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IS DIETARY TEACHING VIA TELEHEALTH EFFECTIVE IN LOWERING HGBA1C IN ADULT PATIENTS WITH PREDIABETES OR TYPE 2 DIABETES?

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A doctoral project submitted in partial fulfillment
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Doctor of Nursing Practice

School of Nursing
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University of Nevada, Las Vegas
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Doctoral Project Approval

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entitled

Is Dietary Teaching via Telehealth Effective in Lowering HgbA1c in Adult Patients with Prediabetes or Type 2 Diabetes?

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Abstract

Prediabetes and Type 2 diabetes mellitus (T2DM) are two common conditions diagnosed in the primary care setting. Both conditions benefit from a healthy lifestyle, managing blood sugar levels, and getting diabetes self-management education and support (DSMES). Within the past two decades, the healthcare community in the US has witnessed a substantial rise in diabetes among adults. Overall, the self-management of diabetes continues to worsen nationally
The purpose of this project is to improve patients' self-management of both Prediabetes and T2DM through nutrition and show how nutritional counseling via telehealth provided by a nurse practitioner can improve HgbA1C values over 3 months. The quality improvement project included 34 patients randomized into two groups, and three 30 minute nutritional counseling sessions once a month for 3 months. The level of patient readiness was assessed using the Transtheoretical Model of Behavior Change. Results showed nutritional counseling provided via telehealth by a nurse practitioner improved patients' hemoglobin AIC values in 3 months. The methods of improving diabetic self-management followed the DSMES toolkit (CDC, 2021) and the American Diabetes Association (2022), Standards of Medical Care in Diabetes. These findings align with the literature stating integrating a diabetes self-management and support (DSMES) program is important for patients to self-manage their diabetes condition with confidence and provide a foundation for improving the management of their disease; in addition, this project showed success in lowering HgbA1C in T2DM and Prediabetes using telehealth nurse-led nutritional counseling.

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Chapter I Introduction

Type 2 diabetes mellitus (T2DM) accounts for approximately 90.9% of diabetes mellitus (DM) diagnoses according to Bullard et al. (2018). Type 1 diabetes mellitus (T1DM) is less common than T2DM and accounts for approximately 5–10 % of people with DM. T1DM always requires exogenous insulin (medication) management; however, T2DM does not. Adopting a healthy lifestyle, managing blood sugar levels, and receiving diabetes education and support can benefit both conditions (Centers for Disease Control and Prevention [CDC], 2021). New data estimated that DM and its burden among the U.S. population include 34.2 million Americans of all ages (National Diabetes Statistics Report [NDSR], 2020). That is, 10.5% of the U.S. population has DM. The CDC (2020) reported that approximately 40% of Americans with DM are aged 65 years and older. The prevalence of diagnosed DM cases per ethnic group was 14.7% for American Indians/Alaska Natives, 12.5% for Hispanics, 11.7% for non-Hispanic blacks, 9.2% for non-Hispanic Asians, and 7.5% for non-Hispanic whites. The incidence of DM is expected to rise as our nation ages to 55 million by 2030 in all ethnic groups.

The sense of urgency in the medical literature focused on improving care in patients with DM is noteworthy. Reusch (2018) discussed the magnitude of DM, which affects 1 in 11 people in the US, and many are unaware of the risk they face or their diagnosis. The complications associated with DM are well documented, and DM affects virtually every human organ system, including the brain, eyes, teeth, heart, nerves, and kidneys. Chronic hyperglycemia is the cause of organ system damage, and early diabetic self-management must be instituted. Block et al. (2016) reported that two-thirds of adults are overweight or obese; approximately 10% of them have DM and another one-third have prediabetes. Physical activity and improved dietary habits are essential for preventing major health problems caused by DM.

The CDC (2020) reported that 34 million people in the United States have prediabetes, as indicated by blood sugar levels that are higher than normal but not high enough to be diagnosed with DM. Furthermore, according to Tabák et al. (2012), up to 70% of individuals with prediabetes will eventually develop DM. The number of adults diagnosed with DM in the last 20 years has doubled as Americans have aged and become more overweight or obese. Medical costs for people with DM are twice as high as that for people without this condition. Costs due to lost work and wages for people diagnosed with DM total $327 billion annually in the United States as explained by Reusch (2018).

Significance of Problem

In the past two decades, the healthcare community in the United States has witnessed a substantial rise in DM cases among adults. Overall, the self-management of DM continues to worsen nationally; this may be due to social and environmental barriers such as job demands, financial stressors, and caregiving responsibilities that make it difficult for an individual to focus on self-management (Fazio et al., 2018). Self-managing DM is an ongoing process that requires the patient to gain knowledge and awareness about DM, manage personal glucose levels to reduce hemoglobin A1C (HgbA1C) values, and prevent diabetic complications. This is not only possible but preferable. One can benefit from an individualized plan of care for controlling this chronic disease and its complications (CDC, 2018). Additionally, healthcare providers need to encourage and empower their patients to perform self-management of DM. An individualized care plan developed collaboratively by the provider and the patient is one approach that has been shown to improve outcomes; for example, diabetes self-management education support (DSMES) programs have been shown to work well in this population of patients (CDC, 2018). The detection of DM is often accompanied by little fanfare in the clinic setting, whereas in

reality, this is a life-changing diagnosis. There is an appalling underutilization of diabetic education for various reasons, such as access to care, psychosocial barriers that disproportionately affect people with DM, and the general lack of awareness about DM in our communities (Reusch, 2018). Taylor et al. (2019) explained that many healthcare professionals are not aware of healthcare disparities that exist among their patients. The National Academy of Medicine recommends training in cultural competency for healthcare professionals, yet there is a lack of adequate training programs in this area despite the efforts put forth. If clinicians are not prepared to communicate with their patients, then how can health information be disseminated in our communities? This is especially true for certain ethnic groups with a higher prevalence of DM. An important issue among all ethnic groups placing people at risk of DM is obesity, which is often a sensitive and difficult topic to discuss with patients. Obesity is defined by a body mass index (BMI) of 30 or above, and adults who are obese can become more prone to developing serious health conditions such as DM compared to adults who are not obese. The medical costs of obesity were estimated to be $342.2 billion in 2013, and indirect medical costs, including decreased productivity tied to obesity, were estimated at $8.65 billion per year in the United States (America's Health Rankings [AHR], 2020).

Problem Statement

T2DM is a common condition seen in the clinic setting, and it is the result of insulin resistance. When T2DM is not managed optimally, high blood sugar causes systemic inflammation and, eventually, damage to other body systems. More importantly, when left unmanaged, diabetes causes chronic inflammation, which has similar detrimental effects on the arteries. Cardiovascular disease (CVD) is more frequent, premature, and severe in people with DM. Adults with DM are two to four times more likely to die from heart disease than adults

without diabetes. DM contributes to deaths by way of heart disease and stroke; DM is listed as the fifth cause of death, respectively, according to AHR's report (2020). Furthermore, the presence of high blood sugar in the case of DM can injure the inner walls of the arteries by breaking down the intimal lining throughout the body, and this manifestation leaves the artery walls more prone to a buildup of fatty plaque. Additionally, an elevation in blood sugar stiffens the arteries, so they don't expand as well, which makes blood platelets stickier and more likely to form blood clots (AHR, 2020). DM accounts for 79,000 deaths annually, and individuals with T2DM are at a higher risk of heart disease. As a result of these indications, DM is listed in the AHR report as one of the conditions related to premature death**.**

Many providers are struggling to manage diabetic patients for various reasons. The amount of time spent with patients seems to be a common provider challenge. When caring for patients with DM, the healthcare provider often focuses on managing medications and laboratory results but does not have the time to cover nutritional education. Consequently, most providers often refer out to a registered dietician for nutritional support as RDs are educated for that job. Health Care Providers can do this job in addition to providing primary care, but it takes more clinic time per patient to do so; however, insurance coverage often prevents this referral from ever taking place (Maslakpak et al., 2017). Hseiki et al. (2017) report patients often regard primary care providers (PCPs) as a reliable and accessible source of diet support and do not want to pay for yet another appointment preferring the information to come from their primary care provider and even expect nutritional advice from them, yet their expectation is not always met.

Several reasons for referring patients out of the clinic setting for nutritional support were reported, such as lack of time, lack of physician's nutritional knowledge, lack of payment, and lack of patient's adherence to the diet (Hseiki et al., 2017). However, this habit of referring

patients out of the clinic for nutritional services can make collaborative efforts between the patient and their primary care provider difficult. Effective management of DM requires interaction between the healthcare provider and the patient, which enables the patient to successfully learn about and then implement self-management strategies according to Gavin et al. (2011). Getting buy-in from patients is one of the most important of these self-management strategies. According to Block (2016), despite national and disease-specific dietary and physical activity recommendations, adults with DM in particular are falling short of achieving these recommendations.

Purpose Statement

The purpose of this Doctor of Nursing (DNP) project is to improve our patients' knowledge about how nutrition affects DM and, ultimately, to improve their overall health. DM is a complex chronic illness requiring continuous medical care that reaches far beyond medication. DM is a modifiable disease, and effective ongoing self-management with one's diet could prevent disease progression along with its complications. Nutritional advice is not being adequately offered in most busy clinic settings. Patients are often referred elsewhere for dietary counseling even though healthcare providers are widely consulted regarding health information. In addition, consulting healthcare providers is more cost-effective for patients than consulting dieticians due to the lack of insurance coverage for nutritional services according to Hseiki et al. (2017). Nutrition is a critical component of DSMES and has been shown to improve glycemic control in patients with DM. Patients need nutritional counseling in order to understand how nutrition affects diabetes and then need assistance to implement this into their lives. From a nursing perspective, providing even more evidence supporting the use of nurse led nutritional

education for patients who have diabetes impacts not only the patients' lives, but the value of nurses to our society.

Chapter II Literature Review

Nurse-Patient Relationship

Du Pon et al. (2019) discussed the positive effects of consulting with primary care nurses on diabetic patient outcomes. One can easily identify the repeated theme of a trusting relationship encouraging patients to express their emotions and concerns about the disease process of DM. This article also highlighted that the time spent with their primary nurse stimulated patients to ask more questions and engage in their care. Furthermore, the study reported that patients value a trusting relationship with their nurse and that trust is necessary to enhance active participation and while patients with DM may have concerns and questions, they rarely discuss them with their doctors. The study posited the reason for this may be that consultations with primary nurses are twice as long as those with their physicians.

The participation of nurses in nurse education programs has the benefit of leading to a reduction in HgbA1C values in patients with T2DM. The literature showed the difference nurses make in the lives of so many people, and according to Boström et al. (2014), diabetes specialist nurses (DSN) are reported to be more comfortable with providing information about this disease while providing treatments, assisting patients with self-management goals, and stimulating the patient's inner motivation to change. The study reported that the treatment of diabetes in primary healthcare is often checklist-driven; it is individualized only to a small extent and is rarely based on the patient's needs. The same article presented an intervention study, DIVA 2, which aimed to support patients' adjustment to the disease and self-management. The study used a patient-centered approach to evaluating the effects on metabolic control. The nursing intervention resulted in decreased HgbA1C values in 12 months.

The patient-centered intervention was preceded by a 20-hour preparatory workshop for the DSN that included theoretical education dealing with personal understandings of illness as a result of T2DM, perspectives on illness and disease, patient-centered care and empowerment, and training in patient-centered support with role-playing. The study made an interesting point:

> "The DSN experienced that their participation in the patient-centered intervention meant that they were facing an altered professional role, and they were hesitant to embrace a new way of practicing diabetes care that defied the well-established and customary way of working."

One might see this as an open door to a more successful management of DM, a changed or better way, especially when the current way is not working very well.

Diabetes Self-Management Education Support (DSMES)

DSMES is an evidence-based structured curriculum, which varies in terms of delivery, content, use of technology, person-centered philosophy, and specific aims. The DMSES Toolkit is a comprehensive resource for achieving success in DSMES, and with prolonged use of DSMES programs, it is expected that all people with DM will receive the support they need (CDC, 2018). DSMES can be individualized for every diabetic or prediabetic patient. Integrating a DSMES program is important for patients to self-manage their DM with confidence, as these programs provide a foundation for improving the management of their disease. Unfortunately, the utilization of DSMES programs is quite low due to multiple barriers; a discussion on such barriers is beyond the scope of this paper. Solutions to the problem begin with an organizational commitment to improving the value of and participation in DSMES for both the healthcare provider and the patient.

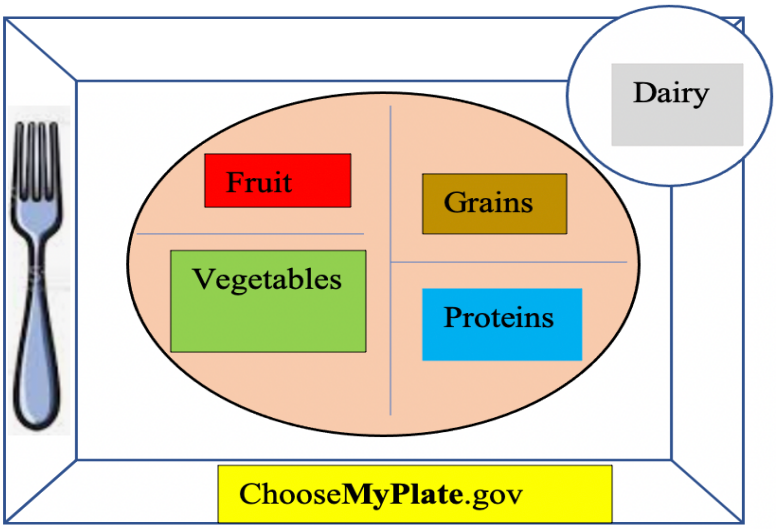
Traditionally, DSMES programs were delivered in a formal series of didactic classes, the participants included the patient and family members, and education was usually led by registered dietician-certified diabetes educators (RD-CDEs). As healthcare continues to evolve in its delivery methods and with the obvious growing needs of adult patients with DM, the incorporation of DSMES services into non-traditional settings and delivery approaches may be an innovative solution to the problem (Powers et al., 2020). Early access to and provision of DSMES programs help patients with diabetes improve their lifestyle by empowering them to self-manage their DM. According to Chatterjee et al. (2018, para. 3), the World Health Organization (WHO) defines DSMES as "a process through which people gain greater control over decisions and actions affecting their health."

MyPlate Application

In 2011, MyPlate was developed under the direction of the Center for Nutrition Policy and Promotion of the U.S. Department of Agriculture. MyPlate is the current educational symbol that supports the communication of U.S. Dietary Guidelines for Americans to the public (Chrisman & Diaz Rios, 2019). The visual icon is a simple representation of each food group's allowance on a meal setting, and it suggests recommended food patterns rather than using serving size as a food guidance system itself. MyPlate aims to prompt users to think about and improve their food choices. The concept of delivery is generalizable among adults with DM and is culturally sensitive, as it is symbolized in several languages. The Center for Nutrition Policy and Promotion announced the translation of the MyPlate 10 Tips resource and the MyPlate icon from English into 18 additional languages (Rahavi, 2021). Since almost half of all Americans are affected by diet-related chronic diseases such as DM, optimal communication about dietary recommendations is critical. Up to 80% of registered dieticians widely use MyPlate to counsel

clients. In comparison, only 18% of family physicians reported using MyPlate as a resource tool when counseling morbidly obese patients according to a recent national survey (Chrisman & Diaz Rios, 2019).

Figure 1 *MyPlate*



Note. MyPlate icon from Chrisman & Dias Rios (2019)

Nutrition and HgbA1C Values

Bowen et al. (2016) reported an improvement in glycemic control in DM patients with baseline HgbA1C values of 7.0–10.0% who received nutritional education offered by registered RD-CDEs using DSMES methods. All patients received usual diabetes care from their PCP throughout the study and were divided into three groups: a control group and two intervention groups. The control group received general health education visits with a health educator focused

on fall prevention, vaccinations, osteoporosis, and oral hygiene. The patients randomized to the two intervention arms received individualized DSMES based on current standards from one of the two RD-CDEs. One group (group A) focused on the modified plate method approach to teach meal planning, which is recommended by the American Diabetes Association's (ADA) nutritional guidelines for patients with diabetes. The other group (group B) focused on carbohydrate gram counting with instructions on reading food labels, serving correct sizes, using online carbohydrate counting resources, and negotiating individualized carbohydrate gram goals.

This study revealed that the use of DSMES by RD-CDEs improved glycemic control in patients with T2DM compared to an attention control group, which was implemented to account for the increased contact time with the healthcare system. Improvements in glycemic control were observed in both groups (A and B) in the case of patients with an HgbA1C of 7.0–10.0%. Although the statistical significance of improved glycemic control overall was not achieved for all participants in this study, the study claimed that all patients may benefit from simplified approaches to nutritional education. In addition, the highlights of this study showed that HgbA1c values improved with both carbohydrate counting and the plate method of nutrition. In patients with HgbA1c values of 7.0–10.0%, both nutrition methods improved diabetes control; however, the plate method may improve control for both higher and lower numeracy patients. Another key takeaway from this study was: in finding patients with HgbA1C values between 7.0–10.0%, it was found that DSMES may allow improved targeting in settings with limited resources.

A study by Skelly et al. (2009) included African American (AA) women aged 55 years and older with T2DM and HgbA1c values greater than 7.0%; the baseline HgbA1c values were reported as 8.3%. The sample included 180 AA women recruited from rural healthcare clinics. The study followed a randomized, controlled, three-group experimental design, where two-thirds

of the subjects were randomly assigned to the intervention group and one-third to the attentional control group with a focus on weight and diet. The counseling modules were delivered by nurses in the participant's home, and the intervention was symptom-focused and tailored for older AA women with diabetes. The weight and diet program consisted of four modules delivered in 60 minutes, which addressed weight maintenance (two modules), modifying fat, and modifying sodium in the diet. The nurses were able to go to the kitchen and teach the women about reading the nutrition labels of foods they had on hand.

The intervention's effects on metabolic control were evaluated using HgbA1C values, symptom distress, perceived quality of life, and self-care in comparison with the results derived from the attentional control group. The study concluded that the data supported the symptom-focused intervention; in addition, the weight and diet attentional control improved HgbA1C values by 0.57%. Further, three months after the study ended, HgbA1C values decreased by 0.76% overall for those participants that received a booster telephone call from the same nurse educator offering encouragement and motivation.

A study by McKenzie et al. (2017) showed a decrease in HgbA1C values in adults with T2DM by 1.0% in just 10 weeks. The study's objective was to evaluate whether individuals with T2DM could be taught either in a clinic or remotely to sustain adequate carbohydrate restriction for achieving nutritional ketosis. The study was a nonrandomized, parallel-arm, outpatient intervention; the participants were adults with a mean age of 54 years and a mean BMI of 41. The intervention protocol provided intense nutrition and behavioral counseling using digital coaching and education with physician-guided medication management. The initial results of the intervention indicated that an individualized program via telehealth that incorporates nutritional

ketosis can be highly effective in improving glycemic control and weight loss and significantly reducing the use of medications.

Chai et al.'s (2018) report presented a study utilizing trained professional nurses who offered DSMES to newly diagnosed T2DM patients aged 18 years and older over a six-month period. The education content included healthy diet information, exercise, self-monitoring of blood glucose levels, complication prevention, and an understanding of the risk factors for diabetes. Two groups were assigned; the control group did not receive education provided by the nurses. For the control group, education on DM was provided to the patients during their routine outpatient visits in sessions of 5–10 minutes. Patients who consented to the educational offering received a two-hour education course comprising two sessions of lectures (40 minutes) and interaction sessions (20 minutes each) with two 10-minute breaks. The outcomes following the six-month DSMES program offered by the nurses included decreased HgbA1c levels from 7.9% at baseline to 6.7% in six months.

Azami et al. (2018) showed the benefits of a nurse-led DSME intervention. The total sample (142 participants) was entered into the study, of which 58.5% had a HgbA1c value of 9.0% or greater before the intervention. Participants were eligible if they were Iranian adults aged 18 years or older with T2DM, had a HgbA1C value of 8.0% or greater, and were diagnosed with T2DM for at least six months. Per Iranian Ministry Guidelines, the usual care included self-care management, lifestyle modification, and medication adherence. Individual-based education was provided at three monthly intervals with each appointment lasting 20–30 minutes. The intervention group received a detailed information booklet that included information on self-management and four 10-minute movie clips, and they had to attend four weekly group-based educational sessions, followed by receiving weekly telephone calls. By week twelve, the

intervention group had HgbA1c values 47.9% lower than those in the control group. By week 24, the differences increased to 62%, more than a fifth, whereby 21% of the patients in the intervention group achieved a HgbA1c value of less than 7.0% compared to none in the control group.

In summary, the literature shows nurse-delivered nutritional teaching and counseling was as effective as RD delivered teaching (Chai et al, 1918, Skelly, et al., 2009, Azami, 2018 and Bowen et al 2016). Nurses commonly deliver patient education. Thompson et al. (2007) reported that nurses represent the largest group of healthcare providers and their care influences patient outcomes a great deal. This information strengthens advanced nurse practitioners (NPs) and enables them to improve patient outcomes by implementing a nutritional offering for patients with a diagnosis of DM, which is supported by empirical evidence (Azami, 2018; Chai, 2018; Skelley, 2017). A person with T2DM must make daily choices related to food and physical activity that affect their blood glucose. Therapeutic targets are not being met despite advancements in medication and technology treatment modalities, this is likely due to the lack of nutritional counseling being provided for patients with DM. A solution exists in nurses providing targeted patient education Furthermore, the high cost of the associated complications of DM persists.

According to Tiwari (2014), therapeutic strategies and common targets for anti-diabetic drugs to improve the action of insulin on its target tissues are not being met despite great advances in medicine. Clearly, medication alone is not the answer. NPs have an opportunity to positively influence this population of patients particularly. Most NPs are highly skilled patient educators and would like to provide more patient education in their clinic visits. Guo et al.

(2019) explained how some countries have transformed diabetic care from a general practitioner or doctor-led management to nurse-led team management.

Telehealth

The CDC (2020) advised healthcare providers about the use of telehealth to expand access to essential health services during the COVID-19 pandemic. The use of telehealth is needed to reduce staff exposure to chronically ill patients, preserve personal protective equipment (PPE), and minimize the impact of patient surges on facilities. Healthcare facilities have had to change the way they provide care to patients by using methods that do not rely on in-person office visits to adhere to the recommended guidelines.

Empowering patients to self-manage diabetes may require a lifetime of support for some, and the failure to focus on wellness and prevention as healthcare providers is evident due to the increase in diabetes from 2% to 9% in less than 50 years (Powers, 2020). Patients may see their provider four times a year for an hour, which often exceeds the access provided in most healthcare systems today (Powers, 2020). The question is as follows: In this population of diabetic and prediabetic patients in clinics, do those patients who attend nutritional counseling sessions with an NP for thirty minutes once a month for three months via telehealth lower their HgbA1C values to a greater degree than those who do not receive counseling?

Diagnosis of DM and HgA1C Values

The ADA uses the HgbA1C blood test to diagnose both prediabetes and DM. The lab values as defined and accepted by the ADA and used in this proposal are as follows:

1.HgbA1C – This blood test reflects the average levels of blood glucose over the previous two to three months. It is the most widely used test for monitoring chronic

glycemic control. The test is used to diagnose diabetes and monitor the efficacy of treatment.

2.Prediabetes – HgbA1C 5.7% to 6.4%

3. Diabetes – HgbA1C 6.5% or higher

This project aimed to show how a systematic educational nutritional program (DSMES) delivered via telehealth by a nurse practitioner can help improve diabetic patients' hemoglobin AIC values over a three-month time frame.

Synthesis of Available Evidence

In sum, the evidence suggests that nutritional counseling for patients with T2DM and prediabetes is beneficial and necessary. The importance of nutrition, the effectiveness of counseling, and the responsibility of providing time for education are essential and well documented in the literature by recognized by organizations such as the ADA and CDC. One of the common themes identified in the literature is the lack of time spent with patients who have chronic conditions such as DM. Finding time to educate providers on implementing DSMES programs in the clinic setting is especially important for improving the self-management of patients with DM.

The complex and demanding treatment regimens for DM require people to make major lifestyle changes that are difficult for most. One of the common barriers for patients with uncontrolled DM is the lack of knowledge about the disease and its long-term effects, and adequate educational resources are required for guiding care. Implementing DSMES programs can help patients and healthcare providers to overcome and face this struggle and eliminate the gaps in care. A nutritional-focused intervention led via telehealth for some clients who cannot

get to the office to attend multiple classroom offerings the means to improve their HgbA1c values and therefore, overall health.

Needs Assessment

After a review of the relevant literature, it was found that DM affects all demographic groups within the US. For this project, the target population was adults with prediabetes and T2DM who had HgbA1c values of 5.7% or higher while the accessible population is those adults receiving care at Garcia Medical Group during the study time period meeting inclusion criteria. Pregnant women with gestational diabetes were excluded as were people under the age of 18. Currently, the medical clinics used in this study do not have a nutritional protocol or educational program in place for DM patients, and these patients are often referred to a registered dietician for dietary support and education. Many patients are unable to attend these classes for reasons from transportation issues, or time off from work to the cost of an additional clinic visit to name a few barriers in this clinic population. Identified necessary healthcare such as diabetic medications or supplements was not be addressed in the counseling sessions; these sessions will only cover nutrition. It is hoped that this Quality Improvement Project will be successful in showing that self-management of diet, learned through nutritional counseling sessions with a nurse practitioner, will improve HgbA1C values over 3 months.

Organizational Assessment

The project's medical group was established in March of 2018. There were no standardized nutritional educational materials for patients with T2DM. The clinics are owned and operated by a large corporate organization, and protocols for the medical clinics were not developed. The current electronic health record (EHR), EPIC, is new, and the educational features of the program have not been activated for use by healthcare providers.

Project Sponsors and Key Stakeholders

To complete this project, other key stakeholders such as NPs, medical doctors (MDs), medical assistants (MAs), and medical office managers (OMs) were verbally introduced to the project during a staff meeting and questions were answered by the nurse researcher. The dentists (DDS), dental hygienists (DAs), CEOs of the company, and regional office managers (ROMs) on the dental side of the organization were also important stakeholders, as this project could have positive benefits for patients in the dental clinics joined with our primary care offices. The nurse researcher anticipated that patients from the dental offices will be referred to the medical clinics for diabetes care and may require nutritional counseling. More importantly, our dental colleagues understand that the condition of patients with prediabetes and uncontrolled DM can worsen without treatment, and they agree that nutrition plays a key role in maintaining good oral health for patients diagnosed with periodontal disease accompanied by prediabetes or T2DM (Wu et al., 2020).

Scope of the Project

The scope of this DNP project included the development and implementation of a nutrition-focused educational offering for adults with prediabetes and DM using the DSMES Toolkit guide and the MyPlate.gov application tool. The project included all adult patients diagnosed with prediabetes and DM with HgbA1C values of 5.7% and higher except for pregnant women. These patients were established with the medical group's two clinics where primary care services are provided.

Steps of the Project

Step 1 Before project implementation, nutritional packets were completed by the nurse researcher, and they included the following: participation consent forms, MyPlate.gov

application directions, and Zoom meeting instructions. The materials were submitted to UNLV IRB for approval. The implementation of this project began after IRB approval was secured, and it took place over three months at two clinics in Las Vegas, NV.

Step 2 Recruitment was accomplished by speaking with front desk staff identified project eligible patients scheduled for clinic visits until the study participant total reaches approximately 40, in order to account for any project loss of participants. Only 30 participants were needed for the completion of the project, the goal is to achieve 15 for the intervention group and 15 for the control group. Eligible patients were identified by the front office staff during their follow-up medical appointments, and as the patient was checking in for their appointment and were interested in participating, they were referred to the Nurse Researcher in the corner of the waiting room to discuss study participation further. After explanation and eligibility determination by the nurse researcher, the patient was offered the opportunity to participate in the project. If they chose to participate, consent was obtained and documented by the nurse researcher. During this time, the nurse researcher collected the patient's HgbA1C and weight from the patient's chart from today's office visit. This is Study Day One for the patient.

Step 3 Participants were randomly assigned to either the control group or an intervention group by selecting a number on a card from a brown bag after signing their consent. If the number was "1" the subject was in the control group, and if the number was "2" they were in the intervention group.The control group received standard clinical practice with no additional nutritional counseling that would normally occur in the clinic visit while the intervention group received standardized care in the clinics and additionally were asked to attend three 30 minute long nutritional counseling appointments over three months with the nurse practitioner. These

patients also received written directions on the use of MyPlate.gov application and how to attend a Zoom meeting where the nutritional counseling took place.

Step 4 HgbA1C and body weight re-assessment, BMI data collection, and data analysis, including HgbA1C results and body weight of patients who completed three nutritional offering appointments, will be collected from within the clinic electronic health record, EPIC. All participating patients had a scheduled follow-up for a review of their results when data collection was completed. The nurse researcher used retrospective chart data extracted from EPIC, no additional lab values will be ordered by the nurse researcher, only by the participant's healthcare provider.

Mission and Objectives

Mission

The mission of this DNP project was to successfully implement one nutritional counseling component to diabetic care for the project's clinics, consisting of an evidence-based program. using the DSMES Toolkit and MyPlate.gov, educating participants with diagnosed prediabetes or T2DM. The goal was to aid in lifestyle modification, provide patient-centered education, and decrease and then maintain HgbA1C levels below 5.7%.

Objectives

1) Implement an evidence-based nutritional educational program for adult patients with prediabetes and T2DM to be delivered by healthcare providers in the project's clinical setting.

2) Demonstrate the effectiveness of an NP-delivered nutrition program in lowering HgbA1C levels in enrolled patients.
3) After the project ends, promote continued lifestyle modification such as weight loss in patients with a BMI greater than 30%.

Chapter III Transtheoretical Model of Behavior Change

According to Melnyk and Fineout-Overholt (2019), the transtheoretical model of health behavior change is currently being applied in the field of organizational change to guide change efforts in healthcare systems. Tseng et al. (2017) described the transtheoretical model (TTM) as a helpful conceptualization in the process of intentional behavior change. The heart of TTM lies in the stages of change. The TTM suggests that people move through five specific stages when changing health behaviors:

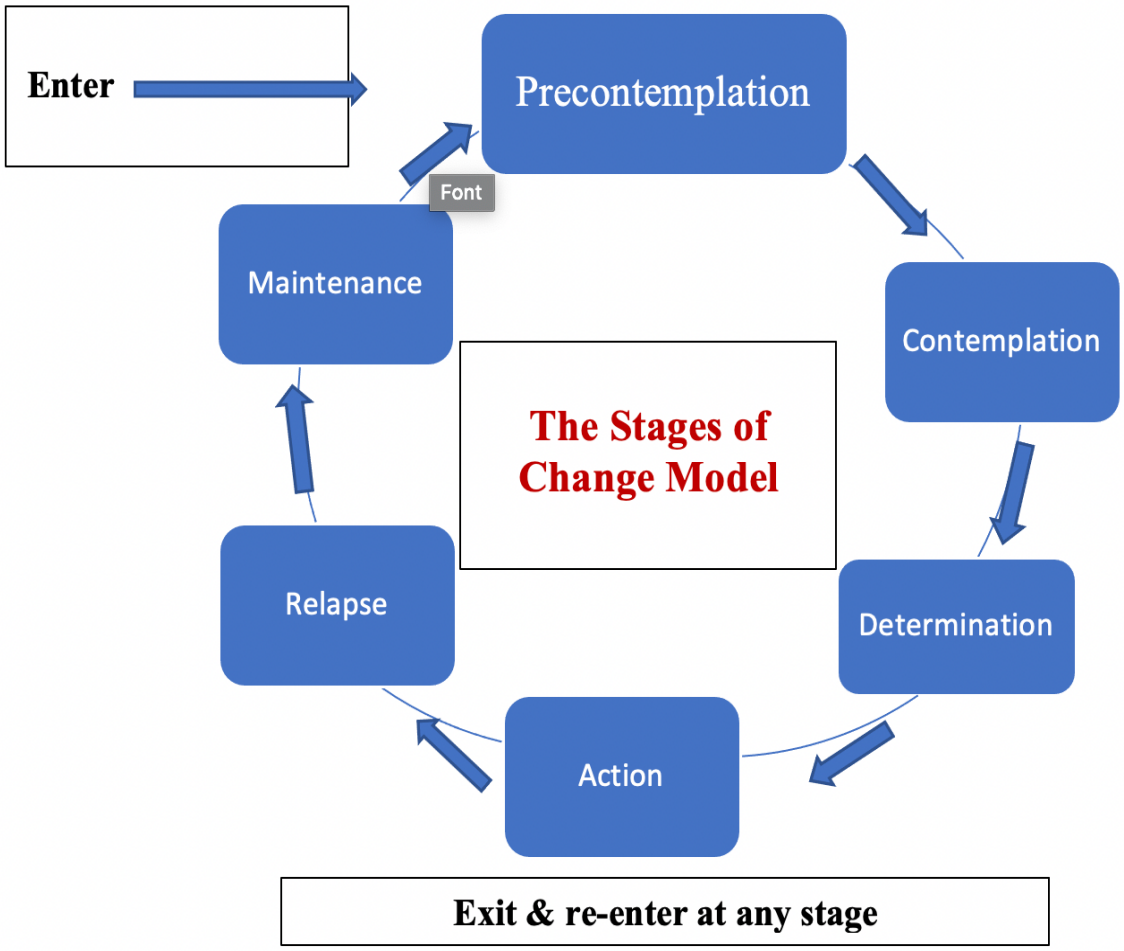
1) Precontemplation – The individual does not plan to take action in the next six months.
2) Contemplation – The individual intends to take action in the next six months.
3) Preparation – The individual plans to take action in the next 30 days.
4) Action – Overt changes were made less than six months ago.
5) Maintenance – Overt changes were made more than six months ago (Melnyk & Finout-Overholt, 2019)

When considering a diabetic patient, especially if they have been newly diagnosed, the provider must focus on making a connection with them. This is especially important if they are in the precontemplation or contemplation stage, in which case, the focus should be on assisting them in progressing through the next stage rather than trying to work with them on behavior change strategies (Melnyk & Fineout-Overholt, 2019). The stage of readiness may include strengthening a patient's belief that evidence-based practice results in the best patient outcomes and highest quality of care and supports their self-efficacy or confidence. A patient's willingness to take action to treat their conditions is fundamental for ensuring a successful transition to self-management, as explained by Tseng et al. (2017). Salmela et al. (2009) stated that a lifestyle

based on behavior change models like TTM can be more effective in promoting long-lasting behavior change since the model provides explanations for health-related behaviors.

The application of TTM in patients with DM provides a strong theoretical framework because people with diabetes who are in the action and maintenance stage have been shown to have healthier eating habits than those in earlier stages (Tseng et al., 2017). More importantly, assisting patients in moving through the stages of change as they adapt to their diabetes diagnosis creates an opportunity for the healthcare provider to influence the type and speed of behavioral change for the individual. Using the TTM model for this project is an opportunity to assist in familiarizing providers with this change model so they can match intervention strategies to their patient's current stage.

Figure 2 *Stages of Change Model*



Note. Transtheoretical Model (Norcross, Krebs & Prochaska, 2011)

Chapter IV Project Plan

T2DM is considered an all-encompassing disease that continues to worsen in the United States despite new treatment therapies. The lack of an education program about how nutrition affects DM in the clinical setting is evident. There is a need for simplicity to disseminate this information to patients of all races and cultures. The purpose of this DNP project is to implement a nutritional education program to empower patients diagnosed with prediabetes and DM to self-manage their condition with the recommended diabetic diet and, more importantly, to help patients keep their blood glucose levels within a normal range using nutrition to prevent complications related to T2DM.

Setting

This project setting included two primary care clinics in a privately-owned medical group located in southwest Nevada. The clinics have an adequate volume of diabetic patients for this project. Currently, there are no protocols or programs offering nutritional education for these patients, and there is a need for consistent nutritional training and education. The medical practices service approximately 30–50 patients a day, and most of the patients have chronic conditions like DM. There was a conveniently large sample of patients available to the HCPs in this group who fit the inclusion criteria at these clinic locations.

Population of Interest

The accessible population identified for this DNP project included non-pregnant adults aged 18 years and older who were receiving care at the medical clinics and had HgbA1C levels greater than 5.7%. All patients with appointments in the recruitment window under the care of the HCPs in the medical group whose age and medical condition met the inclusion criteria were asked if they wanted to participate in this project.

Measures, Instruments, and Learning Activities

The basis for the educational content created was the DSMES curriculum, and the DSMES Toolkit and MyPlate.gov application were utilized, which ensured that the nutritional information content was evidence-based and supported by the CDC and ADA guidelines. Participants were offered visual presentations via Zoom using the shared screen feature as well as targeted conversations with the NP during the scheduled thirty-minute-long educational sessions.

The educational content was discussed during counseling sessions using the share screen feature on the Zoom application. Data sets for both weight and HgbA1C values were collected from the EHR and compared after the three nutritional offerings were completed.

MyPlate

MyPlate is a simple application to help patients with DM build healthy eating habits one goal at a time. MyPlate users can pick daily food goals and join challenges while learning about nutrition. The application teaches users about food groups, portion control, provides resources (tip sheets, videos, and infographic), and healthy recipes. The application is free to use with easy access from the user's cell phone or computer (MyPlate.gov, 2020-25).

Study Design

A pretest-posttest study design was used to compare HgbA1C levels, weight loss, and BMI at the start of the project in both the Control and Intervention groups. The values of the HgbA1C, BMI, and weight loss between the groups were also compared pre nutritional counseling and post nutritional counseling.

Description of Sessions

Session 1

Assess the patient's stage of readiness using the transtheoretical model for behavior change as a guide, introduced the MyPLate.gov application either using the patient's phone or computer and assisted the patient with registration. The nurse researcher prepared the participant to correctly follow the recommended diet, reviewed the patient's BMI using the chart created, assisted the patient with their short-term weight loss goals (when necessary or requested) for review in the next scheduled session, and discussed how to interpret the glycemic index charts. The total time offered was 30 minutes.

Session 2

Session 2 began with addressing any participant concerns or technical issues with the online platform as well as any questions related to nutrition, DM, and the web-based materials, including the glycemic index charts. The MyPlate.gov application and any nutrition journal entries using the application were reviewed with participants, including their goals and accomplishments while assessing the participant's use of the MyPlate.gov application. The patient's fasting and random blood sugars were discussed in this session due to the recommended dietary changes. The nurse researcher discussed and addressed any symptoms of low blood sugar (hypoglycemia) to ensure the patient followed up with their provider in the medical group to address medication changes when necessary. The nurse researcher emphasized the importance of scheduling an appointment with one's provider for medication management. Nutrition labels of foods currently in the participant's home were reviewed in conjunction with a discussion of the food group allocations on MyPlate.gov. Weight loss and BMI goals were reviewed, and new short-term goals were set during this session. Finally, any perceived stressors, changes or threats, or cultural influences that may interfere with a healthier diet were discussed. The nurse

researcher provided encouragement and reviewed accomplishments before ending the Zoom meeting.

Session 3

The participant's stage of behavior change was reassessed along with a follow-up of any continued perceived stressors, changes or threats, or cultural influences that interfered with following a healthier diet. Fasting and random blood sugars were reviewed, and weight loss and new weight loss goals were reviewed and set. The nurse researcher offered encouragement in areas of concern relating to nutrition, discussed foods that continued to be a problem for the participant, and reviewed the participant's accomplishments on the MyPlate.gov application. The participant was encouraged to continue progress and then was prepared for their next appointment to review HgbA1C levels with their healthcare provider during their next scheduled medical office visit.

TimeLine

The project proposal was approved on April 12, 2021, and UNLV Institutional Review Board (IRB) approval was obtained during the fall semester of 2021. Project implementation began in November 2021. Nutritional counseling sessions began in November of 2021 and were completed by February 2022. Data collection finished in February 2022 and was completed in March 2022.

Resources and Supports

The executive team, regional managers, and the medical director supported this project in its entirety and continue to be a constant support to complete this project. have been a constant resource during the completion of this DNP project.

Risks and Threats

The ethical aspects of this project were privacy, confidentiality, and respect for all participating individuals. The project was designed to impose no risk but to only benefit all participating individuals. To protect patients' rights, the nurse researcher adhered to privacy, confidentiality, and legal rights while following the Health Insurance Portability and Accountability Act (HIPAA) regulations. The nurse researcher and medical team understood the duty and responsibility to fulfill HIPAA requirements, which were followed by the institution at both project sites. Any information collected that was considered private was recorded in the EHR or the patient folder kept at UNLV protected device which will be destroyed after five years.

Evaluation

To evaluate the efficiency of the implemented nutritional counseling intervention for adult patients, the collected and recorded data for both groups after three months will be used to:

(1) Determine if the nutritional counseling telehealth intervention is effective in lowering HgbA1C values over three months with three 30-minute educational sessions offered once a month.

(2) Compare HgbA1C values before and after the nutritional counseling intervention with those in the Control Group to determine whether this nutritional counseling should be expanded or removed

(3) Evaluate if the counseling sessions assist with weight loss and improve BMI for patients with prediabetes and DM.

Chapter V Summary of Implementation and Results

Précis

Healthy eating is an essential self-care behavior and one of the predictors of good outcomes in people with DM. But in the primary care setting, teaching healthy eating habits to patients with this condition is low on the priority list for many primary care providers working with Garcia Medical Group. Many of the patients are referred to a registered dietician-certified diabetic educator for nutritional counseling, often due to limited time for office visits or lack of nutritional knowledge concerning DM. The purpose of this DNP project was to assess how nutritional counseling offered via telehealth by an NP could improve HgbA1C values in this population. Before the implementation of this project, patients and their providers experienced problems with referrals to a registered dietician (RD) for reasons such as RD availability, uncovered insurance benefits, out-of-pocket costs for the patient in the case of certain insurance plans, and uninsured patients and transportation issues.

Multiple research studies examined the effects of teaching patients with DM about dietary recommendations to improve self-management of this disease process. The literature showed that the benefits of nutritional counseling by nurses decreased HgbA1C values in patients with DM; in contrast, in patients who did not receive nutritional counseling, HgbA1C values did not usually improve with medication alone. Based on these findings, a trial of a 30-minute nutritional counseling session once a month for three months was implemented to compare differences between patients that received nutritional counseling via telehealth from the NP as well as standard usual clinic care with those who received standard clinical care only and did not receive nutritional counseling.

Threats and Barriers to the Project

Length of Project

The limitations of this DNP project were the time of the year when the quality improvement project took place (Thanksgiving), the amount of time needed to complete the project, COVID-19, and the low number of participants. Had the project been applied on a larger scale with more participants over six months, it would have provided the data for a whole practice-changing study. Due to circumstances beyond the nurse researchers' control, the time permitted to implement the project was shorter than expected. The results may differ greatly if participants are given more time to implement the recommended behavior changes and increase their diabetic knowledge. Offering the program to patients in other healthcare settings may also provide the data needed to document additional significant changes. This project was open to nonpregnant, prediabetic, and T2DM adults only. Opening the enrollment to all diabetic patients may also increase the significant findings of this project.

Response to the COVID-19 Pandemic

One issue was the COVID-19 pandemic, which caused participants to reschedule nutritional counseling sessions and in-clinic follow-up appointments to complete necessary lab work (point-of care-testing for HgbA1C values). Additionally, providers called in sick due to COVID-19, causing research participants to reschedule their appointments. The COVID-19 virus impacted patient participation and the final results due to personal and family illness and the patient's inability to complete their counseling sessions and final blood work within the expected time frame.

Monitoring of the Project

The IRB approval was requested and obtained from the Office of Research Integrity at the University of Nevada, Las Vegas. Once approval was obtained, the nurse researcher met with the project leader, who is the supervising physician of both clinics, and she agreed to attend the informational meetings at each of the clinic locations. The office staff contacted the providers at each of the clinics involved in the project to ask them to attend the informational meetings as requested by the nurse researcher. The nurse researcher, project leader, and providers monitored the participant data collection to ensure accuracy when recording pre and post results of the BMI, weight, and HgbA1C values. After the completion of the three nutritional counseling sessions, data was collected and analyzed by the nurse researcher.

The HgbA1C values, BMI, and weight were collected as scheduled, except in the case of two participants from the intervention group and one participant from the control group due to changes in scheduling either by the participant or their provider's office staff. The project leader and provider for these participants were notified that the participant would be removed from the project. The data collected was entered into a Microsoft Excel sheet; the identifying information about participants was concealed by the nurse researcher.

Throughout the entire project, the project leader, providers, and office staff actively participated in meetings conducted by the nurse researcher where everyone engaged in open dialogue and shared their concerns and feedback. During these interactions with the project leader, providers, and office staff, the reasons for scheduling changes were revisited and reviewed, including rescheduling of participants' appointments by the call center, participants changing appointments, and cancellation of participants due to provider's schedule changes. The project leader established an open communication line and acknowledged the nurse researcher's

concerns about unnecessary scheduling changes. The nurse researcher led the meetings and used active listening and feedback system while keeping everyone involved. The open communication line allowed the project leader and nurse researcher to be open to new ideas and solutions to the barriers to the collection of data.

Data Collection

Data was collected during the participant's scheduled office visits during the first and third months. The data collected included the HgbA1C value, BMI, and weight. One exception to the collection of HgbA1C values was as follows: If the participant had a HgbA1C value 30 days before the recruitment phase started, then that value was substituted for the beginning HgbA1C. The final data was collected as scheduled, reviewed, and analyzed by the nurse researcher.

Participant Commitment

A total of 34 participants completed the project in its entirety. Three participants were unable to complete their three month-follow-up appointments, and since these appointments were canceled and data could not be collected, they were excluded from the project. Additionally, out of the 40 participants recruited, three participants did not provide their consent and were, therefore, excluded.

The final participation rate for the intervention group (Group A) was 18 participants (90%) out of 20 possible participants. Each participant in this group completed three telemedicine nutritional counseling sessions and showed up for their last in-clinic appointment for HgbA1C and weigh-in. The control group's final participation rate was 16 participants (94%) out of 17 possible participants that showed up for their last in-clinic appointment for HgbA1C value and weigh-in. Thus, a total of 34 responses (n = 34) were included in the final analysis.

Data Analysis

Descriptive statistics were run using SPSS to determine the characteristics of the population sample. When checking for errors using SPSS, no value fell outside of the range for categorical variables; however, continuous variables out of range were discovered and deselected. The frequencies for each variable were inspected separately using univariate analysis of both groups (Table 1). Descriptive statistics and one-way ANOVAs were used to examine ethnicity and the relationship to pre-counseling and post-counseling HgbA1C values. The Pearson correlation test was used to check for the relationship between age and HgbA1C values. The *t*-test examined the difference in the means of gender in both groups. For this preliminary study, the sample size was small, and variables among the groups such as gender and ethnicity were not normally distributed.

Explanation of Variables

Demographics including age, gender, and ethnicity of both groups were analyzed. Ages ranged from 31 to 73. Gender was examined and divided into two groups, male and female. Ethnicity was examined using four groups comprising the following: Asian/Pacific Islander, African American, Caucasian, and Hispanic. It is important to note that each participant was asked to state their race by the nurse researcher, and the information confirmed in the EHR demographics section during the recruitment phase; any ethnic group not included was due to the random selection of participants. No specific ethnic group was left out intentionally. HgbA1C values, BMI, and weight pre and post were examined to determine if there was a change in HgbA1C values between those that received nutritional counseling (Group A: Intervention) and those who did not (Group B: Control). The findings from the pre and post HgbA1C values were used to determine the differences.

Results

All participants in Group A completed three nutritional counseling sessions via telehealth, and both groups completed pre and post hgbA1C values and weigh-in during their scheduled office visits at one and three months. Detailed results of the analysis comparing participants from Groups A and B who completed the project requirements, pre and post HgbA1C values, weight, and BMI are described below using tables for demonstration of the data collected. First, the univariate analysis was completed to examine each variable within the group.

Table 1 Demographic Characteristics

Characteristics	**Total Sample**	**Intervention Group**	**Control Group**
Age, years	51.6	52.8	50.2
Age, range	31-67	31-67	31-64
Gender			
(i) Male	22 (65%)	8 (44%)	14 (87.5%)
(ii) Female	12 (35%)	10 (56%)	2 (12.5%)
Ethnicity			
African American	4 (12%)	1 (6%)	3 (19%)
Caucasian	15 (44%)	6 (33%)	9 (56%)
Asian	4 (12%)	3 (17%)	2 (12.5%)
Hispanic	10 (29%)	8 (44%)	2 (12.5%)
BMI Pre and Post		33.22/31.06	32.62/32.43
Weight Pre/Post		217.7/203.6	232.1/232.6
HgbA1c Pre/Post		7.53/7.06*	6.58/6.77
HgbA1c Pre - test (i) 5.7%-6.4%	18	7	11
HgbA1c Post - test (i) 5.7%-6.4%	20	11*	9
HgbA1c Pre - test (ii) 6.5%-9.0%	10	7	3
HgbA1c Post-test (ii) 6.5%-9.0%	7	4	5
HgbA1c Pre-test (iii) >9.0%	5	4	1
HgbA1c Post-test (iii) >9.0%	3	2	1

Table 2 Pre and Post HgbA1C for the Intervention and Control Groups

Group		Mean	Std. Deviation	N
Pre HgbA1C	Group B: Control	6.588%	1.2398%	16
	Group A: Intervention	7.539%	2.1027%	18
	Total	7.091%	1.7913%	34
Post HgbA1C	Group B: Control	6.7750%	1.37720%	16
	Group A: Intervention	*7.0667%	2.24918%	18
	Total	6.9294%	1.86816%	34

Note. The calculated *p* value of .008 with an alpha level of .05 indicates statistical significance in the HgbA1C pre and post tests in the Intervention Group.

Discussion of the Results of the Project

While there was no significance found in the change in weight or BMI values in either the Intervention or Control Groups, before and after three months of nutritional counseling, there was statistical significance found in the difference between the HgbA1C values. Reviewing Table 1 there was an increase of 5 participants with HgbA1C levels in the prediabetic range in the Intervention Group by the end of the study because their HgbA1C had dropped from the diabetic range to the prediabetic range. There was a decrease of 3 participants with HgbA1C levels 6.5% to 9.0% in the Intervention Group by the end of the study because their HgbA1C had also dropped to a lower level, and, a decrease of 2 participants from the highest levels, HgbA1C > 9.0%, to the 6.5% to 9.0%. In the Control Group, there were two participants who moved from the prediabetic group to the diabetic group and by the end of the study. Falling HgbA1C values, one patient at a time is clinically significant.

Improving the patient's knowledge of how to self-manage DM through nutrition is the one of the healthcare provider's goal for their patients with diabetes, especially when they are

struggling with hyperglycemia. The project showed how a supportive provider-patient relationship increases communication, which is essential to improving outcomes. This project showed that when an NP in the primary care setting took additional time to teach patients about nutrition and DM, the information empowered them to self-manage this disease and lowered their HgbA1C statistically significantly in just three months (See Table 2).

Providing nutritional support to patients with DM can minimize the use of medications, assist with weight loss, and demonstrate dietary changes resulting in positive outcomes with regard to diabetes; more importantly, it can prevent chronic hyperglycemia, which leads to target organ damage and other chronic diseases. Those without the nutritional counseling offered by the nurse practitioner did not see HgbA1C improvement, while those that did receive counseling showed statistically significant decreased HgnA1c values. This project showed that remote counseling sessions lowered HgbA1C just as current literature shows face-to-face counseling sessions do.

It is necessary to guide patients to self-manage their DM; a bigger problem remains for many Americans who may not have access to a provider with clinic time allocated to educate patients or insurance coverage that provides referral to a qualified professional who can offer this service. The literature was clear about the sense of urgency in this population of patients, and DSMES services are well defined in the process and steps for professionals to take a role in treatment. More importantly, what can nurses do to help patients get the help they need?

Milstead and Short (2019) state nurses and other health care providers (HCP) are ideally positioned to participate in public health policy because of their history, clinical experiences, education, and organizational involvements. Advocating at the clinic level, the local and regional levels, state and national levels, demonstrating the necessity of providing time for HCPs in clinic

to provide nutritional counseling or to provide Clinical Guidelines that insist upon referral to a Diabetes Educator for each newly diagnosed diabetic patient or with any significant change in the disease is necessary. This project shows the necessity of this patient education through referral or increased provider visit time and simply must happen. Working to make policy change is an important part of future changes as the result of this project.

An article by Ong et al., (2018) addresses the influence of health systems on T2DM awareness, treatment, adherence, and control. The policy implications from this systematic review discussed the potential for moving to integrated care models for patients struggling with chronic conditions like DM. Approaches to care delivery such as structured care, multidisciplinary team care, and information technology including, clinical decision support systems, and finally shared electronic medical records. In closing, without full cooperation from the local, state, and national levels persons with DM will continue to battle this disease alone.

Addressing the Problem

The project addressed the benefits of nutrition in a small group of patients who participated in free dietary counseling sessions. Conducting the telehealth nutritional sessions via Zoom was an innovative approach that was undeniably needed due to the ongoing COVID-19 pandemic. Many, if not all, of the patients in the intervention group who received counseling, did not clearly understand the connection between nutrition and DM. Individual counseling sessions with a nurse helped many of the participants in the intervention group decrease HgbA1C values by completing the nutritional counseling sessions and implementing lifestyle changes. In the last nutritional session, several of the participants in the intervention group had achieved more than a

5 lb. weight loss and reported feeling more control over managing their diet due to the knowledge they had gained from the telehealth nutritional counseling.

Evidence in the Literature

The literature on an individual's self-management abilities and knowledge of nutrition and DM is well-defined. DSMES delivery in the primary care setting is a feasible tool for PCPs to initiate treatment when a patient is first diagnosed with prediabetes and DM. A DSMES program that follows guidelines provides an evidence-based foundation to empower people and help them navigate self-management decisions and activities. The program is cost-effective and proven to help improve health behaviors and health outcomes for people of all ethnicities and socioeconomic ranks. A DMSE program has flexibility as shown in this project and can be designed to fulfill the individual's needs.

In Theory

The transtheoretical model of behavior change was an appropriate and highly useful guide for this project. Participants agreed to join the study despite not knowing which group they would end up in due to randomization. This might suggest that the individual was considering a change, at least initially, because they did have the choice to join when approached about the project. In the intervention group, several of the participants vacillated between stage 2 contemplation and stage 3 preparation during the first month. However, once they gained knowledge about nutrition and DM and gained the confidence to self-manage their diet, stabilization occurred. This phenomenon was recognized in several patients during their second nutritional counseling session. The provider must understand that patients do move in and out of stages for various reasons, and change, patience, understanding, and commitment to the process are fundamental for a successful transition.

Patient Outcomes and Improving Nursing Practice

Patient outcomes were positive, resulting in a decrease in HgbA1C values for a significant portion of the participants who received nutritional counseling. The project supported and expanded the use of DSMES, which can help ensure that all people with diabetes receive the support they need. This was accomplished on a smaller level for the patients established with Garcia Medical Group. National Standards for DSMES were the focus of this project in regard to implementation. Three of the standards were met for this project, including the following: Standard (1) "Services incorporated within the organization large, small or independently operated"; Standard (3) "The provider(s) of DSMES services will evaluate the communities they serve to determine the resources, design, and delivery methods that will align with the population's need for DSMES services"; Standard (6) "A curriculum reflecting current evidence and practice guidelines, with criteria for evaluating outcomes, will serve as the framework for the provision of DSMES. The needs of the individual participant will determine which elements of the curriculum are required"; Standard (9) "The provider(s) of DSMES services will monitor and communicate whether participants are achieving their personal diabetes self-management goals and other outcomes to evaluate the effectiveness of the educational intervention(s) using appropriate measurement techniques" (CDC, 2021). Ongoing support and application of DSMES programs are critical for supporting our community, continuing to improve nursing practice for patients with DM, and achieving better outcomes for all patients struggling with this devastating disease.

Potential for Sustainability and Dissemination

The potential for sustainability would include a commitment from healthcare providers to attain the education necessary for providing nutritional counseling to patients with DM. Offering

nutritional counseling must start with the healthcare provider and the healthcare system and must coexist as an equal part of diabetic care. Our communities deserve at least a choice. The project results will be disseminated to the following organizations: (1) Garcia Medical Group, (2) Pacific Dental Services Regional Team, and (3) UNLV School of Nursing, Las Vegas.

Future Scholarly Activity

A future scholarly activity that is of interest to Garcia Medical Group is the training of new healthcare providers who show interest in providing nutritional counseling to patients with prediabetes and DM during their onboarding. According to ADA (2017), the National Standards for DSMES illustrate that the team member who is responsible for facilitating DSMES services is either a registered nurse, registered dietician nutritionist, pharmacist, or other healthcare professional holding certification as a diabetes educator (CDE) or Board Certification in Advanced Diabetes Management (BC-ADM). It is believed that training eligible team members about current research regarding nutrition and DM will enable them to continue to support our patients and community. Learning how to manage DM to prevent or delay its complications is a necessary skill. Since patients with this condition visit their PCPs at least four times a year, who is better equipped to step up to this task? Present research continues to support nurses, dietitians, and pharmacists as providers of DSMES, and with proper training, they can be made responsible for developing the curriculum with their teams.

Appendix A Participant Appointment Schedule for Telehealth Counseling Sessions

DURANGO
HEALTH GROUP

702-273-3680 3140 S Durango Dr, Ste 100 B
Las Vegas, NV 89117
Fax: 702-800-3112

Month 1

Date:

Time:

Month 2

Date:

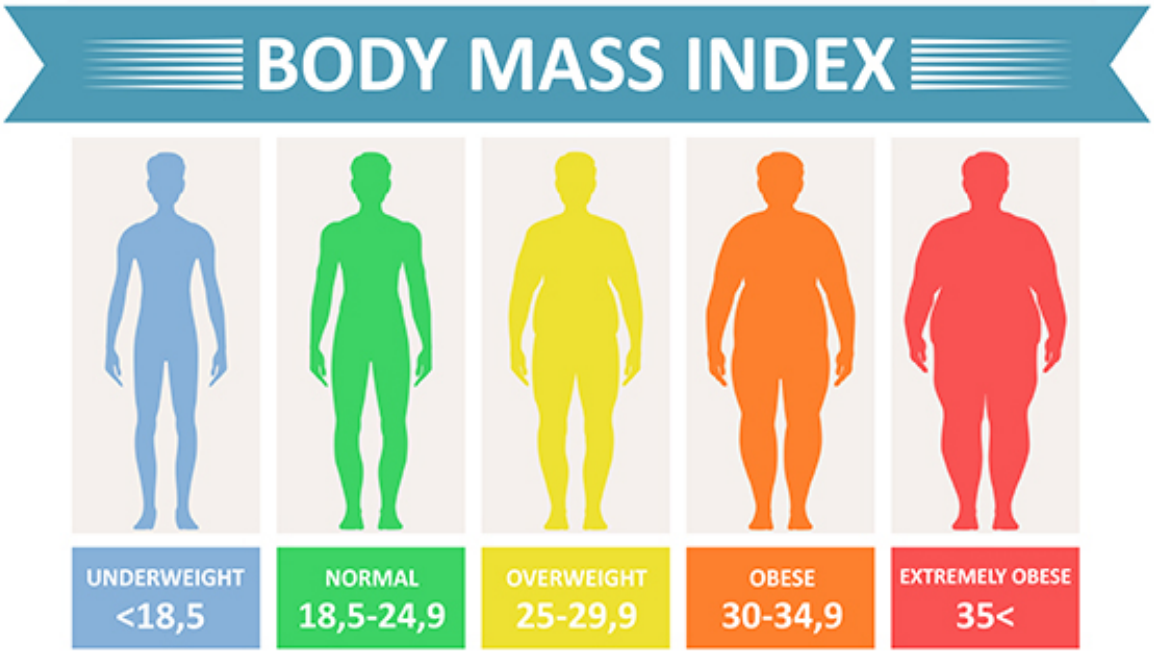
Time:

Month 3

Date:

Time:

Appendix B Example Body Mass Index



Appendix C Body Mass Index Table

BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Height (inches)																	
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	192
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223
68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272

75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287

Appendix D Glycemic Index Chart

*White wheat bread, white rice, wheat bread, doughnuts, crackers, waffles, boiled and mashed potatoes, french fries, watermelon, corn flakes, beer	70–110
**Rye & whole grain bread, muesli, corn couscous, brown rice, spaghetti, popcorn, yams, ice cream, sweet yogurt, banana, grapes, kiwi	50–70
***Course barley bread, strawberries, apples, pears, oranges, milk and soy milk, natural yogurt, oatmeal, beans, shrimp, white wine	30–50
Pearled barley, lentils, grapefruit, cherry, apricot, plum, dark chocolate with 70% cocoa, whole milk, cashews, walnuts	10–30
Hummus, chickpeas, garlic, onion, green pepper, eggplant, broccoli, cabbage, tomatoes, mushrooms, lettuce	0–10
Most chicken, beef, fish, shellfish, vodkas, red wines	0

Appendix E MyPlate Application Instructions

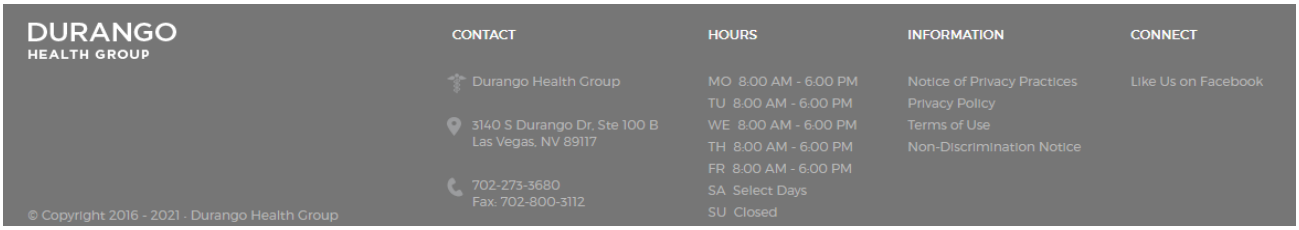
DURANGO
HEALTH GROUP

702-273-3680 3140 S Durango Dr, Ste 100 B
Las Vegas, NV 89117
Fax: 702-800-3112

Directions to Register for MyPlate Application

Video Link: https://youtu.be/57H3DrD8koI

1) Download the app from http://www.MYPlate.gov. Access the website from a computer or cell phone.
2) Web address: https://www.myplate.gov/
3) Register as a guest.
4) Follow the prompt > What's on your plate?
5) You will be prompted to take a quiz (the quiz is optional and you are required to use the application only for your general knowledge).



Appendix F Zoom Call Instructions

DURANGO
HEALTH GROUP

702-273-3680 3140 S Durango Dr, Ste 100 B
Las Vegas, NV 89117
Fax: 702-800-3112

Zoom Telehealth Appointment Instructions

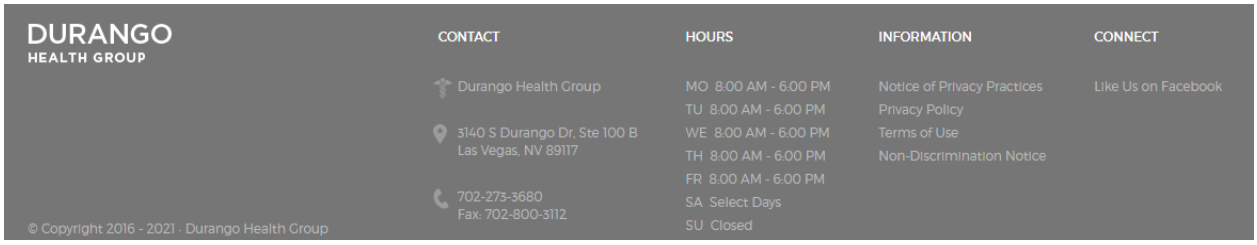
1) Start by clicking on the zoom link **sent to you by email** by the meeting host.

2) Follow the prompts to **download and run** Zoom.

3) Enter the **meeting ID** provided.

4) Click on the **join the audio conference** option.

5) When you're in the meeting, you may click the **Start Video** button to start your video.
.
6) You may need to unmute your microphone so that the host can hear you.



Appendix G 2017 National Standards for DSMES

STANDARD 1

Internal Structure

The provider(s) of DSMES services will define and document a mission statement and goals. The DSMES services are incorporated within the organization – large, small, or independently operated.

STANDARD 2

Stakeholder Input

The provider(s) of DSMES services will seek ongoing input from valued stakeholders and experts to promote quality and enhance participant utilization.

STANDARD 3

Evaluation of Population Served

The provider(s) of DSMES services will evaluate the communities they serve to determine the resources, design, and delivery methods that will align with the population's need for DSMES services.

STANDARD 4

Quality Coordinator Overseeing DSMES Services

A quality coordinator will be designated to ensure the implementation of the standards and oversee the DSMES services. The quality coordinator is responsible for all components of DSMES, including evidence-based practice, service design, evaluation, and continuous quality improvement.

STANDARD 5

DSMES Team

At least one of the team members responsible for facilitating DSMES services will be a registered nurse, registered dietitian nutritionist, or pharmacist with training and experience pertinent to DSMES, or there will be another healthcare professional holding certification as a diabetes educator (CDE) or Board Certification in Advanced Diabetes Management (BC-ADM). Other healthcare workers or diabetes paraprofessionals may contribute to DSMES services with appropriate training in DSMES along with supervision and support by at least one of the team members listed above.

STANDARD 6

Curriculum

A curriculum reflecting current evidence and practice guidelines, with criteria for evaluating outcomes, will serve as the framework for the provision of DSMES. The needs of the individual participant will determine which elements of the curriculum are required.

STANDARD 7

Individualization

The DSMES needs will be identified and led by the participant with assessment and support by one or more DSMES team members. Together, the participant and DSMES team member(s) will develop an individualized DSMES plan.

STANDARD 8

Ongoing Support

The participant will be made aware of options and resources available for the ongoing support of their initial education and will select the option(s) that will best maintain their self-management needs.

STANDARD 9

Participant Progress

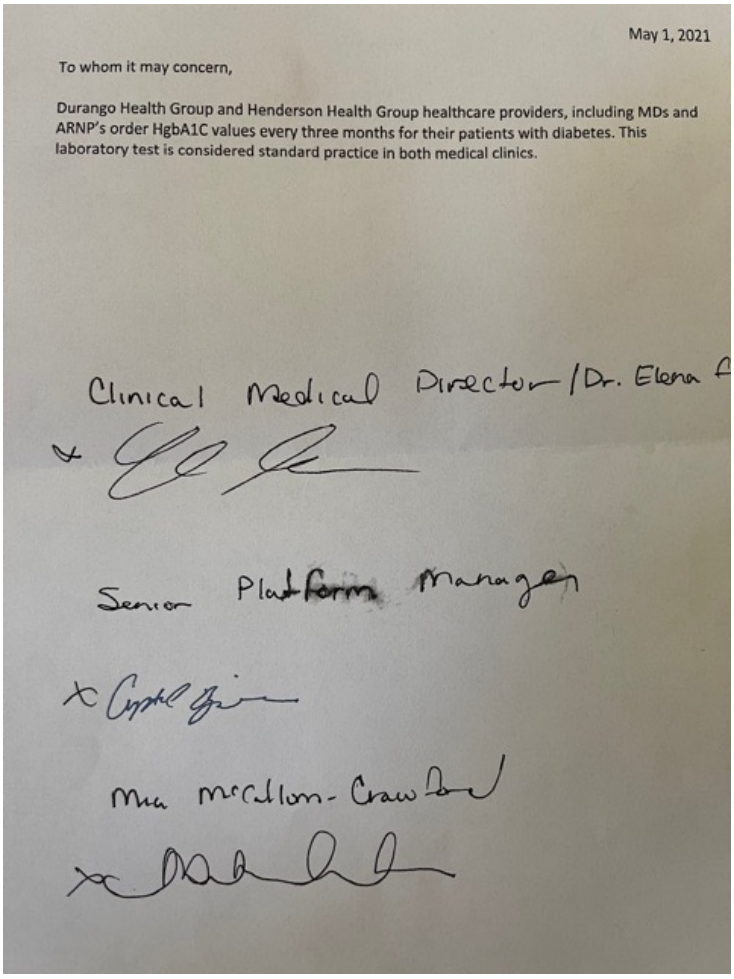
The provider(s) of DSMES services will monitor and communicate whether participants are achieving their personal diabetes self-management goals and other outcome(s) to evaluate the effectiveness of the educational intervention(s) using appropriate measurement techniques.

STANDARD 10

Quality Improvement

The DSMES services quality coordinator will measure the impact and effectiveness of the DSMES services and identify areas for improvement by conducting a systematic evaluation of process and outcome data.

Appendix H HgbA1C Document



May 1, 2021

To whom it may concern,

Durango Health Group and Henderson Health Group healthcare providers, including MDs and ARNP's order HgbA1C values every three months for their patients with diabetes. This laboratory test is considered standard practice in both medical clinics.

Clinical Medical Director / Dr. Elena

Senior Platform Manager

Mia McClain-Crawford

Appendix I IRB Approval

Biomedical – Expedited Review

Approval Notice

DATE: November 19, 2021

TO: Karyn Holt
FROM: Biomedical

PROTOCOL TITLE: UNLV-2021-37 Is Dietary Teaching via Telehealth Effective in Lowering HbA1C in Adult Patients with Prediabetes or Type 2 Diabetes?
SUBMISSION TYPE: Initial

ACTION: Approved
APPROVAL DATE: November 19, 2021
REVIEW TYPE: 4. Collection of data through noninvasive procedures (not involving general anesthesia or sedation) routinely employed in clinical practice exclude procedures involving X-rays or microwaves. Where medical devices are employed, they must be cleared/approved for marketing. (Studies intended to evaluate the safety and effectiveness of the medical device are not generally eligible for expedited review, including studies on cleared medical devices for new indications.)

Thank you for the submission of materials for this proposal. The Biomedical IRB has approved your study. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission. Only copies of the most recently submitted and approved/acknowledged Informed Consent materials may be used when obtaining consent.

This study has been determined to involve minimal risk.

PLEASE NOTE:
Should there be any change to the study, it will be necessary to submit a **Modification** for review. No changes may be made to the existing study until modifications have been approved/acknowledged.

All unanticipated problems involving risk to subjects or others and/or serious and unexpected adverse events must be reported promptly to this office. All FDA and sponsor reporting requirements must also be followed where applicable.

Any non-compliance issues or complaints regarding this protocol must be reported promptly to this office.

All approvals from appropriate UNLV offices regarding this research must be obtained prior to the initiation of this study (e.g., IBC, COI, Export Control, OSP, Radiation Safety, Clinical Trials Office, etc.).

If you have questions, please contact the Office of Research Integrity – Human Subjects at IRB@unlv.edu or call 702-895-2794. Please include your study title and study ID in all correspondence.

Office of Research Integrity – Human Subjects
4505 Maryland Parkway. Box 451047. Las Vegas, Nevada 89154-1047
(702) 895-2794. FAX: (702) 895-0805 . IRB@unlv.ed

Appendix J Consent and Recruitment Form

INFORMED CONSENT

Department of Graduate Nursing

TITLE OF STUDY: Is Dietary Teaching Via Telehealth Effective in Lowering HgbA1C in Adult Patients with Prediabetes or Type 2 Diabetes?

INVESTIGATOR(S): Karyn Holt, Ph.D., RN and Mia Crawford, RN, MSN
For questions or concerns about the study, you may contact Dr. Karyn Holt at karyn.holt@unlv.edu.

For questions regarding the rights of research subjects and any complaints or comments regarding how the study is being conducted, contact **the UNLV Office of Research Integrity – Human Subjects at 888-581-2794, toll-free at 877-581-2794, or via email at IRB@unlv.edu.**

The level of risk of transmission of COVID-19 in this research study is unknown. The research activities will utilize the acceptance of actions mitigating the transmission of COVID-19 transmission; however, the risk cannot be eliminated.

Purpose of the Study

You are invited to participate in a research study. The purpose of this study is to determine if 30-minute counseling sessions conducted once a month, including additional teaching materials created from MyPlate.gov, the American Diabetes Association, and the Centers of Disease Control and Prevention, for a period of three months for adult patients with prediabetes and type 2 diabetes who have HgbA1C values 5.7% and greater will decrease the participants' HgbA1C values.

Participants

You are being asked to participate in the study because you fit the following criteria: not pregnant, adult aged 18 years or older, diagnosis of prediabetes or diabetes type 2, and own an electronic device such as a computer, tablet, or mobile phone with internet access. Voluntary participation is your choice, and you may stop participating at any time. Your decision to

participate, or not participate, will have no impact or effect on you at the clinic or at any of the Garcia Medical Corporation Clinics.

Procedures
If you volunteer to participate in this study, you will be asked to do the following:
- Consent to Study
- Have blood drawn for a HgbA1C value at the beginning of the study and at the end of study three months apart and have height, weight, and BMI measurements taken at the beginning and end of the study. This information will be collected from the medical record after the clinic visit.

-The participants will be divided into two groups, an intervention group that will receive nutritional counseling and a control group that will not. The study will be looking at the effectiveness of using telehealth counseling sessions to lower HgbA1C values in patients with diabetes type 2 and prediabetes. After consent is obtained, random assignment into each group will occur by pulling an index card from a brown paper bag (the nurse researcher will offer this card when you consent to participate in the study).

Group A

(1) Day 0: The nurse researcher will meet with potential participants to recruit them for the study on Fridays and Saturdays at the Durango and/or Henderson Health Group locations. Recruitment and consent time will be approximately 30 minutes for each participant.

(2) Next Step: HgbA1C blood draw: A 15-minute appointment will be scheduled by your healthcare provider for usual care. Note: The participant may already have a HgbA1C level completed for the first month as previously ordered for usual care; this value will be used. This information will be collected from the medical record after the clinic visit along with height, weight, and BMI measurements.

(3) Telehealth Visit: Each (3) session will be conducted via the Zoom online meeting platform, and written instructions for accessing and using this platform will be given to the participant upon consenting and assignment into Group A.

a) First Month: Nutritional session 1 = 30 minutes – Use of MyPlate.gov app for approximately 15 minutes a day 7days a week for 4 weeks, leading to a total of 7 hours.
Information on how to use the MyPlate app will be given at consenting in a handout; please refer to that document. Use of the MyPlate app should be as a “guest”; there is no need to register or take the quiz to use the app or provide your personal information such as email address or name. I will not be collecting any information you provide from the MyPlate app. You may delete this app after the study is over. Using the MyPlate app does not have a financial cost; it is free.

4) Second Month: Nutritional session 2 =30 minutes – Use of MyPlate.gov app for approximately 15 minutes a day 7days a week for 4 weeks, leading to a total of 7 hours

5) Third Month: Nutritional session 3 =30 minutes – Use of MyPlate.gov app for approximately 15 minutes a day 7days a week for 4 weeks, leading to a total of 7 hours

6) Once the third nutritional session is completed by the participant, an appointment will be scheduled by their healthcare provider for a second HgbA1C lab draw (considered usual care). This value will be used for the comparison with the first month's HgbA1C. This information will be collected from the medical record after the clinic visit along with height, weight, and BMI measurements.

Group B

(1) Day 0: The nurse researcher will meet with potential participants to recruit them for the study on Fridays and Saturdays at the Durango Health Group and/or Henderson Health Group locations. Recruitment and consent time will be approximately 30 minutes for each participant.

(2) HgbA1C Blood Draw: A 15-minute appointment will be scheduled by their healthcare provider for usual care. Note: The participant may already have a hgbA1C level completed for the first month as previously ordered for usual care; this value will be used. This information will be collected after the clinic visit from the medical record along with height, weight, and BMI measurements.

(3) Day 3: Appointment with the participant will be scheduled by their healthcare provider for a second HgbA1C lab draw (considered usual care). This value will be used for the comparison with the HgbA1C completed in the first month. This information will be collected from the medical record after the clinic visit along with height, weight, and BMI measurements.
.

This will conclude participation for Group B (control group)

Benefits of Participation

There will possibly be direct benefits to you as a participant in this study through this education. However, we hope to learn more about using telehealth conversations with regard to nutrition counseling to improve the treatment of diabetes type 2 and prediabetes at Garcia Medical Corporation.

Risks of Participation

There are risks involved in all research studies. This study includes only minimal risks.

- Risks for COVID-19 transmission at Garcia Medical Corporation include the following: CDC screening questions of each patient upon scheduling an appointment and upon clinic entry; mandatory mask-wearing by clinicians and patients; temperatures taken of all patients and clinicians before entry into the clinic; for temperatures above 99 C, appointments rescheduled and patients not allowed entry into the clinic; freely available

sanitizer in the clinic for all to use. COVID-19 transmission is possible but lessened through the above procedures.

- You may be embarrassed or uncomfortable with answering some questions; this will be minimized by addressing the privacy of the participant using one-to-one nutritional counseling from home and nurse researcher training in crucial conversations and therapeutic communications.
- Additionally, your blood glucose may change. The Standard of care is that diabetic patients self-monitor their blood glucose levels 1–3 times daily. Symptoms of hypoglycemia are given to the patient. In **Session One,** they are reviewed, and the participants are reminded that weight loss may produce lower blood sugars and may require closer monitoring and, perhaps, a decrease in medication. Closer supervision and contact with their healthcare provider are encouraged in the presence of a weight loss program.

Cost /Compensation

There will be no financial cost to you to participate in this study, but there is a time cost.

- Recruitment and consent =30 minutes of your time.
- HgbA1C lab draw x 2, approximately 15 minutes for each draw.
- MyPlate.gov app (free app): Use once a day / 15 minutes/ 7 days a week for 12 weeks
- Three nutritional counseling sessions of 30 minutes each, once a month for 3 months = 90 minutes.
- Total: Three to four hours for meeting with the nurse researcher over three months. You will not be compensated for your time.

Confidentiality

All information gathered in this study will be kept as confidential as possible. No reference will be made in written or oral materials that could link you to this study. All records will be stored in a UNLV computer by the Principal Investigator for five years after the completion of the study. After the storage time, the information gathered will be destroyed. The participants will be using MyPlate.gov app as a "guest," and no identifying information will be gathered. The participant may delete the app when the study concludes.

Voluntary Participation

Your participation in this study is voluntary. You may decline to participate in this study or in any part of this study, and it will not affect your medical care at the Garcia Medical Corporation. You may withdraw at any time without prejudice to your relationship with UNLV or the Garcia Medical Corporation Group. You are encouraged to ask questions about this study at the beginning or any time during the research study. Questions should be directed to either myself, Mia McCallum-Crawford at crawfo56@unlv.nevada.edu, Dr. Karyn Holt, UNLV School of Nursing, Principal Investigator at karyn.holt@unlv.edu, or **the UNLV Office of Research Integrity – Human Subjects at 877-581-2794, toll-free at 888-581-2794, or via email at IRB@unlv.edu.**

Participant's Consent:
I have read the above information and agree to participate in this study. I have been able to ask questions about the research study. I am at least 18 years of age. A copy of this form has been given to me.

_____ _____
Signature of Participant Date

_____
Participant's Name (Please Print)

If your study includes the use of HIPAA protected health information, please include the following:

Authorization to Use or Disclose (Release) Health Information that Identifies You for a Research Study

If you sign this document, you permit Durango Health Group to use or disclose (release) the health information that identifies you to the University of Nevada Las Vegas (UNLV) for the research study described above.
The health information that may be used or disclosed (released) for this research includes:

- **weight**
- **height**
- **BMI (Body Mass Index)**
- **HgbA1c**

Garcia Medical Corporation is required by law to protect your health information. By signing this document, you authorize Garcia Medical Corporation to use and/or disclose (release) your health information for this research. Those persons who receive your health information may not be required by federal privacy laws (such as the Privacy Rule) to protect it and may share your information with others without your permission if permitted by laws governing them.

Please note that Garcia Medical Corporation may not condition withhold treating you on whether you sign this Authorization.

Please note that:

- You may change your mind and revoke (take back) this Authorization at any time, except to the extent that Garcia Medical Corporation PC has already acted based on this Authorization. To revoke this Authorization, you must write to Garcia Medical Corporation PC at 3140 South Durango Drive, Ste 100B, Las Vegas, NV 89117 or call 702-273-3680.
  This Authorization does have an expiration date, the end of the research study

_____	_____
Signature of participant or participant's personal representative	Date
_____	_____
Printed name of participant or participant's personal representative	If applicable, a description of the personal representative's authority to sign for the participant

OPTIONAL ELEMENTS:
Examples of optional elements that may be relevant to the recipient of the protected health information:

- Your health information will be used or disclosed when required by law.
- No publication or public presentation about the research described above will reveal your identity without another authorization from you.
- If all information that does or can identify you is removed from your health information, the remaining information will no longer be subject to this authorization and may be used or disclosed for other purposes.
- To maintain the integrity of this research study, you generally will not have access to your personal health information related to this research until the study is complete. At the conclusion of the research and at your request, you generally will have access to your health information that Garcia Medical Corporation maintains in a designated record set, which means a set of data that includes medical information or billing records used in whole or in part by your doctors or other healthcare providers at Garcia Medical Corporation to make decisions about individuals. Access to your health information in a designated record set is described in the Notice of Privacy Practices provided to you by Garcia Medical Corporation PC. If it is necessary for your care, your health information will be provided to you or your physician.
- If you revoke this Authorization, you may no longer be allowed to participate in the research described in this Authorization.

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CURRICULUM VITAE

Mia McCallum- Crawford APRN, MSN, FNP-C

Contact Information
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Education

09/2020	University of Nevada Las Vegas, Doctoral Nursing Practice
01/13- 8/15	Walden University, MSN, Post- Master's Family Nurse Practitioner program
7/12	University of Nevada, Las Vegas, Graduate statistics (no degree earned)
06/12- 09/12	eCornell University, Certified Plant Based Nutrition
6/10-5/12	Florida Atlantic University, Bachelors of Science in Nursing
1992	Jackson Memorial Hospital, Critical Care Internship program
1989-1991	Miami Dade Community College, ADN
1989-1991	Jackson Memorial Hospital SON, Registered Nurse Diploma program
1988-1989	EMT Certification, prerequisites for nursing

Experience

Doctoroo Mobile Urgent Care **March 2020-Present**

Provide urgent care to patients in their homes residing in the Las Vegas Valley. Diverse type of conditions are treated including, acute and chronic illness and injury.

PDS Durango Health Group **February 5, 2018-Present**

Family practice providing primary care with special focus on the mouth body connection, co-located with a dental group. Focus of care is on heart attack and stroke prevention using integrative therapies including, weight loss and nutrition, supplements, genetic testing and diagnostic screenings. In addition, diabetes, HTN, asthma, allergies, minor skin surgery, stable mental health conditions, well-women care, BHRT, micro channeling skin treatments for dermatologic disorders, testosterone replacement therapy, minor cosmetic procedures using Botox and fillers. Concentration is on patient and family teaching for residents living in the Las Vegas and Henderson NV area.

Hope Christian Health Center **January 31,2017- January 31,2018**

Provide primary care to an underserved population, well-woman care, health screening and promotion, management of acute, episodic illness and management of chronic illness: Conditions commonly encountered include a variety of mental health disorders, CAD, hypertension, diabetes, dyslipidemia, obesity, allergies, influenza, URI, sinusitis, pneumonia, asthma, COPD, gastrointestinal disorders, dermatologic disorders, urologic and common

gynecologic disorders including STI, DUB, vaginitis, cervicitis, chronic pain, back pain and arthritis.

CareMore **September 21, 2016-January 31-2017**

Manage patients and their comorbities, promote well-being, and prevent complications through education on self-management, medication dosing, and dietary management according to current guidelines and best practices.

TeamHealth- Fremont Emergency Services **January 15, 2016 – August 15, 2016**

Provide direct emergency care to patients visiting the HCA hospitals comprising Mountain View Hospital, Southern Hills Hospital, and Sunrise Hospital.

PassportHealth **May 5, 2016- June 2-2016 (Temporary)**

Supervise registered nurse in travel health clinic. Perform health consultations for patients traveling, provide vaccines, and prescribe necessary medications after completed health evaluation.

McKesson Corporation **March 2014- July 2015**

Blended disease management, registered nurse. Manages member care telephonically and in the field by collaborating with McKesson team members and contracted providers to ensure excellent member care is delivered, and optimal health is maintained for clients in the Medicaid population.

Project Homeless, Nevada Health Centers **November 2014**

Provide direct primary care to the homeless population under the supervision of PA-C

Volunteer Medicine of Southern Nevada **March 2013 - 2014**

Provide direct patient care to pediatric and adult patients in a clinic setting. Care will be designated to patients with multiple diagnoses. Care will be given to clients with a wide range of needs including, Diabetes, vaccinations, flu, mental health conditions etc. Concentration is on patient and family teaching for residents living in the Las Vegas, NV area.

Belle Glade Health Fair February 26, 2012 – March 2, 2012

Provided direct patient care to pediatric and adult patients. Ages ranging from 4 to 75 years. Performed skin screening for Melanoma and Asthma. Concentrated heavily on patient and family teaching.

Jackson Memorial Hospital, Miami FL **January 3,2012 – May 4, 2012**

Clinical practicum working directly under the NDQNI supervisor for Jackson Health Systems (JHS), and The Center for Nursing Excellence. JHS project known as the National Database of Nursing Quality Indicators (NDNQI) RN survey is to measure job satisfaction, work contextual items, demographics, and the practice environment for nurses. The practicum included attending practice council meetings; and learning about the challenges each unit experienced, while trying to implement changes utilizing the results from the NDNQI survey.

Accredo Home Health Care, Las Vegas, NV 2006-2007

Treated patients with immune deficiencies in their home by providing specialized intravenous therapies including immunoglobulin, antibody (IgG) and total parental nutrition (TPN) administration, monitored vital signs, Central and PICC line dressing changes.
Halifax Medical Center, Daytona Beach, FL 2001-2002
Provided direct patient care in the cardiac intensive care unit to post-operative open- heart surgical patients. Postoperative care included, cardiac monitoring via swanz- ganz catheter, central venous pressure lines and atrial line monitoring. Administered IV drip medications including cardiac medications, insulin drips. Chest tube management and cardiac outputs. Concentrated heavily on patient and family teaching.
ST. Thomas Medical Center, Nashville, TN 1996-1999
Provided direct patient care in the cardiac intensive care unit to post-operative open-heart surgical patients, neurological cardiac surgical intensive care patients and medical cardiac intensive care patients. Care included cardiac monitoring, administering IV drip medications including insulin with glucose monitoring. Also, monitored ICP lines, arterial lines, cardiac outputs and chest tube management. Concentrated heavily on patient and family teaching.
Vanderbilt University Medical center, Nashville, TN 1997-1998
Provided direct care to surgical/trauma patients in a teaching hospital setting. Cardiac monitoring via Swan- Ganz catheter and central venous pressure lines, managing IV drip medications including insulin and glucose monitoring, chest tube management, wound care, ICP monitoring, transport unstable patients for special procedures.

Martha Jefferson Hospital 1995-1996
Provided direct care to patients in their homes including vital signs, obtained blood work for required labs, diabetic teaching with glucose monitoring and insulin administration, TPN administration, wound care, colostomy care, hydration and nutritional support for pregnant women, central and PICC line dressing changes.
Augusta Medical Center 1994-1995
Provided direct care to telemetry patients on step down unit including cardiac monitoring, administration of cardiac medications, glucose monitoring with insulin administration,
Jackson Memorial Hospital 1992-1994
Provided direct care to surgical/trauma intensive care patients including hemodynamic monitoring via swanz ganz catheter, administration and titration of multiple medications including epinephrine, dopamine, dobutamine, diprivan, morphine and insulin drips with glucose monitoring, extensive wound care and dressings changes, ICP monitoring, administered blood products, transport unstable patients for special procedures, chest tube management.
Jackson Memorial hospital 1991-1992
Provided direct care to surgical trauma patients on a surgical floor including vital signs, medication administration, glucose monitoring with insulin administration, wound care, pain management, patient and family teaching, discharge planning.
Jackson Memorial Hospital 1990-1991
Worked as a patient care technician during the summer on the oncology floor. Provided direct patient care including vital signs, wound care, glucose monitoring, and assisting patients with personal care.

PROFFESIONAL CERTIFICATIONS
ARNP FNP-C
AHA BLS, ACLS
PLANT BASED NUTRITION
PROFESSIONAL ORGANIZATIONS
AANP-American Association of Nurse Practitioners
NAPNA- Nevada Advance Practice Nurses Association