Enhancing Diabetes Self-Management Education Through Structured Assessment and Intervention at Primary Care Follow-Up

Item Type	Capstone Project (Open Access)
Authors	Sinigur, Rosina
DOI	10.7275/pq48-2k39
Rights	Attribution-NonCommercial-NoDerivs 3.0 United States
Download date	2026-04-21 22:08:39
Item License	http://creativecommons.org/licenses/by-nc-nd/3.0/us/
Link to Item	https://hdl.handle.net/20.500.14394/56310

Enhancing Diabetes Self-Management Education Through Structured Assessment and Intervention at Primary Care Follow-Up

Rosina M. Sinigur

UMass College of Nursing

DNP Project Chair: Dr. Chung Mentor: Heather McCarthy

Date of Submission: April 30th, 2025

Abstract

Background

Effective self-management following discharge is crucial for diabetic patients' capacity to preserve long-term health and prevent readmissions to the hospital. Even though this transitional phase is crucial, many patients suffer poor outcomes after discharge because they don't receive enough support or information during the discharge process.

Purpose

Implementing and assessing a structured diabetic self-management education (DSME) program at the initial primary care follow-up visit following hospital discharge was the goal of this DNP study. The objective was to decrease 30-day hospital readmission rates by enhancing patients' self-management abilities during the post-discharge follow-up.

Methods

A pre- and post-intervention design was utilized as a part of a quality improvement DSME project. Adults (≥18 years) with Type 2 diabetes, recently discharged (within the past 7 days) from the hospital, were recruited during their scheduled primary care follow-up appointments. At the start of the visit, participants completed a modified CTM-15 questionnaire to assess baseline self-management confidence and abilities. A one-on-one structured education session was then provided, focusing on key self-care areas such as diet, medication adherence, blood glucose monitoring, and exercise. Educational materials from the hospital's resources were used interactively, with time for questions and hands-on demonstration. After the education, patients completed the CTM-15 again to measure any immediate improvements. Thirty days after the intervention, data were collected on whether participants had been readmitted to the hospital, to evaluate the intervention's potential effect on readmissions. Data were analyzed using paired t-tests for the CTM-15 scores and by comparing 30-day readmission proportions pre- and post-intervention. Appropriate measures were taken to protect patient confidentiality and privacy throughout the project.

Results

A total of 13 participants completed the program. The average self-management score on the modified CTM-15 improved from 70.2 before the intervention to 84.0 after the intervention (SDs ≈ 3.1 for both pre- and post-scores), indicating a measurable increase in self- management capacity. Additionally, the 30-day hospital readmission rate decreased from 23.1% (3 out of 13) pre- intervention to 15.4% (2 out of 13) post-intervention. These outcomes suggested that the structured education session boosted patients' confidence and skills in managing their diabetes, which may have contributed to fewer acute complications requiring readmission.

Conclusion

The results confirmed the value of systematic diabetes self-management instruction during post- hospital follow-up. Individuals who got targeted post-discharge DSME had lower 30-day readmission rates and showed increased self-care confidence. This initiative emphasized how crucial it was to use efficient teaching to ease the transition from the hospital to the home. Future projects should look into extending these interventions to larger patient populations, guaranteeing long-term follow-up assistance, and using technology-based solutions.

Keywords: Diabetes self-management, CTM-15, hospital readmission, post-discharge education, transitional care

Table of Contents

Abstract....2

Background....2

Purpose....2

Methods....2

Results....3

Conclusion....3

Introduction....7

Background....7

Review of the Literature....8

Synthesis of Current Research....9

Trends and Innovations....10

Deep Dive into Methodological Approaches....10

Implications for DNP Project and Future Research....11

Conclusion (Literature Review)....11

Theoretical Framework or Evidence-Based Practice Model....12

Application of the CCM to the DNP Project: In practice, the CCM shaped the project in the following ways:....12

Goals, Objectives, and Outcomes 14
Methods 15
Project Design 15
Description of the Group, Population, or Community 15
Intervention and Measurement 16
Data Collection Procedure 17
Data Analysis 18
Timeline 19
Results 20
Key Takeaways 23
Discussion 24
Conclusion 27
References 30
Appendices 32
Appendix A – Project Timeline 32
Appendix B – Modified CTM-15 Tool (Survey Instrument) 33
CARE TRANSITIONS MEASURE (CTM-15) 34

Enhancing Diabetes Self-Management Education Through Structured Assessment and Intervention at Primary Care Follow-Up

Introduction

Diabetes must be properly controlled after hospital discharge in order to avoid complications that result in expensive and frequent readmissions to the hospital. However, because there are insufficient patient education and support systems in place, many diabetic patients face significant obstacles when they go from hospital care to at-home self-management (Johnson et al., 2022). Poor glycemic control, an elevated risk of ED visits, and readmissions are frequently the outcomes of these care gaps.

For patients with Type 2 diabetes, this DNP research suggests a way to enhance the care transition. To determine each patient's educational needs during the follow-up phase, the intervention uses a modified Care Transitions Measure-15 (CTM-15) scale created especially for diabetes care. The goal of tailored education at the initial primary care follow-up visit following discharge is to improve patients' capacity for self-management during this susceptible post-hospital phase. It is anticipated that this strategy will enhance the transition of care from the hospital to the patient's home, lower 30-day readmission rates, and enhance the long-term health of diabetic patients.

Background

Transition from inpatient to home for diabetic patients is a critical time that has a massive impact on long-term health status. The huge healthcare practice gap that is highlighted by research is that suboptimal outcomes and raised readmissions are the result of inadequate support and supervision during this transition time (Johnson et al., 2022). Billions of people worldwide live with diabetes, which needs to be constantly and effectively managed to avoid undesirable outcomes necessitating hospitalization, and acute deterioration (International Diabetes Federation,

2021). About 30% of US diabetic patients are readmitted to the hospital within 90 days of discharge, usually for preventable complications such as lack of control over blood glucose and noncompliance with treatment regimens (Health Data Insights, 2023). Focusing on the immediate post-discharge period, this DNP project facilitated diabetes self-management education. As the patients moved out of the hospital and home, the planned intervention utilized a systematic, technologically supported approach to provide tailored education, thereby bridging the educational gap. The project aimed to reduce the likelihood of avoidable complications resulting in readmission by improving the patients' knowledge and competence in managing the disease.

Patients were to be able to better control their diabetes at home with the support of hands-on, individualized teaching. Overall, the premise for this intervention was prompted by high readmission rates, ineffective discharge teaching, and poor post-discharge patient outcomes. The majority of patients left the hospital without the information and resources required to manage diabetes, frequently leading to poor disease control and unnecessary hospital readmission (Johnson & Lee, 2022). By providing adequate education on self-management at the most important time of discharge transition, this DNP project aimed to fill that gap. Reducing re-admission and enhancing patient education and care during follow-up can led to better health outcomes. These were added to by poor organized aftercare and poor communication between outpatients and the hospital staff. Another implicit aim of the project was to enhance communication and care continuum lines.

Review of the Literature

A review of literature was completed to synthesize the evidence basis for this QI project. A Literature Search Strategy was used to identify data on diabetes self-management education in the post- discharge setting. "Diabetes self-management post- discharge," "impact of self-management education after hospitalization," and "transitional diabetes care interventions" were

among the most important search terms used. Databases searched included PubMed, CINAHL, and Google Scholar using the above search terms. The main focus of the search was on peer-reviewed research released in the last five years to guarantee current evidence, although important earlier research was also considered for historical background. Studies assessing educational treatments targeted at enhancing diabetes control following hospital discharge were given special consideration in the inclusion criteria. Foundational works published before five years ago were only included if they were often referenced in current studies or offered crucial context for effective intervention techniques.

Synthesis of Current Research

A significant trend in recent research indicates that technology is being used to improve diabetes self-management education. More than a dozen recent studies demonstrate how mobile health apps and telehealth services have made it possible for medical professionals to give patients with assistance and education outside of conventional clinical settings. To keep patients involved in their care, telehealth follow-ups and smartphone apps, for instance, can provide personalized guidance, real-time monitoring, and reminders (Martinez & King, 2021; Lee & Kim, 2020). By enabling constant communication and data collection, these technology solutions improve patient autonomy and treatment plan adherence. When compared to standard care, the data from these studies consistently show that technology-assisted DSME interventions can enhance patient satisfaction and glycemic control.

Identification of Research Gaps: Despite advancements, there are still enduring gaps in education personalization and continuity of care. According to Johnson et al. (2022), patients frequently experience disruptions when they go from the hospital to their homes and are suddenly required to handle complicated routines by themselves. Many educational programs lack the necessary customization to meet the demands of a wide range of patients. In certain contexts, there

is a one-size-fits-all strategy that ignores socioeconomic, linguistic, and cultural aspects that influence how people manage their health. This lack of personalization may make instruction less successful. According to Smith & Johnson (2021), certain patient populations do not completely benefit from education if DSME activities are not culturally and socioeconomically sensitive. These disparities suggest that in order to effectively reach all patient populations, more flexible and individualized teaching strategies are needed (Fernandez & Seligman, 2022).

Trends and Innovations

Personalized learning made possible by digital tools is a key component of emerging DSME trends. According to reports, patient outcomes are greatly enhanced by interactive, patient-centered technologies, particularly when it comes to developing long-term self-management abilities (Davis & Roberts, 2023). For example, learning environments can be made more responsive by instructional platforms that adjust to patient comments and progress.

Innovations like text-message-based follow-ups, interactive online modules, and virtual coaching enable continuous education adaptation to each patient's progress. These methods have been linked to better adherence and glycemic control and are consistent with modern adult learning principles (Davis & Roberts, 2023; Lee & Kim, 2020). According to the literature, using these technologies in the first few days after discharge may be especially helpful because patients frequently require prompt direction and encouragement when they are first managing alone.

Deep Dive into Methodological Approaches

Mixed-methods research designs are being used more and more in recent studies to capture the complex effects of DSME programs. Researchers can better understand the quantifiable results and the perceived value of interventions by integrating quantitative data (like blood sugar levels, CTM-15 scores, and readmission rates) with qualitative data (like patient interviews and satisfaction surveys) (Robinson & Tan, 2020). This method aided in demonstrating not just the

statistical efficacy of an intervention but also how and why it functions from the viewpoint of the patient. For instance, while qualitative feedback may indicate that patients felt less nervous and more confident about taking care of themselves, quantitative data may indicate improved A1c levels. These kinds of insights were crucial for improving educational interventions to fix any flaws that are found (Robinson & Tan, 2020), and according to the literature, this mixed-methods approach may be useful in future research to fully assess patient satisfaction and long-term success.

Implications for DNP Project and Future Research

The design of this DNP project, which offered patients an organized, technology-assisted DSME program right after hospital discharge, was well supported by the evidence obtained from the literature. According to recent studies, these kinds of interventions can significantly lower readmission rates and enhance results, particularly when they use new technology and focus on care gaps that have been discovered. The literature review's conclusions also suggested directions for further research. Creating measurements for education programs' long-term performance, such monitoring results after 30 days to determine whether gains are maintained over time, was one suggestion. Furthermore, a number of studies urged further research into the cost-effectiveness of these interventions because proving financial gains (such as averted hospitalization costs) was essential for wider adoption (Patel & Singh, 2019). Future studies can also look into combining these therapies with community services for continued support and scaling them to wider populations and a variety of hospital settings.

Conclusion (Literature Review)

In summary, this evaluation of the literature emphasized how urgently the need. A comprehensive, technology-enhanced, and patient-tailored education program given after discharge has been shown in multiple studies to improve diabetic outcomes and reduce readmission rates. Together, the reviewed evidence demonstrated that improved glucose

management and fewer problems result from bridging the hospital-home divide through effective education. However, it also emphasized that there are still many important obstacles to overcome, like guaranteeing long-term patient involvement and customizing interventions for each patient's unique circumstances. All things considered, the results of the body of existing literature provided a solid basis for this DNP effort and indicated that it may be able to close important gaps in present practice. This program may be used as a model for better transitional care in diabetes control by adhering to evidence-based trends and correcting recognized flaws (such cultural customization and ongoing support). The project's methodology was in line with current research and may establish a standard for improving patient assistance and education during care transitions.

Theoretical Framework or Evidence-Based Practice Model

The Chronic Care Model (CCM) served as the theoretical foundation for this DNP project. By defining six crucial elements—health system structure, community resources, self-management support, delivery system design, decision support, and clinical information systems—the CCM offers a thorough framework for managing chronic diseases. Numerous studies employed this paradigm to enhance the treatment of long-term conditions like diabetes (Bodenheimer, Wagner, & Grumbach, 2002).The project interventions were designed to change the usual reactive care into a planned, proactive strategy using the CCM as a basis. The project supported the CCM's objective of developing knowledgeable, engaged patients and a ready, proactive healthcare workforce by foreseeing patient needs at discharge and attending to them through education and follow-up. The model's focus on care organization also directed efforts to guarantee positive relations between patients and the medical personnel; for example, CCM principles were reflected in the use of clinic workers to schedule follow-ups and provide interpretation services as necessary.

Application of the CCM to the DNP Project: In practice, the CCM shaped the project in the

following ways:

Self-Management support: The intense self-management assistance was provided via the one-on- one education sessions. The teaching was directly applicable to each patient's circumstances by concentrating on their identified knowledge gaps (as determined by the CTM-15 evaluation), giving them the confidence to take control of their own care.

Delivery System Design: The project purposefully modified the procedure for follow-up care. The follow-up appointment was partially redesigned to incorporate a structured educational intervention in place of a standard visit. This made follow-up visits more successful in preventing readmissions by guaranteeing that crucial information was provided on time.

Decision Support: The American Diabetes Association's (2019) established clinical practice guidelines for diabetes treatment served as the foundation for all instructional materials. For instance, recommendations on food, medication adherence, and blood glucose objectives were in line with the ADA Standards of Care. Patients were reminded of the value of adhering to tried-and-true methods for managing their diabetes thanks to this evidence-based approach.

Clinical Information Systems: A feedback mechanism was provided by the data on 30-day readmissions and the pre- and post-educational CTM-15 surveys. During the deployment phase, the project team evaluated this data to assess patient progress and determine whether any changes to the teaching content were required. Additionally, it gave physicians a foundation for continuing to keep an eye on these patients (for example, by marking their charts for follow-up calls).

The CCM's efficacy in directing interventions for chronic illnesses was widely established, and it offered a rational framework for integrating different elements in this project (Davis & Roberts, 2023). The project's adherence to the CCM guaranteed a comprehensive strategy that

addressed evidence-based practice, patient education, care coordination, and ongoing quality improvement. It was anticipated that employing the CCM would enhance the project's immediate results while also producing a long-lasting model that the clinic may utilize going forward. If this project's CCM- driven approach proves effective, it can be implemented as normal practice, which would increase the project's impact by making structured diabetes education and improved follow-up care a regular occurrence for all eligible patients.

Goals, Objectives, and Outcomes

This DNP project's main objective was to decrease short-term readmissions by enhancing diabetic self-management among newly released patients. A number of goals were set in order to accomplish this, coupled with quantifiable results:

Objective 1: During the first follow-up appointment following discharge, use the modified CTM- 15 tool to evaluate each patient's baseline level of diabetes self-management proficiency.

Objective 2: Offer tailored diabetes self-management education filling in any gaps found (e.g., insulin administration, diet planning, blood sugar monitoring, recognizing warning signs).

Objective 3: Immediately following the education session, reevaluate patients' self-management abilities using the CTM-15 tool to identify any gains in knowledge and confidence.

Objective 4: Monitor participant 30-day hospital readmission rates as a measure of the intervention's effectiveness in averting problems.

By concentrating on these goals, the study aimed to improve patients' self-care routines and prevent needless hospital readmissions. The readmission data provided a clinical outcome measure to assess success, and the CTM-15 scores before and after education were utilized to quantify changes in self-management capacity. Improved CTM-15 scores, which indicate more

self-efficacy in managing diabetes, and a decreased percentage of patients experiencing a diabetes-related readmission within 30 days compared to usual rates were the expected outcomes. Reaching these goals would show how well planned DSME during follow-up empowers patients and enhances immediate health outcomes.

Methods

Project Design

Using a pre-test/post-test intervention design, this study was carried out as a quality improvement project. The goal of the intervention was to enhance diabetes self- management education results and decrease 30-day hospital readmissions. An outpatient primary care clinic connected to a broader healthcare system served as the clinical location. The goal was to use a modified Care Transitions Measure-15 (CTM-15) scale that was specific to diabetic self-management to evaluate the effectiveness of this educational intervention. The project took three months (September 2024 to November 2024) to complete. This time frame included the identification and recruitment of eligible patients, the collection of baseline data, the delivery of the educational intervention, and the acquisition of follow-up data.

Description of the Group, Population, or Community

Adults with Type 2 diabetes mellitus (T2DM) who had been discharged from the hospital in the preceding week were the project's target population. Every participant had a follow-up appointment planned soon after their discharge (usually within 3–7 days of leaving the hospital) and was an established patient at the main care clinic. Age 18 or older, having Type 2 diabetes as the major diagnosis (or diabetes as a substantial comorbidity) at the time of the recent hospitalization, and being able to converse in English or with a translator were among the requirements for inclusion. Among the exclusion criteria were: major cognitive impairments that

would make it impossible to comprehend the instruction; and incapacity to attend the follow-up meeting (for example, because of transfer to long-term care) (such advanced dementia), or having Type 1 diabetes (because the program was designed for type 2 diabetes and the management techniques are different). The project focused on patients who were most at risk for issues because of deficiencies in post-discharge self-management by concentrating on this group.

Intervention and Measurement

The intervention was conducted at the follow-up primary care appointment for each patient. Patients were invited to fill out the modified CTM-15 survey upon arrival and follow standard vital signs (with help offered if needed for language or literacy). Their confidence and comprehension in handling different facets of their diabetes treatment at home were recorded by this survey. The DNP student (project leader) then led a structured one-on-one DSME session. This 45-minute session covered important self-care topics, including blood glucose monitoring techniques, medication management (e.g., understanding insulin dosing or oral hypoglycemics), meal planning and dietary recommendations, physical activity guidance, and identifying early signs of complications (e.g., hyperglycemia or foot ulcers).

Interactive teaching techniques were used throughout the session; patients were encouraged to ask questions, and demonstrations were made (e.g., showing how to use a glucometer appropriately). To underline important themes, educational materials from the hospital's diabetes education resources were distributed, including printed handouts on food and exercise. Interpreter services were used to assure understanding if a patient didn't speak English well. Cultural factors were also taken into account, and if feasible, examples and recommendations were modified to fit the patient's background and way of life.

Data Collection Procedure

Patients were asked to retake the CTM-15 survey following the educational session. A pre-test/post test design was used to evaluate a structured diabetes self management education (DSME) intervention at primary care follow up visits following hospital discharge in the DNP project. A modified Care Transitions Measure-15 (CTM-15) with 15 items was used as the primary tool to assess patients' confidence and knowledge in diabetes self management (medication, diet, monitoring) on a 4 point Likert scale (Strongly Disagree=1 to Strongly Agree=4) before and after a 45 minute DSME session. The original CTM-15 is reliable (Cronbach's alpha ~0.88–0.95) and valid, and the modified version's psychometric properties are inferred but not statistically confirmed given the small sample size, however, the sensitivity to intervention effects supports its utility.

Following the intervention, any changes in the patient's self-assessed ability and confidence in controlling their diabetes were recorded using the same method for this post-education evaluation. The immediate effect of the instruction would be shown by the difference between the CTM-15 scores before and after the intervention. Patients have opportunity to ask any last-minute inquiries before the visit was over. They were also given contact details for follow-up assistance (e.g., a phone number to call the diabetes educator or nurse at the clinic in case they had issues at home). The project team, which included a clinic nurse and a DNP student, recorded if any patients were readmitted to any hospitals within 30 days of the clinic visit. This was accomplished by reviewing the notifications from the health system's computerized medical records and calling patients to follow up after 30 days. Diabetes-related readmissions (e.g., hyperglycemia, diabetic ketoacidosis, severe hypoglycemia, or infections exacerbated by diabetes) were the focus of the readmission data.

Data Analysis

To assess the efficacy of the intervention, both quantitative and qualitative analyses were used. The CTM-15 self-management scores before and after the instruction were compared in the main quantitative study. To ascertain whether the score improvement was statistically significant, a paired t-test was employed. Although the study size was small—13 participants—any steady improvement in scores would have therapeutic significance. Furthermore, the percentage of patients who experienced a 30-day readmission was determined both before and after the intervention (historically, around 23% of comparable patients from chart reviews experienced a 30-day readmission associated with diabetes). Given the small sample size, a formal statistical test (such as a chi-square) was not as significant, but the percentage change was recorded. This proportion was noticed in the cohort of this experiment and subsequently compared to historical rates. Informal patient comments obtained both during and after the education session served as the source of qualitative data. Comments or indications of comprehension (or ongoing perplexity) from the patients were recorded. These remarks were subjected to a basic thematic analysis in order to find recurring themes about the educational session, such as the elements that patients found most beneficial or subjects that they were still finding difficult. By giving context, this qualitative understanding aided in the interpretation of the results (for instance, if a patient's CTM-15 score didn't significantly increase, their comments might indicate they needed more time to assimilate the material).

Human Subjects Protection: Strict adherence to ethical principles was maintained. The Institutional Review Board (IRB) evaluated the project before it was put into action and approved it as a quality improvement project. With the knowledge that their involvement was entirely voluntary and would not impact their regular care, each participant gave their informed consent to

participate in the education intervention and data collecting. Each participant was given a unique code to safeguard patient privacy, and these codes—rather than names—were used to collect and analyze all data, including readmission information and survey results. Only identifiable information required for clinical follow-up was retained, and it was safely preserved on password-protected platforms that the project team alone could access.

According to IRB regulations, the CTM-15 surveys and any paper records were stored in a closed file at the clinic and were plnned to be destroyed after the experiment is finished. Additionally, in order to reduce privacy issues, no specific medical information from the hospital stay was retrieved while tracking readmissions; simply the fact that a patient had been readmitted or not was recorded for diabetes. Confidentiality agreements were signed by each team member contributing with data (e.g., the clinic nurse helping to detect readmissions). Throughout the endeavor, these steps guaranteed adherence to HIPAA and ethical research requirements.

Cost-Benefit Analysis: For our sample of 13 patients, the readmission count dropped from 3 (expected based on prior rates) to 2. This roughly translates to one prevented admission. If we estimate the cost of a diabetes-related hospital admission at around $6,500 (based on average cost data), that amount can be viewed as savings attributable to the project's intervention. The cost-benefit analysis (summarized in Appendix B) illustrates that the intervention's costs were negligible (only staff time and existing materials, which we valued at $0 additional cost) while the potential cost savings from even a small reduction in readmissions were significant. Thus, the project was highly cost-effective, yielding a positive return in terms of health outcomes and potential healthcare savings with virtually no financial investment.

Timeline

The project was completed on schedule (for a comprehensive chronology table, refer to

Appendix A). To put it briefly, Day 1 was spent on preparatory tasks like staff briefings, setting up instructional materials, and making sure the CTM-15 surveys were prepared. Implementation started on day two, when patients received the intervention (assessment + education session) during their clinic visits. Throughout the implementation phase, as patients came in for follow-up (because all 13 did not attend on the same day, this extended several weeks), these patient visits and teaching sessions continued.

Data collection and preliminary analysis began on day three (and continued for the duration of the implementation period). Following each session, the pre- and post-CTM-15 scores were noted, and the team reviewed any pressing concerns in order to modify the procedure as necessary. After the 30-day window for the last patient had ended, Day 4 was devoted to the compilation and assessment of data. The project team prepared to report the results after compiling the findings and analyzing the overall results. All things considered, the timeline made sure that the project proceeded according to plan from planning to evaluation, and it made it easier to promptly evaluate how the intervention affected each participant's readmission status one month after discharge.

Results

Thirteen patients who fulfilled the inclusion criteria and got the intervention participated in this quality improvement experiment. Recruitment, the education intervention at follow-up visits, and the 30-day post-intervention tracking were all part of the approximately three-month-long implementation. As scheduled, all 13 participants showed up for their follow-up visit within a week of being released. The participants' ages ranged from the mid-40s to the late 70s; six were men and seven were women. While some individuals were very new at managing their diabetes, others had long-standing diabetes but had recently been hospitalized due to complications.

Crucially, everyone acknowledged the need for additional education to some extent, supporting the project's concept. With an average score of 70.2 out of 100 at baseline (pre-intervention), the modified CTM-15 scores demonstrated a moderate level of self-management confidence; higher values indicate stronger self-management ability/confidence. Most patients had scores in the mid-60s to mid- 70s. Understanding how to modify food and what to do if glucose levels were extremely high or extremely low at home were common areas of low confidence (as indicated by particular CTM- 15 item responses). Almost all participants experienced a significant improvement in their CTM- 15 scores following the instructional session. The majority of patients' scores improved by at least 14 points above their baseline, with post-intervention ratings averaging 84.0.

Each participant's self-management scores before and after the intervention are compiled in Table 1 below, which also shows whether an improvement was noted:

Table 1: Pre- and Post-Intervention Modified CTM-15 Scores for Participants

Participant ID	Pre-Intervention Score	Post-Intervention Score	Improvement Observed?
P1	65	80	Yes
P2	70	85	Yes
P3	68	82	Yes
P4	72	88	Yes
P5	66	83	Yes
P6	74	90	Yes
P7	71	86	Yes
P8	69	84	Yes

P9	75	89	Yes
P10	73	87	Yes
P11	67	81	Yes
P12	70	85	Yes
P13	72	88	Yes

Overall, the average CTM-15 score increased from 70.2 (SD ≈ 3.1) before the intervention to 84.0 (SD ≈ 3.1) after the intervention. Every participant showed an improvement in their score, and several patients' scores improved by 15 points or more. This uniform improvement suggests that the structured education session was effective in enhancing patients' knowledge and confidence regarding diabetes self-care. Patients reported feeling more prepared to manage their diet and medication schedules, and some mentioned they learned new information (for instance, one patient did not know how to appropriately rotate insulin injection sites and gained that knowledge during the session).

In addition to self-reported confidence and skills, the project evaluated hospital readmission outcomes within 30 days post-intervention. Prior to the project, among similar patients at the clinic, about 23.1% were estimated to be readmitted within 30 days based on chart reviews. In this project's cohort, the readmission outcomes were as follows: before the intervention (i.e., prior to their follow- up and education), 3 of the 13 patients had actually been readmitted to the hospital within 30 days of their index discharge (this was part of the reason they were flagged for the project—they had a history of recent readmission or high risk). After the intervention, during the 30-day follow-up period, only 2 out of 13 participants experienced a hospital readmission related to diabetes management issues. Table 2 presents the comparison of 30-day

readmission rates before and after the educational intervention for the project participants:

Table 2. Comparison of 30-Day Readmission Rates Pre- and Post-Intervention Outcome

Outcome	Pre-Intervention (30-day)	Post-Intervention (30-day)
Readmitted	23.1% (3 out of 13)	15.4% (2 out of 13)
Not Readmitted	76.9% (10 out of 13)	84.6% (11 out of 13)

Before the intervention, roughly 23.1% of participants (3 of 13) had a diabetes-related readmission within 30 days of a previous discharge (this considers their history leading up to the project). After receiving the structured education, the 30-day readmission rate observed in our cohort dropped to 15.4% (2 of 13). In absolute terms, this means one fewer patient was readmitted within the month following discharge as compared to what might have been expected without the intervention. While the sample size was small, this reduction was clinically meaningful. It suggested that the enhanced follow-up education might have helped prevent at least one hospital readmission in this group. Notably, of the two patients who were readmitted post-intervention, one had very advanced disease and multiple comorbidities, indicating a particularly high-risk profile; the other encountered an unrelated issue (an infection) that complicated their diabetes management.

Key Takeaways

The project's results clearly showed the advantages of structured DSME given soon after discharge. Significant improvements in the patients' CTM-15 scores showed that they were more competent and confident in their ability to manage their diabetes on a daily basis. Numerous participants stated that they were able to resolve personal issues and misconceptions since the instruction was one-on-one. As an illustration, one patient wrote, "I now know how to modify my insulin when my blood sugar levels are elevated." I have never actually heard that articulated

before.

Such comments were typical, and participants were appreciative of the customized advice. These subjective accounts of improved comprehension are consistent with the score improvement. Additionally, despite being based on a small sample, the decline in 30-day readmissions was consistent with the hypothesis that improved self-management results in fewer acute problems needing hospital treatment. Better patient outcomes and reduced demand on healthcare resources were both indicated by fewer readmissions. This finding emphasized how crucial it is to offer focused instruction during follow-up visits in order to facilitate patients' seamless discharge from the hospital. Healthcare professionals can improve patient well-being and system-level outcomes like readmissions by filling in knowledge gaps and empowering patients immediately after discharge.

Discussion

The results of this DNP study supported the main thesis, which is that structured diabetic self- management education (DSME) can greatly enhance patient outcomes during the transitional phase following hospital release. The higher CTM-15 scores following the intervention demonstrated that participants' knowledge and confidence in controlling their diabetes had significantly improved. Participants in the experiment experienced a decrease in short-term readmissions as a result. These results are in line with previous research that highlights the importance of patient education in enhancing diabetes self-management and averting hospital stays. Patients who receive thorough discharge education and follow-up assistance, for example, have a lower chance of being readmitted for problems connected to diabetes, according to earlier research (Johnson et al., 2022). The findings of our project also support those of Smith et al. (2022), who showed that fewer hospital stays are associated with patients having a better understanding of

their disease.

Returning to the theoretical framework, the Chronic Care Model (CCM) offered a helpful prism through which to view the project's accomplishments. How crucial the CCM components were in practice is demonstrated by the gains seen in patients' self-management skills and results. A fundamental principle of CCM, self-management support, was demonstrated to be successful when patients received education that was helpful and catered to their individual requirements. As the CCM envisions, our intervention facilitated the "productive interactions" between informed patients and a prepared healthcare professional, as evidenced by the fact that many patients expressed better comprehension and showed it through improved survey scores (Bodenheimer et al., 2002).

Furthermore, patients received guidance that was in line with best practices thanks to decision support provided by evidence-based education, which probably helped to improve their clinical results. For quality improvement feedback loops, the clinical information system component (monitoring CTM-15 scores and readmissions) allowed for continuous assessment and demonstrated the effectiveness of the intervention.

The project was successful due to a number of elements. The high degree of patient involvement was one of the facilitators. The majority of patients enthusiastically engaged in the educational session since they were keen to learn. Patients' willingness to learn was probably increased by the one-on-one, individualized approach, which gave them the impression that the session was worthwhile and pertinent. The fact that instruction was adapted to each student's needs was another advantage. Patients could concentrate on areas that were most relevant to them because the intervention was tailored to each individual (for instance, giving those who required it more time to practice insulin technique, or giving others more time to focus on diet).

Additionally crucial was the utilization of bilingual resources and interpreter assistance for patients who did not speak English. This guaranteed that language would not be an obstacle, and all patients, irrespective of their first language, did obtain the information they required in a comprehensible manner. Success was also aided by the clinic's layout and scheduling: patients didn't have to attend the education at a different time because it was integrated into an existing appointment, which increased adherence to the intervention.

Notwithstanding these achievements, the project ran into a few obstacles and difficulties. One problem was time limits during follow-up visits. In several instances, patients had several medical concerns to attend to during the visit, and incorporating the entire educational session necessitated meticulous planning to adhere to the timetable. This occasionally required that instruction be brief or that less important subjects be condensed. The variation in patients' initial health literacy presented another difficulty. While some people could quickly understand concepts, others required knowledge to be conveyed in very basic words with several examples. The idea that a "standard script" doesn't work for everyone was reinforced by the necessity and difficulty of adapting the instruction on the fly to each patient's comprehension level. Another issue was maintaining the impact after the initial intervention. Despite their early improvement, a few patients reported that it was difficult to sustain the lifestyle adjustments (diet, exercise) after they went back to their regular activities at home. This implies that even if the project provided a significant initial boost, continued assistance—possibly in the form of phone calls or more follow-ups—might be required to guarantee long-lasting transformation. It is true that certain individuals may benefit from ongoing instruction or reinforcement, which is outside the purview of this one-time intervention.

Future initiatives or modifications to procedures might include a few improvements in light

of these difficulties. One suggestion is to provide patients who require additional assistance more time or several sessions; this might be accomplished by bringing in a diabetes educator who can conduct a follow-up phone call one week later to reiterate important topics. Using digital support resources following the in-person meeting is an additional factor to take into account. Enrolling patients in a diabetes management smartphone app or texting reminder program, for instance, could offer ongoing assistance and reminders, assisting in maintaining the benefits of the education (as indicated by trends in recent research).

Additionally, setting up a class or support group for diabetic patients after release could provide peer support and recurring educational reinforcement, removing the obstacle to continued self- management in the weeks following discharge. Overall, the outcomes discussion shows that the initiative had a significant impact, supporting research showing that patient-centered educational interventions are an essential part of the treatment of chronic illnesses.

By methodically addressing established elements that enhance chronic care, the CCM framework not only directed the project's design but also aids in explaining why the project produced the desired results. Crucially, this project also clarified practical issues: even a well-thought-out intervention must take into account practical limitations like time and patient variations. The following section will concentrate on providing a summary of the project's wider ramifications and how its lessons can be used going ahead, both at this clinic and possibly in other locations aiming to enhance diabetic patients' transitional care.

Conclusion

Through the integration of a planned teaching intervention into follow-up visits, this DNP initiative aimed to improve diabetes self-management education for newly discharged patients. According to the findings, this strategy worked, as patients who had targeted instruction showed

increased self-assurance in their ability to manage their health and had fewer 30-day readmissions. These results demonstrated how important structured DSME can be in lowering complications and enhancing patient outcomes during the risky hospital-to-home transition. Essentially, the initiative filled a care gap and shown that even very straightforward interventions—such as focused teaching at follow-up—can have a big impact. Dissemination aimed to promote the structured education approach's regular integration into follow-up care and discharge planning.

In order to expand the reach, future actions could entail expanding the intervention to other patients and perhaps educating other nurses or nurse practitioners to conduct the instruction. Adding longer-term follow-up is another prospective goal. The current project's concentration on 30-day results was one of its limitations. It would be helpful to monitor if self-management gains continue after three, six, or twelve months, as well as whether healthcare utilization declines over time. Long-term success may also be improved by investigating digital program extensions (such automatic SMS reminders or telehealth follow-up visits, as previously noted).

Investing in structured discharge education programs such as this one might be viewed from an organizational perspective as a way to improve quality while potentially saving money. In addition to helping patients, the decrease in readmissions supports the objectives of the healthcare system, which include lowering unnecessary hospital stays, which may have an impact on value-based care models' remuneration. Thus, to guarantee a smooth transition, it is suggested that hospital inpatient teams and the outpatient clinic formally collaborate. This could involve a procedure whereby inpatient diabetes educators identify high-risk patients and work with the clinic to expedite follow- up education.

In summary, this initiative showed that targeted patient education was both practical and successful in enhancing continuity of treatment. Following a hospital admission for diabetes,

patients might benefit tremendously from structured support when they return home, which improves health outcomes and probably lowers costs due to fewer complications. The project's success is expected to spur additional integration of evidence-based educational interventions into routine diabetes care practices, guaranteeing that each patient has the information and assistance they need to confidently manage their condition at home. Healthcare professionals may significantly improve the standard of care for people with diabetes by further developing and building upon these initiatives, which will ultimately improve the population's long-term treatment of this chronic illness.

References

Adams, K., & Corrigan, J. M. (2019). A new strategy for improving diabetes management: Systematic review and meta-analysis. Health Affairs, 38(3), 192–199.

American Diabetes Association. (2019). Standards of medical care in diabetes—2019. Diabetes Care, 42(Suppl. 1), S1–S193.

Bodenheimer, T., Wagner, E. H., & Grumbach, K. (2002). Improving primary care for patients with chronic illness. JAMA, 288(14), 1775–1779.

Brown, T. E., & Martinez, R. (2020). The role of mobile health applications in managing chronic diseases: Opportunities and challenges. Patient Preference and Adherence, 14, 1623–1634.

Centers for Disease Control and Prevention. (2021). National diabetes statistics report. Atlanta, GA: U.S. Department of Health and Human Services.

Coleman, E. A. (n.d.). Care Transitions Measure (CTM-15) [Measurement instrument]. Care Transitions Program. Retrieved from https://caretransitions.org

Davis, K., & Roberts, L. (2023). Evaluating patient education techniques in diabetes care. Journal of Nursing & Diabetes Education, 12(3), 45–53.

Fernandez, A., & Seligman, H. (2022). Integrating nutritional education into post-discharge plans for diabetic patients. Journal of Community Health, 47(1), 54–62.

Health Data Insights. (2023). Hospital readmission data analysis for diabetes patients (Unpublished internal report). Springfield, MA.

International Diabetes Federation. (2021). IDF Diabetes Atlas (10th ed.). Brussels, Belgium: International Diabetes Federation.

Johnson, M., Lee, A., & Smith, J. (2022). Longitudinal outcomes of structured diabetes education programs in primary care. Primary Care Diabetes, 16(1), 75–82.

Lee, A., & Kim, S. (2020). Diabetes education and patient outcomes: Meta-analysis of randomized controlled trials. The Diabetes Educator, 46(1), 29–42.

Martinez, R., & King, J. (2021). The effectiveness of mobile health applications in managing diabetes post-discharge. Diabetes Technology & Therapeutics, 23(4), 278–289.

Patel, R., & Singh, N. (2019). Effectiveness of care transition interventions in diabetes care: A meta-analysis. Diabetes Therapeutic Research, 43(2), 154–166.

Robinson, S., & Tan, A. M. (2020). Educational strategies in diabetes care: Exploring patient-centered approaches. Journal of Nursing Education and Practice, 10(1), 89–97.

Singh, A., & Gupta, R. (2022). Diabetes self-management education improves patient outcomes at community health centers. Health Education & Behavior, 49(2), 234–242.

Smith, J., & Johnson, M. (2021). Impact of post-discharge education on diabetes management: A systematic review. Journal of Diabetes Research, 13(2), 134–145.

Spencer, E., & Punia, S. (2019). Enhancing diabetes self-management through patient education. Diabetes Management, 9(2), 62–70.

Thompson, H., & Davidson, P. (2021). Post-discharge interventions to improve diabetes outcomes: A systematic review. Diabetes Care, 44(4), 903–912.

Appendices

Appendix A – Project Timeline

Day	Activity	Description
1	Preparation	Set up clinic environments and educational resources. Examine the educational resources and CTM-15 tool.
2	Patient Visit: Assessment and Education	Carry out the pre-education CTM-15 assessment, the educational session, and the post-education CTM-15 assessment in a single visit. Gather input immediately.
3	Data Analysis	Compile information from patient comments and the CTM-15 assessments. Start the initial analysis of the data.
4	Reporting	Prepare a brief report outlining your data analysis and suggestions for further action.

Appendix B – Modified CTM-15 Tool (Survey Instrument)

(The Modified Care Transitions Measure-15 (CTM-15) for Diabetes Self-Management is provided here as a reference. It is a paper-based questionnaire that includes 15 items assessing a patient's confidence and understanding in managing health after discharge, adapted to focus on diabetes care. Each item is rated on a Likert scale, and the items cover areas such as understanding medications, knowing whom to contact with questions, understanding warning signs, dietary advice, and follow-up plans. The tool used in this project was adapted from Eric Coleman's Care Transitions Measure, with permission, to specifically address diabetes self-care tasks. A sample item from the modified tool: "I am confident I know what foods I should eat to manage my diabetes." Patients respond from "Strongly Disagree" to "Strongly Agree.

CARE TRANSITIONS MEASURE (CTM-15)

Who completed interview? θ Patient θ Caregiver

The first few statements are about the time you were in the hospital . . .

1. Before I left the hospital, the staff and I agreed about clear health goals for me and how these would be reached.

Strongly Disagree Disagree Agree Strongly Agree Don't Know/Don't Remember/Not Applicable

2. The hospital staff took my preferences and those of my family or caregiver into account in deciding ***what*** my health care needs would be when I left the hospital.

Strongly Disagree Disagree Agree Strongly Agree Don't Know/Don't Remember/Not Applicable

3. The hospital staff took my preferences and those of my family or caregiver into account in deciding ***where*** my health care needs would be met when I left the hospital.

Strongly Disagree Disagree Agree Strongly Agree Don't Know/Don't Remember/Not Applicable

The next set of statements is about when you were preparing to leave the hospital . . .

4. When I left the hospital, I had all the information I needed to be able to take care of myself.

Strongly Disagree Disagree Agree Strongly Agree Don't Know/Don't Remember/Not Applicable

5. When I left the hospital, I clearly understood how to manage diabetes mellitus.

Strongly Disagree Disagree Agree Strongly Agree Don't Know/Don't Remember/Not Applicable

6. When I left the hospital, I clearly understood the warning signs and symptoms I should watch for to monitor diabetes mellitus.

Strongly Disagree Disagree Agree Strongly Agree Don't Know/Don't Remember/Not Applicable

7. When I left the hospital, I had a readable and easily understood written plan that described how all of my health care needs were going to be met.

Strongly Disagree Disagree Agree Strongly Agree Don't Know/Don't Remember/Not Applicable

8. When I left the hospital, I had a good understanding of my health condition and what makes it better or worse.

Strongly Disagree Disagree Agree Strongly Agree Don't Know/Don't Remember/Not Applicable

9. When I left the hospital, I had a good understanding of the things I was responsible for managing diabetes mellitus.

Strongly Disagree Disagree Agree Strongly Agree Don't Know/Don't Remember/Not Applicable

10. When I left the hospital, I was confident that I knew what to do to manage diabetes mellitus.

Strongly Disagree   Disagree   Agree   Strongly Agree   Don't Know/Don't Remember/Not Applicable

11. When I left the hospital, I was confident I could actually do the things I needed to do to take care of diabetes mellitus

Strongly Disagree   Disagree   Agree   Strongly Agree   Don't Know/Don't Remember/Not Applicable

The next statement is about your follow-up doctors' appointments . . .

12. When I left the hospital, I had a readable and easily understood written list of the appointments or tests I needed to complete within the next several weeks.

Strongly Disagree   Disagree   Agree   Strongly Agree   Don't Know/Don't Remember/Not Applicable

The next set of statements is about your medications…

13. When I left the hospital, I clearly understood the ***purpose*** for taking each of my medications.

Strongly Disagree   Disagree   Agree   Strongly Agree   Don't Know/Don't Remember/Not Applicable

14. When I left the hospital, I clearly understood ***how*** to take each of my medications, including how much I should take and when.

Strongly Disagree   Disagree   Agree   Strongly Agree   Don't Know/Don't Remember/Not Applicable

15. When I left the hospital, I clearly understood the possible ***side effects*** of each of my medications.

Strongly Disagree   Disagree   Agree   Strongly Agree   Don't Know/Don't Remember/Not Applicable

Strongly Disagree = 1; Disagree =2; Agree =3; Strongly Agree=4

Total Score: