IMPLEMENTING A DIABETES SELF-MANAGEMENT TOOLKIT IN A PRIMARY CARE SETTING

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Abstract

Purpose: To implement the Association of Diabetes Care & Education Specialists ADCES7 self-care behaviors™ to improve self-management and hemoglobin A1c (HbA1c) levels in adults with diabetes and prediabetes.

Significance: Type 2 diabetes mellitus (T2DM) is a chronic condition with serious but preventable complications if poorly managed. With rising diabetes rates in Hawaii, more effective management approaches are needed (Pirkle et al., 2019). Current in-office care, centered on HbA1c monitoring, often lacks comprehensive strategies such as education and quality improvement programs that can significantly reduce HbA1c levels (Jiang et al., 2019; Xu et al., 2022).

Intervention and Implementation Plan: The Self-Care of Diabetes Inventory (SCODI) in English or Korean was administered and HbA1c levels were drawn, pre-and post-implementation of the ADCES7 self-care behaviors™ program. The ADCES-7 self-care behaviors framework promotes patient engagement and self-management, supporting improved T2DM outcomes. Data collected from each were documented and evaluated the use of the program in improving self-management among the participants

Results and Implications: The intervention, based on the ADCES7 self-care behaviors™ framework, led to statistically significant improvements in both HbA1c levels and SCODI scores demonstrating its effectiveness in enhancing diabetes self-management. These findings reflect meaningful gains in clinical outcomes and self-care behaviors, supporting the framework's potential to reduce healthcare costs and improve access to effective diabetes care.

Acknowledgment

I extend my deepest gratitude to my DNP chair, Dr. Jacqueline Thomas, whose practical advice, valuable feedback, and insightful critiques were instrumental in shaping this project from its inception. Her unwavering commitment to academic excellence, meticulous attention to detail, and timely referrals to key resources guided me through every stage of the process, fostering the development of my ideas and ensuring the rigorous refinement and evaluation of my work.

I am also deeply grateful to the members of my project committee within the Department of Nursing at Hawaii Pacific University, whose scholarly pursuits and generous contributions significantly enriched this endeavor. Additionally, I would like to acknowledge my preceptor, Dr. Tony Trpkovski, MD, and the Clinical Labs of Hawai'i, LLP (CLH), for providing invaluable resources and support that were crucial to the successful completion of this project.

Finally, I wish to express my profound appreciation to my husband, Daniel Park, for his boundless support, unwavering love, patience, and understanding throughout this incredible journey. To my mother, Juhyeon Park, thank you for your endless love and encouragement. Their unwavering belief in me has been a constant source of strength, keeping my spirit and motivation high, and making this achievement all the more meaningful.

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Chapter 1

Introduction to the Project

Problem

The cornerstone of advanced nursing practice was the ability to identify and address critical gaps within healthcare delivery systems. This project originated from observations made during clinical practice, where a significant number of adult patients with T2DM demonstrated suboptimal glycemic control and inconsistent adherence to self-management practices. The consequences of chronic, uncontrolled diabetes mellitus included increased risks for diabetic retinopathy, blindness, peripheral neuropathy, foot ulcers and infections, and end-stage renal disease (Arnold et al., 2022; Yfantopoulos & Chantzaras, 2020). The inadequacy of current approaches to diabetes education and management prompted this investigation into the effectiveness of a structured intervention based on the Association of Diabetes Care and Education Specialists (ADCES)7 self-care behaviors framework (Appendix A).

Significance

Type 2 Diabetes Mellitus (T2DM) as a Global Health Crisis

T2DM is a pervasive and escalating global health issue, characterized by impaired glucose regulation that often leads to debilitating microvascular and macrovascular complications, such as diabetic retinopathy, neuropathy, cardiovascular disease, and end-stage renal disease (American Diabetes Association [ADA], 2023). The effective management of T2DM relies heavily on patient self-care behaviors, which include maintaining a balanced diet, engaging in physical activity, adhering to prescribed medications, and monitoring blood glucose levels. These self-care behaviors are integral components of ADCES7 self-care behaviors™

framework, which serves as a guiding structure for diabetes education and management (American Association of Diabetes Educators, 2020).

Despite the established importance of these behaviors, many patients with T2DM struggle to maintain consistent adherence, leading to suboptimal glycemic control and increased morbidity and mortality (Xu et al., 2022). T2DM is a chronic condition that, when inadequately managed, leads to severe but preventable complications. Therefore, improving patient engagement in self-care behaviors is critical to better manage the condition and reduce long-term health risks.

Type 2 Diabetes Mellitus (T2DM) in Hawaii: The Need for Improved Management

In Hawaii, the growing prevalence of diabetes highlights the urgent need for more effective management strategies to enhance patient outcomes (Pirkle et al., 2019). According to the Centers for Disease Control and Prevention (CDC), approximately 120,971 people in Hawaii live with diabetes, representing 10.6% of the adult population (CDC, 2024a). This growing burden is concerning, as it contributes to a higher incidence of complications and an increased risk of premature death. Diabetes-related deaths in Hawaii are reported to be 363, or 17.2 per 100,000 persons (CDC, 2022). These alarming statistics point to the need for comprehensive, culturally appropriate interventions that target the root causes of poor self-management in diabetic patients.

While the existing approach to diabetes management primarily involves in-office monitoring and biomarker tracking, such as hemoglobin A1c (HbA1c), these practices often lack the structured educational strategies necessary for fostering long-term behavior change (Xu et al., 2022). Current diabetes management programs frequently fail to address the multifaceted nature of diabetes care, particularly the social, cultural, and behavioral factors that influence self-

management practices. Evidence suggests that quality improvement programs that integrate structured education with self-care behaviors, such as proper nutrition, physical activity, and medication adherence, significantly reduce HbA1c levels and improve overall diabetes management (Jiang et al., 2019).

Purpose and Aim

The purpose of this Doctor of Nursing Practice (DNP) project was to implement an ADCES-7 based self-management program to improve outcomes, specifically HbA1c levels, in adults with diabetes and prediabetes. The overall aim of this project was to implement an intervention, the ADCES7 self-care behaviors™ framework, to improve HbA1c levels and self-management in diabetic and prediabetic participants.

Operational Definitions

The following term was used throughout the project and is operationally defined as follows:

ADCES7 self-care behaviors™: developed by the Association of Diabetes Care and Education Specialists, outlining seven key self-care behaviors for effective diabetes management: healthy eating, being active, monitoring, taking medication, problem-solving, reducing risks, and healthy coping.

Background

The ADCES7 self-care behaviors™ Framework as a Potential Solution

One promising framework for improving diabetes self-management was the ADCES7 self-care behaviors™ framework, which enhanced patient engagement and improved outcomes in T2DM (Kolb, 2021). The ADCES7 self-care behaviors™ framework emphasized seven key self-care behaviors: healthy eating, being active, monitoring, taking medication, problem

solving, reducing risks, and healthy coping. These behaviors improved patient self-management, which was crucial for achieving better glycemic control and reducing diabetes-related complications.

This evidence-based project aimed to assess the effects of implementing the ADCES7 self-care behaviors™ framework over an 8- to 10-week period by measuring changes in HbA1c levels and self-care behaviors, using the Self-Care of Diabetes Inventory (SCODI) or the Self-Care of Diabetes Inventory-Korean version (SCODI-K) questionnaires (Appendix B), with permission for use granted (Appendix C). By measuring pre- and post-intervention scores (Appendix D), this project provided valuable insights into the effectiveness of structured diabetes self-management interventions in real-world clinical settings.

Global and Local Impact of Diabetes

The global prevalence of diabetes is staggering, with approximately 830 million people worldwide affected by the condition (World Health Organization [WHO], 2024). In the United States, roughly 38.4 million people live with diabetes, representing 11.6% of the population (CDC, 2024b). In Hawaii, nearly 121,000 people are affected by T2DM, which poses a significant public health concern for the state's healthcare system (ADA, 2023). Diabetes-related mortality is also concerning, with 1.6 million deaths worldwide (WHO, 2024), 101,209 deaths in the U.S. (CDC, 2024c), and 363 deaths in Hawaii attributed to the condition (CDC, 2022).

Moreover, ethnic and racial minority groups in the U.S. experience a higher prevalence of T2DM and related complications, underscoring the need for culturally tailored interventions that consider the unique needs of these populations (Suh et al., 2021). In Hawaii, the high prevalence of T2DM, coupled with limited access to specialized diabetes care in certain communities, exacerbates the challenges of diabetes management (Pirkle et al., 2019). Many communities,

particularly those in rural or underserved areas, lack access to resources and diabetes care professionals, making it difficult for patients to effectively manage their condition.

Addressing Gaps in Diabetes Care

This project aimed to address these gaps by implementing a structured intervention using the ADCES7 self-care behaviors™ framework, which has the potential to enhance self-management and glycemic control among adults with T2DM. By integrating this framework into routine care, supportive staff and leadership at a primary care clinic focus on improving diabetes outcomes through consistent education and personalized care. The project set aside two to three days a week to focus on delivering the ADCES7 self-care behaviors™, providing patients with the tools and resources needed to improve their self-care behaviors and glycemic control.

Challenges in Implementation

Although self-management interventions demonstrate positive outcomes in improving glycemic control, the implementation of these programs in real-world settings presents significant challenges. For underserved populations, factors such as low literacy, limited English proficiency, and cultural differences complicate the process of diabetes education and self-management (Christensen et al., 2023; Perez-Brescia et al., 2022).

Clinical Question

Given the significant impact of diabetes on both global and local health settings, this project posed the following clinical question: In adult patients at a primary care clinic with uncontrolled type 2 diabetes, what is the impact of a diabetes self-management program based on the ADCES7 self-care behaviors™ framework, compared to current practice, on HbA1c levels and self-management over 8 to 10 weeks?

Summary

T2DM is a global health issue, causing complications like retinopathy, neuropathy, and cardiovascular disease. Effective management depends on self-care behaviors, but many patients struggle with adherence, leading to poor glycemic control. Research shows that structured education, like the ADCES7 self-care behaviors™ framework, improves patient engagement and glycemic control. In Hawaii, the rising diabetes prevalence calls for improved management strategies. T2DM affects millions globally, with higher rates of diabetes-related deaths, especially among ethnic minorities. Limited access to care in Hawaii worsens the issue. Current approaches, focused on in-office biomarker monitoring, lack necessary educational strategies.

In response to this gap, this project aimed to implement the ADCES7 self-care behaviors™ framework in a primary care clinic to improve self-management and glycemic control in patients with uncontrolled T2DM, though challenges remain for underserved and vulnerable populations.

Chapter 2

Literature Review

Introduction

This chapter provides a thorough review of the existing literature and theoretical framework that informed the current evidence-based project. The project investigated the impact of a structured diabetes self-management education program on HbA1c levels and self-care behaviors in adults with T2DM or prediabetes. The literature review covered several key areas, including the global prevalence of diabetes, current management strategies, the effectiveness of diabetes education programs, and the role of ADCES7 self-care behaviors™ framework. These findings form the conceptual framework that guides both the design of the project and the interpretation of its results.

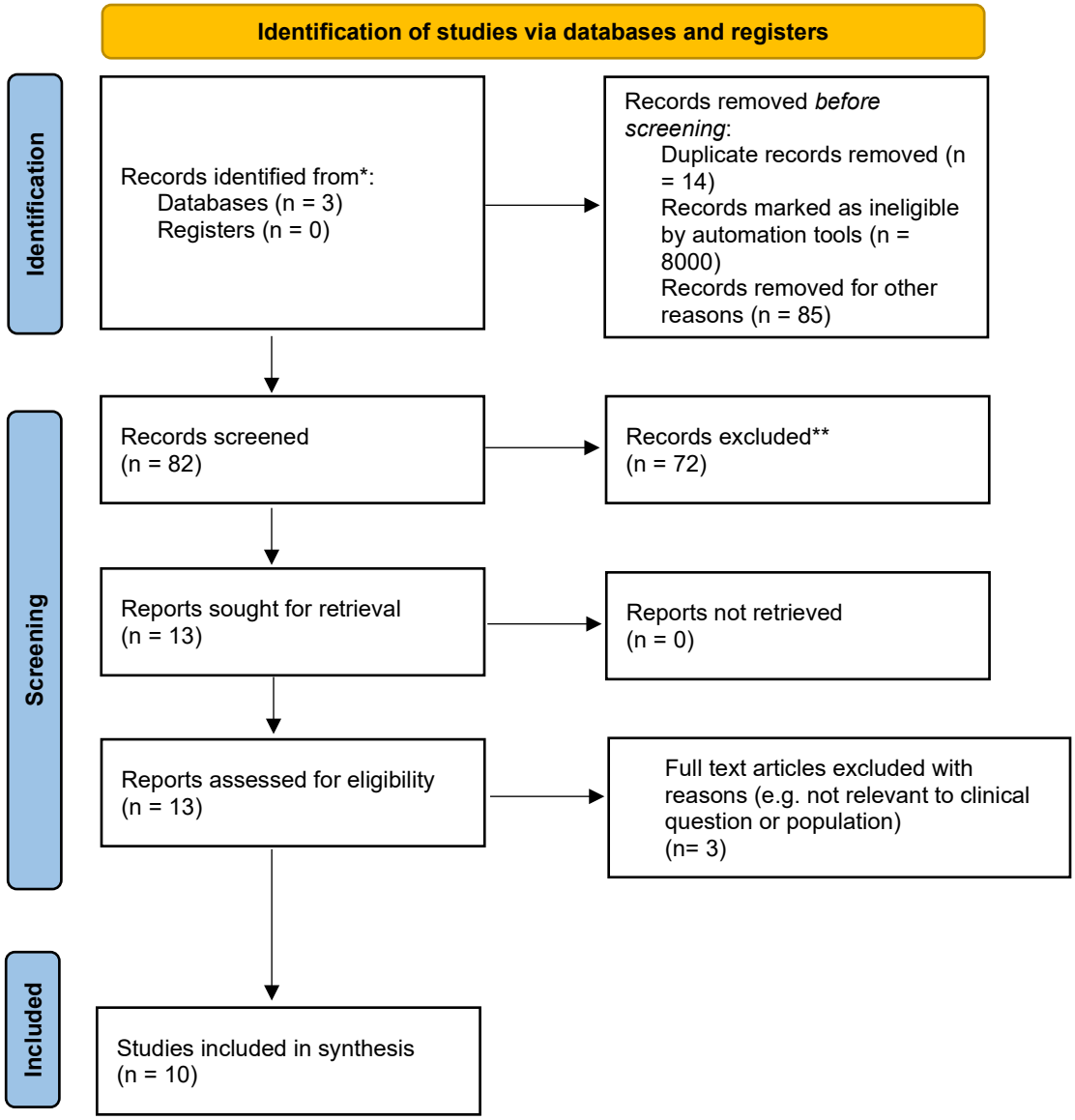
Methodology

The project strategy involved conducting a systematic review of relevant databases, including PubMed, CINAHL, and Google Scholar. Search terms such as "diabetes education," "HbA1c," "self-care," "type 2 diabetes," "ADCES-7," "quality improvement," and "patient outcomes" are used in various combinations. Inclusion criteria focused on peer-reviewed articles published within the last five years that employ either quantitative or qualitative research methods. The selected studies involve adult participants aged 18 years or older, diagnosed with type 2 diabetes or prediabetes, with a confirmed diagnosis based on HbA1c levels measured during the first week of the intervention. The diagnosis must occur within the six months prior to the start of the project, excluding the four weeks immediately preceding it. Exclusion criteria included studies involving type 1 diabetes, gestational diabetes, pregnancy, or participants under 18 years old.

The initial search resulted in the identification of 8,181 articles. After screening the titles and abstracts, 82 articles were selected for further review. Of these, 72 were excluded based on the inclusion criteria, leaving 13 articles for full-text review. Following the full-text review, 10 articles (Figure1) were ultimately selected for inclusion and careful analysis. (Appendix E)

Figure 1

PRISMA Flow Diagram



***Note**: This diagram outlines the study selection process for identifying evidence supporting the use of the ADCES7 self-care behaviors™ framework.*

Findings: Synthesis of Evidence

Definition of Type 2 Diabetes Mellitus

T2DM is a chronic metabolic disorder characterized by insulin resistance, where the body's cells do not respond effectively to insulin, resulting in persistently elevated blood glucose levels. This condition is linked to a host of serious but preventable complications, such as cardiovascular disease, neuropathy, and retinopathy, particularly when poorly managed (Fanni, 2020). The increasing prevalence of T2DM, particularly in regions like Hawaii, highlights the urgent need for more effective management strategies that can improve patient outcomes (Pirkle et al., 2019).

Diabetes Self-Management Education (DSME)

Diabetes Self-Management Education (DSME) emerged as a key intervention in the management of T2DM, emphasizing the empowerment of patients through education about their condition and the adoption of healthy lifestyle changes. A systematic review by Chowdhury et al. (2024) of forty-four studies demonstrates the significant impact of DSME on health outcomes, particularly in reducing HbA1c levels. The analysis reveals a mean difference of 0.64% in HbA1c levels (95% CI: 0.64% to 0.83%; $p = 0.001$), underscoring the effectiveness of these educational programs in improving glycemic control.

Moreover, a randomized controlled trial by Jiang et al. (2019) reinforces the positive effects of DSME by highlighting the role of patient engagement and self-care behaviors in improving several health parameters. These include HbA1c levels, weight, body mass index (BMI), waist circumference, blood pressure, lipid profile, self-efficacy, self-management behaviors, diabetes knowledge, and diabetes distress. Structured DSME programs that incorporate frameworks such as the ADCES7 self-care behaviors™ prove to be more effective

than usual care, as demonstrated in a systematic review by Konnyu et al. (2023). Their review of 553 trials involving 412,161 participants indicates that these structured interventions lead to modest yet consistent improvements in glycemic control and a reduction in diabetes-related complications.

Cultural Sensitivity in DSME

The importance of culturally tailored DSME interventions is increasingly recognized, especially in diverse populations. Hildebrand et al. (2020) conduct a meta-analysis of 23 studies and find that culturally sensitive DSME interventions lead to significant reductions in HbA1c levels, with an average reduction of −0.25% after six months. This underscores the need for culturally appropriate approaches to diabetes education, particularly in minority communities. Similarly, studies by Ali et al. (2019) and Navodia et al. (2019) highlight the effectiveness of culturally tailored education programs for ethnic minority groups, including migrant and South Asian populations in the U.S. and Canada. These populations often face barriers such as limited access to diabetes education resources and language difficulties. Ali et al. (2019) review eight studies involving 2,757 participants, finding that culturally tailored interventions lead to notable improvements in HbA1c levels.

The Need for Localized Education Programs

While DSME programs prove effective in general, there is a pressing need for localized and culturally sensitive interventions tailored to the specific demographic and cultural context of regions like Hawaii. Xu et al. (2022) point out the gaps in patient education at the time of diagnosis, with many adults in the U.S., including those with T2DM, reporting insufficient information about their condition. Addressing these educational deficits is crucial for improving diabetes management. Tailored programs that incorporate cultural and linguistic diversity are

essential to ensure that patients receive comprehensive support from the onset of their diabetes journey.

The effectiveness of Diabetes Self-Management Education in improving health outcomes, particularly in glycemic control, is well-documented. Structured programs that utilize frameworks like ADCES7 self-care behaviors™, along with culturally tailored interventions, show promise in improving diabetes management and reducing complications. However, further research is necessary to evaluate the impact of such programs in specific populations, particularly in culturally diverse regions like Hawaii. Addressing educational gaps and ensuring culturally sensitive care are key to improving diabetes outcomes in these populations.

Theoretical Framework

This project's conceptual framework is rooted in Orem's Self-Care theory of nursing, which emphasizes the importance of self-care in maintaining health and well-being (Rosman et al., 2022).

Interrelated Concepts of Orem's Self-Care Model

Orem's Self-Care Model consists of three interrelated concepts that guide nursing practice: Self-Care, Self-Care Deficit, and Nursing Systems. Self-care refers to the daily activities individuals perform to maintain their health and well-being. When individuals are unable to meet these needs due to illness, lack of knowledge, or physical limitations, a self-care deficit exists. To address this, Orem identifies three types of nursing systems: wholly compensatory, where the nurse provides all care; partially compensatory, where the nurse and patient share responsibilities; and supportive-educative, where the nurse teaches and supports the patient to care for themselves independently.

In the context of diabetes management, Orem's model provided the structural framework for determining the appropriate level of nursing intervention. The ADCES7 self-care behaviors™ offered clear behavioral targets for diabetes self-management, such as healthy eating and blood glucose monitoring. The SCODI or SCODI-K helped identify specific areas where the patient struggled with self-care, pointing to the presence and type of self-care deficits. Finally, HbA1c served as a clinical indicator of long-term blood glucose control, reflecting how well the self-care strategies are working. Integrating these tools allows for a holistic, patient-centered approach to diabetes care.

Application of Orem's Self-Care Model

According to this theory, individuals required nursing intervention when their ability to perform self-care activities was compromised, particularly in chronic conditions like diabetes. The ADCES7 self-care behaviors™ framework aligned with Orem's model by providing a structured approach to guide educational interventions that promoted essential self-care behaviors in diabetes management, including healthy eating, regular physical activity, and monitoring blood sugar levels (Nasiri et al., 2022).

These self-care activities were significantly influenced by individual factors such as knowledge, education, age, socioeconomic status, cultural background, and overall health status (Rosman et al., 2022). Orem emphasized the importance of fostering patient independence in self-care, highlighting that nursing intervention became necessary when limitations prevented individuals from meeting their self-care needs (Nasiri et al., 2022; Rosman et al., 2022). This challenge was common for individuals managing chronic conditions, such as T2DM.

This evidence-based project, utilizing the ADCES7 self-care behaviors™ framework, aims to improve HbA1c levels and enhance self-care skills, grounded in Orem's Self-Care

Theory, to provide patients with the knowledge and tools necessary to manage their diabetes more effectively.

The significant impact of T2DM on quality of life underscores the crucial role of self-care in managing this chronic condition. T2DM frequently leads to physical and psychological challenges, including comorbidities, depression, anxiety, reduced mobility, and obesity, which can further compromise an individual's ability to perform essential self-care activities (Martino et al., 2020). Therefore, promoting effective self-care practices, including self-monitoring of blood glucose, dietary adherence, medication management, and regular physical activity, is essential for mitigating complications and improving outcomes. Nursing interventions guided by Orem's model can effectively support patients in achieving and maintaining their self-care agency, leading to improved T2DM management and quality of life.

Summary

This project focused on implementing an evidence-based diabetes self-management education program based on the ADCES7 self-care behaviors™ framework, targeting adults with T2DM or prediabetes to improve HbA1c levels and self-care skills. The program, lasting eight to ten weeks, was guided by Orem's self-care theory, which empowered patients with the knowledge and skills to manage their condition. The program's effectiveness was measured using the SCODI or SCODI-K questionnaires. Staff at a primary care clinic in Hawaii, including healthcare providers, nurses, and administrative personnel, dedicated two to three days per week to implement the program. The clinic targeted individuals diagnosed with diabetes or prediabetes within six months, but no less than four weeks prior to the program. Key stakeholders participated in strategic planning to ensure the program met participants' needs. The project ultimately improved HbA1c levels and self-care skills by applying the ADCES7 self-care

behaviors™ framework and SCODI or SCODI-K tools, benefiting both patients and healthcare providers.

Chapter 3

Methods

Introduction

This chapter outlines the design and implementation of an intervention utilizing the ADCES7 self-care behaviors™ aimed at enhancing self-management skills and improving HbA1C levels among adult patients with uncontrolled type 2 diabetes. The goal of this project is to systematically assess the effectiveness of a structured diabetes self-management program compared to current practice, thereby addressing the clinical problems linked to inadequate patient education and resulting in suboptimal health outcomes. This chapter outlines the methods and procedures employed in this practice change project aimed at effectively addressing the real-world challenges faced by individuals managing these chronic conditions, ultimately contributing to improved health outcomes in the community.

Project Design

The project employed a quantitative pre-post intervention design to assess the impact of the diabetes self-management program on patient outcomes. Participants included adult patients, aged 18 and older, who were diagnosed with type 2 diabetes and prediabetes based on HbA1c levels. The pre-post design using SCODI and SCODI-K (Ausili & DiMauro, n.d.) allowed for the measurement of changes in key variables before and after the implementation of the intervention, providing robust data to evaluate its effectiveness. By utilizing this design, we aimed to gather quantitative evidence regarding the diabetes education program's impact on HbA1c levels and self-management skills.

Sample and Setting

The project was conducted at a small primary care clinic in Honolulu, Hawaii. A convenience sample was drawn from a review of electronic medical records (EMRs) at this primary care clinic, identifying patients with a history of T2DM or prediabetes who met the inclusion criteria for this evidence-based project. The target population for this project included adult patients with a diagnosis of T2DM and prediabetes, who were recruited over 1 to 2 weeks using clinic announcements, electronic medical records (EMRs), and direct referrals from healthcare providers.

Inclusion criteria for participants required them to be aged 18 years or older and diagnosed with T2DM or prediabetes at least 6 months prior. Exclusion criteria included individuals with type 1 diabetes, pregnant women, and those with severe comorbidities to ensure sample homogeneity and valid results.

Protection of Human Subjects

Potential volunteers for the project were informed of the project parameters and informed consent was obtained on the day of the educational session before the start of the project. Prior to starting, the project was submitted for expedited review and approved by the Institutional Review Board (IRB) of Hawaii Pacific University (Appendix G). Ethical considerations are paramount for the integrity of this project, and approval was obtained from the Institutional Review Board (IRB) at the Hawaii Pacific University to ensure compliance with ethical standards. Informed consent was collected from all participants, safeguarding their rights to withdraw at any time and ensuring confidentiality through unique identifiers and restricted access to personal data, with a memorandum of understanding outlining responsibilities between the university and the clinic.

Data Collection Instruments

The data collection tools included the SCODI or SCODI-K questionnaire forms to assess participants' self-care behaviors and knowledge. Additionally, Clinical Labs of Hawaii conducted phlebotomy to measure HbA1c levels both before and after the intervention, providing objective data on glycemic control.

Demographic Survey

A total of 35 participants were screened, and 33 met the inclusion criteria. All 33 participants completed the intervention and were included in the final analysis. As this was an evidence-based project, no control group was included for comparison. The high retention rate reflected strong participant engagement and commitment to the program. Korean participants comprised the majority of the cohort, representing 26 out of the total 33 individuals, indicating a predominantly Korean sample. Among the remaining participants, two identified as Pacific Islander, two as Asian (non-Korean), and three as having mixed ethnicity, reflecting a modest level of ethnic diversity within the group. Female participants accounted for 64% of the total sample, while male participants represented 36%, highlighting a notable gender imbalance, with nearly two-thirds of the participants identifying as female, as detailed in Chapter 4 Results.

Self-Care of Diabetes Inventory (SCODI) or the Self-Care of Diabetes Inventory-Korean version (SCODI-K) questionnaires

The SCODI, is recognized for its strong content validity and multidimensional reliability (ranging from 0.81 to 0.89), effectively assesses self-care maintenance, monitoring, management, and confidence, with proven associations to HbA1c improvement and reduced diabetes complications (Ausili et al., 2020). The studies by Krzemińska et al. (2020) emphasize

the SCODI's effectiveness in enhancing diabetes management by identifying self-care confidence as a key predictor of maintenance, monitoring, and management of diabetes care T2DM.

According to Kong and Cho (2021), the SCODI-K demonstrated strong convergent validity with a correlation coefficient of 0.75 when compared to the Summary of Diabetes Self-Care Activities (SDSCA). The total scale exhibited a Cronbach's alpha of 0.92, with values ranging from 0.69 to 0.90 across its four dimensions. Thus, the SCODI-K is considered a valid and reliable tool for evaluating self-care behaviors in Korean patients with T2DM.

For this project the SCODI or SCODI-K was administered pre- and post-intervention.

Data Collection Procedures

Patient education was delivered by the project coordinator as part of the intervention. Additionally, participants' self-management skills were evaluated using the SCODI or SCODI-K questionnaires, administered both pre- and post-intervention. Each participant completed SCODI or SCODI-K questionnaire individually, which were collected, scored and stored. These tools provided valuable insights into the participants' perceptions of their self-management capabilities, allowing for a comprehensive evaluation of the intervention's impact on their skills and confidence in managing their condition.

HbA1c levels were assessed through standard laboratory procedures conducted by certified technicians from Clinical Labs of Hawaii, ensuring precision in measuring glycemic control. HbA1c levels were obtained both prior to and following the intervention period, collected, compiled and stored for data analysis. All data were entered and managed using Microsoft Excel.

Data Analysis

After data collection, analysis utilized appropriate statistical methods to evaluate pre- and post-intervention measures. Descriptive statistics, including mean, median, and mode were calculated, and p-values were determined to assess statistical significance. Paired t-tests compared HbA1c levels, while descriptive statistics summarize baseline participant characteristics and changes in self-management skills as measured by the SCODI or SCODI-K questionnaires. Additionally, correlation analysis explores relationships between improvements in self-management skills and changes in HbA1c levels, providing insights that can inform future diabetes management strategies.

Resources and Budget Considerations

The project incurred minimal costs, focusing primarily on patient education to enhance self-care. Key resource considerations included the printing of educational pamphlets, which required four reams of paper and ink supplies. The estimated cost for paper was between $20 and $40, while ink replacement cartridges were estimated to range from $50 to $150.

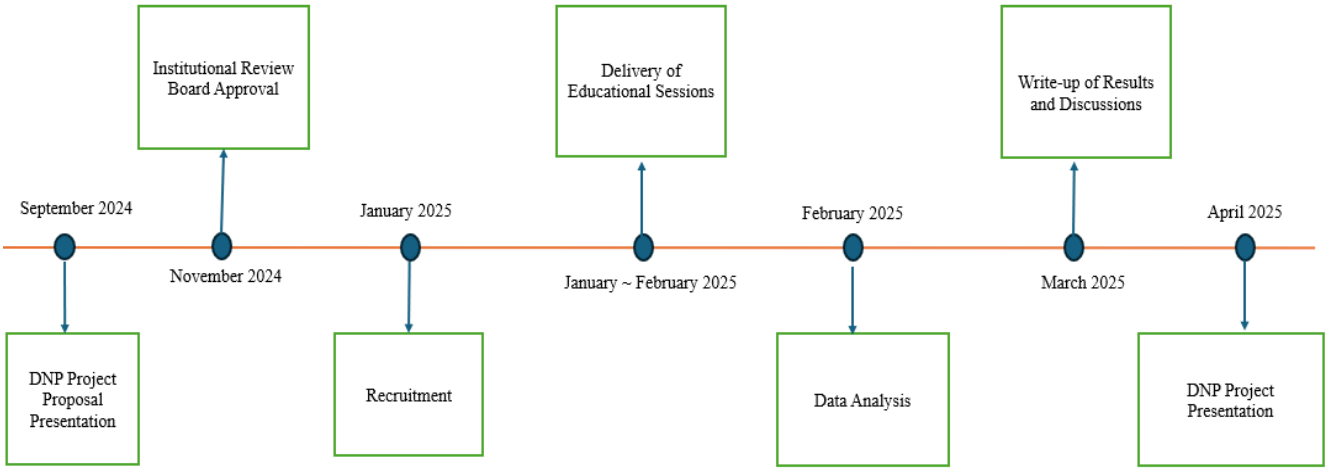
Many insurance companies recognize the cost-saving potential of initiatives like routine HbA1c testing, which is conducted every 12 weeks. This aligns with their goals to reduce long-term healthcare expenses. Clinical Labs of Hawaii provided financial support for two participants and offered income-based sliding scale fees, ensuring that uninsured individuals had equitable access to essential diagnostic services. (Appendix F)

Project Timeline

The project followed a structured, phased timeline spanning proposal development, implementation, and dissemination. A detailed overview can be found in Figure 2.

Figure 2

Project Timeline



Summary

This practice change project evaluated the effectiveness of a diabetes self-management program using the ADCES7 self-care behaviors™ framework for adults with uncontrolled type 2 diabetes or prediabetes in a primary care clinic. Employing a pre-post quantitative design, the intervention aimed to improve HbA1c levels and self-management skills, measured by the SCODI or SCODI-K tools. The program included tailored education, goal-setting, and ongoing support delivered through in-person and telehealth formats. Data were collected at baseline and post-intervention, with statistical analysis assessing outcomes. Strategies for sustainability, ethical oversight, and resource allocation were integral to the implementation and long-term success.

Chapter 4

Results

Introduction

The project was implemented over 10 weeks including education and recruitment, and with an intervention implementation the ADCES7 self-care behaviors™ of 8 weeks. The ADCES7 self-care behaviors™ framework, when implemented through weekly patient education sessions, aimed to cultivate self-care behaviors, potentially improving clinical outcomes in patients with T2DM. The results of the implementation of the ADCES7 self-care behaviors™ framework focused on two primary outcomes: HbA1c levels and self-management behaviors, as measured by the SCODI or SCODI-K questionnaire responses (Ausili & DiMauro., n.d.).

The changes in HbA1c levels over the course of the 8–10-week intervention period, compared pre- and post-intervention values. All participants were able to complete the intervention period without need for changes to the procedures, plan or collection. Additionally, the project assessed patient-reported improvements in self-management behaviors using SCODI or SCODI-K survey data, which evaluated areas such as diet, physical activity, medication adherence, eye and foot care, and problem-solving. The findings implicated the effectiveness of the ADCES7 self-care behaviors™ framework in fostering sustainable self-care behaviors and improving glycemic control, in contrast to current diabetes management practices typically utilized in primary care settings (Kolb, 2021). Weekly sessions of patient education reinforced the importance of prioritizing self-care for diabetes management.

Demographics

A total of 35 participants were screened, and 33 met the inclusion criteria. All 33 participants completed the intervention and were included in the final analysis. As this is an

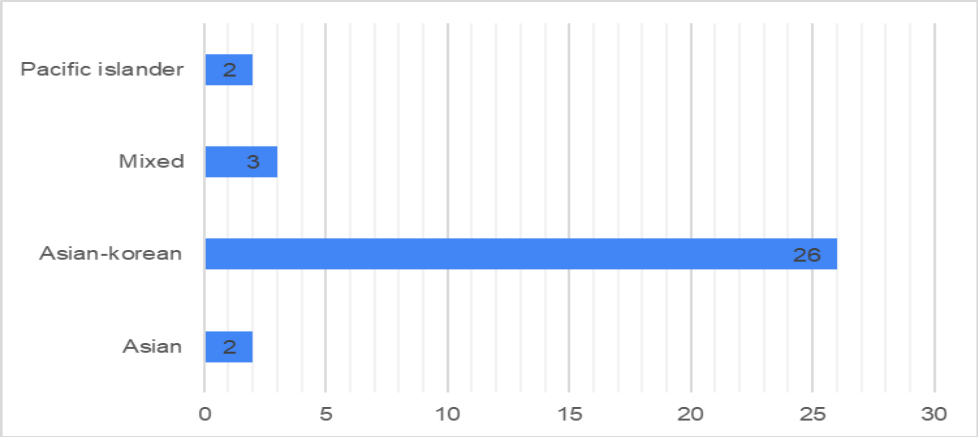
evidence-based project, no control group was included for comparison. The high retention of cohort numbers in this project reflects strong participant engagement and commitment to the program.

Ethnicity

Korean participants comprised the majority of the cohort, representing 26 out of the total 33 individuals. This indicates a predominantly Korean sample within the study population. Among the remaining participants, two identified as Pacific Islander, two as Asian (non-Korean), and three as having mixed ethnicity, reflecting a modest level of ethnic diversity within the group. (Figure 3).

Figure 3

Ethnicity of Participants.



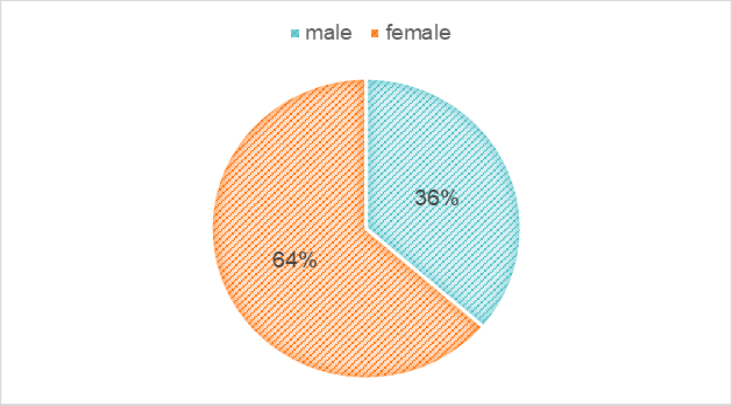
Note: *Participants self-identified as Pacific Islanders (2), Mixed ethnicity (3), Asian-Korean (26), and Asian (2).*

Gender

Female participants accounted for most of the cohort, comprising 64% of the total sample, while male participants represented only 36%. This gender distribution highlights a notable imbalance, with nearly two-thirds of the participants identifying as female. (Figure 4).

Figure 4

Gender



Note: *Participants self-identified as female (64%) and male (36%).*

Findings

Data Analysis Procedures

The project uses a quantitative pre-post intervention design to evaluate the effects of a diabetes self-management program on patient outcomes. Adult participants (18+) with T2DM or prediabetes (based on HbA1c) attend weekly educational sessions based on the ADCES7 self-care behaviors™ framework. The intervention proceeded as planned, with all participants completing all of the sessions.

The data analysis followed the plan outlined in Chapter 3, with no modifications necessary. Data on HbA1c levels and diabetes self-management behaviors were systematically collected at two key points in the intervention: at baseline (prior to the start of the program) and at the conclusion of the intervention period. Self-management behaviors are assessed using the SCODI or SCODI-K, a validated tool that evaluates domains such as self-care maintenance, monitoring, management, and confidence. These pre- and post-intervention data sets are compiled and organized in an Excel spreadsheet to facilitate structured analysis.

Descriptive statistics, including the mean, median, and mode, were calculated for both HbA1c levels and SCODI or SCODI-K responses, providing a foundational understanding of participant outcomes across the cohort. To determine whether observed changes are statistically significant, paired t-tests are performed comparing baseline and post-intervention data for each participant. This statistical method is appropriate for measuring within-subject changes over time and helps identify whether the intervention is associated with meaningful improvements in glycemic control and self-care behaviors.

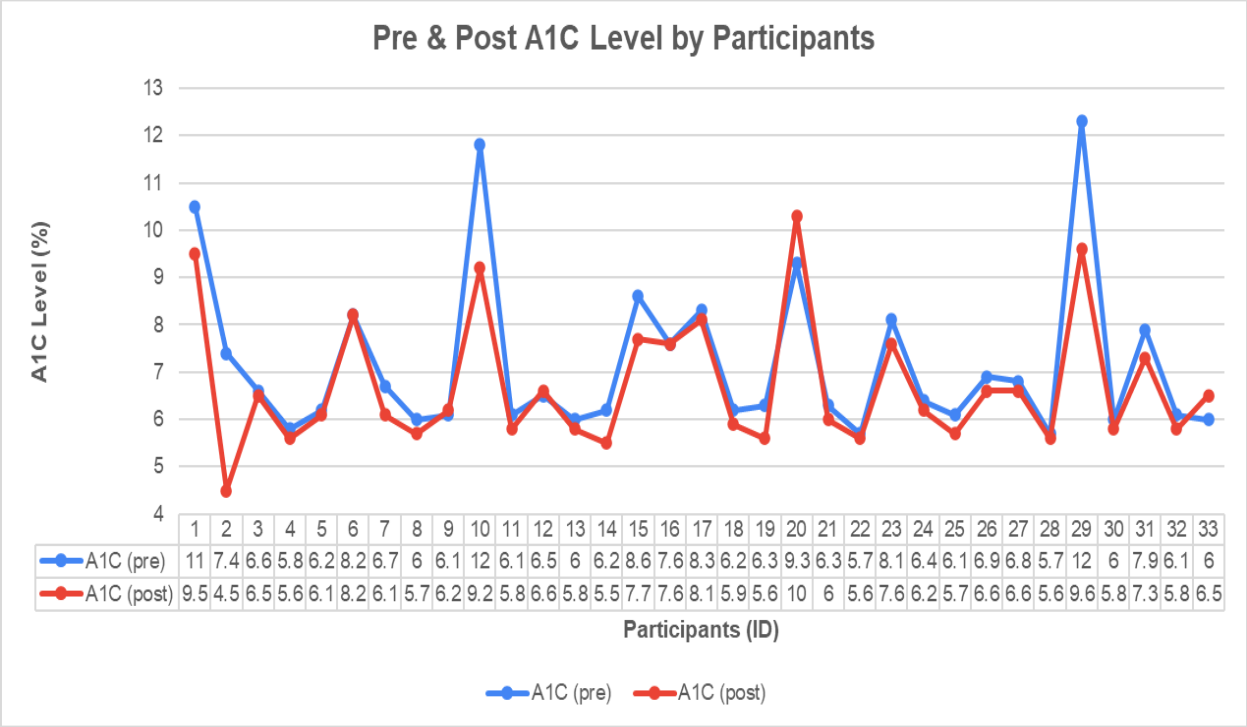
This analytical approach enables a comprehensive evaluation of the intervention's effectiveness, both clinically and behaviorally. By examining changes in HbA1c and SCODI or SCODI-K scores side by side, the analysis provides valuable insights into how improvements in self-management practices may correlate with improved clinical outcomes. The use of paired t-tests ensures that the statistical interpretation is both rigorous and relevant to the study design.

Finding: Hemoglobin A1c levels

Most participants demonstrated an improvement in HbA1c levels, with 28 out of 33 individuals (85%) showing a reduction in their scores following the intervention. (Figure 5). This indicates a strong overall response to the educational program and its emphasis on diabetes self-management behaviors. Additionally, one participant (3%) maintained stable HbA1c levels, suggesting effective management even without measurable change. Four participants (12%) experienced a slight increase in their levels, which may be attributed to individual variability, differing levels of adherence, or other external factors. Overall, these results reflect a positive trend and highlight the potential of targeted education and support to significantly improve glycemic control among individuals with diabetes.

Figure 5

Pre- and post-intervention Hemoglobin A1c levels by participants

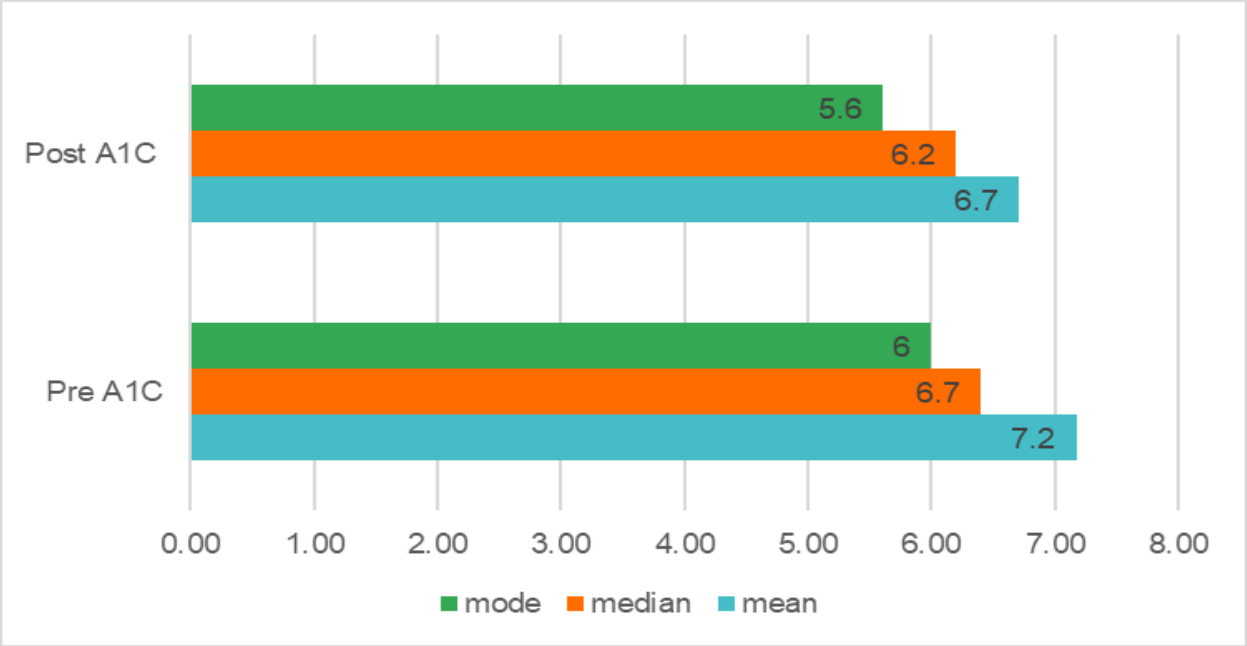


Note. *Most participants (85%) showed improved Hemoglobin A1c levels, with overall reductions reflected in mean, median, and mode scores.*

The descriptive statistics for HbA1c levels demonstrate a statistically significant decrease from pre-intervention (Week 1) to post-intervention (Final Week). The mean HbA1c decreased from 7.2 to 6.7, representing a 6.9% reduction, indicating a notable improvement in average blood glucose control. The median HbA1c decreased from 6.4 to 6.2, a 3.1% reduction, suggesting a shift towards better glycemic control for the typical participant. The mode HbA1c decreased from 6 to 5.6, a 6.7% reduction, highlighting the most frequently observed improvement in blood glucose levels. These changes collectively underscore the effectiveness of the intervention in promoting better blood glucose management among the participants.

Figure 6

Pre & Post Intervention A1C Level on Mode, Median, Mean



***Note**: The mean, median, and mode scores all show a reduction, indicating an overall improvement in blood glucose levels across the cohort.*

The data indicate a decrease in the mean, median, and mode of HbA1c levels after the intervention, suggesting an overall improvement in blood glucose control. (Figure 6). Statistical analysis reveals a p-value of 0.00265 for the comparison of pre- and post-intervention HbA1c levels. This value is well below the commonly accepted significance threshold of 0.05, indicating that the reduction in HbA1c levels observed after the 8–10-week intervention is statistically significant. Furthermore, among the 33 participants, 85% demonstrated improved HbA1c levels, 3% maintained stable levels, and 12% experienced a slight increase. These findings suggest that the educational sessions and focus on self-care behaviors, such as dietary changes, physical activity, medication adherence, and blood glucose monitoring, are likely contributing to measurable improvements in glycemic control among participants.

Findings: Self-Care of Diabetes Inventory

The SCODI or SCODI-K assess four key domains of diabetes self-management: maintenance, monitoring, management, and confidence (efficacy). Both the SCODI and SCODI-K include the same questions to assess the four key domains of diabetes self-management. These areas are scored numerically resulting in the individual outcome indicator scores for each domain.

Self-Care Maintenance.

This domain evaluates how consistently individuals follow routine behaviors to maintain stability, like healthy eating, exercise, medication adherence, and glucose monitoring.

Self-Care Monitoring.

Assesses how well individuals track signs and symptoms, such as checking blood sugar and recognizing high or low glucose.

Self-Care Management.

Measures how they respond to symptoms of diabetic crisis, increased finger stick blood glucose results, including adjusting diet, activity, or medication, or seeking medical help.

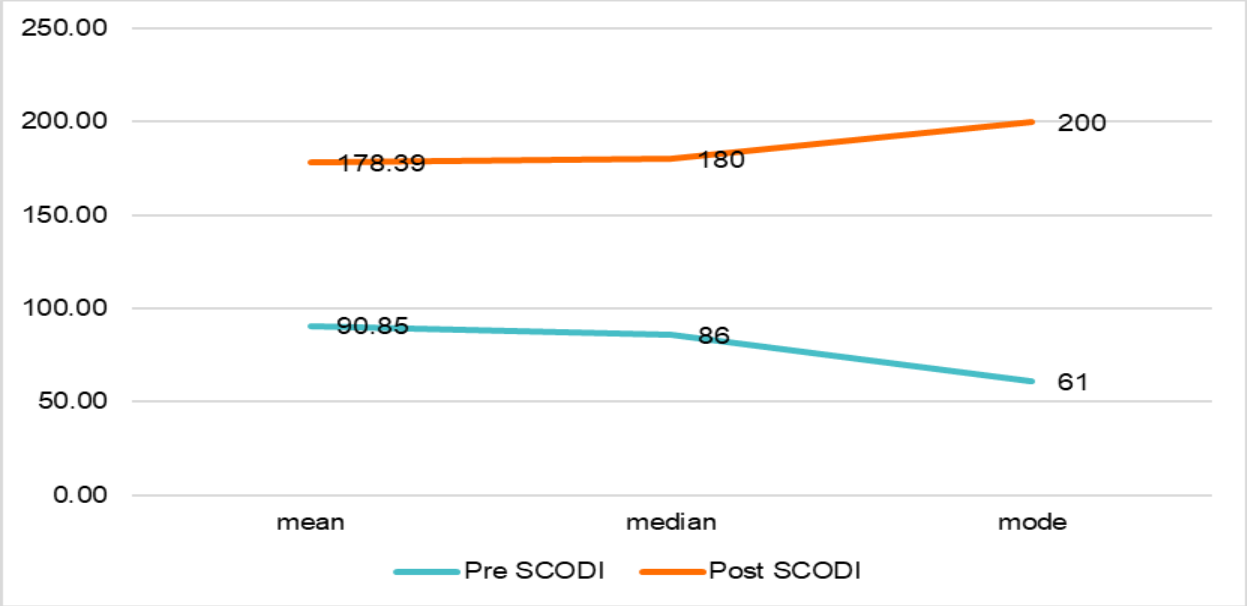
Self-Care Confidence.

Reflects their confidence in effectively performing self-care tasks and making informed decisions.

In contrast to the HbA1c results, improvements in SCODI or SCODI-K scores were observed across the board, with all participants showing positive changes. (Figure 5).

Figure 7

Pre- and Post-Intervention SCODI (Self-Care and Diabetes Outcomes Indicator) Scores.



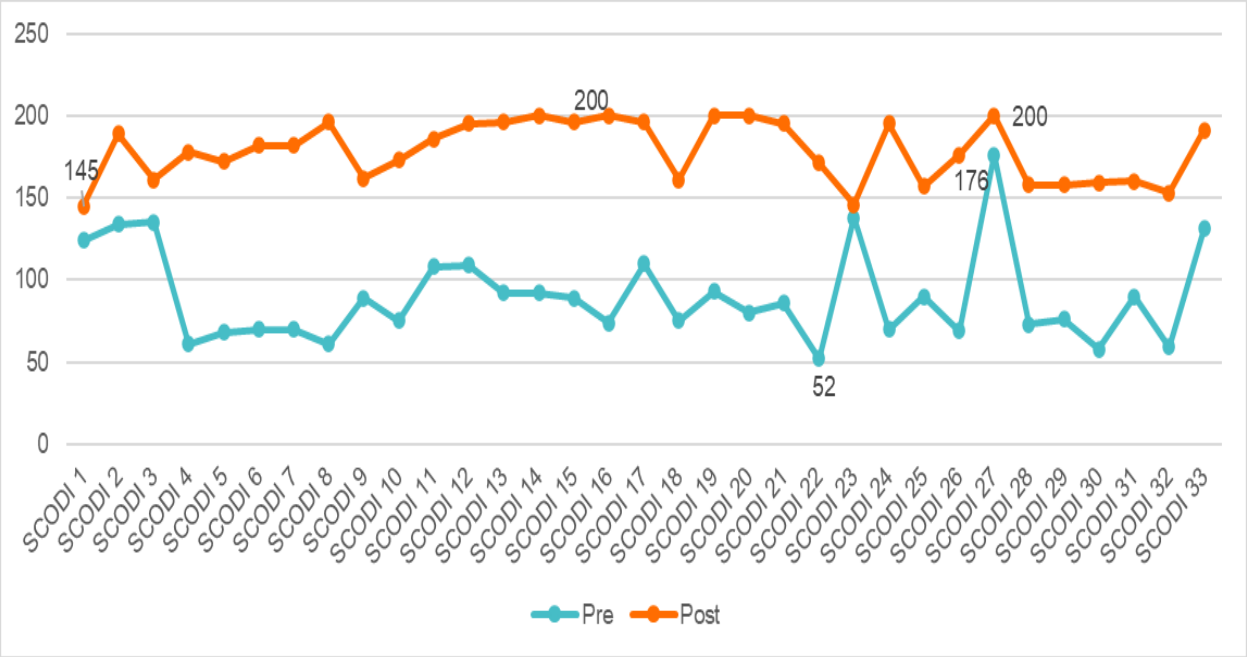
***Note**. The mean, median, and mode scores all decreased, indicating overall improvement in self-care behaviors on a 200-point scale.*

The findings showed a significant increase in the mean, median, and mode of SCODI or SCODI-K scores after the intervention, suggesting a substantial improvement in participants' self-care behaviors and their ability to manage diabetes. (Figure 7). The comparison of SCODI or SCODI-K survey responses before and after the intervention yielded an extremely small p-value of 0.000000000000000179 (1.79 x 10^-16). Like the HbA1c results, this p-value was far below the 0.05 threshold, indicating a highly statistically significant difference in self-reported diabetes self-management behaviors from baseline to the end of the intervention. The magnitude of this result highlighted the substantial impact of the program on participants' self-care knowledge, confidence, and behavior.

The SCODI or SCODI-K results demonstrated a significant improvement in self-care behaviors among participants, showing increased scores following the intervention. (Figure 8).

Figure 8

Pre & Post SCODI or SCODI-K Score by Participants



Note: *This figure demonstrates a 100% improved SCODI or SCODI-K score across all 33 participants*

Specific Question Feedback

SCODI or SCODI-K Question 16 (Monitoring: keeping a record of blood sugars in a diary or notebook) and Question 22 (Management: recording possible causes of abnormal blood sugar levels) exhibited the most substantial gains, with scores rising from 74 to 200 and 52 to 171, respectively.

SCODI or SCODI-K Question 16 (Monitoring: Keeping a record of blood sugars in a diary or notebook) and Question 27 (Management: Rechecking blood sugar after taking action to adjust abnormal levels) reached the maximum score of 200 post-intervention, indicating participants' enhanced understanding and application of diabetes management strategies.

Prior to the intervention, Question 22 (Management: When you have abnormal blood sugar levels, do you take notes about the events that could have caused it and actions you took?) had the lowest score, while Question 27 (Management: After taking actions to adjust an abnormal blood sugar level, do you recheck your blood sugar to assess if the actions you took were effective?) had the highest.

After the intervention, Question 1 (Maintenance: Maintaining an active lifestyle) recorded the lowest score, while Question 16 (Monitoring: Keeping a record of blood sugars in a diary or notebook) and Question 27 (Management: Rechecking blood sugar after taking action to adjust abnormal levels) showed the most significant improvements.

The consistent increase in mean and median SCODI or SCODI-K scores further supports the effectiveness of the intervention in strengthening self-care practices. Overall, these findings highlight the success of integrating the ADCES-7 Self-Care framework, emphasizing its role in fostering lasting, patient-centered improvements in diabetes self-management.

Anecdotal Participant Feedback

Several participants expressed a lack of basic knowledge related to diabetes self-management, which posed significant barriers to effective disease control. For instance, some individuals reported being unsure of how to properly use their glucose meters, including how often to test their blood sugar and how to interpret the readings. Others indicated that they did not know what constituted a normal or target HbA1c level, which is a critical marker for long-term blood glucose control. In addition, there was a widespread lack of awareness regarding essential preventive care practices. A number of participants were unfamiliar with the importance of annual eye exams to screen for diabetic retinopathy or foot examinations to prevent complications such as ulcers and infections. Several individuals noted that their primary

care providers had not offered formal diabetes education or referrals to diabetes self-management programs, leaving them to manage the condition with minimal guidance.

Cultural dietary patterns also emerged as a key area of concern. Rice and fruits are important staples in many Asian cuisines and are often viewed as healthy or necessary components of daily meals. However, many participants were unaware of the role these simple carbohydrates play in rapidly increasing blood glucose levels. Some were surprised to learn that even fruits commonly considered nutritious, such as bananas, mangos, and grapes, can significantly impact blood sugar when consumed in large quantities or without consideration of timing and portion size. This lack of culturally tailored nutritional education further contributed to confusion and difficulty in making informed dietary choices.

Summary

The findings presented in this chapter underscored the effectiveness of the intervention in enhancing self-management behaviors. Significant improvements were observed in both HbA1c levels and SCODI or SCODI-K scores, indicating that the intervention positively impacted participants' ability to manage their diabetes. These results suggested that the intervention contributed to improvements in key clinical markers as well as in self-reported behaviors related to diabetes management.

Chapter 5

Discussion

Introduction

Engaging patients meaningfully is essential for promoting better self-management, especially for those with T2DM. Effective engagement fosters improved health outcomes by empowering participants to actively manage their condition (Jiang et al., 2019). This chapter aims to analyze the results of the project and explore the significance of the findings, with a particular focus on how the educational intervention influenced participants' perceptions of self-management and contributed to improvements in key diabetes health markers, especially HbA1c levels.

Significant improvements were observed in both HbA1c levels and SCODI or SCODI-K scores, demonstrating that the intervention positively influenced participants' ability to manage their diabetes. These findings suggest that the intervention not only contributed to improvements in key clinical markers but also enhanced self-reported behaviors associated with diabetes management.

Implication of Findings

The findings of this project supported the original PICOT statement, which posited that in adult patients with uncontrolled T2DM at a primary care clinic, a diabetes self-management program using the ADCES7 self-care behaviors™ framework would lead to improvements in HbA1c levels and self-management behaviors within 8–10 weeks, compared to current practice. The p-values for the pre- and post-intervention HbA1c levels and SCODI or SCODI-K scores were less than 0.05, indicating that the observed changes were statistically significant and led to the rejection of the null hypothesis.

This project's conceptual framework was grounded in Orem's Self-Care Theory, which emphasized the critical role of self-care in maintaining health and well-being (Rosman et al., 2022). According to this theory, individuals required nursing interventions when their ability to perform self-care actions was compromised, particularly in chronic conditions such as diabetes. The findings of this project suggested that nurse-led interventions, including the ADCES7 self-care behaviors™ framework—which aligned with Orem's model—provided a structured approach to educational support. These interventions, which promoted essential self-care behaviors in diabetes management (Nasiri et al., 2022), were likely to result in meaningful changes in HbA1c levels and in participants' ability to self-manage their diabetes.

The results of this project showed significant improvements in both HbA1c levels and SCODI or SCODI-K scores, demonstrating that the intervention positively impacted participants' ability to manage their diabetes. These findings suggested that the intervention contributed not only to improvements in key clinical markers but also to enhanced self-reported behaviors related to diabetes management.

Specifically, the intervention led to a decrease in mean HbA1c levels, indicating improved blood glucose control. Additionally, the notable increase in SCODI or SCODI-K scores post-intervention reflected improvements in self-care behaviors such as diet, exercise, and medication adherence. These results suggested that the intervention effectively supported participants in both managing their blood glucose levels and enhancing their self-management practices.

The findings of this project aligned with those of Jiang et al. (2019) and Chowdhury et al. (2024), both of whom demonstrated that reinforcing patient education, engagement, and self-care

had a significant positive impact on health outcomes, including a notable reduction in HbA1c levels compared to controls.

Limitations

With only 33 participants, the small cohort size of this project limited the statistical power and validity of the results, making it difficult to draw broad conclusions. The limited sample size also introduced potential bias and reduced the generalizability of the findings to the wider U.S. population. Additional limitations include the use of a single study site, which may not reflect the diversity of healthcare settings across different regions. The focus on one specific population—primarily Asian and Korean individuals—further narrows the applicability of the results to other ethnic or cultural groups. Moreover, the short duration of the intervention limited the ability to assess long-term outcomes and sustained behavioral changes.

Recommendations for Implementation

The positive results of this project have broad implications for clinical practice, extending beyond the participants themselves. The project empowers the healthcare team by equipping them with effective strategies for patient support. By utilizing the ADCES7 self-care behaviors™ framework and the SCODI or SCODI-K, the project has led to improvements in HbA1c levels and enhanced self-care skills, providing patients with the knowledge and tools necessary to manage their diabetes effectively. This not only helps improve diabetes management but also reduces potential costs associated with complications, such as diabetic retinopathy, renal failure, and peripheral neuropathy. Additionally, the project addresses barriers and identifies facilitators that can further enhance diabetes care.

Cost Benefit Analysis

There is minimal to no cost associated with implementing patient education projects aimed at reinforcing or nurturing self-care. The effectiveness of patient education programs, as reflected in the ADCES7 self-care behaviors™ framework, is demonstrated by the ability to self-manage and reduce key markers such as HbA1c, which in turn lowers the likelihood of seeking emergency care or hospitalizations. This reduction in acute care needs helps lower medication usage and associated costs, promotes preventive measures, improves quality of life, and leads to long-term financial savings for the patient (Tay et al., 2020).

For healthcare teams and facilities, improved health outcomes translate into reimbursement bonuses from insurance companies, which are motivated to reduce their payout costs (Fortmann et al., 2020). Emergency room visits and hospitalizations create significant financial burdens for both patients and insurers (Thavam et al., (2024). Programs aimed at improving health markers, such as HbA1c, align with the goals of insurance companies, incentivizing them to support such initiatives to minimize costly complications associated with poorly managed diabetes. As a result, many third-party insurers cover routine HbA1c testing every three months, recognizing its importance in optimizing diabetes management. Clinical Labs of Hawaii (CLH) provided financial support for two project participants. For uninsured individuals, CLH offered financial assistance programs with sliding scale fees based on income, ensuring more equitable access to essential diagnostic services.

Potential Barriers

The most significant barrier observed in this project was the lack of knowledge on the part of the participants in understanding how to effectively manage their diabetes, as evidenced by the pre-intervention SCODI or SCODI-K scores. These barriers can be effectively addressed

through targeted patient education and reinforcement of their existing understanding of the condition. However, successful implementation may also face challenges beyond patient-level factors. One potential barrier is resistance from healthcare staff, particularly if the intervention is adopted as a standard of care and delegated to other team members. Addressing such resistance through staff training, engagement, and emphasizing the value of patient outcomes will be essential for sustainable integration.

Potential Barriers and Mitigation Strategies

Several potential barriers, such as patient non-adherence, limited time for healthcare visits, and language barriers, could have hindered the successful implementation of the diabetes self-management program. To address these challenges, the program offered flexible scheduling and provided multilingual materials. Additionally, incorporating group-based educational strategies promoted peer-to-peer support, which enhanced engagement and adherence to the program's objectives.

Sustainability Plan

The sustainability plan focused on integrating the diabetes self-management program into existing clinical workflows to maintain its benefits beyond the intervention period. This involved collaborating with the practicum site to create a supportive infrastructure that encouraged ongoing patient engagement. Additionally, the plan prioritized continuous adaptation based on participant feedback and best practices in diabetes management to ensure the program remained effective over the long term.

Successful implementation of the diabetes self-management project relied on key resources, including the time and commitment of clinic staff, who underwent training on the ADCES7 self-care behaviors™ framework and attended weekly meetings throughout the

intervention. Engagement from participants with type 2 diabetes and prediabetes was vital for effective data collection and outcomes, while access to the electronic medical records (EMR) system, clinical laboratories for HbA1c testing, and educational materials further supported the program's successful deployment.

Key Facilitators

The most important variable in the effective facilitation of care, grounded in Orem's Self-Care Theory, is the use of nursing interventions that focus on patient education and reinforce their existing understanding of diabetes self-management. Orem's theory asserts that individuals are naturally responsible for their own care, but nurses step in when there are gaps due to illness, limited knowledge, or lack of resources. For this project to continue and achieve long-term success, several key steps are required:

1. Develop a tailored support plan using the ADCES7 self-care behaviors™ framework to guide patient education and engagement in diabetes management.
2. Identify self-care deficits by assessing where patients lack knowledge, skills, or confidence in managing diabetes and using self-management tools.
3. Establish a structured timeline for intervention, including the delivery of educational sessions, hands-on demonstrations, culturally sensitive guidance, and tools designed to support adherence and behavior change.
4. Implement ongoing evaluation and reassessment, using feedback and outcome monitoring to adjust care plans and promote sustained self-care and independence.
5. Appoint a program champion dedicated individual responsible for overseeing implementation, managing the team, and ensuring consistent follow-through and quality improvement.

By integrating these steps, the project can be sustained, scaled, and adapted to meet the diverse needs of patients while aligning with Orem's theory and evidence-based frameworks for chronic disease management. Using Orem's theory in this structured way empowers patients and promotes sustained, individualized care—especially important in diverse populations.

Recommendation for Future Practice, Education, Policy, and/or Research

The following are recommendations for future directions in clinical practice, patient education, healthcare policy, and research, with a focus on utilizing the ADCES7 self-care behaviors™ framework to optimize diabetes outcomes and strengthen patients' self-management skills and behaviors. This evidence-based framework includes healthy eating, being active, monitoring, taking medication, problem solving, healthy coping, and reducing risks—offers a structured approach that can be integrated into various aspects of diabetes care.

Future Practice

Healthcare providers should continue to integrate structured patient education into routine diabetes care, using the ADCES7 self-care behaviors™ framework as a guiding model. This approach ensures that patients receive consistent, comprehensive support for managing their condition through behaviors such as healthy eating, physical activity, medication adherence, and blood glucose monitoring. Making self-management education a standard component of care can help improve glycemic control, reduce diabetes-related complications, and enhance overall quality of life. Additionally, the routine application of this framework fosters stronger patient-provider relationships and increases long-term engagement in care. As care becomes increasingly team-based, integrating this framework into workflows ensures continuity and coordination across healthcare settings.

Education

Diabetes education programs should be built around the ADCES7 self-care behaviors™ principles to provide patients with practical, actionable strategies for managing their condition. Educating both patients and healthcare professionals on the application of these behaviors promotes consistency in messaging and reinforces evidence-based practices. Interdisciplinary training programs can help nurses, dietitians, pharmacists, and other providers deliver cohesive education and reinforce key behaviors across touchpoints. Ongoing education for patients—through individual counseling, group sessions, or digital tools—supports sustained behavior change and skill development. Additionally, preparing future clinicians with this framework ensures a strong foundation for addressing diabetes care within diverse and evolving healthcare systems.

Policy

At the policy level, it is essential to advocate comprehensive insurance coverage of DSME, making it a reimbursable and accessible standard of care. Policymakers should provide financial support and incentives for healthcare systems to implement structured DSME programs rooted in the ADCES7 self-care behaviors™ framework. Initiatives such as performance-based reimbursement (e.g., bonuses for improved HbA1c outcomes) can align provider behavior with public health goals and reduce the overall cost burden of chronic disease management. Policies should also emphasize the value of preventive care, integrating diabetes education into primary and community care settings. By institutionalizing these programs, healthcare systems can more effectively address disparities and promote health equity in diabetes care.

Research

Future research should focus on evaluating the effectiveness of interventions designed around the ADCES7 self-care behaviors™ framework across different populations, cultural backgrounds, and care settings. Studies should track a range of outcomes, including HbA1c reduction, patient adherence, quality of life, hospital readmissions, and long-term health behaviors. Longitudinal research will be especially valuable in assessing the sustained impact of DSME programs on chronic disease management. In addition, qualitative studies can help identify patient and provider experiences, barriers, and enable successful implementation. As the evidence base grows, findings can inform best practices, improve curriculum design, and shape policy recommendations that support widespread adoption of the framework.

Summary

The findings from this project are important, as the statistically significant results (p-values < 0.05 for both SCODI or SCODI-K scores and HbA1c levels) underscore the effectiveness of the intervention in improving self-management behaviors. Notable improvements were observed in both HbA1c levels and SCODI or SCODI-K scores, indicating that the intervention positively influenced participants' ability to manage their diabetes. These results suggest that the intervention led to improvements in key clinical markers as well as self-reported behaviors related to diabetes management, which are essential for reducing medical costs and overcoming barriers to effective care.

The results of this project will be disseminated through presentations at local healthcare facilities, professional nursing conferences, and potential publication in peer-reviewed nursing or public health journals. Additionally, findings may be shared with institutional stakeholders to support broader implementation and inform policy or educational practices.

This project aligned closely with the American Association of Colleges of Nursing (AACN) Doctor of Nursing Practice (DNP) Essentials (Appendix H), as it integrates evidence-based practice, quality improvement, population health focus, and interprofessional collaboration (Melander, 2024).

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Rosman, J., Eriksson, J., Martinell, M., Olinder, A., & Leksell, J. (2022). Individual goal-based plan based on nursing theory for adults with type 2 diabetes and self-care deficits: A study protocol of a randomized controlled trial. *BMJ Open, 12*(3), e053955. https://doi.org/10.1136/bmjopen-2021-053955

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Xu, E., Gowen, R., Stevenson, J., Monroy-Spangenberg, E., & Wood, R. (2022). 500-P: Gaps in patient education upon initial diabetes diagnosis among adults living with type 1 and 2 diabetes in the United States. *Diabetes,* 71, 500-P. https://doi.org/10.2337/db22-500-P

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Appendix A.

ADCES7 self-care behaviors™ Framework

ADCES7 Self-Care Behaviors	Definitions & Examples
Healthy Coping	Healthy coping involves adopting a positive mindset, building strong relationships, and actively managing your well-being to navigate the challenges of diabetes or prediabetes. Seeking support from healthcare professionals and utilizing strategies like engaging in hobbies, practicing meditation, or joining support groups can significantly improve your ability to cope effectively.
Healthy Eating	Healthy eating for diabetes involves consuming nutrient-rich foods in moderation, tracking intake, and partnering with professionals for a personalized plan. Key skills include reading labels, managing portions, and understanding carbohydrate impact on blood glucose.
Being Active	Being active encourages incorporating physical activity into daily life for better health, suggesting starting with small steps and finding enjoyable activities. It highlights the benefits of being active, such as improved muscle strength, weight loss, and better blood glucose levels, while also providing tips for planning and staying motivated.
Taking Medication	Taking medication emphasizes the importance of adhering to prescribed medication plans for managing diabetes and prediabetes, including understanding the medications, potential side effects, and how to assess if the plan is effective. It advises maintaining an updated medication list, taking medications as directed, and discussing any concerns with healthcare providers to optimize treatment and overall health.
Monitoring	Monitoring provides guidance on diabetes self-care, focusing on monitoring glucose levels, activity, and food intake to make informed decisions about diabetes prevention and management. It emphasizes the importance of understanding personal target ranges, choosing appropriate monitoring devices, and identifying patterns in glucose levels to adjust lifestyle and medication as needed.
Reducing Risks	Reducing risks emphasizes the importance of reducing risks associated with prediabetes and diabetes through lifestyle changes, self-management education, vaccinations, and regular health screenings. It highlights the need to understand individual health risks and work with healthcare professionals to develop strategies for preventing complications like kidney damage, nerve damage, and vision loss.
Problem Solving	Problem-solving outlines a three-step approach to problem-solving for individuals with diabetes, emphasizing identifying the problem, finding solutions with the help of healthcare professionals, and taking action with a realistic plan. It encourages patience and continuous learning from past experiences to enhance self-care and manage diabetes effectively.

Appendix B.

Self-Care of Diabetes Inventory (SCODI) Questionnaires

Please think about what you did and how you felt in the last month.

Section A

Below are listed some behaviors that a person with diabetes could perform to maintain health and wellness. Please indicate how often or routinely you do these behaviors.

(circle **one** number)

		NEVER				ALWAYS
1.	Maintain an active life-style (example: walking, going out, doing activities)?	1	2	3	4	5
2.	Perform physical exercise for 2 hours and 30 minutes each week? (example: swimming, going to the gym, cycling, walking)	1	2	3	4	5
3.	Eat a balanced diet of carbohydrates (pasta, rice, sugars, bread), proteins (meat, fish, legumes), fruits and vegetables?	1	2	3	4	5
4.	Avoid eating salt and fats (example: cheese, cured meats, sweets, red meat)?	1	2	3	4	5
5.	Limit alcohol intake (no more than 1 glass of wine/day for women and 2 glasses/day for men)?	1	2	3	4	5
6.	Try to avoid getting sick (example: wash your hands, get recommended vaccinations)?	1	2	3	4	5
7.	Avoid cigarettes and tobacco smoke?	1	2	3	4	5
8.	Take care of your feet (wash and dry the skin, apply moisture, use correct socks)?	1	2	3	4	5
9.	Maintain good oral hygiene (brush your teeth at least twice/day, use mouthwash, use dental floss)?	1	2	3	4	5
10.	Keep appointments with your health care provider?	1	2	3	4	5
11.	Have your health check-ups on time? (example: blood tests, urine tests, ultrasounds, eye exams)?	1	2	3	4	5
12.	Many people have problems taking all their prescribed medicines. Do you take all your medicines as your health care provider prescribed (please also consider insulin if your doctor prescribed it for you)?	1	2	3	4	5

SECTION B

Below are some behaviors that a person with diabetes could practice to monitor their diabetes. Please indicate how often you do these behaviors.

(circle **one** number)

	NEVER				ALWAYS
13. Monitor your blood sugar regularly?	1	2	3	4	5
14. Monitor your weight?	1	2	3	4	5
15. Monitor your blood pressure?	1	2	3	4	5
16. Keep a record of your blood sugars in a diary or notebook?	1	2	3	4	5
17. Monitor the condition of your feet daily to see if there are wounds, redness or blisters?	1	2	3	4	5
18. Pay attention to symptoms of high blood sugar (thirst, frequent urination) and low blood sugar (weakness, perspiration, anxiety)?	1	2	3	4	5

The last time you had symptoms:

	I DIDN'T RECOGNIZE SYMPTOMS	NOT QUICKLY				VERY QUICKLY
19. How quickly did you recognize that you were having symptoms?	0	1	2	3	4	5
20. How quickly did you know that your symptoms were due to diabetes?	0	1	2	3	4	5

SECTION C

Below are listed some behaviors a person with diabetes could do to improve their blood sugar when it's too high or too low. How often you do (or you would do) these actions when symptoms occur or when your blood sugar is out of range?

(circle **one** number)

		NEVER				ALWAYS
21.	Check your blood sugar when you feel symptoms (such as thirst, frequent urination, weakness, perspiration, anxiety)?	1	2	3	4	5
22.	When you have abnormal blood sugar levels, do you take notes about the events that could have caused it and actions you took?	1	2	3	4	5
23.	When you have abnormal blood sugar levels, do you ask a family member or friend for advice?	1	2	3	4	5
24.	When you have symptoms, and you discover that your blood sugar is low, do you eat or drink something with sugar to solve the problem?	1	2	3	4	5
25.	If you find out that your blood sugar is high, do you adjust your diet to fix it?	1	2	3	4	5
26.	If you find out that your blood sugar is high, do you adjust your physical activity to fix it?	1	2	3	4	5
27.	After taking actions to adjust an abnormal blood sugar level, do you re-check your blood sugar to assess if the actions you took were effective?	1	2	3	4	5
28.	If you find out that your blood sugar is very low or very high, do you call your health care provider for advice?	1	2	3	4	5

Do you take insulin?

Yes
No

If yes, please answer the following question.

29.	If you find out that your blood sugar is too high or too low, do you adjust your insulin dosage in the way your health care provider suggested?	1	2	3	4	5

SECTION D

People with diabetes have to develop skills to take care of themselves and to maintain their health. How confident do you feel doing the following activities?

(circle **one** number)

	NOT CONFIDENT AT ALL				EXTREMELY CONFIDENT
30. Prevent high or low blood sugar levels and its symptoms.	1	2	3	4	5
31. Follow advice about nutrition and physical activity.	1	2	3	4	5
32.. Take your medicines in the appropriate way (including insulin if prescribed).	1	2	3	4	5
33. Persist in following the treatment plan even when it's difficult.	1	2	3	4	5
34. Monitor your blood sugar as often as your health care provider asked you to.	1	2	3	4	5
35. Understand if your blood sugar levels are good or not.	1	2	3	4	5
36. Recognize the symptoms of low blood sugar.	1	2	3	4	5
37. Persist in monitoring your diabetes even when it's difficult.	1	2	3	4	5
38. Take action to adjust your blood sugar and relieve your symptoms.	1	2	3	4	5
39. Evaluate if your actions were effective to change your blood sugar and relieve your symptoms.	1	2	3	4	5
40. Persist in carrying out actions to improve your blood sugar even when it's difficult.	1	2	3	4	5

Thank you for completing this survey!

Appendix C.

Self-Care of Diabetes Inventory (SCODI) Permission

Instrument Use Agreement

Youngbean Kwon, FNP-BC, APRN
Doctor of Nursing Practice (DNP)
Hawaii Pacific University
Honolulu, US
Email Address: ykwon1@my.hpu.edu

has requested use of
SC Self-Efficacy Scale in English and Korean language.

Reason for use: Student Project

Additional details:

DNP project, evidence-based project, aims to assess the effects of implementing the ADCES-7 framework over 8-10 weeks by measuring changes in A1c and self-care skills using self-care of diabetes inventory (SCODI) and self-care of diabetes inventory-Korean version (SCODI-K) questionnaires.

The requestor has agreed to the following terms and conditions:

Terms and conditions:

- Not to change the self-care instrument in anyway without explicit permission of the instrument author.
- To calculate scores in the manner prescribed (see website and publications).
- To properly cite the instrument in all publications using it, referring to the original publication.
- To not include the instrument itself in any publication because that transfers the copyright to the journal publisher.

Having agreed to these Terms and Conditions, the authors grant you permission to use this instrument now and in perpetuity, as long as the terms and conditions of this agreement continue to be met.

Date: 10/13/2024

Barbara Riegel, PhD, RN, FAHA, FAAN
Professor, University of Pennsylvania School of Nursing
Senior Research Scientist, Center for Home Care Policy & Research at VNS Health
briegel@nursing.upenn.edu

Appendix D.

Participants, Pre-Post intervention SCODI & SCODI Korean Version Score

Participant	SCODI (pre)	SCODI (post)	Korean Version
1	124	145	
2	134	189	
3	135	161	
4	61	178	
5	68	172	Korean v
6	82	180	Korean v
7	70	182	Korean v
8	61	196	Korean v
9	98	162	Korean v
10	75	173	Korean v
11	108	186	Korean v
12	109	195	Korean v
13	92	196	Korean v
14	92	200	Korean v
15	89	196	Korean v
16	74	200	Korean v
17	110	196	Korean v
18	75	161	Korean v
19	93	200	Korean v
20	80	200	Korean v
21	86	195	Korean v
22	52	171	Korean v
23	138	146	Korean v
24	70	195	Korean v
25	90	157	Korean v
26	69	176	Korean v
27	176	200	Korean v
28	73	158	
29	76	158	
30	58	159	
31	90	160	
32	59	153	Korean v
33	131	191	Korean v

Appendix E.

Johns Hopkins Nursing Evidence-Based Practice Individual Evidence Summary Tool

Article Number	Author, Date, and Title	Population, size, and setting	Intervention	Findings that help answer the EBP question	Measures used	Limitation	Evidence level & quality
1	Ernawati, U., Wihastuti, T. A., & Utami, Y. W. (2021). Effectiveness of diabetes self-management education (DSME) in type 2 diabetes mellitus (T2DM) patients: Systematic literature review. *Journal of Public Health Research*, 10(2), 2240. https://doi.org/10.4081/jphr.2021.2240	Sample/size = 15 articles with 6114 adult participants. Sample size = variable. Setting = variable.	This systematic review focused on the effects of diabetes self-management education (DSME) on improving health outcomes in patients with type 2 diabetes mellitus.	The review of 15 articles (cross-sectional, randomized controlled trials (RCT), systematic reviews, and quasi-experimental studies) showed positive health or clinical outcomes related to DSME intervention.	The reviewers collected and reviewed articles during the month of October 2020 and utilized electronic databases (Google Scholar, PubMed, ProQuest, ScienceDirect) to include articles that used cross-sectional, randomized controlled trials (RCTs), systematic reviews, and quasi-experimental studies without utilizing meta-analysis measures.	Limitations include variability in measures used and number of participants in each study.	Level II, Systematic review of a combination of RCTs and quasi-experimental studies, etc.
2	Jiang, X., Jiang, H., Lu, Y., Liu, S., Wang, J., Tang, R., & Li, M. (2019). The effectiveness of a self-efficacy-focused structured education program on adults with type 2 diabetes: A multicenter randomized controlled trial. *Journal of Clinical Nursing*, 28(17-18), 3299-3309. https://doi.org/10.1111/jocn.14908.	Sample/size = 265 Adults with type 2 diabetes (T2DM) without insulin therapy; Multicenter study in four hospitals in China.	This study evaluates the effects of a self-efficacy-focused structured education program on the health outcomes of adults with type 2 diabetes.	The intervention group showed significant improvements at 6 months in HbA1c, weight, BMI, waist circumference, diastolic blood pressure, self-efficacy, self-management, and diabetes knowledge compared to controls. HbA1c improvements were especially pronounced in those with lower education levels. No significant differences were found in systolic blood pressure, lipids, or diabetes distress investigated at baseline, three- and 6-month follow-ups.	The researchers measured HbA1c, weight, BMI, waist circumference, blood pressure, blood lipid profile, self-efficacy, self-management behaviors, diabetes knowledge, diabetes distress.	The study is limited to a specific population (T2DM adults without insulin therapy) and geographical location (China). Generalizability to other populations may be limited.	Level I RCT
3	Kolb, L. (2021). An effective model of diabetes care and education: The ADCES7	No sample size.	ADCES 7 framework for self-management of diabetes guides	The goal of the ADCES 7 framework is to facilitate behavior changes that lead to effective self-management of	N/A	N/A	Level IV, clinical practice guidelines by

	self-care behaviors™. *The Science of Diabetes Self-Management and Care,* 47(1), 30-53. https://doi.org/10.1177/0145721720978154.		the healthcare team in effective person-centered collaboration and goal setting to achieve health-related outcomes.	diabetes by identifying behavior, barriers to change, resolution of barriers, and implementation of behavioral changes to improve health outcomes (lower HbA1c).			experts/ authority
4	Martino, G., Caputo, A., Bellone, F., Quattropani, M., & Vicario, C. (2020). Going beyond the visible in type 2 diabetes mellitus: Defense mechanisms and their associations with depression and health-related quality of life. *Frontiers in Psychology,* 11. https://doi.org/10.3389/fpsyg.2020.00267.	Sample/size = 51 patients with type 2 diabetes mellitus T2DM Setting = outpatient clinic university hospital in Italy	This study evaluates the association between defense mechanisms and levels of depression and health-related quality of life among patients with Type 2 Diabetes Mellitus.	The study found significant correlations between certain defense mechanisms and higher levels of depression and lower health-related quality of life.	The researcher measured age, gender, education, smoking habits, and employment, height, weight, BMI, A1C, psychological evaluation, Beck depression inventory	Potential limitations include a non-representative sample and reliance on self-reported measures impacting the reliability of the data.	Level III, Quality C
5	Nasiri, M., Jafari, Z., Rakhshan, M., Yarahmadi, F., Zonoori, S., Akbari, F., Moghimi, E., Amirmohseni, L., Abbasi, M., Sharstanaki, S., & Rezaei, M. (2022). Application of Orem's theory-based caring programs among chronically ill adults: A systematic review and dose-response meta-analysis. *International Nursing Review,* 70(1), 59-77. https://doi.org/10.1111/inr.12808.	Sample/size = 46 studies and 11 study register entries.	This study looked at the effects of implementing Orem's Self-Care Deficit Nursing Theory looking at quality of life and self-care as the primary outcomes and self-efficacy, anxiety, depression, and stress as the secondary outcomes among individuals aged 18–70 years with chronic diseases	A review of articles showed positive results with reduced anxiety and depression. *Orem emphasizes the importance of fostering patient independence in self-care, highlighting that nursing intervention becomes necessary when limitations prevent individuals from meeting their self-care needs	The reviewers included quality of life and self-care as the primary outcomes and self-efficacy, anxiety, depression, and stress as the secondary outcomes among individuals aged 18-70 years old.	The limitation of this literature review is the evidence quality and variability (heterogeneity) of the studies reviewed.	Level III, systematic review of literature (qualitative without meta-analysis)
6	Pirkle, C., Vu, N., Ilagan, L., Cacal, S., Stupplebeen, D., & Nett, B. (2019). Greater community-clinical	No sample size. Diabetes Self-Management	This study examined the impact of enhancing community-	The study recommended improved integration of community resources into diabetes education programs, emphasizing the need for	The researchers evaluated community resources, diabetes education program effectiveness, and patient engagement	Limitations include reliance on qualitative data, which may not capture the	Level III, Quality C

	linkages and attention to patient life stage: Recommendations to improve diabetes self-management education in Hawai'i. Hawai'i journal of medicine & public health: *Journal of Asia Pacific Medicine & Public Health*, 78, 70–77. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6603883/	Education (DSME) coordinators/ managers from all counties in Hawai'i Setting = Hawaii	clinical linkages and considering patient life stages on diabetes self-management education effectiveness; explored the landscape of DSME services in Hawai'i, focusing on challenges faced by coordinators/managers and recommendations for improvement, emphasizing community-clinical linkages.	tailored approaches based on patients' life stages to enhance self-management. Interviewees reported low utilization of DSME services and various implementation challenges, such as preference for group versus one-on-one sessions. Recommendations included enhancing community-clinical linkages and adapting DSME services to better meet patient and community needs.	strategies; qualitative analysis based on interviews, assessed through the socioecological model to evaluate factors influencing healthcare providers and patients regarding DSME service delivery.	full scope of DSME service utilization and effectiveness across diverse populations. Additionally, there is a lack of quantitative data to support the findings and subjective assessments of community-clinical linkages may introduce bias. The study also raised concerns about insufficient resources for the increasing number of youths with diabetes.	
7	Rosman, J., Eriksson, J., Martinell, M., Olinder, A., & Leksell, J. (2022). Individual goal-based plan based on nursing theory for adults with type 2 diabetes and self-care deficits: A study protocol of a randomized controlled trial. *BMJ Open*, 12(3). https://doi.org/10.1136/bmjopen-2021-053955.	Sample Size: 110 patients with type 2 diabetes. Sample size: 110 Setting: Primary care setting in Sweden.	This study focuses on implementing an individual goal-based plan based on nursing theory for adults with type 2 diabetes who have self-care deficits.	The study aimed to evaluate the effectiveness of the goal-based plan in improving self-care and diabetes management among participants; evaluated the effectiveness of a written, theory-based, individual goal-based care plan for patients with type 2 diabetes who have self-management deficits.	The study will assess relevant outcomes, potentially including HbA1c levels and other self-care-related metrics; Primary outcome: HbA1c levels. Secondary outcomes: Health-related quality of life (RAND-36) and patient experiences (Diabetes Questionnaire).	The limitation includes the specific context of a primary care setting which may affect generalizability. The qualitative interview study to be conducted post-intervention may have its own biases.	Level II, Quality A
8	Vellone, E. (2024). *The self-care of diabetes inventory-caregiver contribution (SCODI)*. https://self-care-measures.com/available-self-care-measures-caregiver-	Not specified in the summary	This study focuses on the caregiver contributions to diabetes self-care through the development and validation of the Self-Care of	The study aimed to assess the impact of caregiver involvement on diabetes management among patients, demonstrating that the Self-Care of Diabetes Inventory (SCODI) is valid and reliable for adults with type 1 and type 2 diabetes, with multidimensional	The researchers used the SCODI to evaluate caregiver contributions to diabetes self-care practices.	Limitations include potential biases in self-reported data and the need for further validation of the SCODI in diverse	Level II, Quality B

	contributions/self-care-of-diabetes-inventory-caregiver-contribution/		Diabetes Inventory-Caregiver Contribution (SCODI).	model-based reliabilities ranging from 0.81 to 0.89. Significant associations were identified between self-care practices and outcomes related to HbA1c levels and diabetes complications.		populations.	
9	Xu, E., Gowen, R., Stevenson, J., MONROY-SPANGENBERG, E., & Wood, R. (2022). 500-P: Gaps in patient education upon initial diabetes diagnosis among adults living with type 1 and 2 diabetes in the United States. *Diabetes,* 71, 500-P. https://doi.org/10.2337/db22-500-P	Sample size: 1,056 Adults with diabetes in the United States. Setting: In the United States.	The study examined patient education gaps upon initial diabetes diagnosis and assessed satisfaction levels with the information received from healthcare providers.	Among respondents, 47% reported being unsatisfied with the education they received at diagnosis. A significant portion of type 1 (22%) and type 2 (27%) adults indicated they received little to no information, with many type 1 patients (28%) reporting misdiagnosis and others highlighting gaps in education about monitoring blood glucose levels, diet, and diabetes technology. Type 2 patients primarily expressed a need for more information on diet and exercise management (37%).	Respondents rated their satisfaction with the information received on a 10-point scale, and qualitative responses were collected to identify specific unmet educational needs.	Limitations include potential self-selection bias in the sample and reliance on self-reported satisfaction scores, which may not capture the full scope of educational deficits.	Level III, Quality B
10	Chowdhury, H. A., Harrison, C. L., Siddiquea, B. N., Tissera, S., Afroz, A., Ali, L., Joham, A. E., & Billah, B. (2024). The effectiveness of diabetes self-management education intervention on glycaemic control and cardiometabolic risk in adults with type 2 diabetes in low- and middle-income countries: A systematic review and meta-analysis. *PloS one*, *19*(2), e0297328. https://doi.org/10.1371/journal.pone.0297328	Sample/size = 44 studies; 11,838 participants (10,500 reported HbA1c levels). Setting = low- and middle-income countries (LMICs);	This systematic review with meta-analysis evaluated 44 articles and focused on the health outcomes of diabetic patients after DSME intervention.	The results of this systematic review/meta-analysis showed significant lowering of HbA1c levels compared to controls with a MD of 0.64% (95% CI: 0.64% to 0.83%; p = 0.001)	The reviewers measured (a) HBA1c (b) FBG (c) BMI (d) WC (e) LDL (f) HDL (g) TG (h) TC (i) SBP (j) DBP, (k) diabetes knowledge, (l) self-efficacy, and (m) health-related quality of life of RCTs studies.	One limitation is the high heterogeneity across the studies and variability in how DSME/S was implemented.	Level II, systematic review and meta-analysis

Appendix F.

Clinical Labs of Hawaii (CLH) Financial Support

CLINICAL LABS OF HAWAII

December 23, 2024

Ms. Youngbean Kwon, MSN, FNP-BC, APRN-RX
Hawaii Pacific University
1 Aloha Tower Drive
Honolulu, HI 96813
Phone: 808-397-1535

Dear Ms. Kwon,

Clinical Laboratories of Hawai'i, LLP (CLH) wholeheartedly supports our participation in this important diabetes research. Your efforts in advancing the understanding of, and care for those impacted by, diabetes align closely with our commitment to improving health outcomes within our community.

We are a full-service laboratory certified by the Centers for Medicare and Medicaid Services (CMS) and accredited by the Clinical Laboratories Improvement Amendments (CLIA). We have been providing laboratory services in Hawai 'i since 1971 and will continue to do so.

To demonstrate our support, we will waive laboratory fees associated with testing required for this study. We hope this contribution will help facilitate your research efforts and enhance the study's success.

Thank you for leading such impactful work. We are proud to stand alongside you in this effort.

Ally Park
President
Clinical Laboratories of Hawai'i, LLP

99-193 Aiea Heights Drive, Aiea, Hawaii 96701 (808)677-7999
www.clinicallabs.com

Appendix G.

Hawaii Pacific University Institutional Review Board (IRB) Project Application

Hawai'i Pacific University
Institutional Review Board
Project Application

Please complete and submit the form to the IRB chair via email: to irbchair@hpu.edu

Study title: Evaluation of a Self-Management Program on Adults with Diabetes Mellitus Type II

Investigator:

Name: Youngbean Kwon, MSN, APRN
(Please check one)
Faculty X Student Outside Investigator

Phone: 808-397-1535

Email: ykwon1@my.hpu.edu

Sponsoring HPU Faculty Member: Dr. Jacqueline Thomas

(if Investigator is not an HPU faculty member)

Please attach a brief summary of the project. This should include an explicit statement of methods, data collection, and how confidentially of subjects/data will be protected including consent form.

Category for Review:

Check one level of review (Exempt, Expedited, Full) for which you believe the project qualifies, and each criterion that your project meets.

____ **Exempt from review (nil or minimal risk study, or already reviewed by an IRB)**

____ Research involves ONLY investigation into or comparison of normal instructional strategies.

____ Tests, interviews, and surveys are unlikely to elicit emotion or place subjects at risk of civil/criminal liability or damage to their reputation, financial standing, employability, etc. AND information will not be recorded in such a way that subjects can be identified.

____ Research involves only the study or analysis of existing data, documents, records, or specimens that are publicly available or recorded in such a way that subjects cannot be identified.

____ If study involves ingestion of food: only wholesome food without additives in excess of USDA recommended levels is consumed.

____ Brief informed consent will be done (except in the case of existing data, etc.).

____ No use of vulnerable subjects (children, prisoners, pregnant women, mentally ill, etc.).

____ Has already been approved by IRB at _____.
(Include copy of signed IRB approval form.)

__X_ **Expedited review (minor risk study)**

__X_ Research and data collection methods are unlikely to elicit strong emotion and deception is not involved.

____ Research involves only noninvasive, painless, and non-disfiguring collection of physical samples, such as hair, sweat, excreta.

__X_ No use of vulnerable subjects (children, prisoners, pregnant women, mentally ill, disabled, etc.).

____ Data are recorded using noninvasive, painless, and non-disfiguring sensors or equipment, such as EKG, weighing scales, voice/video recording.

____ Research involves only moderate levels of exercise in healthy volunteers.

__X_ Research does not involve ingestion of drugs or use of hazardous devices.

__X_ If existing data, documents, records, or specimens with identifiers are used, procedures are in place to ensure confidentiality.

__X_ Informed consent process will be done (attach copy of informed consent form).

__X_ Data will be kept confidential and not reported in identifiable fashion.

____ **Full review required (more than minor risk)**
Attach a statement that describes the use of vulnerable subjects or the study procedures and conditions that place subjects at risk. Describe the precautions that will be taken to minimize these risks. Attach a copy of the informed consent form that will be used.

Certification by Principal Investigator: The above represents a fair estimate of risks to human subjects.

Youngbean Kwon / MSN, APRN / 11. 07. 2024
Name/ Title/ Date

FOR IRB USE ONLY

Certification by IRB Chair: I have read this application and believe this research qualifies as:

____ Exempt from IRB review
__/__ Appropriate for expedited review, and
__/__ approved
____ disapproved
____ Appropriate for review by the full IRB

[signature] 11.16.2024
IRB Chair Date

5604202162

Appendix H.

Doctor of Nursing Practice (DNP) Essentials Table

DNP Essential	Description	Application to Project
Essential I: Scientific Underpinnings for Practice	Uses science-based concepts to guide clinical decision-making and practice.	Applied evidence-based frameworks (Orem's Theory and ADCES-7) to design and implement an educational intervention that improved diabetes self-management.
Essential II: Organizational and Systems Leadership for Quality Improvement and Systems Thinking	Focuses on leadership skills for quality improvement and patient safety within healthcare systems.	Led the development and evaluation of a structured intervention to reduce HbA1c levels and enhance self-management skills, improving care outcomes.
Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice	Promotes use of data analysis to improve patient outcomes.	Collected and analyzed pre- and post-intervention SCODI and HbA1c data to assess effectiveness; utilized findings to guide future practice recommendations.
Essential IV: Information Systems/Technology and Patient Care Technology	Emphasizes use of technology to improve healthcare delivery and outcomes.	Used electronic health records to track HbA1c levels and facilitate patient education documentation and follow-up.
Essential V: Health Care Policy for Advocacy in Health Care	Advocates for policy changes that improve healthcare outcomes and access.	Project supports recommendations for DSME reimbursement and integration into standard care practices; aligns with policy-level initiatives for chronic disease management.
Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes	Encourages teamwork across disciplines to optimize care delivery.	Collaborated with providers, educators, and lab services to implement a comprehensive intervention for diabetes care.
Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health	Focuses on health promotion and disease prevention at the population level.	Targeted a specific high-risk population (Asian and Korean patients) with culturally tailored education to promote diabetes prevention and management.
Essential VIII: Advanced Nursing Practice	Demonstrates expertise in managing complex clinical situations and delivering high-quality care.	Utilized advanced clinical skills to assess needs, deliver education, evaluate outcomes, and make evidence-informed adjustments to care strategies.

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