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A Provider Education Program Addressing Barriers to Diabetic Patients' Self-Care

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Walden University
2020

Abstract

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MS, Walden University, 2015

BS, University of Alaska Anchorage, 2009

Project Submitted in Partial Proposal

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Diabetes is the leading cause of death among American Indian/Alaskan Natives and the 7th leading cause of death in the United States. Type 2 diabetes (T2DM) affects 9% of the U.S. population and costs the United States an estimated $245 billion annually. The purpose of this project was to identify patients' concerns related to their disease and to develop an education program for providers to address these concerns. The project was framed using Orem's theory of self-care and the middle-range theory of self-care of chronic illness. Five providers in an underserved clinic in Alaska conducted assessments during a primary care visit. Survey data were collected from 22 patients diagnosed with T2DM, ages 24 to 83 years. The de-identified data were analyzed for themes related to patients' concerns. Themes included diet, exercise, blood sugar checks, medication, taking shots, understanding their disease, referrals, follow-up appointments, depression/anxiety, needing a new insulin pump, lifestyle change, and not knowing what they want. An education program was delivered to the 5 providers addressing the patient concerns. All providers agreed or strongly agreed that the education program provided information they could use to educate and support their T2DM patients. This project supported positive social change by empowering providers to focus on patients' concerns and self-management of their disease.

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Dedication

I would like to use this opportunity to dedicate this project work to My Heavenly Father (God Almighty) for giving me the strength, wisdom, knowledge, and understanding to start and complete this program. I also want to dedicate this project work to my husband and kids for all their love, patience, and understanding in supporting me through ups and downs as I went through this program. Thank you and I love you all with all my heart. Lots of hugs and kisses.

I also want to use this opportunity to dedicate this project work to “my prayer warrior mother,” who inspired me to start on this journey. Watching her complete her doctorate in theology was part of my motivation and strength, and encouraged me to believe that anything is possible if you put your heart into it. I love you and thank you.

Also, as my dad looks down on me from heaven, I can imagine the smile on his face indicating, “Yes, my little princess, you did it!” I dedicate this project to him; I love and miss you dearly dad.

Also, I would like to dedicate this project work to my lovely brothers, sisters, friends, colleagues, and well-wishers for their undying support and words of encouragement as I went through this program.

Acknowledgments

It has been a long time coming. First and foremost, I would like to give God the glory for blessing me with His wisdom, knowledge, and understanding, which I applied to help me ace all my courses in this program.

I would like to use this opportunity again to acknowledges and give a big hug and special thanks to my husband, daughter, and sons for their undying love, patience, and support through this time-consuming process. I hear you guys. I have missed lots of special occasions, but I promise you all have my unlimited presence/attention and undying love. Guess what? It is finished, and we made it! I am here now.

I also want to use this opportunity to acknowledge my project committee members, instructors, classmates, and Walden staff members I made contact with for their help, guidance, and support through the completion of this project. Notably, a special thanks to my project chairperson, Dr. Diana Whitehead. Thank you for your patience, constant support, guidance, love, and understanding in seeing me through the successful completion of this project. I am blessed to have had you as a project chair. You are the best Dr. “D”!

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Last, be not least, I would like to acknowledge all the providers, the manager, and nursing staff of the Hearts of Eagle River clinic for all your support and contributions toward the success of my project educational program. Thanks to everyone. I love you.

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Section 1: Nature of the Project

Diabetes mellitus (DM) is considered a major epidemic of the 21st century (Bar-Dayan et al., 2016). According to the International Diabetes Federation, 382 million people worldwide had diabetes in 2013, and this number is expected to increase to 592 million by 2035. Approximately 415 million in the world between 20 and 79 years of age lives with diabetes. Seventy-five percent of these individuals live in low-and middle-income countries. The global age-standardized diabetes prevalence is currently 9.0% in men and 7.9% in women (Magnan, Bolt, Greenlee, Fink, & Smith, 2018).

Diabetes affects 9% of the U.S. population and costs the United States an estimated $245 billion annually (Laiteerapong et al., 2018). Even though the prevalence of adults with diagnosed diabetes went up sharply during the 1990s, this diagnosis appears to have been stabilizing since 2009. About 1.4 million new cases of diabetes were diagnosed among adults ages 18 to 79 in 2015. Approximately 7.2 million of these adults had diabetes but were not aware that they had the disease or did not report that they had it (Centers for Disease Control and Prevention [CDC], 2018). Nearly 10% of the U.S. population suffers from type 2 diabetes mellitus (T2DM). This incidence varies by race/ethnicity, with non-Hispanic Whites experiencing the lowest rates (7.1%), followed by Asians (8.4%), Hispanics (11.8%), Blacks (12.6%), and American Indians (16.1%; Chandler & Monnat, 2015). An aging population and the growth of minority populations are expected to add to the disease's prevalence. African Americans, Latinos, Native Americans, and certain Asians and Pacific Islanders are at high risk of developing T2DM (Chan, 2010).

T2DM is a metabolic condition in which the pancreas is resistant to insulin or there is deficiency of insulin secretions (Gnesin et al., 2018). T2DM takes up to 8-12 years from the beginning of abnormal blood sugar readings. Throughout this period, an individual can be asymptomatic (Bar-Dayan et al., 2016). Patients diagnosed with T2DM have a higher death rate and more long-term complications such as retinopathy, neuropathy, nephropathy (i.e., microvascular complications) and ischemia of the lower extremities, ischemic heart disease, and stroke (macrovascular complications) compared to nondiabetic individuals (Chandler & Monnat, 2015; Gnesin et al., 2018).

T2DM has levied substantial economic and clinical burden in the U.S. health care system. In 2017, the annual expenditure on diabetes care in the United States was approximately $327 billion, consisting of $237 billion in direct medical costs and $90 billion in indirect costs (Willey et al., 2018). The annual economic cost of diabetes in the United States is estimated at $245 billion (Chandler & Monnat, 2015). Unplanned absences in the workforce due to diabetes-related illness is estimated to cost a company with 1,000 full-time employees $1.5 million annually in wage replacements and lost productivity (Weiss, 2017).

Diabetes self-management education (DSME) programs help to increase patients' knowledge and vision about the disease and to emphasize their role in disease management and treatment via continuous control of diet and blood glucose levels. These programs focus on living with diabetes as a chronic condition and include knowledge about food intake, physical activity, metabolic control, prevention of complications, and psychological aspects. DSME programs include lectures, interactive discussions, and

participants sharing their experiences related to physical activities, blood glucose measurements, and problem-solving issues and, (Fløde, Iversen, Aarflot, & Haltbakk, 2017). Moghadam, Najafi, and Yektatalab (2018) reported that effective self-care measures performed by patients resulted in at least 1% decrease in HbA1c level, which could significantly decrease the dangerous consequences of diabetes, such as death, myocardial infarction, and microcellular damage.

Successful management of diabetes is required to reduce its burden and complications. DSME plays a key role in empowering people with diabetes to engage in and maintain lifestyle changes that have been shown to improve health outcomes (Fan & Sidani, 2018). Therefore, it is time for a patient's role in their care to be redefined from a passive recipient of care to an active participant charged with defined responsibilities, equipped to dispatch them, and accountable for the results (Schlesinger & Fox, 2016). To promote a positive social change in the lives of patients in the community in which they reside in, providers need to give patients autonomy over their care and be diligent in identifying the barriers preventing patients from self-care management of their disease.

Problem Statement

American Indian/Alaskan Natives (AI/AN) constitute only 2% of the U.S. population. Diabetes is the leading cause of death among this group and the seventh leading cause of death in the United States. Adult ages 20 years or older in the AI/AN population have been noted to have a higher prevalence of DM, and they also develop T2DM at a much younger age than the general U.S. population. Cardiovascular disease and mortality from this disease are higher amongst AI/ANs than the general population

for which DM is the major risk factor. Compared to the non-Hispanic White population, the prevalence of stroke and 1-year poststroke mortality for both males and females in the AI/AN population is higher. According to Poudel, Zhou, Story, and Li (2018), cultural norms and historical conditions, in addition to race/ethnicity, contribute to the increasing prevalence of DM and cardiovascular disease among the AI/AN population.

When establishing prevention programs to decrease the prevalence of T2DM incidence among adults and children in the AI/AN population, it is important to consider multiple factors. Behavioral risk factors should be identified and addressed in prevention programs (such as self-care management and diabetes education), and smoking cessation, healthy diet, and increased physical activity should be advocated for and promoted as a lifestyle change (Poudel et al., 2018). Patient self-reports shared by the practicum site revealed that most of AI/ANs are still living the traditional life. They are unemployed, uneducated, of low income, and have poor access to health care. Clinic providers reported that these patients are deficient in their knowledge of diabetes self-care management.

T2DM is a silent condition with few or no symptoms caused by poor glucose, blood pressure, and lipid control. There is little or no sense of urgency, and this is a key issue. People with T2DM are asked to take a handful of pills, give themselves injections, and prick their fingers to measure their blood glucose several times a day. However, they often do not feel any different whether they follow or do not follow physician recommendations (Edelman, 2017). Ongoing patient self-management education and support are critical to preventing acute complications and reducing the risk of long-term

complications. Significant evidence exists that supports a range of interventions, such as to improve diabetes outcomes (American Diabetes Association [ADA], 2019).

Purpose Statement

The purpose of this project was to develop an education program for providers caring for patients with T2DM. The education program was developed following the Walden University Manual for Staff Education for DNP scholarly projects. The project question was the following: Based on provider input related to diabetic patients' major concerns, will a staff education program on addressing these concerns improve providers' competence in addressing patient concerns?

Nature of the Doctoral Project

Providers at the clinic are concerned with the high incidence of T2DM and the lack of patients' ability to manage their self-care. Providers have asked all patients returning to the clinic for their routine visit the following five questions:

1. What is causing you the most concern at this moment?
2. What is difficult about diabetes?
3. What would you change to feel better?
4. What are the next steps you feel you can take to feel better?
5. What can I do to help you?

De-identified survey data were provided to me by the facility. I explored the results for themes. Based on themes, an education program for providers was developed. An expert panel was identified to review the educational materials. This project met the standard of Essentials for Doctoral Education for Advanced Nursing Practice as defined

by the American Association of Colleges of Nursing (American Association of Colleges of Nursing [AACN], 2006) Clinical Prevention and Population Health for Improving the Nation's Health. By applying DNP Essentials VII, providers in the nursing profession/clinical practice settings can analyze epidemiological, biostatistical, environmental, and other appropriate scientific data related to individual, aggregate, and targeted population health.

Significance

Diabetes is a chronic disease and one of the leading causes of cardiovascular death in the Alaskan community. Therefore, patients' self-care management and education, and providers identifying barriers to patient care early and implementing evidence-based practice to provide patient-centered care or individualized-patient care, are imperative. Involving stakeholders earlier in patients' care plan is vital for positive patient outcomes. The stakeholders are patients, family members, providers, and inter- and intradisciplinary team members such as medical providers, diabetes educators, behavioral health providers, medical assistants, and community resource representatives. Additional stakeholders include members of a partnering community engagement organization and researchers with backgrounds in public health, community engagement, health behavior change, health services research, diabetes short message service, and health care informatics (Kwan et al., 2017). Through collaborations with clinic stakeholders, barriers to patient self-care management were identified, and a provider education program was developed.

Summary

The diabetes epidemic continues to grow at an alarming rate. Every 17 seconds, someone in the United States is diagnosed with T2DM (Caffrey, 2018). The cost of care for patients with diabetes is skyrocketing, and it is the leading cause of cardiovascular death in Alaska. The primary issue is lack of patient education, self-care motivation, and activation (Edelman, 2017). Section 1 introduced the gap in practice, the practice question, and the nature of this project. The ADA (as cited in Powers et al., 2015) recommended that all individuals with diabetes receive diabetes self-management education and support (DSMES) at diagnosis and as needed thereafter. Section 2 introduces the model that supported this project, the evidence supporting the project question, and my role in the project.

Section 2: Background and Context

Despite many advances in its treatment over the past few decades, T2DM remains a serious public health problem and a growing burden on global economies. T2DM is associated with reduced life expectancy. Also, T2DM is associated with significant morbidity and low quality of life due to specific diabetes-related microvascular complications, increased risk of macrovascular complications (ischemic heart disease, stroke, and peripheral vascular disease), blindness, renal failure, and lower extremity amputations. The World Health Organization's projections showed that T2DM will be the 7th leading cause of death in 2030, affecting over 20 million U.S. adults (Gutierrez, Fortmann, Savin, Clark, & Gallo, 2018; Migdalis et al., 2015). T2DM is predicted to be the number one cause of cardiovascular death among Alaskan Indians (Edelman, 2017). Exploring patient concerns related to their T2DM management can provide timely, evidence-based, patient-centered education. The project question was the following: Based on provider input related to diabetic patients' major concerns, will a staff education program on addressing these concerns improve providers' competence in addressing patient concerns? Section 2 presents the model supporting this project and the evidence supporting the importance of the project.

Concepts, Models, and Theories

Self-care is an essential component in dealing with chronic illnesses. Influenced by Orem's grand theory of self-care, the middle-range theory of self-care of chronic illness is specific to chronic illnesses and supported the focus of this project. The concepts of this theory include self-care maintenance, self-care monitoring, and self-care

management. Underlying these processes are the concepts of decision-making and reflection. Persons with chronic illness are challenged to continually reflect on their disease and the actions they take based on the decisions that they make. Assumptions in this model include (a) there are differences in self-care decisions between healthy individuals and those with chronic illnesses, (b) people must be able to focus their attention and think rationally to make decisions, and (c) co-morbidities can influence self-care decision-making. People's experiences and cultural beliefs can influence their self-care decisions, values, motivation, confidence, and habits (Riegel, Jaarsma, & Strombert, 2012). Table 1 depicts the components of this middle-range theory and how the theory framed this project.

Table 1

Middle-Range Theory of Self-Care of Chronic Illness

Components of theory	Application of project to facility quality improvement
Self-care maintenance: behaviors that improve well-being	What are the next steps you feel you can take to feel better?
Self-care monitoring: body monitoring and listening to one's body	What is causing you the most concern now? What is difficult about diabetes?
Self-care management: evaluating changes implemented through self-care monitoring and maintenance	What would you change to feel better? What can I do to help you?

Note. Adapted from Riegel, B., Jaarsma, T., & Strombert, A. 2012). A middle-range theory of self-care of chronic illness. *Advances in Nursing Science, 54*(3), 194-214.

Relevance to Nursing Practice

Diabetes and Patient-Centered Care

The ADA recommended patient-centered care that considers individual patient health needs. For example, patients with early cardiac conditions are likely to benefit from more focus on cardiovascular risk reduction, while patients with limited life expectancy due to advanced comorbidities might appropriately have less strict glycemic control. Understanding the relationship between a patient's combination of chronic conditions and diabetes care quality is a vital step toward improving care for patients with diabetes and multiple chronic conditions (Magnan et al., 2018). Several studies supported the importance of provider assessment of patients' barriers, self-care practices, and associated factors among diabetic patients (Britz & Dunn, 2010; Chali, Salih, & Abate, 2018).

Diabetes and Self-Care

T2DM is a major global health problem that requires ongoing self-care activities for the prevention of both acute and chronic complications. Self-care practice has a significant impact on complication prevention and positive health outcomes in patients with T2DM. Self-care actives include healthy eating, being physically active, blood glucose monitoring, medication adherence, and healthy coping. Research has shown that when patients with diabetes adhere to self-care actives, the outcome is improved glycemic control, increased prevention of cardiovascular risk factors, decreased health care utilization, and improved diabetes-specific quality of life. Diabetes is a disease that takes a great toll on the quality of life and socioeconomic structures of individuals affected by T2DM, as well as their families and the country's health care system (Gurmu, Gela, & Aga, 2018).

Chali et al. (2018) found that a significant number of diabetic patients had a low level of self-care practice. Involving different stakeholders (including hospitals, health professionals, health programmers, and different nongovernmental organizations) with the emphasis on linking diabetic patients to different supporting social groups, improving knowledge through health education (on diet, exercise, healthy lifestyles, and self-monitoring glucometer for those individuals) contributed to improving diabetes self-care practices with these patients.

Diabetes Self-Management Education

Trip, Conder, Hale, and Whitehead (2016) noted that knowledge and understanding were limiting factors for some participants in identifying and progressing

self-management goals. DSME informs, strengthens, and empowers self-care in patients with diabetes. The ADA (date) recommended integrating DSME for patients with T2DM plan of care to inform the patient of their disease and promote skills and competencies for diabetes self-care. DSME is a program designed to control the increased blood sugar and to prevent T2DM complications. Medications, medical nutrition therapy, physical activity, and patient self-monitoring of blood sugar are recommended for glycemic control (Surucu, Kizilci, & Ergor, 2017). Self-management education helps patients with T2DM successfully self-manage their disease and related conditions through the acquisition of knowledge and problem-solving and coping skills. Self-management is achieved through the collaboration with diabetes educators and individuals with or at risk of diabetes disease (CDC, 2019).

Felix et al. (2019) concluded that engaging in diabetes-related self-care behaviors is important to minimize complications associated with having diabetes. DSME interventions have increased engagement in self-care behaviors in racial minority groups. Felix et al. used a 2-arm randomized controlled trial design study to assess the effect of family DSME intervention on changes in self-care behaviors among 211 adults with T2DM. Changes in diabetes self-care behaviors were assessed from baseline to 12 months, and Felix et al. found a statistically significant increase in the proportion of participants who engaged in daily glucose monitoring from baseline and the 12-month follow-up for those in the standard DSME (51.4% vs. 75.4%, $p < .001$). In the family DSME arm, Felix et al. found a statistically significant increase in the proportion of participants who reported daily monitoring of glucose from baseline to the 12-months

post-intervention observation (44.2% vs. 90.2%, $p < .001$). There was also a statistically significant increase in the proportion of participants who reported having an annual doctor visit (70.8% vs. 87.5%, $p = .004$; Felix et al., 2019). Felix et al. concluded that DSME could improve some diabetes-related self-care behaviors. Future studies on diabetes management should address developing and testing interventions to improve long-term rates of engagement in self-care behaviors.

O'Donnell et al. (2018) researched the effect of DSME by assessing the effectiveness of a goal-setting session as part of a structured group self-management education program for people with T2DM. O'Donnell et al. collected data from participants through questionnaires sent to participants at 1 week and 3 months following the DSME program to assess factors associated with setting and sustaining action plans. Results revealed that 92% (253/275) of participants completed an action plan (O'Donnell et al., 2018). Reducing weight was the area most targeted, and physical activity was the most common goal (O'Donnell et al., 2018). Findings showed a 68% (187/275) response rate at 3 months, and 96% of participants indicated they were still working on their action plan (O'Donnell et al., 2018). Although 87% reporting they were always/usually meeting their action plan, 22% said they had discussed their goal with a health care professional. O'Donnell et al. concluded that goal setting was an important part of DSME.

Surucu et al. (2017) investigated the effects of diabetes education based on the self-care deficit nursing theory on the self-care agency, self-care activities, and HbA1c levels of patients with type 2 diabetes. Surucu et al. used a double-blind, randomized, controlled intervention study with 70 patients assigned to the intervention group and 69

patients assigned to the control group. Results from the intervention group showed that interventions for self-care agency and self-care activity were significantly higher and HbA1c was significantly lower than the scores at preintervention ($p = 0.05$; Surucu et al., 2018). This result indicated that DSME can contribute positively to the improvement of T2DM with this targeted population (Surucu et al., 2018).

Bukhsh et al., 2019 revealed that self-care activities and glycated hemoglobin levels were significantly correlated with disease knowledge among 218 patients with type 2 diabetes. Results were significantly associated ($p < 0.05$) with the patient's gender, level of education, family history of diabetes, nature of euglycemic therapy, and glycemic control (Bukhsh et al., 2019).

Educating Nursing Staff on Diabetic Education

Diabetic educators' roles enable the implementation of processes and programs to improve glycemic control and facilitate change. Educating patients; identifying barriers to care, management, hypoglycemia management and prevention, care coordination and transition, nutrition therapy, and monitoring glycemic control; and providing/monitoring professional education are key leadership roles that diabetes educators play (American Association of Diabetes Educators [AADE], 2016). However, many facilities do not have a specific diabetic educator, so patient education falls to nursing staff. Nurses should begin planning patient education as soon as the needs of learning are identified during the assessment. Identifying and addressing barriers offers opportunities for practice, and problem-solving and coping skills can be attained through early intervention. When

preparing patients to perform self-management at the time of discharge, best practices include the following:

- evaluating and updating prior diabetes knowledge, structuring the environment, and teaching approaches to optimize learning (e.g., focused, short sessions);
- performing learning needs assessments to include health literacy, and setting and prioritizing goals;
- focusing on survival skills such as self-medication administration, meal planning, monitoring blood glucose including targets timing of testing and techniques, and prevention and treatment of hypoglycemia and hyperglycemia;
- evaluating patients' ability to obtain diabetes supplies and medication; and
- providing patient referrals to community resources to continue with diabetes self-management education, documenting and communicating patient's status of self-management education, and identifying patients' needs to other health care professionals (AADE, 2016).

Current evidence indicated that educating nursing staff on diabetic education is important to an early, patient-centered provision and implementation of the evidence-based standard to care that would result in positive patient outcomes (da Silva Guilherme Menino, Coelho Rodrigues Dixe, & Carvalho Martins Louro, 2016; De la Fuente Coria, Cruz-Cobo, & Santi-Cano, 2019).

Local Background and Context

In the current study, the education program was implemented in a primary care setting located in a suburb of a large metropolitan city in Alaska. Most of the patients had low socioeconomic status, and a large percentage was AI/AN. The patient populations registered and seen in this clinic averaged 160. Approximately 70% of the patients were diagnosed with T2DM, and an additional 15% were diagnosed with prediabetes. T2DM among AI/AN is expected to increase significantly over the next several decades.

The increasing numbers of the aging population, physical inactivity, and the increasing rates of obesity are factors that would contribute to the increase in the prevalence of the new cases of diabetes in the community. The number of AI/ANs 18 years of age currently diagnosed with diabetes is roughly 18,700. Also, 10,900 Ai/AN adults are estimated to have undiagnosed T2DM, and 27,800 Alaskan adults have prediabetes. These figures account for 13% of the adult population, which amounts to 57,400 Alaskans. Considering the fact that the Alaska health care budget is already at capacity, this continuous increase in incidence of diabetes will put more strain on available resources (Department of Health & Social Services Division of Public Health, 2005). The Alaska Diabetes Prevention and Control Program brought together diabetes leaders from all over the state to see how they can help solve this growing problem. To reduce the increasing burden of diabetes disease, the Alaska Diabetes Prevention and Control Program established an action plan with strategies based on evidence-based science to address the unique needs of Alaskan's culturally diverse population (Department of Health & Social Services Division of Public Health, 2005).

Definition of Terms

A1c: Hemoglobin A1c is a minor component of hemoglobin to which glucose binds. Hemoglobin A1c levels depend on blood glucose concentrations. The higher the sugar concentration in the blood, the higher the detectable hemoglobin A1c levels. At any point in time, hemoglobin A1c levels represent the average blood sugar concentrations in the person with diabetes for approximately the preceding three months. Other ways hemoglobin A1c may be termed include HbA1c, A1c, and Hb1c. The normal range for hemoglobin A1c is 4% to 5.9% (Davis, 2018).

DSMES: Diabetes self-management education and support is a critical element of care for all people with diabetes and those at risk for developing the condition. DSMES is the ongoing process of facilitating the knowledge, skills, and ability necessary for prediabetes and diabetes self-care, as well as activities that assist people in implementing and sustaining the behaviors needed to manage their condition on an ongoing basis beyond or outside of formal self-management training (Beck et al., 2017).

Prediabetes: Prediabetes is a health condition that means the blood sugar level is higher than normal but not yet high enough for a person to be diagnosed with diabetes. The blood sugar range for prediabetes is 100-125 milligrams per deciliter (mg/dL), and the A1c range is 5.7% to 6.4%. The A1c is the average blood sugar over 2 to 3 months. Prediabetes usually has no symptoms, but it almost always shows up before a person gets diagnosed with diabetes (WebMD, 2019).

T2DM: Type 2 diabetes is primarily associated with insulin secretory deficits related to inflammation and metabolic stress, among other contributors (ADA, 2019).

T2DM is also known as insulin-resistant diabetes, noninsulin dependent diabetes, and adult-onset diabetes. T2DM is a condition in which cells cannot use blood sugar (glucose) efficiently for energy. T2DM occurs when the cells become insensitive to insulin and the blood sugar gets too high (Shiel, 2017).

Role of the DNP Student

As a DNP student, I aligned this project with Essential VII of the DNP Essentials Clinical Prevention and Population Health for Improving the Nation's Health (AACN, 2006). Based on input from clinic providers, I developed and implemented a provider education program addressing barriers to diabetes self-care management identified by their patients. The information gathered from the de-identified clinic data was used to develop an evidence-based recommendation on a diabetic education program for providers to implement in their practice. I applied my effective leadership qualities and advanced communication skills/processes to lead this education program at the clinic.

Summary

Section 2 introduced the middle-range theory of self-care in chronic illness as the framework for this project. The evidence-based literature supporting the importance of patient-centered diabetes patient education programs was described. My role in supporting the AACN Essentials and my leadership role at the project site were discussed. Section 3 presents the sources of evidence used to develop and implement this project, including participants, procedures, and protections, as well as project analysis and synthesis.

Section 3: Collection and Analysis of Evidence

The problem identified in this Alaskan clinic was the lack of diabetes self-care management of T2DM patients. Based on this concern, clinic providers explored patient perceptions of barriers to their diabetes self-care management strategies. The clinic shared these de-identified reports with me. Based on this information, I developed an education program for providers on evidence-based strategies to address these reported concerns.

Practice-Focused Question

The project question was the following: Based on provider input related to diabetic patients' major concerns, will a staff education program on addressing these concerns improve providers' competence in addressing patient concerns?

Sources of Evidence

Clinic providers explored barriers to self-care management of T2DM. Providers asked all patients returning to the clinic for their routine visit the following five questions:

1. What is causing you the most concern at this moment?
2. What is difficult about diabetes?
3. What would you change to feel better?
4. What are the next steps you feel you can take to feel better?
5. What can I do to help you?

The de-identified data were provided to me. I identified themes based on the responses and develop evidence-based strategies to address these barriers. An education program was presented to clinic providers.

Evidence Generated for the Project

This project adhered to guidelines outlined in the Walden University DNP Manual for Staff Education DNP Scholarly Projects.

Participants

This project included primary care clinic providers located in a small community near a metropolitan area in Alaska. The clinic consisted of five providers (three medical doctors, one physician assistance, and one nurse practitioner) who provided primary care to their patients. The nurse practitioner served as an expert panelist.

Procedures

Planning. Planning consisted of exploring the needs of the organization and obtaining approval for this project. Evidence-based literature relevant to the project was reviewed and discussed in Section 2.

Implementation. Upon IRB approval, the de-identified data were obtained from the organization, and themes were identified. Learning objectives, a draft education program, and program evaluation were developed. The draft program was given to the expert panel members for review. The expert panel recommended that the presentation include PowerPoint handouts and having all providers together to provide better contribution, coordination, and evaluation by providers. The final program is found in Appendix A.

Evaluation. The program evaluation is found in Appendix B. The evaluation addressed the providers' assessment of the program as well as their competence in addressing patient concerns on barriers to T2DM. The educational program was presented at the clinic in two different time frames to allow time for providers to keep their patients' appointments. After consulting with the providers, I presented the education program when all providers were present in the clinic before the start of morning appointments. The presentation was held in the clinic conference/break room.

Protections

Upon committee approval of this proposal, I completed Form A for IRB approval and submitted the signed Site Approval Form for Staff Education Doctoral Project to Walden IRB. At the time of the education program, participants signed the Consent Form for Anonymous Questionnaires. The IRB approval number for this project was 11-01-19-0410279.

Analysis and Synthesis

Themes identified from the de-identified data are found in Table 2 in Section 4. Participant evaluations of the program addressing providers' perceptions of competence (Appendix B) were analyzed using descriptive statistics. The results of the evaluation were shared with clinic leadership.

Summary

Section 3 addressed the planning, implementation, evaluation, and protections associated with this project. Implementation and evaluation of the project were completed

after Walden IRB approval and are discussed in section 4. The strengths and limitations of the project are also discussed in Section 4.

Section 4: Findings and Recommendations

T2DM is a major chronic illness that has an increasing prevalence worldwide and a negative impact on the quality of life and economy on the affected population and the nation as a whole (Silva et al., 2018). Current evidence-based studies supported the significance of diabetes education in improving patient's ability to care for their disease. The purpose of this project was to identify and address T2DM patients with major concerns and develop an education program for providers caring for patients with T2DM. Providers explored patient concerns and shared the de-identified responses with me. I developed an educational program for providers to address these concerns. The project question was the following: Based on provider input related to diabetic patients' major concerns, will a staff education program on addressing these concerns improve providers' competence in addressing patient concerns?

Findings and Implications

Findings

Five providers in the clinic explored their patients' T2DM concerns. Twenty-two patients were included in the survey. Nine males and 13 females ranging in age from 24 years to 83 years responded. These participants had A1c's ranging from 5.4 to 9. Identified themes included diet, exercise, blood sugar checks, medication, taking shots, a problem with body parts/organs, understanding their disease, referrals, follow-up appoints, depression/anxiety, needing new insulin pump, lifestyle change, not knowing what they want, and including everything.

Question 1 what was causing their concerns and what was difficult about their disease. Nineteen participants were concerned about not eating healthy food. Fifteen participants had concerns about weight and not getting enough exercise and how diet was affecting the progression of their disease. Eleven participants indicated having a problem with regular blood sugar checks because they either do not like or do not have the motivation to stick themselves with aqua-check needles. Others reported forgetting to check their blood sugar levels on a daily/regular basis as expected. Two participants reported depression/anxiety, and three participants indicated issues with eyesight, joint pain, and transplants.

Question 2 addressed what patients would change to feel better. Participants indicated not being compliant with taking their medications. One participant complained of taking their insulin shots, and three participants indicated everything as a major concern.

Question 3 addressed what participants need to change to feel better. Five participants indicated a lack of understanding of their disease, three participants indicated medication compliance, and two participants indicated lifestyle change. Three participants indicated not knowing what to do or not doing much to change their present health situation.

Question 4 addressed the next step participants would take to feel better. Two participants reported understanding their disease, not having the disease, nine participants indicated improving diet and exercise, family support, and four indicated setting self-

goals. Other participants indicated autonomy/independence and provider motivation/encouragement as actions to implement in improving their health situation.

Question 5 addressed what providers could do to help. Six participants indicated that they would appreciate their provider giving them a referral to see a diabetic educator and other specialists to help manage their disease. Two participants indicated that regular A1c checks would help put them in check. One participant indicated a new insulin pump as their concern, three participants indicated help with medication compliance, six participants indicated their providers need to motivate/encourage them to stay healthy, one participant indicated help to manage their depression, two participants had no contribution, and four participants indicated help with improving their diet and exercise. Table 2 provides a summary of participants' responses.

Table 2

Summary of Responses to T2DM Concerns

Survey question	Concerns identified
At the moment, what is causing you the most concern?	Struggle to improving diet and exercise and the depression, anxiety and fear of the comorbidities that comes with this disease
What is difficult about diabetes?	Monitoring and maintaining blood sugar and on regular basis
What would you change to feel better?	Understanding the disease(education oneself of the disease), setting goals, lifestyle change and adopting health habits
What are the next steps you feel you are able to take to feel better?	Self-care education and management, autonomy/independence disease management, medication compliance
What can I do to help you?	Encourage, motivate, help with diabetes management and referral to diabetic educator and specialist

Implications

The staff educational program of this project adhered to the staff education guidelines outlined in the Walden University Manual for DNP Scholarly Projects. The educational program followed the educational manual framework of planning, implementation, and evaluation.

Planning

The educational program was developed to incorporate patients' concerns while adopting the ADA guidelines as a road map to providing the best evidence-based care to this targeted population.

Implementation

The educational program was presented to five providers in the clinic on December 31, 2019, using a PowerPoint and an interactive question-answer session. This presentation will be available in a printed version and slides for future providers (Appendix A).

Evaluation

Five providers in the clinic were present for the educational program and completed evaluation forms after the educational presentation. Analysis of the program evaluation responses showed participants either agreed or strongly agreed. All five participants strongly agreed with all aspects of the evaluation content section. In the second category (setting) of the program evaluation, four participants strongly agreed and one agreed. In the third category (faculty/presenter effectiveness), all five participants strongly agreed. In the fourth category (instructional methods) of the program evaluation form, all five participants strongly agreed.

Verbal feedback obtained from program participants indicated that they were satisfied and happy with the content, setting, presenter, and delivery of the diabetes education program. Providers suggested using this educational program for inpatient and staff education in the clinic. Providers also suggested using this program as a template in which they could remove or add content according to evidence-based updates on ADA guidelines when necessary. Providers requested that I come to the clinic periodically to present the information to all clinical staff, including updates on diabetes guidelines.

Recommendations

Research evidence indicated that diabetes self-care management and patient education were effective in T2DM disease management. Providers can provide patient-centered care by assessing patients with T2DM concerns and incorporating these concerns in an individual treatment plan. Providing staff educational programs with patients' concerns and current ADA guidelines is very important for the provision of evidence-based care to patients with T2DM. I recommend that providers continue to implement the diabetes educational program presented to them to provide care to patients with T2DM. The education checklist should be reviewed annually or when new ADA guidelines are published. Revisions to the checklist should include updates incorporating current ADA guidelines. All patients should have an assessment of their concerns with each visit.

Strengths and Limitations of the Project

Strengths

The interest and strong support provided by the medical director of the clinic, the participants, and the clinical manager were strengths of this project. The de-identified survey data used to identify patients' concerns provided evidence for the education program.

Limitations

The sample size of the de-identified survey was small ($N = 22$). Surveys were completed over a one-month period. An extended data collection period might have resulted in more participants.

Section 5: Dissemination Plan

Research findings are used to develop a protocol, and the protocol is followed in daily nursing practice (Emokidi, 2019; Saleh, 2018). Disseminating evidence-based nursing knowledge, research, and findings by nurses to other health care professionals or the general public is very important. Disseminating research findings ensures that the highest quality and most effective care is being delivered to patients (Gonzalez & Emokidi, 2019). To disseminate these project findings, I had to include targeted population data, stakeholders, and staff members from this clinic. The providers' contributions helped with the successful completion of these sections of this project. Also, PowerPoints and handouts were used for the education program. Handouts from PowerPoint contents were provided to the audience in the teaching section to follow along with the presenter for easy comprehension. T2DM is an epidemic associated with numerous comorbidities, including depression and financial burden of affected individuals and the health care system. Findings from this project may be beneficial to patients' outcomes.

Analysis of Self

The DNP program has contributed to my professional growth in areas of improving patient outcomes, contributing to the advancement of health care policies and implementations, and improving my leadership knowledge and skills in quality improvement in organizational systems. As a DNP scholar, I have gained advanced knowledge and skills in areas that are consistent with nursing and health care goals to eliminate health disparities and to promote patient safety and excellence in practice. My

practicum experience has helped to advance my professional growth and has prepared me for future work (Lingam, 2014). I am proud of my accomplishment, and this is only the beginning of advancing my professional career (see AACN, 2006).

As I near the end of the DNP program, it is apparent that my knowledge and skill as an effective leader has significantly improved. I have used my improved knowledge and skill as an effective leader to navigate the principles of practice management, including conceptual and practical strategies for balancing productivity with quality care. I can develop, implement, and assess the impact of practice policies and procedures in meeting the population I serve. I am prepared and can apply my effective leadership skills to address emerging practice problems and ethical dilemmas that emerge as new diagnostic and therapeutic technologies evolve (see AACN, 2006).

As a DNP scholar, I am capable of advancing nursing practice through the development and evaluation of care delivery approaches that meet current and future needs of patient populations based on scientific findings in nursing and other clinical sciences. I can ensure accountability for the quality of health care and patient safety. My knowledge gained from this program has enhanced my analytical skills for evidence-based practice to develop and integrate new knowledge from diverse sources and across disciplines to solve practice problems and improve health outcomes via the application of scholarship (see AACN, 2006). As a DNP scholar, I am able to apply knowledge and skills developed from class participation and practicum setting experiences to promote quality improvement through designing, directing, and evaluating methodologies that promote safe, timely, effective, equitable, and patient-centered care. Furthermore, I can

apply relevant findings in developing practice guidelines and improving practice and the practice environment. This DNP program has prepared me to improve health outcomes and inform health care policy through the demonstration of specialized knowledge, practice expertise, and expanded responsibility and accountability in the care and management of individuals and families (see AACN, 2006).

In summary, the doctor of the nursing program has prepared me and empowered me to use my advanced knowledge and skills to advocate for the nursing profession within the policy and health care communities, and advocate for social justice, equity, and ethical policies in all health care arenas. I have seen growth in my interprofessional collaboration knowledge and skills for improving patient and population health outcomes (see AACN, 2006).

My instruction and practicum experiences have contributed to my professional growth as a DNP scholar. This program has increased my knowledge, skills, and confidence in applying evidence-based practice in a practice setting to improve patient outcomes and the health care system. I am proud of myself for taking a step to advance my nursing knowledge through this program. I can now contribute meaningfully to my profession to improve patients' outcomes and the health care system as a whole. Graduating from this program is not the end of my learning (i.e., carrier development); it is the beginning of my contribution to advancing the health care field.

Summary

DM is considered a major epidemic of the 21st century (Bar-Dayan et al., 2016). T2DM is considered a silent killer and a major chronic illness with increasing prevalence

worldwide and negative impacts on quality of life of the affected population and the economy of the nation as a whole (Silva et al., 2018). This project was conducted to share research findings on the concerns that patients with this disease have and to promote patient-centered care. Providers were provided with an education program to address their T2DM patients' concerns and to promote up-to-date, evidence-based, individualized patient care.

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Appendix A: Education Program

Goal: To address patient concerns with a staff education program

Survey Question	**Concerns Identified**	**Education Content**
At the moment, what is causing you the most concern?	Struggle to improving diet and exercise and the depression, anxiety and fear of the comorbidities that comes with this disease	Exercise lowers your blood sugar level by moving sugar into your cells, where it's used for energy. Exercise also increases your sensitivity to insulin, which means your body needs less insulin to transport sugar to your cells. Eat health and small portions of meal (use a smaller plate); Try calorie-free drinks or water instead of regular soft drinks and juice; Eat more vegetables, whole grains, and fruit; eat small servings of low-calorie, low-fat snacks. Get your doctor's OK to exercise. Aim for at least 30 minutes or more of aerobic exercise most days of the week. Start slowly and build up gradually. Bouts of activity can be as brief as 10 minutes, three times a day. Choose activities you enjoy, such as walking, swimming or biking. **ADA diet handout for your patients**: http://main.diabetes.org/dorg/PDFs/awareness-programs/hhm/what_can_i_eat-best_foods-American_Diabetes_Association.pdf http://main.diabetes.org/dorg/lwt2d/packet-four/ADA_Healthier_Eating_optimized.pdf https://www.diabetes.org/fitness Mental health (such as, fear, depression, anxiety, & much more) is a problem that affects so many aspects of one's daily life. This could make it difficult for patients T2DM to stick to their diabetes care plan. Provide patient-center care that integrates psychosocial care provided to patient with type 2 diabetes and their family. While monitoring patient's behavior and psychosocial factors as it influences patients' self-management.

		Providing referrals to allied health providers, work with multidisciplinary team to improve diabetes outcomes. Recommended annual screen for individuals on atypical antipsychotic medications for prediabetes or diabetes. **Treatment recommendations for anxiety**: https://www.cdc.gov/diabetes/managing/mental-health.html https://professional.diabetes.org/sites/professional.diabetes.org/files/media/vh_1-3_3_de_groot_ada_sympoisum_in_111317_2.pdf https://care.diabetesjournals.org/content/43/Supplement_1/S48
What is difficult about diabetes?	Monitoring and maintaining blood sugar and on regular basis.	Inform and encourage diabetic patients that, self-testing blood sugar (blood glucose) can be an important tool in managing your treatment plan and preventing diabetes complications, in patient with diabetes disease. The frequency of testing and range of blood sugar results (A1C and daily testing results) depends on various factors such as, the type of diabetes you have, age, activities, diet, and your treatment plan. A1C test (test done in the lab, or provider's office), tells the average blood sugar level over the past 2to 3 months. The test should be carried out on patient with T2DM minimum of twice in a year on a case by case bases. Educate patients how to monitor, use and read glucometer, how to read and use sliding scale orders for insulin/medication administration. Also, importance of documenting blood sugar reading and bringing it in during their clinical appointments. Involve patient (*empower patient*) in care plan and treatment process. **Blood sugar monitoring education**: https://www.mayoclinic.org/diseases-conditions/diabetes/in-depth/blood-sugar/art-20046628

		https://www.cdc.gov/diabetes/diabetesatwork/pdfs/knowyourbloodsugarnumbers.pdf
What would you change to feel better?	Understanding the disease (education oneself of the disease), setting goals, lifestyle change and adopting health habits	Diabetes diseases is not a death sentence, therefore, take time to education patient about their disease when first diagnosed and with each appointment. Patient are scared when they are first diagnosed of diabetes disease because they do not understand their disease. The lack of disease understanding/knowledge leads to fear, anxiety, depression. These emotional factors can hinder patient's self-care management and medication compliance. **Diabetes disease knowledge education**: http://www.ada-diabetes-management.com/ https://www.thewellnessnetwork.net/health-news-and-insights/blog/educating-the-patient-with-diabetes/
What are the next steps you feel you can take to feel better?	Self-care education and management, autonomy/independence disease management, medication compliance	Diabetes self-management education (DSME) has been shown to improve health outcomes. DSME is a critical element of care that can bring about lifestyle changes which are vital to prevent the disease in individuals with prediabetes and T2DM. Again, it is important to involve and empower patient (and their family) in patients' plan of care which, will aid in disease prevention/complication, and positive patient outcomes. **Self-care/self-management education**: https://www.cdc.gov/diabetes/dsmes-toolkit/index.html https://care.diabetesjournals.org/content/37/Supplement_1/S144 https://care.diabetesjournals.org/search/self-care%252Bmanagement%252B * https://clinical.diabetesjournals.org/content/35/5/333 https://care.diabetesjournals.org/content/40/10/1409
What can I do to help you?	Encourage, motivate, help with diabetes management	Providers need to make sure that patients treatment plan (or plan of care) are patient-centered, timely, rely on evidence-based guidelines to manage diabetes disease and comorbidities associated with the disease (T2DM).

	and referral to diabetic educator and specialist	Referrals should be timely other provider(s), collaborate with patients (and their family when necessary), diabetic educator, and ensure to always empower patient (autonomy) with their care to bring about positive health outcomes for patient. **Provider support/education:** https://clinical.diabetesjournals.org/content/early/2019/12/18/cd20-as01 https://clinical.diabetesjournals.org/content/37/4/379 https://care.diabetesjournals.org/content/40/10/1409 https://www.diabeteseducator.org/docs/defaultsource/practice/practice-documents/position-statements/role-of-the-diabetes-educator-in-inpatient-diabetesmanagement.pdf?sfvrsn=0

Understanding the disease: Diabetes leads over time to serious damage to the heart, blood vessels, eyes, kidneys, and nerves. T2MD is a chronic, metabolic disease characterized by elevated levels of blood glucose (or blood sugar) (World Health Organization, 2019).

Types of diabetes:

Type 1 diabetes is a result of autoimmune β-cell destruction, usually leading to absolute insulin deficiency (ADA, 2019).

Type 2 diabetes is a result of progressive loss of β-cell insulin secretion frequently on the background of insulin resistance. That is, T2DM is primarily associated with insulin secretory defects related to inflammation and metabolic stress, among other contributors, including genetic factors.

Different ways to diagnosing diabetes are with.

- **Random blood sugar test**: Regardless of when you last ate, a random blood sugar level of 200 milligrams per deciliter (mg/dL) or higher suggests diabetes; or
- **Fasting blood sugar test**: after fasting overnight, a blood sample is taken test and
- (1) Normal fasting blood sugar level is less than 100 mg/dL (5.6 mmol/L),
- (2) Prediabetes is fasting blood sugar from 100 to 125 mg/dL (5.6 to 6.9 mmol/L) and
- (3) Full-blown diabetes is a fasting blood sugar of 126 mg/dL (7 mmol/L) or higher on two separate occasions (Mayo Clinic, 2018).
- **Oral glucose tolerance test:** For this test, patients fast overnight and blood sugar tested. Then drink a sugary drink, blood sugar levels are tested periodical for the next two hours, and diagnosed as**,**
- Normal blood sugar is a blood sugar level less than 140 mg/dL (7.8 mmol/L),
- **Prediabetes – are** readings between 140 and 199 mg/dL (7.8 mmol/L and 11.0 mmol/L), and

- A diabetes diagnosis is blood sugar levels of 200 milligrams per deciliter (11.1 mg/dL) or higher (Mayo Clinic, 2018).
- **Glycated hemoglobin (A1C) test: This blood test** measures the percentage of blood sugar attached to hemoglobin, the oxygen-carrying protein in red blood cells, for the past two to three months. And the higher one's blood sugar levels are, the higher the hemoglobin you have with sugar attached. Therefore.
- An A1C below 5.7 is considered normal,
- A1C between 5.7 and 6.4 percent indicates prediabetes,
- While, an A1C level of 6.5 percent or higher on two separate tests indicates that you have diabetes (Mayo Clinic, 2018).

Monitoring and maintaining blood sugar: Teach patients that one of the main goals of self-care measures for diabetes treatment is to keep their blood sugar (BS) levels in the target range. Consistent checking of blood sugar levels by patients (every two to three months A1Cs and office visits checks BS by providers) is one of the best ways to know how well the diabetes treatment plan is working (Weinstock, 2019).

Self-care: Diabetes self-management education (DSME) empowering people with diabetes to engage in and maintain lifestyle changes. DSME has been shown to improve health outcomes. Therefore, providers should educate patients on their disease and guide them in making the right decision and taking charge of managing their care (i.e., give patient autonomy with their care) (Fan & Sidani, 2018).

Diet and Exercise: review ADA guidelines

Signs and symptoms associated with diabetes:

- Increased thirst (polydipsia)
- Increased urination (polyuria)
- Increased hunger (Polyphagia)
- Increased fatigue,
- Weight loss (in some cases)
- Nausea and vomiting
- Blurry vision
- Stomachache (in some cases)

Comorbidity associated with diabetes:

- Hypertension
- Amputation
- End-Stage-Kidney Disease
- Blindness
- Neuropathy (nerve damage) and much more.

Medication compliance: Find out why patients have been non-compliance with their medications and help them understand the disadvantages and benefits of compliance with their medication regiment.

Encourage, Motivate, help with diabetes management:

- Providers should encourage patients to expresses their concern about their disease
- Motivate patients to be medication compliance by involving them fully in their care (empower patients with their care)

- Manage patient's care with the patient, referral to specialist and collaboration with another provider to bring out positive patient outcomes

Fear, anxiety, and depression: Patients with diabetes may be fearful of:

- The disease,
- Taking shots, medication compliance
- The anxiety of checking blood sugar,
- Anxiety with the blood sugar result
- Anxiety with doctor's appointments (i.e., keeping doctor's appointments)
- Depression from comorbidities and it's managements

Referrals to a diabetic educator: Educating patients, identifying barriers to care, management, hypoglycemia management and prevention, care coordination and transition, nutrition therapy, monitoring glycemic control, and providing/monitoring professional education are key roles that diabetes educators play. Therefore, timely patient referral to a diabetic educator will improve patients' disease outcomes (AADE, 2016).

Appendix B: Program Evaluation

EDUCATION EVALUATION FORM

As a learner please assist in the evaluation of this presentation. Please circle the number beside each statement that best reflects the extent of your agreement. Thank you.

		Disagree		Agree
Content				
1.	The content was interesting to me.....	1	2	3
	4 5			
2.	The content extended my knowledge of the topic.....	1	2	3
	4 5			
3.	The content was consistent with the objectives.....	1	2	3
	4 5			
4.	The content was related to my job.....	1	2	3
	4 5			
5.	Objectives were consistent with purpose/goals of activity.....	1	2	3
Setting				
1.	The room was conducive to learning.....	1	2	3
	4 5			
2.	The learning environment stimulated idea exchange.....	1	2	3
	4 5			
3.	Facility was appropriate for the activity.....	1	2	3
Faculty/Presenter Effectiveness				
1.	The presentation was clear and to the point.....	1	2	3
	4 5			
2.	The presenter demonstrated mastery of the topic.....	1	2	3
	4 5			
3.	The method used to present the material held my attention.....	1	2	3
	4 5			

4. The presenter was responsive to participant concerns..... 1 2 3 4 5

Instructional Methods

1. The instructional material was well organized..... 1 2 3 4 5
2. The instructional methods illustrated the concepts well..... 1 2 3 4 5
3. The handout materials given are likely to be used as a future reference..... 1 2 3 4 5
4. The teaching strategies were appropriate for the activity..... 1 2 3