement program changes. Dates of implementation were also addressed in this meeting.

The next steps will involve implementing the plan and evaluating actions. Data analysis of participating patients indicated whether further changes were needed to continue or discontinue the planned strategies. Finally, the plan should help maintain improvement. Periodic evaluation of the program will be performed to maintain the longevity of the improvement. Preintervention findings and postintervention outcomes will continue to be compared.

Relevance to Nursing Practice

This DNP quality improvement project addressed the improvements in attendance of DSME classes by analysis of the diabetes program and the processes by which patients were able to access diabetes education. This quality improvement project aligned with Essentials II, VI and VII, which are focused on organizational leadership for quality improvement and improving population and patient health outcomes respectively (American Association of Colleges of Nursing, 2006). Additionally, this project aligns with the ADA, the AADE, and the Academy of Nutrition and Diabetes regarding objectives for improving patient care through DMSE access.

The ADA, the AADE, and the Academy of Nutrition and Dietetics formulated a joint position statement that reflects the value of diabetes education and support, which includes improving client experience of education and care, improving the health of individuals and population, and reducing diabetes associated health care costs (Powers et al., 2017). The statement also identifies four crucial times to assess, provide, and alter DSME including at time of new diagnosis, annually, when complications arise, and during care transition (Powers et al., 2017). The position statement also identified social

factors that may affect a client's motivation for self-management. The biggest factor identified was the client's financial situation. If basic living needs are unmet clients will find it difficult to participate in diabetes education (Powers et al., 2017). Psychosocial and emotional factors were also listed among factors reducing client self-management motivation (Powers et al., 2017). The guidelines provided by this position statement are used nationally and provides a different outlook on patient barriers and why they may not choose to participate in DSME.

Local Background and Context

There are approximately 30 million Americans living with diabetes and its possible secondary effects (CDC, 2016). Of those 30 million Americans who have diabetes, about 521,294 live in the southern state where the project was conducted (CDC, 2016). The parish wherein the practice site is situated has a population of 200,000 people with 10.4% of the population diagnosed with diabetes (CDC, 2016).

Each year diabetes costs the state approximately $5.4 billion. In 2012, $4.1 billion was spent in the state for direct medical expenses for diagnosed diabetes, undiagnosed diabetes, pre-diabetes and gestational diabetes with an additional $1.3 billion being spent on indirect lost productivity cost (CDC, 2016). With the use of DSME, much of these expenses could be reduced along with possible loss of function and/or life. The institution where the project was conducted, was composed of a group of clinics that were adopted by a larger nonprofit hospital. These clinics were formed after the state closed the doors of the charity hospital system in 2014. To continue to provide care to the uninsured and underserved population this institution was transformed into

clinics of various types. Anyone needing hospitalization was transferred to the main adopting hospital. These clinics are subject to the same regulatory surveillance as the main hospital.

Role of the DNP Student

The need for this project was identified after conversations with the diabetes educators and physicians at the clinic. I had the pleasure of assisting with classes, and I was able to personally observe the low rate of attendance. I was able to observe how the classes helped patients make better health choices and decrease Hemoglobin A1c levels. I am a certified nurse educator employed in the facility's employee development and education department. My role in the doctoral project was as a leader and facilitator.

Role of the Project Team

The project team consisted of the three certified diabetes educators, and the registered dietician and me. The team met weekly during the pre-and post-implementation phases. The certified diabetes educator and the registered dietician helped to explain the problem and how patients were identified to attend DSME classes. The team formulated new order/referral sheets simplifying choices for DSME classes and helped to train staff on the use of these forms. The team members also communicated with other staff members about program changes and needs and directed me to proper channels for project implementation.

Summary

The practice-focused question was "What process related strategies can be implemented to increase patient attendance in DSME classes?" This DNP Quality project

was able of address the gap in practice between patient attendance and the imparting of DSME. The assembled project team participated in the program for content guidance, data collection and input and system navigation. The CPI model was used to guide the project, and a diagram was produced to aid in identifying potential process problems. Section 3 introduced sources of evidence, published research and data analysis on the project.

Section 3: Collection and Analysis of Evidence

Introduction

Diabetes affects 29.1 million people in the United States (Healthy People 2020, 2016), but diabetes education is an evidence-based practice intervention that can improve patients' quality of life. However, accessing diabetes education can be difficult if there are system barriers facing health seeking patients. This was particularly true at a local community clinic in the southern United States where attendance at DSME classes had decreased. The 200,000-person population in which the practice setting was located carried a 10.4% rate of diabetes mellitus (CDC, 2016). The purpose of this DNP quality improvement project was to identify and change system barriers that prevent patients from participating in these classes. Section 3 is focused on the practice question, sources of evidence, and analysis and synthesis of the information.

Practice-Focused Question

The local problem was a decreased DSME class attendance at a local community care clinic in the southern United States. The practice-focused question to address this problem was "What process related strategies can be implemented to increase patient attendance in DSME classes?"

Sources of Evidence

The sources of evidence used for this DNP quality improvement project included evidence-based literature and deidentified data on participation rates before and after the quality improvement project.

Published Outcomes and Research

Evidence was explored using the following online databases and websites: CINAHL, Google Scholar, PubMed, the CDC, ProQuest Nursing and Allied Health, and the ADA website. Keywords included *diabetes education, diabetes self-management, diabetes self-efficacy,* and *diabetes treatment barriers*. Evidence was explored from 2008–2018. Only academic peer-reviewed journals written in English were searched.

Evidence was helpful in identifying the need for diabetes education and challenges for implementation. For example, Carroll et al. (2015) identified challenges of recruiting and enrolling eligible patients, program start-up, and implementation. Strategies used to address these challenges included making multiple attempts (six to 10) to contact the patients, dedicated staff with no other clinical responsibilities, engaged leadership champion, and plans to address transportation issues. Common reasons patients dropped out of the program were unstable life situations, transportation, and/or childcare/family responsibilities.

Further research that supported knowledge on diabetes education was the 2017 position statement from the ADA. The statement suggests that individuals should receive DSME at diagnosis and as needed, and a patient-centered approach allows patients to be better empowered to meet primary care needs. Patient barriers identified were diabetes related health conditions such as visual impairment (use large print or talking glucometers, cheater glasses, magnifying tools, dexterity aids/techniques), psychosocial issues, and emotional issues, and social concerns (Powers et al., 2017). Other identified barriers were associated with health system, individual healthcare professional, and

community resources (Powers et al., 2017). Because of these barriers, only 6.8% of privately insured people with type 2 diabetes have participated in DSME within 12 months of diagnosis, and 4% of Medicare patients receive DSME (Powers et al., 2017).

The evidence from Carroll et al. (2015) and the ADA was helpful in identifying strategies such as introducing diabetes education at the clinic visit and at the time of diagnosis. Patients at the facility were being scheduled for DSME after leaving the clinic, and a good time to educate the patient was being missed. An intervention for the clinic patients would be to schedule them into the classes at the time of the visit. The diabetes educator would be available to the patient on these clinic days and would use tools for visualization and dexterity issues. The facility provides free glucometers to patients who are in need. These strategies would be helpful in achieving the goal of increased patient attendance to the DSME classes.

The evidence from reviewing the literature also helped me identify ways to improve diabetes education by suggesting those who are more at risk for not attending DMSE. For example, Adams et al. (2013) conducted a study to describe client characteristics associated with DSME noncompleters. Data were used from a previously conducted clinical trial of diabetes education (Adams et al., 2013). Data collected included demographic, behavioral, and psychosocial measures from 623 participants who were divided into three categories (a) nonstarter participants, (b) group DSME partial completer participants, and (c) individual DSME partial completer participants. In all three categories, younger men were found to be most prevalent. The reasons identified included factors such as employment demands, being uncomfortable discussing their

diagnosis in a group setting, and being skeptical of the learning environment (Adams et al., 2013). This evidence helped identify patients who may be more at risk to not attend or not finish the DSME classes. This information will allow the DSME staff to better prepare for these patients and the factors that may prevent them from attending the DSME classes. If the patient would still disagree to attend the classes, a one-on-one class option would be considered.

Thoolen (as cited in Adams et al., 2013) noted that subjects who stopped participating in DSME studies did so for practical reasons such as time constraints, illness or traveling distance. Participants were found to more likely miss group sessions versus individual sessions due to longer instruction time, prevalence of clinic locations, and reduced flexibility in scheduling for the group sessions. Depression was also noted to be a significant factor in reduced adherence to diabetes self-care. These findings can help create an environment that promotes patient participation in DSME programs, and the one-on-one class option is still available to the patient (Adams et al., 2013).

Siminerio, Ruppert, and Gabbay (2013) conducted a comparative effectiveness study to compare diabetes self-management support and to ascertain who is effective in DSME (educators, peers, practice or usual education). This study found that although educator driven DSME provided better outcomes with all participants showing improved glycemia, lipid, weight, and empowerment despite the agent performing the education. This information will be useful in the training of other staff to potentially provide education to patients in need. This will also be useful in capturing patients, for education, before they leave their doctors office.

Having DSME in primary care offices decreased barriers to access DSME for patients. This is especially true for patients in communities where DSME hospitals are in distant areas, but primary care clinics are near (Emerson, 2006). The Emerson study (2006) identified barriers to DSME access such as location, frequency of program, and scheduling of program. This project chose to utilize both a nurse certified diabetes educator and a registered dietician in the program. The researchers also recommended that a nurse educator be available to train the staff to assist patients. Advantages to having DSME in the primary care clinic include patient's charts are near, clinical notes are near, and ease of communication with other team members (Emerson, 2006).

Data from the Facility

Deidentified data included deidentified responses from the patients on why they had not attended the DSME classes.

Analysis and Synthesis

The facility entered patient and class information into a diabetes database that was used for tracking and reporting purposes. The diabetic educators reviewed the data related to reasons why patients had not attended the DSME classes.

Summary

Patients face obstacles of accessing diabetes education that healthcare workers are not aware of. These barriers are not asked about on assessment screens or even in general, but they are real concerns for patients needing this information. Often, the barriers are due to the way the program is constructed and are not a product of patient non-compliance but helps to increase patient noncompliance. This quality improvement

project reviewed barriers to participation in a current DSME program and implemented new methods in which patients were able to access the DSME program to increase patient attendance. The practice-focused question was "What process related strategies can be implemented to increase patient attendance in DSME classes?" Section 4 will focus on findings, implications, recommendations, doctoral project team contributions, strengths, limitation, dissemination plan and analysis of self.

Section 4: Findings and Recommendations

Introduction

Decreased patient attendance in DSME classes was a major practice problem affecting a critical aspect of care provided by a community-based clinic in the southern United States. This facility used state, federal, and individual funding to provide quality healthcare to underserved members of the community and surrounding areas. The purpose of this DNP project was to identify process related strategies to increase patient attendance in DSME classes. The practice-focused question was "What process related strategies can be implemented to increase patient attendance in DSME classes?"

Implementation Results of Quality Improvement Plan

Official approval for this quality improvement initiative was given on December 27, 2018 by the Walden University Institutional Review Board (approval #12-27-18-0569871. The facility provided the project team with deidentified data from patient responses on reasons for nonparticipation in scheduled DSME classes. Figure 1 depicts the themes related to these responses.

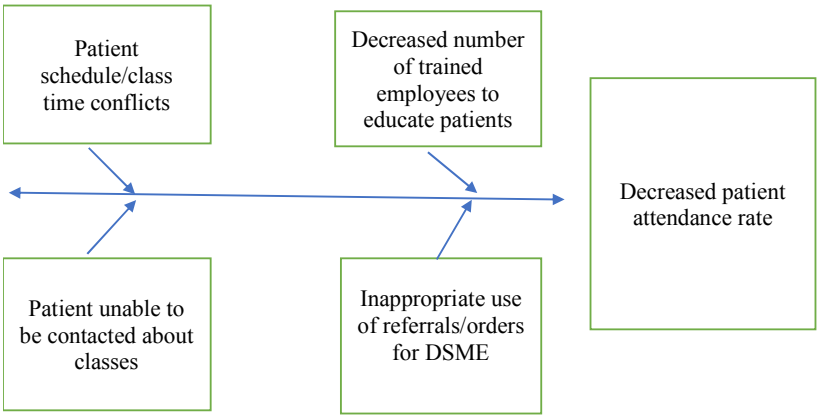

Figure 1 Causes of decreased patient attendance.

As noted in Section 2, the project team included three certified diabetes educators, the registered dietician, and me (the DNP student). After reviewing data on patient responses to nonparticipation, the team recommended the following changes: (a) alternative solutions such as providing patients with the dates for a year of initial classes, (b) increased scheduling 1:1 classes, (c) education of more staff to meet patients' needs, (d) automatic phone call reminders to patients, (e) increased mailing of appointments to absent patients, (f) promoting DSME classes at physicians' meetings, (g) having clinic nurses schedule the patients first classes at the time of physician visit, and (h) alteration of class times to compliment patient schedules. A detailed chart of the implementation plan is provided in Table 1. The plan objectives follow the AADE quality improvement guidelines with the task needed to complete the objectives, the person/people responsible for completing the task, and the method used to evaluate the objectives.

Table 1

Implementation Plan

Discuss the continuous quality improvement process.	Presentation of the continuous quality improvement process	DNP student	Verbalization by staff of understanding of the process.
Apply the eight steps of the Continuous Quality Improvement process. 1. Identify the problem/opportunity.	Gather members of the Diabetes education team to meet each week to complete each step in the process and monitor improvements.	DNP student, CDE, dietician	Decreased patient attendance.
2. Collect the data.	Gather statistical data from the Diabetes database.	DNP student	Data collected from Diabetes database.
3. Analyze the data.	Determine reasons for missed appointments.	DNP student, CDE, dietician	Significant attendance decrease noted.
4. Identify alternative solutions.	Review literature for alternative solutions and share with the diabetes education team for approval.	DNP student,	Increase 1:1 classes and trained employees.
5. Develop an implementation plan.	Develop flow chart of patient access to diabetes education classes and possible attendance barriers.	DNP student	Flowchart for patient attendance process developed and approved by stake holders
6. Implement the plan.	Key members of Diabetes Education team, DNP student and nursing administration to review a flow chart of patient access.	DNP student	Training for staff and new referral sheets developed. Patients scheduled in primary care clinic.

(table continues)

Discuss the continuous quality improvement process.	Presentation of the continuous quality improvement process	DNP student	Verbalization by staff of understanding of the process.
7. Evaluate the actions.	Education of clinic clerks on scheduling DSME classes at the time of primary care visit. Clinic LPN educated on teaching basic survival skills until patient seen in class. DNP student educated on patient injections and techniques. 1:1 classes scheduled unable to attend regularly scheduled classes. Simplify patient referral sheet. Mail patient appointments for reminders to attend class. Mail patient educational material. Use automated voice reminder calls to remind patient of class times. Make primary care provider aware of consistently missed appointments.	DNP student, CDE, dietician DNP student, CDE DNP student, CDE CDE DNP student, CDE DNP student, CDE	Noted increase in patients' attendance. Compare data 6 months pre-intervention and 6 months post intervention to measure success.
8. Maintain the improvement. (AADE, 2008, p.25)	Continue assessments of process and patient attendance.	DNP student, CDE	Continuous monitoring of process on weekly basis.

Findings and Implications

The practice-focused question was "What process related strategies can be implemented to increase patient attendance in DSME classes?" Based on data provided by the facility on reasons for missing DSME classes, recommendations were made to increase patient attendance: (a) providing patients with the dates for a year of initial classes, (b) increased scheduling 1:1 classes, (c) education of more staff to meet patient's needs, (d) automatic phone call reminders to patients, (e) increased mailing of appointments to absent patients, (f) promoting DSME classes at physician's meetings, (g) having clinic nurses schedule the patients first classes at the time of physician visit and (h) alteration of class times to compliment patient schedules. Transportation issues were taken into consideration by the facility and clinic hours are now offered during the times city transportation is available.

Recommendations

The recommendations of the DSME project team were to continue tracking patient attendance and the current recommendations for increasing enrollment. A new ordering/referral form was implemented with all DSME needs available on one form. Continuous use of this order/referral from is recommended. Any alteration to this form will result in the need for further education to the staff.

Strengths and Limitations of the Project

Strengths of this project included an environment where all team members were available and easily accessible for project needs. The project environment was also small enough to quickly fix problems as they arose. This project has the potential to improve

the quality of the diabetes program and the lives of the patients affected by the interventions proposed by this project. This project also had the opportunity to promote evaluations of system failures rather than patient failures.

Limitations include the fact that this project was created to improve DSME attendance at a patient care facility with a unique diabetes education program. The flexibility allowed at this facility may not be available if replicated at another facility with more rigid rules. This project was also very small. According to Hackshaw (2008), small studies can give false positive results or over-estimate the vastness of an association (Hackshaw, 2008). Faber and Fonesca concur stating, "using a sample size smaller than the ideal increases the chance of assuming as true a false premise" (Faber & Fonseca, 2014, p. 28).

Section 5: Dissemination Plan

Introduction

Knowledge translation and practice change is dependent on research dissemination (Edwards, 2015). The findings of this quality improvement project were first presented to the project team. I also attended staff meetings to disseminate the project to other staff members and administrative personnel. This method of dissemination allowed the flow of information to reach key stakeholders as well as staff members critical to the implementation of the plan.

Analysis of Self

This project contributed to my growth in quality improvement. Often changes are implemented without input from the end users or without plans for sustaining the change. Additionally, there is often not an evaluation of the processes that may be affecting the need for change. This project has encouraged me to delve into changes needed for process improvement and how not to make them without proper evidence or insight. Although this was a small-scale project, the plan shows promise.

Challenges were presented in the development of this project that were mainly due to my literature review and finding the most effective keywords to collect articles. My project chair assisted with this and my anxiety in moving along with this project. My writing techniques also were a challenge I overcame with a total rewriting of the initial part of the project.

Summary

This project has the potential to change the mindset of health care workers who believe that decreased patient attendance is the always the fault of the patient. There must be an assessment on both sides. The question of whether there is a problem in the process needs to be addressed. Health care systems may try to make a foolproof plan for educating their patients, but if the patients cannot navigate the process then the process will not work.

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