

BEST PRACTICE RECOMMENDATIONS FOR LIFESTYLE INTERVENTIONS FOR  
ADULT HISPANICS/LATINOS WITH TYPE 2 DIABETES MELLITUS

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## **Abstract**

Type 2 diabetes mellitus (T2DM) disproportionately affects the Latino/Hispanic population. Hispanics are 1.5 times more likely to die from the disease than non-Hispanic whites and almost 13% of Hispanic adults have T2DM (Benavides-Vaello et al., 2017). This severe health disparity can be bridged with better lifestyle interventions and interventions recommended by physicians. The purpose of this thesis is to explore culturally appropriate interventions for the adult Hispanic/Latino population and to provide evidence-based recommendations for this population.

After a literature review was conducted, the evidence-based recommendations that emerged include having educational materials in both English and Spanish available so patients can fully understand their medical condition and treatment plans, implementing the use of trained non-provider educators such as community health workers or peer-educators for weekly educational sessions, screening all people for diabetes at age 45 or earlier if overweight, obese, pregnant or HIV positive, using conversation maps in group sessions, monthly support groups led by trained peer-educators, and resilience training in one-on-one sessions and in group sessions.

The final chapter includes a proposal for the implementation and evaluation of the best practice recommendations using the Plan-Do-Study-Act model. Overall, this population needs further help in order to lessen the disparity in T2DM incidence and poor outcomes.

# **CHAPTER 1**

## **Introduction**

### **Statement of Purpose**

This thesis aims to develop evidence-based best practice recommendations for Adult Hispanics/Latinos with Type 2 Diabetes Mellitus (T2DM). This thesis will include a literature review of studies that explored lifestyle interventions that are culturally appropriate for Latino/Hispanic adults suffering with type 2 diabetes mellitus. Latino/Hispanic adults are more likely to experience mortality than non-Hispanic adults therefore an aim of this thesis is to explore this health-related disparity and create evidence-based guidelines to improve T2DM-related outcomes.

### **Background of Issue Importance**

Diabetes is commonly listed as the seventh leading cause of death in the U.S. (Smith-Miller et al., 2017). Of the 21 million known diabetes cases in the U.S., 95.7% are T2DM (Smith-Miller et al., 2017). Within the subgroup of those with type 2 diabetes, Hispanics are 1.5 times more likely to die from the disease than non-Hispanic whites and almost 13% of Hispanic adults have T2DM (Benavides-Vaello et al., 2017). These numbers are very alarming and call attention to the grave health disparity among Hispanics/Latinos with T2DM.

It is worth mentioning that there is a difference between “Hispanics” & “Latinos” as Hispanics are of Spanish origin (European) and Latinos are from Latin America. However, for the purpose of this study both terms were used to capture more studies for this literature review.

Many things contribute to the development of T2DM. The vast majority of type two diabetes diagnoses can be linked to a poor diet, physical inactivity and obesity. Obesity is the

most important modifiable risk factor for the prevention of T2DM. Genetics can also play a big role in whether or not a person is susceptible to getting it.

For Hispanic/Latino populations, cultural and lifestyle factors have a major impact on the incidence of T2DM in this population. This population has a higher incidence of obesity as it is less likely for them to exercise and the cultural phenomenon of *simpatia* makes it socially impolite to decline food at social occasions which causes pressure to eat more than what they might need or want.

### **Pathophysiology of Type 2 Diabetes**

Diabetes is a chronic disease with serious consequences on the rest of the body that include neuropathy, gradual blindness, dementia and cardiovascular diseases. Type 2 diabetes mellitus (T2DM) is the type that usually develops during adulthood. The body's cells become resistant to the insulin the body produces to control blood glucose or the pancreas is unable to produce enough insulin to meet the body's needs. Insulin is important in the transport of glucose from the bloodstream to the skeletal muscle, adipose tissue and liver cells so the glucose can be used for energy and storage. Without insulin, there is a buildup of too much glucose in the blood which is known as hyperglycemia. Hyperglycemia can cause many complications like heart attacks, kidney failure, strokes, vision loss or blindness and impaired wound healing potentially leading to amputations.

### **Diagnosis, Treatment and Costs of Type 2 Diabetes**

The American Diabetes Association (ADA) recommends that all people should be tested for prediabetes and type 2 diabetes starting at age 45 years. However, it should be done sooner if the person has HIV, is overweight or obese and in women who are overweight or obese and

planning pregnancy. If tests are normal, repeat testing can be done at 3-year intervals, but sooner if symptoms occur. Patients with prediabetes should be tested yearly. The best place testing should take place would be a health care setting due to the potential need for follow-up and treatment, but a community testing site can be used if there is an adequate referral system established for positive tests (ADA, 2020).

Hemoglobin A1c (HbA1c) is a measurement of the average blood glucose level during the previous 2-3 months. A value of 6.5% or higher is used to diagnose diabetes (American Diabetes Association, 2021). Other tests might include are the fasting plasma glucose (FPG) or the oral glucose tolerance test (OGTT). FPG tests fasting blood sugar levels which requires the patient to not have any food or drink other than water at least 8 hours before the test. A diagnosis for diabetes for this test is 126 mg/dl or greater. OGTT is a test that tells the doctor how well the body processes sugar by testing your blood sugar before and 2 hours after a patient drinks a sweet drink. A diagnosis of diabetes is a value of 200 mg/dl or higher.

Sometimes, lifestyle changes can be enough to manage the hyperglycemia. Other times, patients have to go on medication to control their blood sugar levels. Oral medication can be given to lower blood glucose levels in conjunction with a good diet and exercise. If oral medication still does not bring the glucose levels to the normal range, insulin might have to be given.

Insulin can be given through injections, a pen, or a pump. Injections are given with a needle and syringe. A pen is similar but is already pre-filled with insulin or has insulin cartridges and then is injected with a needle in the pen. A pump can give insulin 24 hours of the day through a catheter that stays under the skin at all times. Furthermore, beyond the different ways insulin can be delivered, there are also different types of insulin.

The cost of medical care and reduced productivity for people with diabetes is about \$327 billion dollars when combining direct medical costs and reduced productivity in the year 2017 (Aguayo-Mazzucato et al., 2018). Cost can include insurance, services and medications. Even since the passage of the Affordable Care Act (ACA), there are still major access-to-care problems with causes ranging from living in rural areas of the U.S. to not working for employers with affordable insurance coverage or simply not knowing how to enroll in ACA (Titus et al., 2019).

### **Cultural Competency**

Cultural competency is one of the most important qualities in a healthcare professional who interacts with diverse populations. An article by Dragomanovich and Shubrook (2021) defines cultural competency as not just knowing about other cultures, but “developing cultural sensitivity, humility, and awareness to better connect and communicate with people from many different backgrounds” (Dragomanovich & Shubrook, 2021). To combat health disparities, it is vital that healthcare professionals become more culturally competent and aware. Patients respond better to professionals who take the time to understand and connect with them. Making sure to understand the patient’s culture can allow for more personalized, patient-centered care which can increase adherence (Dragomanovich & Shubrook, 2021).

The current recommendations the ADA provides for people with type 2 diabetes is to develop a healthy diet, exercise, test blood sugar, and adhere to medication regimens. These guidelines might not work for all patients, so it is vital that medical professionals tailor their recommendations to fit the capabilities, resources, and preferences of the patient.

### **Significance to Nursing**

Nurses can have a great influence on the outcomes of patients, as they have the most contact with patients out of all healthcare professionals. Nurses connect patients with resources and provide education on diet, exercise, and other healthy behaviors to manage T2DM. Nurses can improve health literacy and compliance in this population if they inform patients of the possible complications they might see in the future if they do not take proper care of themselves. It is vital to also assess for the need for an interpreter to ensure language is not another barrier to care. Nurses should stress that prevention is key in order to have an impact on future generations additionally.

If nurses provide the patient with the proper education and resources, they might be able to prevent future hospitalizations that result from complications associated with T2DM. The patient could be taught to become a promotora (peer mentor/coach) in their community to teach others can learn how to avoid or manage T2DM.

### **Summary and Conclusion**

Overall, T2DM in the Hispanic/Latino is a major problem that needs to be addressed by healthcare workers, nurses and beyond. This population needs further help in order to lessen the disparity in T2DM incidence and poor outcomes. It is the role of nurses to educate and connect patients with resources to make sure the proper steps can and will be taken for the patient to improve their management of this disease. All healthcare providers should work to become culturally competent in order to make a bigger impact on their patients.

## CHAPTER 2

Chapter two includes a review of research-based literature that addresses culturally appropriate lifestyle interventions for the Hispanic/Latino population with type 2 diabetes. The literature review was conducted using search terms like “type 2 diabetes”, “lifestyle interventions”, “Hispanic”, “Latino”, “patient education”, “culturally sensitive”, and “cultural awareness” in PubMed and CINAHL.

### **Barriers For Diabetes Care for the Hispanic/Latino Population**

There are many barriers that Hispanic/Latino people face when trying to get care for their diabetes. These issues can be broken down into cultural, social and economic issues. In a qualitative study by Martinez Tyson et al. (2019) semi-structured interviews were conducted with 30 Hispanic men and women at a faith-based community clinic in West-Central Florida. This sample was a purposeful sample and the average age of participants was 49 years, was 90% Mexican, and 40% of participants had lived with diabetes for more than five years. The interviewers utilized free list elicitation, open-ended questions, and close-ended demographic questions. The researchers found some common cultural barriers to be having no time or place to exercise, the typical diet of their culture to be unhealthy and a misunderstanding of the cause of the disease (Martinez Tyson et al., 2019). Most of the participants of this study worked in agriculture so they were often fatigued from the labor, in addition to the household chores that needed to be done, so they had very little time and energy to exercise. The typical diet for this population is rich in carbohydrates and saturated fats which does not align with the recommended diet for diabetics. Lastly, the population attributed strong emotions as a cause for



the disease. An economic barrier mentioned by this article is the high cost of diabetic supplies like glucometer test strips and medication with a limited income. The study concluded that the cultural beliefs barriers are often constrained by social and political-economical factors.

A qualitative, mixed methods study by Smith-Miller et al. (2017) involved semi-structured interviews with 30 participants who were gathered through purposive and snowball sampling strategies. The inclusion criteria included Latino immigrant, limited English language proficiency, diagnosed with T2DM for at least one year, and resided in the U.S. less than five years. The interviews were conducted in private conference rooms and conducted in Spanish. The interviewer followed a predetermined guide with three main areas of focus: individual knowledge, social environment, and self-management behaviors. The transcripts of the interviews were analyzed by a software called NVivo to do a directed content analysis. The results indicated six main interventions that might improve health outcomes of this vulnerable population: “1). Develop strategies for providing frequent, positive feedback to support patients’ self-management efforts and promote continued effort; 2). Offering a number of options for diabetes education that includes one-on-one sessions; 3). Encouraging family involvement in education programs and clinic appointments; 4). Coaching health care providers to improve the quality of their interaction with patients; 5). Developing institutional mechanisms and programs that mitigate the impact of fiscal constraints; and 6). Facilitating community based efforts to improve general health through diet and exercise” (Smith-Miller et al., 2017, p. 551).

Benavides-Vaello et al. (2017) performed a secondary, focused analysis of data from a larger qualitative study to help clinicians find more culturally-tailored self-management recommendations from Mexican-Americans with T2DM in south Texas. Interviews were conducted in the primary study to gather information from 16 different informants. The main

focus of the secondary study was self-management strategies and advice. The first category that emerged was environmental control and strategies for this category included making meals at home rather than eating at fast food restaurants, avoiding the unhealthy food aisles in grocery stores and not bringing unhealthy food into the home to eliminate temptation. The second category was avoiding overeating or stress eating. Suggestions for this category included managing stress, eating regularly as not to get hungry and overeat and to satisfy cravings with small amounts of unhealthy food early before the craving gets too strong. Another category was lifestyle changes. The advice for this category was portion control. The idea of balance is important in Mexican American culture so making sure to not try to do everything at once – instead make small changes each week will allow them to still make progress. Family is the next category. Family is a huge part of the Hispanic/Latino culture, so it is important to include the family and children into the diabetes education and programs. Advice from the interviews was to look at the healthy changes as beneficial for the family too. Family members with diabetes can make their journey a family journey and allow the next generation to learn from them and potentially prevent them from developing diabetes. The next category was cooking tips. It was found that learning how to steam or broil food rather than frying meals can allow patients to be more successful in their self-management. Last is the category of active self-management. The advice for this category included asking specific questions for what to eat or how to manage self-care, making sure to take medication consistently and to see a dietician.

A systematic review by Titus & Kataoka-Yahiro (2018) highlights barriers to access-to-care for Hispanics with type 2 diabetes. Eighty-four studies were identified, 7 were duplicates, 59 were excluded due to focus on type 1 diabetes and had populations where less than half the sample was Hispanic and 11 more articles were not considered due to being qualitative or mixed

methods studies. The 12 quantitative studies remaining came from the disciplines of medicine, nursing, pharmacy, public health and health policy. There were three categories that emerged as “barriers to access-to-care”: self, provider and environment. The barrier of self can be broken down into three more categories which include covariates, self-care behavior and individual resources. Covariates included age, education level and culture. Younger Hispanics are more likely to not be insured but older Hispanics less likely not get an annual A1c test. Education level can determine the access to medication. The study found that Hispanics with lower levels of education experienced more medication access barriers compared to Hispanics with higher education levels. Lastly, culture includes the native language and traditional medicine practices which can be barriers to care. Self-care behaviors included inability to maintain a healthy diet, inability to exercise daily, lack of medication adherence due to lack of access to refills, inability to cope with the disease due to lack of culturally tailored education, inability to problem solve, and unhealthy coping habits due to depression from having T2D. The cost of insurance and medications were main barriers for individual resources category. Some of the issues with providers that were described included lack of certified diabetes educators, lack of provider training in health promotion, lack of culturally competent providers, and providers who did not speak Spanish. Environment category barriers included lack of environmental support services, lack of quality community health care centers, distant location of T2D education classes and perceived neighborhood problems.

### **Diabetes Distress**

A study by Fallas et al. (2020, p. 213) defined diabetes distress as “patients’ personal concerns about their disease management, providers, family support, emotional burden, and access to healthcare”. Increased levels of diabetes distress are linked to worse clinical and

psychosocial outcomes. This quality improvement project took place at Camino Community Center in Charlotte, NC to investigate if culturally sensitive Healthy Interactions Conversation Maps diabetes self-management education (DSME) program with peer educators for Latinos with T2DM could improve self-efficacy. Conversation maps were developed with the ADA and were designed to be used in small group environment, encourage peer involvement and deliver patient-centered care. The community clinic served patients who were mostly Latino and uninsured. Patients were eligible to participate in the study if they were low-income, over 18 years old, and had A1C of >7%. In the end, 35 participants completed the DSME program. All the participants were of Latino descent, were uninsured, earned less than 200% of the federal poverty level and were overweight or obese. The Lifestyle Self-Efficacy Scale for Latinos with Diabetes (LSESLD) is a 17-item questionnaire on self-efficacy in regard to self-monitoring of blood glucose, diet, physical activity and overall diabetes self-management. This was used to measure perceived control and confidence before and after the 6 months of the DSME. There were several educational group sessions the participants had to attend and two of these sessions, patients were also scheduled to see their healthcare provider individually. Being able to see their providers so often is very rare as the study states that gaining access to bilingual providers has been a chronic challenge and wait times to see them can be more than two months. The peer educators were patients with diabetes who had successfully completed the DSME, had high literacy, and could navigate the U.S. conversation maps easily. In the end, there was significant improvement between the baseline and the post-intervention scores. Furthermore, there was a significant improvement in pre- and post-intervention diabetes distress scores. A paired-samples t test was used to compare A1C levels, and it showed a significant decrease from before. In

conclusion, self-efficacy scores, A1C and diabetes distress all improved in patients who attended this culturally sensitive, peer led DSME program.

A study by Brown et al. (2021) is a quantitative, quasi-experimental design that compared the pre and post data of participants after a culturally tailored diabetes education program. The sample consisted of 16 Spanish speaking patients who attended a clinic in Phoenix Arizona for uninsured/underinsured, low-income patients. The study participants had an average age of 55, 87% were women, 93% Mexican, all were Spanish-speaking and all were uninsured. The clinic partnered with a local community health organization to implement a Diabetes Empowerment Education Program (DEEP) which focused on eight core areas which include “Beginning sessions and understanding the human body, Understanding risk factors of diabetes, Monitoring your body, Get up and Move! Diabetes and physical activity, Diabetes complications: Identification and prevention, Learning about medications an medical care and Living with diabetes” (Brown et al., 2021, p. 880). This content was taught over 6 weeks with weekly meetings that lasted 2 hours. The participants had pre/post A1C levels drawn, pre/post diabetes knowledge measured via the University of Michigan’s Diabetes Knowledge Test (DKT), and empowerment levels tested using the University of Michigan’s Diabetes Empowerment Scale Short Form (DES-SF). This study resulted in significant improvements in A1C levels, knowledge scores and empowerment levels.

### **Patient Empowerment**

Woodard et al. (2022) conducted a randomized clinical trial that evaluated the effectiveness of implementing Empowering Patients in Chronic Care (EPICC) after the intervention and maintenance after 6 months. The sample consisted of 280 participants from

Veterans Affairs clinics in Illinois, Indiana and Texas. These participants all had uncontrolled diabetes with HbA1C levels greater than 8% and did not have an active substance use disorder, active bipolar or psychotic disorder, hearing or vision impairment, dementia, and limited life expectancy. These 280 participants were randomized into the EPICC intervention group or the enhanced usual care (EUC) intervention group. The EPICC group attended 6 bimonthly meetings with collaborative goal setting and motivational interviewing and an individual 10-minute session with trained healthcare professionals where they could discuss personal concerns and questions, set and adjust collaborative goals and review changes to medications or other recommended care. EUC participants received routine care that included diabetes management, a list of self-management educational materials, nutrition counseling, medication management or weight loss support, a list of self-management resources routinely offered at their site and communication with their primary care clinician indicating the desire for additional diabetes research. Statistical analysis of post-intervention results indicated a significant improvement in HbA1c levels in the EPICC participants in comparison to the EUC group. Furthermore, there was a significant difference between EPICC and EUC diabetes distress scale (DDS) scores during the maintenance period, but they were modest.

Just as the study before found peer led education programs to be effective, a randomized control study by Philis-Tsimikas et al. (2011) also found the peer-educator format successful. This study took place in the San Diego County area and evaluated the effect Project Dulce, a culturally sensitive diabetes self-management education program that uses a low-cost peer-educator format, has on glucose control and metabolic parameters in low-income Mexican American with T2DM. The sample consisted of 207 Mexican American patients who were between the ages of 21-75, underinsured and with HbA1Cs >8%. The study utilized parallel-

group randomized clinical trial for assigning participants to the control or Project Dulce groups. The control group continued their usual medical care at the clinics. The Project dulce group attended eight weekly 2 hour diabetes self-management classes and subsequent monthly support groups in addition to the usual care from the clinic. The participants had pre- and post-intervention metrics taken like HbA1C, lipids, blood pressure, BMI, and self-management behaviors and depression via self-report. Data analysis was performed using the statistical package for social science software. The Project Dulce Group had a statistically significant decrease in HbA1C from baseline and demonstrated significant improvements in lipids but did not show changes in BMI or blood pressure. The control group did not produce significant changes over the same time. In conclusion, the study found Project Dulce to be effective which suggests low-cost approach to self-management education for high-risk diabetic populations is effective and peer-education is a powerful tool for more patient empowerment and better health outcomes.

Dubois et al. (2020, p. 566) defines resilience as “the ability to adapt in the face of adversity to promote positive outcomes” and included attributes like determination, confidence, personal strength, positive adaptation to stress, emotional regulating and supportive relationships. Higher levels of resilience are associated with enhanced diabetes self-management and improved A1C levels in the face of diabetes distress. This proof-of-concept study designed a Resilience-Based Diabetes Self-Management Education (RB-DSME) intervention which the authors believed was the best fit for federally qualified Community Health Centers (CHC) that served a high proportion of racial/ethnic minority individuals and patients with lower SES. The program included 35 patients with T2D who completed 8 biweekly classes of resilience-based diabetes self-management education and two monthly support groups. The classes were taught

by board-certified endocrinologists with assistance from the extended health team including the nurse, pharmacist and behavioral health counselor. Participants were a convenience sample of patients between the ages of 18 to 75 and diagnosed with T2DM who received care at two CHC in Central Texas. Sixty percent of the sample was Hispanic, 46% completed high school, 69% had a household income of \$19,999 or less and 37% were unemployed and not looking for work. Pre- and post-intervention data was collected on: resilience resources (measuring adaptation to stress, adaptive and maladaptive coping strategies, finding possible meaning and diabetes empowerment), self-management behaviors (measured via self-report of management and a pedometer to measure physical activity) and physical and mental health outcomes (A1C, blood pressure, BMI, diabetes distress, general perceived stress, and depressive symptoms). As a result of the intervention, there was a decrease in stress, increase in adaptive coping and an increase in diabetes empowerment. There was also a decrease in A1C, along with diabetes distress, depressive symptoms and general perceived stress.

### **Summary**

Overall, the articles discussed collectively pointed to a few things. First, patient education is crucial and should be done in a culturally sensitive and appropriate manner. This means providing language translations and/or recommending resources that are acceptable and accessible to the patient under their specific circumstances. Second, diabetes has severe effects on one's mental health to the point where "diabetes distress" is addressed by multiple studies. Nurses should evaluate what the patient is struggling with to find innovative solutions such as encouraging support groups, using conversation maps, or implementing resilience training. Lastly, the U.S. healthcare system has many shortcomings and should be supplemented with more programs for underserved populations to be supported and get the help they need.



Programs with peer-educators are proven to be effective and low-cost so having more programs with this format of teaching would be best.

In practice, nurses should take note of patients who might not be getting all the information they need/want and be ready to support patients who are underserved. Nurses should become more culturally aware of the patient population they are working with in order to provide the best quality care possible. Nurses are one of the most trust healthcare providers. They should honor that trust and advocate for patients.

### CHAPTER 3

With Hispanics being 1.5 times more likely to die from T2DM than non-Hispanic Whites (Benavides-Vaello et al., 2017), it is important that healthcare professionals are recommending culturally appropriate lifestyle interventions to manage the disease. The evidence from the literature review confirms that there are multiple recommendations that can be applied by nurses, physicians, pharmacist, dieticians, as well as community outreach programs in their own practice.

This chapter includes Table 1 that outlines best practice recommendations from the evidence provided in the literature review of the previous chapter in order to improve health outcomes for Hispanic/Latino adults with T2DM. The appendix outlines the descriptions of the various levels of evidence.

**Table 1**

*Best Practice Recommendations for Hispanic/Latino Patients with Type 2 Diabetes Mellitus*

Recommendation	Rationale	Reference	Level of Evidence
Have educational materials in both	This will eliminate the language barrier and increase the chances of	Fallas, C.R., Pereira, K., Padilla, B.I., Felsman, I., Allen, S., & Preik, C. (2020). Improving self-care management in low-income	VI

English and Spanish available.	health literacy and medical adherence while enhancing cultural sensitivity.	Latinos with type 2 diabetes using peer-led U.S. conversation maps: a quality improvement project in a free clinic. <i>Clin Diabetes</i> . 2020 Jul;38(3):213-221. doi: 10.2337/cd19-0052.	
Implement trained non-provider (lay-person) educators such as community health workers or peer-educators for weekly educational sessions	Healthcare providers might not have the time or resources to educate patients especially in high-volume clinics so utilizing other trained educators will allow the patients to still get the information they need. Furthermore, if the non-provider educator is a person who has mastered DSME programs themselves, it can be more powerful for the patients as the educator is more culturally	Brown, F., Thrall, C., Postma, J., & Uriri-Glover, J. (2021). A culturally tailored diabetes education program in an underserved community clinic. <i>Journal for Nurse Practitioners</i> , 17(7), 879–882. <a href="https://doi-org.ezproxy3.library.arizona.edu/10.1016/j.nurpra.2021.02.022">https://doi-org.ezproxy3.library.arizona.edu/10.1016/j.nurpra.2021.02.022</a>  Philis-Tsimikas A, Fortmann A, Lleba-Ocana L, Walker C, Gallo LC, Philis-Tsimikas, A., Fortmann, A., Lleba-Ocana, L., Walker, C., & Gallo, L. C. (2011). Peer-led diabetes education programs in high-risk Mexican Americans improve glycemic control compared with standard approaches: a Project Dulce promotora randomized trial. <i>Diabetes Care</i> , 34(9), 1926–1931. <a href="https://doi-org.ezproxy4.library.arizona.edu/10.2337/dc10-2081">https://doi-org.ezproxy4.library.arizona.edu/10.2337/dc10-2081</a>	II

	sensitive because they have first-hand experience with the disease.		
Screen all people at age 45 or earlier if overweight, obese, pregnant or HIV positive.	This is an American Diabetes Association standard of care.	American Diabetes Association. (2020). Classification and diagnosis of diabetes: Standards of medical care in diabetes-2021. <i>American Diabetes Association</i> . Retrieved from <a href="https://diabetesjournals.org/care/article/44/Supplement_1/S15/30859/2-Classification-and-Diagnosis-of-Diabetes">https://diabetesjournals.org/care/article/44/Supplement_1/S15/30859/2-Classification-and-Diagnosis-of-Diabetes</a>	VII
Use of conversation maps in group sessions	Conversation maps can foster peer involvement and empowerment, and can deliver patient-centered education. Giving patients the confidence that they can self-manage their disease will provide for better health outcomes.	Fallas, C.R., Pereira, K., Padilla, B.I., Felsman, I., Allen, S., & Preik, C. (2020). Improving self-care management in low-income Latinos with type 2 diabetes using peer-led U.S. conversation maps: a quality improvement project in a free clinic. <i>Clin Diabetes</i> . 2020 Jul;38(3):213-221. doi: 10.2337/cd19-0052.	VI

<p>Monthly support groups led by peer-educators</p>	<p>This will foster community and empowerment of the patients.</p>	<p>Dubois, S., Lehrer, H.M., Whyne, E.Z., &amp; Steinhardt, M.A. (2020). A resilience intervention for adults with type 2 diabetes: proof-of-concept in community health centers. <i>International Journal of Behavioral Medicine</i>, 27:565-575. <a href="https://doi.org/10.1007/s12529-020-09894-5">https://doi.org/10.1007/s12529-020-09894-5</a></p> <p>Philis-Tsimikas A, Fortmann A, Lleba-Ocana L, Walker C, Gallo LC, Philis-Tsimikas, A., Fortmann, A., Lleba-Ocana, L., Walker, C., &amp; Gallo, L. C. (2011). Peer-led diabetes education programs in high-risk Mexican Americans improve glycemic control compared with standard approaches: a Project Dulce promotora randomized trial. <i>Diabetes Care</i>, 34(9), 1926–1931. <a href="https://doi-org.ezproxy4.library.arizona.edu/10.2337/dc10-2081">https://doi-org.ezproxy4.library.arizona.edu/10.2337/dc10-2081</a></p>	<p>VI</p> <p>II</p>
<p>Resilience training in one-on-one</p>	<p>Resilience is positively associated with enhanced diabetes self-management and improved A1C</p>	<p>Dubois, S., Lehrer, H.M., Whyne, E.Z., &amp; Steinhardt, M.A. (2020). A resilience intervention for adults with type 2 diabetes: proof-of-concept in community health centers. <i>International</i></p>	<p>VI</p>

sessions and in group sessions	levels in the face of diabetes distress.	<i>Journal of Behavioral Medicine, 27:565-575.</i> <a href="https://doi.org/10.1007/s12529-020-09894-5">https://doi.org/10.1007/s12529-020-09894-5</a>	
Individuals with T2DM should engage in 150 minutes or more of moderate- to vigorous-intensity aerobic activity per week, spread over at least 3 days/week, with no more than 2 consecutive days without activity	Exercise is fundamental in blood glucose control, and this is an ADA standard of medical care.	Standards of medical care in diabetes--2022 Abridged for primary care providers. (2022). <i>Clinical Diabetes, 40(1)</i> , 10–38. <a href="https://doi-org.ezproxy4.library.arizona.edu/10.2337/cd22-as0">https://doi-org.ezproxy4.library.arizona.edu/10.2337/cd22-as0</a>	VII

<p>Education on diet should be provided like carb counting, food label reading, healthy portions, and healthy culturally preferred food recommendations.</p>	<p>This will allow for better informed self-management practices when it comes to dietary choices.</p>	<p>Dubois, S., Lehrer, H.M., Whyne, E.Z., &amp; Steinhardt, M.A. (2020). A resilience intervention for adults with type 2 diabetes: proof-of-concept in community health centers. <i>International Journal of Behavioral Medicine</i>, 27:565-575.  <a href="https://doi.org/10.1007/s12529-020-09894-5">https://doi.org/10.1007/s12529-020-09894-5</a></p>	<p>VI</p>
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### **Summary of Best Practices**

In conclusion, research suggests that the outcomes of Hispanics/Latinos with T2DM have been improved with these evidence-based recommendations. Furthermore, these interventions could lead to decreasing the existing disparity in outcomes for this population compared to non-Hispanic whites. It is important to use the preferred language of the patient to maximize health literacy and adherence. The use of non-provider educators can take a bit of the burden off providers and can be especially effective when the educator is someone with T2D because that patients may be more receptive to someone who has been through it, too. Screening all people will allow for earlier intervention and better health outcomes. Conversation maps are good tools for patient empowerment and can encourage strong self-management habits. Lastly, resilience training will promote strong coping mechanisms in the face of diabetes distress to ensure better health outcomes physically and mentally.



## CHAPTER 4

This chapter will build on the content from the last three chapters to form a theoretical implementation plan for the culturally appropriate best practice recommendations for caring for Hispanic/Latino people with T2DM outlined in Chapter Three. This will be done using the International Health Institute's (IHI) Plan-Do-Study-Act (PDSA) Model (IHI, n.d.). The first step is plan which is where the details of the intervention will be determined. The "Do" phase will be a smaller scale trial run of the intervention and the data will be collected for the "Study" phase. The "Study" phase will involve analysis of the results, and comparison of them to the initial predictions of outcomes resulting from the intervention. Lastly, the "Act" phase will be based on data collected in the study phase to determine if the intervention will be adopted, or if further revisions and study are needed.

### **Plan**

The recommendations put forth in chapter three will be implemented in the form of a hypothetical diabetes education program with the help of the Pima County Health Department (PCHD). The first step is partnering with the PCHD and determining if they have the resources to put on a diabetes education program. A meeting with stake holders is an important to convince key leaders that the program is needed. This program would require several public health nurses, funding, a place to hold the educational sessions, a curriculum that includes conversation maps, resilience training, and peer-educators, advertising for the trial event and pre- and post-tests to measure the HbA1C levels, diabetes distress levels, resilience levels and self-management behaviors. All the educational material should be in both English and Spanish so having interpreters as part of the project would be helpful. This intervention will go on for 8 weeks with

weekly educational sessions and monthly support groups both led by trained peer educators and supplemented by nurses and/or physicians. If resources allow, childcare could be provided in order to maximize attendance during the educational sessions and support groups. Another strategy to optimize attendance could be to send out a survey to potential participants to determine the best time and location for the weekly educational sessions and monthly support groups.

To test the effectiveness of this diabetes education program, the pre- and post-intervention data will be compared to see if any changes took place. At the end a survey will also be given out to see how the participants liked the program and give them a space to voice their opinions. This survey can also be taken by the peer educators because they have first-hand insight as to what might have worked well or did not work well during the intervention.

Regarding the curriculum itself, the Resilience-Based Diabetes Self Management Education (RB-DSME) by Dubios et al. (2020) will be followed. Week one will cover what diabetes is, the role of sugar and insulin, long-term complication of T2DM, practicing resilience and finding positive meaning. Week two will cover how to use a glucometer, desired values of blood glucose and HbA1C, awareness of maladaptive coping strategies and applying adaptive coping strategies. Week three will be on carb counting, focusing on cultural food preferences and diabetes self-management. Week four will discuss what a healthy plate looks like including food groups, portion sizes, cultivating support from family and friends, and offering simple, healthy, culturally preferred snacks. Week five will cover physical activity. Week six will be about understanding medications and coping with discrimination in healthcare settings (like feelings of intimidation or lack of access to medicine). Week seven will go over grocery store shopping and dining out – how to make healthier decisions, recommending simple, nutritious recipes on a

budget, reading food labels, and adaptation to stress in order to make healthy choices in social settings. Lastly, week eight will be putting it all together with daily and yearly diabetes self-management responsibilities and how to take care of yourself on sick days. Furthermore, social groups will be a place for informal group discussions with problem solving and assessing knowledge gaps. Conversation maps and collaborative goal-setting can also be used during these support groups.

## **Do**

Once the details have been determined, the intervention will begin. During first session, participants will be given the pre-tests for the diabetes distress scale, resilience levels and self-management behaviors as well as blood test to find the baseline HbA1C. The monthly support groups will be a space for the participants to share their progress, struggles and triumphs. Attendance will be taken at all sessions and support groups.

After the eight sessions and two support groups finish, the second set of data will be collected for analysis. The post-intervention survey will also be given at this time to the participants and peer-educators. The post-intervention survey will ask participants if they felt the intervention was appropriate for them and their lives, met their needs, and if the education provided information that they would use to manage their illness. The peer-educators can provide feedback on the effectiveness on the curriculum by each week and offer suggestions for the future.

## **Study**

This phase will focus on comparing the post-intervention results with the baseline data as well as analyzing responses to the survey for the participants' and peer-educators' opinions about the educational intervention. The analysis results will show if the predicted outcome, an improvement in measured outcomes, was supported by the data. If there is a decrease in HbA1C levels, a decrease in diabetes distress levels, an increase in resilience levels and/or an increase in self-management behaviors, the program was effective. Attendance records will show if the meeting times and locations were accessible to participants and if the participants viewed the intervention as worth attending.

## **Act**

During this phase, reflection on the information collected is necessary to determine the next step(s) for the program. Based on the data collected, the intervention can be adjusted to fit the participants' needs if appropriate. Unnecessary items in the education curriculum can be abandoned or altered. Items the participants enjoyed should remain the same while items from the survey that were less valued can be changed. Based on the results, areas that need did not show improvement should be looked at to see how the curriculum in that area should be improved.

## **Summary**

The T2D health disparity experienced by the Hispanic/Latino population is a major problem that needs to be addressed with more culturally appropriate programs and interventions. T2DM is the fifth leading cause of death in the U.S. Hispanic community (Titus & Kataoka-Yahiro, 2019). This proposed intervention could be used to provide culturally relevant education

for this population. The best practice recommendations demonstrate interventions for managing T2D and convey the significance of culturally tailored diabetes education.

### Appendix: Levels of Evidence

<b>Level of Evidence</b>	<b>Description</b>
Level I	Evidence from a systematic review or meta-analysis of all relevant RCTs
Level II	Evidence obtained from well-designed RCTs
Level III	Evidence obtained from well-designed controlled trials without randomization
Level IV	Evidence from well-designed case control and cohort studies
Level V	Evidence from systematic reviews of descriptive or qualitative studies
Level VI	Evidence from single descriptive or qualitative studies
Level VII	Evidence from the opinion of authorities and or reports of expert committees

*Note.* Adapted from Evidence-based practice: Levels of evidence and study designs. (2022).

*LibGuides.* Retrived from [https://ascension-wi.libguides.com/ebp/Levels\\_of\\_Evidence](https://ascension-wi.libguides.com/ebp/Levels_of_Evidence)

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