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MEXICAN AMERICANS' PERSPECTIVES ON "BORDERLINE DIABETES" IN

AMARILLO, TEXAS

by

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BSN-MSN, West Texas A& M University, 2012
ADN, Garden City Community College, 1999

DISSERTATION

Submitted in Partial Fulfillment of the
Requirements for the Degree of

**Doctor of Philosophy
Nursing**

The University of New Mexico
Albuquerque, New Mexico

December, 2020

DEDICATION

I dedicate this work to God who has given me the capacity to overcome significant barriers and obstacles to achieve unforeseeable goals.

“For I know the plans I have for you,” declares the Lord, “Plans to prosper you and not to harm you, plans to give you hope and a future.” (*Holy Bible*, New International Version 2011, Jeremiah 29:11)

In addition, I dedicate this work to my family. My husband Angel and sons, Marcus, Jaedon and Peyton, who have loved and supported me unconditionally through my educational journey. Their prayers and unwavering support during difficult times maintained and continued to propel me in my journey forward. Their sacrifices made it possible for me to take time to focus on my studies. To my parents, Sebastian and Alicia Peña and all their efforts to give me a better life. They always did their best and their sacrifices and encouragement provided me a foundation in God and encouraged me to always do my best. Finally, this work is dedicated to those that participated and shared their stories and experiences in a way that will provide a voice to others facing the same diagnosis. The lessons learned will shape future education and approaches to improve care in a vulnerable population.

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I want to begin by acknowledging my chairs for this project, Dr. Dorinda Welle and Dr. Mark Parshall. I am deeply grateful for their mentorship and guidance throughout the study. Dr. Welle's background in qualitative inquiry provided support and the drive for greater depths of inquiry in my study. Dr. Parshall's expertise and mentorship provided me with deepening awareness of the written word and deeper appreciation for clarity of expression. His guidance and support have made me a better researcher. Dr. Jennifer Averill's depth of knowledge in nursing and qualitative research methods and her continuous encouragement motivated me to delve deeper into the literature and methodology. Her guidance allowed me to have tremendous personal growth as a nurse researcher. Dr. Patricia Perea provided her expertise and guidance to assure that critical depth of understanding about the Mexican American population was reflected in my research. Dr. Elizabeth Dickson provided her expertise in public health and community engagement to my study. I am especially grateful to Dr. Elsa Diego-Medrano for her expertise in bilingual education, her thoughtful recommendations, and her flexibility. I appreciate the time and personal dedication of each of my committee members. Their expertise and guidance have provided me an opportunity to go into nursing research with a solid foundation. I will be eternally grateful for their dedication to my study and for me personally as a nurse.

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ABSTRACT

The purpose of this study was to explore the meaning of and experiences living with “borderline diabetes” among Mexican American adults residing in or around Amarillo, Texas. Sixteen Mexican Americans who self-identified as having “borderline diabetes” participated. Research questions focused on how participants understood the condition, self-care practices, and recommendations for improving prediabetes healthcare and education. An interpretive description approach was used to analyze data from phone interviews. Principal findings revolved around issues of disclosure vs. secrecy, information seeking, and challenges or “struggle” to change lifestyle, particularly diet. Self-care was managed in a relational way with support of family, friends, or co-workers. Findings may influence clinical, research, and policy approaches to caring for Mexican-Americans with “borderline diabetes.”

Key words: Mexican-American, prediabetes, borderline diabetes, social ecological model

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Chapter 1: Introduction

This chapter introduces the topic of this dissertation study, which focuses on perspectives of Mexican American individuals living in Texas on “borderline” diabetes. The term “borderline” is outdated in the health care literature, but it remains a commonly used and understood term among patients and families. Currently “prediabetes” is used as the medical term for a precursor state of increased risk for type 2 diabetes. The term is used to characterize individuals with abnormal fasting blood glucose or glucose tolerance below established thresholds for a diagnosis of diabetes (American Diabetes Association [ADA], 2019a; 2020a). This qualitative study will explore the personal perspectives of borderline diabetes among Mexican American individuals in the Texas Panhandle and the role those perspectives play in diabetes prevention or self-care. This study defines Mexican Americans as individuals born in Mexico or descended from one or more persons from Mexico.

Statement of the Problem

As the United States (U.S.) continues to change demographically, so will the healthcare needs of the population. In an effort to improve the population’s health outcomes, the changing demographics must be considered in the design of interventions that work. The United States Census Bureau (2018) reported that the Hispanic population had reached 58.9 million by midyear 2017, making it the largest ethnic minority in the United States. The Hispanic population increased from 16% to 18% of the total U.S. population between 2008 and 2018 (Noe-Bustamante, Lopez & Krogstad, 2020). Of the 36.6 million Hispanics living in the United States (U.S.) 63.3% are of Mexican origin, making it the largest subpopulation of Hispanic individuals in the United States (Flores, 2017; Noe-Bustamante, Flores & Shah, 2019). According to the United States Census Bureau (2017a) it estimated that 10.9 million

Hispanics lived in the state of Texas as of July 2016, the second largest state population in the country, trailing behind California with a population of 15.3 million Hispanic individuals. The broad term Hispanic or Latino is often used to multiple subgroups who either immigrated or trace ancestry to countries where Spanish is the dominant language. These subgroups include people of Puerto Rican, Mexican, Cuban, Central and South American heritage (López, & Golden, 2014; U.S. Department of Health and Human Services Office of Minority Health [OMH], 2019b; United States Census Bureau, 2017b).

The Centers for Disease Control and Prevention estimated that, between 2013 and 2016, approximately 13% of U.S. adults (34 million) had diabetes of whom approximately one-fifth (7.3 million) were undiagnosed. They estimated that approximately one-third of U.S. adults met one or more criteria for prediabetes among whom less than 15% reported being aware of that (CDC, 2020). The CDC (2019a) determined that Hispanics are more likely than White, non-Hispanic adults to have prediabetes with as many as 50% of Hispanic adults at increased risk for developing type 2 diabetes, and at risk for developing it at a younger age, compared with U.S. adults in general. Hispanic adults are also more likely than non-Hispanic adults to experience serious complications of diabetes. The Office of Minority Health (OMH, 2019a) found Hispanics to be 1.7 time more likely to be diagnosed with diabetes by a physician, 2 times more likely to have treatment for end-stage renal disease, and 1.5 times more likely to die of diabetes related complications compared with non-Hispanic White adults.

The American Diabetes Association (2013, 2018) estimated that the average medical expenditures increased from \$13,700 in 2013 up to \$16,750 in 2017 a year for someone with diabetes. The increase in diabetes is associated with increased healthcare expenditures for

those with the disease. However, the ratio of health care costs for persons with diabetes relative to persons without (approximately 2.3 times higher) has been relatively constant.

The International Diabetes Federation (IDF)(2019a) found that global expenditures for diabetes treatment totaled \$760 billion, with the prediction that the number of adults with diabetes worldwide will increase from 463 million currently to 700 million by the year 2045, a 50% increase. As with any chronic illness, quality of life in individuals and families can potentially decrease if diagnosis, treatment, and disease self-management are inadequate. The Hispanic population is projected to increase by 115% by 2060, posing serious implications for chronic illness patterns and significant challenges for care (Colby & Ortman, 2015). Therefore, for ethical and economic reasons, achieving health equity should be a priority for nurses (American Nurse's Association, 2010).

Race and Ethnicity

Race and ethnicity are considered constructs or categories pertaining to geographic ancestry or origin and to sociocultural and linguistic self-identification (Office of Management and Budget [OMB], 1997). Thus they are “sociopolitical constructs” that “should not be interpreted as being scientific or anthropological in nature” (OMB, 1997, p. 58788). The OMB identifies Hispanic, Latino / Latina, or Spanish origin as a term to describe ethnicity, not race, of people of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race (Lopez & Golden, 2014; OMB, 1997). In contrast, the five minimum categories for race in federal data collection are American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White. The definition of “Hispanic” as ethnicity by key governmental

agencies makes it difficult to ascertain the extent to which Hispanics in the United States may not identify as being of any of the five racial groups. According to Ríos, Romero, and Ramírez (2014, p. 6), over 40% of U.S. Hispanics do not identify with *any* of the 5 OMB racial categories.

The American Anthropological Association (AAA) (1998) explains that historically the idea of “race” has more weight in a social sense and that those distinct physical differences that are generally used to describe different “races” are much less salient. This differentiation based on “race” has been placed on individuals in society as early as the 18th century (AAA, 1998). In current American society, the analysis of genetics can be completed in a short period of time for individuals interested in finding out about their ancestry. This increased curiosity has led to the interesting finding that there are greater physical variations found within the same “racial” groups than between “races” (AAA,1998).

The concept of race is fluid as society tends to shift the definition to align with the popular meaning in social and political contexts. Historically, “race” has been paired with an ideological belief that there are specific fundamental differences that are fundamentally related to skin color, physiognomy, and geographic origin. This idea is then tied to the “status” of people, who are then classified into distinct groups. This ideology dates to European and U. S. slavery and the attempt to justify unequal social and legal status based solely on “racial” differences (AAA, 1998). The National Institute of Minority health and Health Disparities (2016) classified the genetic origins of Mexican American individuals as 3.0% African, 52% Indigenous and 45% of European ancestry. However, this mix of origins varies within “Hispanic” populations. Beuten et al. (2011) found that the Native American or indigenous ancestry in Mexican American individuals from San Antonio was 40-50%, from

Northern California 40%, from Arizona 29%, from Star County Texas 30%, and from Colorado 30-34%. The diverse admixture of origins can be attributed to the long history of Mexican Americans from Mexico and how this population migrated to present day Texas and beyond.

The Texas State Historical Association (2017) describes how “Mexican American” people of Texas were descended from people who settled during the Spaniards’ conquest of Mexico in the 16th century. The mixture of Spanish men with indigenous women produced a population that was formerly referred to as a “mestizo race” (The Texas State Historical Association, 2017; McKiernan-Gonzalez, 2012). By the 1800s the Mexican people had begun to migrate northward to what in present day is known as Texas. This migration occurred as the Mexican people (who themselves were of mixed European and indigenous origins) were in search of agricultural work to escape widespread poverty in Mexico (The Texas State Historical Association, 2017). The 1900s brought an increase in commercial agriculture in the U.S. and with that the need for seasonal, domestic, and farm laborers. These individuals of Mexican heritage, also known as “campesinos,” performed nonspecialized agricultural or domestic work to secure economic gain (The Texas State Historical Association, 2017; McKiernan-Gonzalez, 2012).

The rich history of Mexican Americans and the disparities experienced by this population have continued in the country, currently seen in the politics of immigrant status and the politics focused on the U.S.-Mexico border. However, in spite of their many economic contributions and cultural adaptations, Mexican-born individuals were subject to lynching, discrimination, political disenfranchisement and many other injustices in the United States. In response several organizations were established in the 1900s to confront

these injustices. The movement to establish cooperation from Mexican individuals to challenge the American system gained momentum during this time frame. The League of United Latin American Citizens (LULAC) was founded in 1929. The American G.I. Forum of Texas was founded in 1948. The Mexican American Legal Defense and Educational Fund (MALDEF) was founded in 1968. All of these organizations were focused on ending discrimination and improving conditions for Mexicans in Texas and other states. The LULAC continues to be active and remains as one of the oldest civil rights organizations in the U.S. (League of United Latin American Citizens, 2019). The American G.I. Forum was established to address discrimination and injustices being faced by Mexican American veterans (American G.I. Forum, 2019). The MALDEF provides legal services for Mexican Americans who have been adversely affected by employment discrimination, inequitable school finance, unequal educational opportunities, and infringements of Hispanic / Latino civil rights (MALDEF, 2009).

Since the 1880's Mexican Americans migrated to the state of Texas as railway maintenance and farm workers and during World War II the government welcomed Mexican Americans to meet the needs as Braceros (farm hands) under specific contract basis (McCain, 1981). The Chicano farm workers movement gave rise to labor unions such as the United Farm Workers of America and the short-lived (1970s-1980s) Texas Farm Workers Union.

Historical Precedents of Health Disparities Impacting Mexican Americans

Exposure to overt racism is not a new experience for Mexican Americans, who often feel that prejudice is woven into the fabric of how non-Hispanic whites view the Mexican American population (Arana, 2019). The Mexican American population continues to face inequities related to health and health care. Health disparities are related to language/cultural

barriers and to the lack of preventative care (OMH, 2019b). The Hispanic/Latino population as of 2017 had the highest uninsured rates at 17.8% compared to 5.9% of non-Hispanic whites in the U.S. and 19.3% of Mexican Americans were without health insurance (OMH, 2019b). The Centers for Disease Control and Prevention (CDC, ;2017a; 2017c) lists the leading causes of death in the Hispanic and Latino population as cancer, heart disease, and unintentional injuries. Hispanic/Latinos continue to have higher rates of chronic diseases and the conditions disproportionate to rates for the U.S. population as a whole (CDC, 2015). In particular, Mexican Americans suffer disproportionately from diabetes and health disparities related to it compared with the U.S. population as a whole, and even in comparison with Cuban Americans or Hispanic / Latino Americans of Central or South American descent (DHHSOOMH, 2019b). Hispanics/Latinos are 50% more likely to die from diabetes or liver disease and 22% less likely to have controlled high blood pressure compared with non-Hispanic whites. Hispanic / Latino adults have higher rate of obesity, lower rate of colorectal cancer screening, and higher rates of end-stage renal disease than the non-Hispanic, White population of the United States (CDC, 2015; DHHSOOMH, 2019b).

The American Diabetes Association (ADA, 2019b, 2020a) provides definitions of prediabetes and diabetes based on different thresholds for impaired fasting glucose (IFG), impaired glucose tolerance (IGT), and hemoglobin A1C. Type 1 diabetes involves autoimmune destruction of the β -islet cells of the pancreas and absolute loss of the ability to produce insulin. Persons with type 1 diabetes require exogenous insulin for survival. Type 2 diabetes involves relative insulin deficiency due to inadequate insulin secretion, generally with increased insulin resistance as an etiologic factor. Persons with type 2 diabetes often can

be managed with a variety of oral medications. They may be able to achieve better control with the addition of an insulin regimen, but do not usually require insulin for survival.

Prediabetes exists when A1C or FPG is elevated or IGT is present, but the abnormalities are below thresholds for diabetes (ADA, 2019b, 2020a; CDC, 2020b). Any of the following criteria may be used to diagnose prediabetes: a fasting plasma glucose (FPG) of 100-125mg/dL, a 2-hour postprandial glucose (2-h PG) (from a 75-g oral glucose tolerance test) of 140-199 mg/dL, or a hemoglobin A1C of 5.7% – 6.4%. It is recommended that after a prediabetes diagnosis the individual should be screened for diabetes annually or biannually (ADA, 2019b). Criteria for diabetes are: FPG \geq 126mg/dL, 2-h PG \geq 200 mg/dL, or A1C \geq 6.5% (ADA, 2020a). Diagnosis of type 2 diabetes (the most common type) is based on personal and family history and physical findings (NIIDDK, 2020). There are specific tests that support a diagnosis of type 1. Terminology and thresholds for diabetes diagnosis and guidelines for clinical care have changed over the years, so that needs to be taken into account when reviewing literature on diagnosis and treatment (ADA, 2020b).

The Hispanic/Latino population is at significant risk for prediabetes (CDC, 2019c). Currently, there is limited research that discusses prediabetes or borderline diabetes and the transition to type 2 diabetes in the Mexican American population. However, there have been several studies that address possible predictors or factors that could link to prediabetes. Wu, McCormick, Curran & Fisher-Hoch (2017) followed 285 Mexican American individuals diagnosed with prediabetes for an average of 27 months to determine if a transition to diabetes was accompanied with common predictors. Approximately one third of the sample transitioned to diabetes. An increase in BMI and deterioration of metabolic health (hyperlipidemia or elevated systolic or diastolic blood pressure or on antihypertensive

medication) were the strongest predictors of transition to diabetes. Gupta, Brashear and Johnson (2012) explored the association of vitamin D levels with prediabetes in 788 healthy Mexican American individuals and found that serum vitamin D levels were not associated with prediabetes in this population. As studies continue to determine commonalities in predictor factors, are individuals receiving adequate education to understand the differences between prediabetes and type 2 diabetes? Further understanding of the personal perspectives of Mexican American individuals to their diagnosis and self-care is needed.

A factor that has been found to impact the health of Mexican Americans is acculturation. LaVeist and Isaac (2013) defined acculturation as the personal cultural modification of traits from another culture by borrowing traits or simply adapting to them. Wingo et al. (2009) analyzed the health of Mexican American women aged 15-44 years of age and found that the level of acculturation along with the dominant language spoken at home played a role in the sexual health of this population. Women who had higher levels of acculturation to the mainstream American lifestyle were more likely to be sexually active at a younger age and to have more male partners than their less acculturated counterparts (Wingo et al., 2009). Pérez-Escamilla (2011) and Garcia et al. (2012) found that acculturation was associated with poor diets and higher rates of obesity in Latinos. Wingo et al. (2009) found that low-birthweight babies occurred at higher rates with third-generation Mexican American women than those of first generation. They also found that women that used more Spanish language drank less alcohol, were less likely to smoke and were more likely to breastfeed their babies for at least 1 month (Wingo et al., 2009).

In addition to acculturation, assimilation has been found to have an impact on health. Assimilation as defined by LaVeist and Isaac (2013) is the act of absorbing into cultural

traditions. Amirehsani and Wallace (2013) found that the Hispanic participants in their study had lived in the United States for an average of 16 years, and that the rate of cultural herbal remedies use for self-care remained high in this population. This important finding indicates that the cultural use of herbal remedies in this population is surviving alongside assimilation into American culture and is considered by the people to be useful for achieving best health outcomes.

Terms such as assimilation and acculturation are used to identify the process of an individual's ability to adapt to their current environment in an attempt to help explain differences seen in this population, but there is also a phenomenon known as "the epidemiological paradox" in Latinos that is quite complex. "The epidemiological paradox" is used to explain a phenomenon that Latino individuals generally experience better health and live longer than their counterparts (Ruiz, Hamman, Mehl & O'Conner, 2016; Salinas, Su, & Snih, 2013). The unexplained results are described in various ways with terms such as the healthy immigrant effect, or the salmon hypothesis. The salmon hypothesis states that the individuals return back to their native country at end of life to die so death rates are skewed or missed (Turro and Elo, 2008). Another is that the misclassification of ethnicity in diagnosis and death certificates could be causing significant issues in reported data (National Institute on Minority Health and Health Disparities, 2016). The following are studies that demonstrate this problem. Salinas et al. (2013) found this to be partially the case on the border of the U.S. and Mexico. They found that Mexican Americans living in border regions were found to live longer, but with this, the aging population has some negative outcome related to costs. The additional use of the health care system increased healthcare costs for this population. Ruiz et al. (2016) examined 321,996 adult records from the U.S. Renal Data

System and found that although Hispanics were 15% less likely to use dialysis for treatment of End Stage Renal Disease due to diabetes, they tended to live longer.

Health-Compromising and Health-Promoting Social Determinants

For ethical and economic reasons, achieving health equity should be a priority for nurses, and this is supported by the American Nurses Association (ANA) in their revised social policy statement (ANA, 2010). One area of potential intervention involves the traditional reliance on culturally valued, complementary remedies, and addressing those issues related to acculturation and assimilation that are known to cause health disparities. Healthcare providers need to improve their understanding of the perceptions and beliefs among adult Mexican Americans living in the United States regarding their use of alternative self-care remedies and other self-care behaviors for diabetes and chronic illnesses. Efforts are needed to integrate, to the greatest extent safely possible, traditional remedies and personal perspectives on the evidence-based treatments associated with modern medicine. The unwillingness to incorporate or discuss these factors alone can cause an increased distrust of the American system (Armstrong, Ravenell, McMurphy & Putt, 2007).

The National Health Statistics Report found that the use of complementary health approaches varied significantly based on age, “race” and ethnicity, especially in the Hispanic population (U.S. Department of Health and Human Services, 2015). Substantial research exists on Mexican American use of herbal remedies (Johnson et al., 2006; Hunt, Arar and Akana, 2000; Amirehsani and Wallace, 2013; Howell et al., 2006; Poss, Jezewski and Stuart, 2003; Martinez, 2009, Ngo, Nguyen & Shah, 2010). However herbal remedy use is still not widely understood in patients with diabetes compared with patients with chronic diseases (Egede, Ye, Zheng, & Silverstein, 2002).

In an effort to explore the disparities that are currently present for adult Mexican American patients related to diabetes, research on the complementary or alternative treatments and other forms of self-care being used in this population is needed. Other than research on the use of herbal remedies, little or no information is available on other types of practices derived from Mexican American heritage or cultural identity that may inform diabetes self-care.

The National Institute on Minority Health and Health Disparities (2016) described policy strategies to reduce disparities such as expanding access to health care, the effective coordination of care, and implementing patient centered care. In an effort to address these disparities, the CDC (2017d) has formulated a national program to award federal funding to community partners that plan and provide culturally based programs aiming to assist in reducing health disparities that affect this specific population. These federal efforts encourage health care providers to take a deeper look and gain a deeper understanding to health and wellness in the Mexican American population. However, little research from Mexican American patients' perspectives on diabetes is available to inform these efforts.

In summary the extent to which perceptions of borderline diabetes involve negative preconceptions rather than positive ideas for diabetes prevention or self-care management is largely unknown. Many studies describe the importance of family and social structures in Mexican Americans. In addition, several studies focus on complementary/alternative medicine and herbal remedies for diabetes care. A major limitation in the research is the aggregation of different national and ethnic identities under the umbrella term Hispanic or Latino, which makes it difficult to specifically identify Mexican Americans.

Study Location

Amarillo, Texas is located in the Texas Panhandle with an estimated population as of July 2019 of 199,371 individuals (U.S. Census Bureau, 2019a). The city encompasses both Potter and Randall counties and is known for the ranching, farming, education, banking, oil and gas industries (Amarillo Convention & Visitor Council, 2019).

Amarillo has a long history of Mexican American immigration. Since the 1920s, migrants have settled in Randall county and, more heavily, in Potter County (De Leon, 2015). The Hispanic population that is located in Amarillo was largely descended from those who came to work as ranch and farm hands (De Leon, 2015). In the 1960's Potter county began to see a surge of for-profit feedlots and meatpacking plants where many of the frontline workers are Mexican Americans (often recent immigrants). At present, the population of the metropolitan Amarillo area is 32.3% Hispanic or, Latino which is higher than the average for the United States (18.5%), but lower than for Texas as a whole (39.7%) (U.S. Census Bureau, 2019a). In recent years, Amarillo has also been a relocation site for refugees from diverse countries including Myanmar, Iraq, Afghanistan, and Somalia. It is documented that 60 different languages are spoken in the Amarillo Independent School District reflecting the diverse community that currently exists (Fernandez, 2020). However, in January of 2020, the Governor of Texas chose to opt out of accepting more refugees in the state (Aguilar, 2020).

In 2018 a Community Health Assessment was performed by AscentHealth Consulting (City of Amarillo, 2019) as an effort of the Amarillo Public Health Department. A startling finding was that 21% of the population of Amarillo had diabetes, a rate much higher than the 10.5% rate for entire United States and 15.5% rate for the state of Texas (based on 2015 estimates). In comparison, the prevalence of diabetes in Amarillo in 2013 was estimated as

only 11% (City of Amarillo, 2019). This community assessment also found that the needs not being addressed adequately in the community were un-underinsurance, low-income, and demand for mental health behavioral health services. Other high-ranking risk factors were lack of health education, and inadequate nutrition or physical activity which, as previously discussed, closely align with to diabetes self-care. During the same community assessment, a key informant survey took place and when asked what suggestions could be given to improve health the following were recommended:

“Need to hear the voices of those most impacted.”

“Develop a system approach across the community where all sectors and demographical populations work together to meet the needs of citizens.”

“As far as the working poor maybe help them more so than people not working as incentive to work instead of encouraging people not to work by giving them more benefits.”

“(Need to address) racism and health.” (City of Amarillo, 2019)

The City of Amarillo (2019) has recognized that innovative, and non-traditional approaches need to be used to address the lack of patient education and chronic disease management. In this study the goal is to describe personal perspectives of Mexican American individuals with borderline diabetes and provide a patient’s perspective to improving borderline diabetes self-care and health education.

Significance

Mexican Americans continue to evidence high rates of health disparity related to diabetes. The CDC (2019a, 2019b) states that genetics, food, weight, and activity are factors that can increase diabetes risk, but also identifies barriers that are specific to the Hispanic

population that address communication and culture. Mexican American individuals have limited power and authority in their personal health encounters, and some have to depend on translators or family members to make their personal experiences known to the health care provider (Hu, Amirehsani, Wallace and Letvak, 2013). This dependence on others is complicated when individuals already are trying to cope with a diabetes diagnosis. Weiler and Crist (2009) found that their participants, Latino migrant workers, verbalized feelings of shame and social stigma related to (e.g., having diabetes was worse than conditions such as hypertension, seizures, or tuberculosis). Hu, Amirehsani, Wallace, and Letvak (2012) discovered that the fear of insulin injections among Hispanic immigrants negatively impacted the acceptability of insulin therapy for patients and their families.

With the changes in our nation's demographic profile, healthcare providers will need to seek new and more effective approaches for the design and delivery of healthcare and the management and treatment of illness in diverse populations. To make effective, positive changes in diabetes education and care for this vulnerable population, it is important to understand Mexican Americans' perspectives on the term borderline diabetes, self-care practices, and recommendations to improve diabetes education and care. The ability to hear personal accounts from patients without requiring a second party to communicate for them will help give voice to their concerns and empower them to discuss their personal perspectives. The knowledge gained from this study could inform future research and diabetes education work with Hispanic patients in other locales or with other chronic health conditions.

Research Questions

The purpose of this study is to describe the perspectives of Mexican Americans living

with borderline diabetes, their self-care, and their recommendations for improving diabetes education and care. Findings from this study will address the following questions:

- 1) How do Mexican Americans who self-identify as having borderline diabetes understand the concept of borderline diabetes?
- 2) How do Mexican Americans who self-identify as having borderline diabetes practice diabetes self-care?
- 3) What are the recommendations of Mexican Americans who self-identify as having borderline diabetes for improving diabetes education and health care delivery?

Key Concepts

Alternative Medicine — The term alternative medicine is used to describe the method of replacing conventional medicine use with a non-mainstream practice. (National Center for Complementary and Integrative Health (NCCIH, 2018). In this study participants may describe alternative medicine use to manage borderline diabetes.

Border — Political borders are geographical designations made by nations or political leaders (Smith, 1995). Kesby (2007, p 101) states: “Borders are not stable and ‘univocal’, but instead, ‘multiple’, shifting in meaning and function from group to group.”

Border differs from the term *frontier*, as the latter can indicate “a state of mind,” not just boundaries between states or jurisdictions (Mura, 2016).

“Borderline” Diabetes — “Borderline” diabetes is a colloquial term for prediabetes (CDC, 2020b; Xu, Qiu, Winblad, & Fratiglioni, 2007). The term is still commonly used by patients and families, but has been supplanted in medical literature by “prediabetes” (see below). In this dissertation, self-identified borderline diabetes was used for purposes of recruitment and as an inclusion criterion. It was also used in interview questions.

Chronic Illness — Chronic illness has been defined by the CDC (2020a) as a health condition that will be present for more than a year and has a direct impact or limits activities of daily living and will require continuing medical treatment.

Complementary Medicine — The term complementary is used when a non-mainstream practice is combined with western or conventional medicine (NCCIH, 2018). In this study participants may describe complementary medicine use to manage borderline diabetes.

Familismo — Familismo has been defined as a term used in Latino culture that describes the important family structure and the relationships that specifically represent the beliefs and attitudes of the system (Lopez, 2006). This study will examine the importance of familismo concepts that directly influence self-care behaviors in diabetes care.

Health disparities — “a particular type of health difference that is closely linked with economic, social, or environmental disadvantage. Health Disparities adversely affect groups of people who have systematically experienced greater social or economic obstacles to health based on their racial or ethnic group, religion, socioeconomic- status, gender, age, or mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion.” (Secretary’s Advisory Committee, 2008, p. 28; see also Braveman, 2014; Carter-Pokras & Baquet, 2002; Office of Disease Prevention and Health Promotion, 2020; LaVeist, & Isaac, 2013). This study focuses on the health disparity related to diabetes in Mexican American individuals.

Health Equity — “Pursuing equity in health means trying to reduce avoidable gaps in health status and health services between groups with different levels of social privilege.” (LaVeist & Isaac, 2013; World Health Organization, 2020). This study will identify recommendations

for improving diabetes care in Mexican American who self-identify as having borderline diabetes.

Hispanic or Latino-- Most public health or governmental sources continue to use “Hispanic” or “Latino” as an all-encompassing classification of individuals from various Spanish-speaking countries (see OMH, 2019b; United States Census Bureau, 2011).

Mexican American-- Individuals who reside in the United States who were born in Mexico or are of Mexican descent (USCB, 2011). Such individuals might self-identify as Mexican Chicanos, Latinx, Latino or Hispanic (USDHHSOMH, 2019b; USCB, 2011).

Prediabetes-- is the condition where some degree of impaired fasting glucose or impaired glucose tolerance is present, but neither is sufficiently abnormal to be considered diabetes (American Diabetes Association, 2019a, 2020a; CDC, 2020b). Specifically, impaired fasting glucose is a fasting blood glucose of 100 to 125 mg/dL (5.6-6.9 mmol/L). Impaired glucose tolerance consists of a 2-hour plasma glucose following a 75 g oral glucose tolerance test of 140 to 199 mg/dL (7.8-11.0 mmol/L). In addition, a hemoglobin A1C of 5.7% to 6.5% (39-47 mmol/L) is considered prediabetes (ADA, 2020a). In this dissertation, the term prediabetes will be used throughout to refer to the medical diagnosis or underlying metabolic condition.

Self-Care-- consists in actions that an individual takes that are deliberate and freely chosen to maintain life, health and wellness (Orem, 2001).

Type 2 Diabetes-- Type 2 diabetes is the condition when the body has become insulin resistant and the pancreas is unable to produce sufficient insulin to maintain a normal blood glucose levels, therefore resulting in high blood glucose levels (CDC, 2019b; International Diabetes Federation, 2019b).

Chapter 2: Review of Literature

This chapter provides an explanation of theoretical perspectives that guided this study along with a review of pertinent literature relating to cultural values, health beliefs, and behaviors relevant to borderline diabetes in general and among Mexican Americans. The theoretical perspectives pertain to the Social Ecological Model (McLeroy, Bibeau, Steckler, & Glanz, 1988) as well as more general perspectives on health and chronic illness (Huber et al., 2011; Strauss et al. 1984, 1988; World Health Organization [WHO], 2006, 2017). The chapter concludes with the identification of knowledge gaps that this study addresses and how this knowledge might inform improvements in diabetes education and care for the Mexican American population.

Framework: Social Ecological Model

In analyzing the perspectives and practices of Mexican Americans, I chose to use the Social Ecological Model (SEM). I plan to use this model to guide the exploration of Mexican American individuals' ideas about borderline diabetes, self-care practices and recommendations for improving diabetes-related health education and health care.

The Social Ecological Model has its foundation in the human development research of Urie Bronfenbrenner (1977), who argued that human behavior was impacted by and situated in nested environmental systems and contexts. Bronfenbrenner (1977) referred to an ecological framework consisting of nested micro-, meso-, exo-, and macro- systems. The microsystem is described as the relationship between the individual and the immediate environment (e.g., family, friends, neighborhood); the mesosystem concerns interactions among microsystems significant to the individual at various times, the exosystem expands to

major social institutions such as churches, and governmental organizations; lastly; the macrosystem includes cultural and subcultural systems that also encompass all prior systems.

Bronfenbrenner's system approach was modified by McLeroy et al. (1988) for direct application to health promotion. Their social-ecological model assumes that there are nested layers or levels that impact health behavior that can be attributed to the social context in which the individual is situated and functioning. The model consists of intrapersonal factors, interpersonal processes and primary groups, institutional factors, community factors and lastly public policy (McLeroy et al. 1988). Examples of areas where model has been successfully used include as a framework for violence prevention interventions (CDC, 2020c) and to develop interventions for agricultural health and safety (Lee, Bendixsen, Liebman, & Gallagher, 2017) (Figure 1).

For my own research, the model is helpful for framing research and interview questions about Mexican Americans' perspectives and understanding of borderline diabetes, self-care, and their recommendations for improving diabetes education and care. Individual perspectives and self-care practices specific to Mexican Americans in the region of Texas around Amarillo who self-identify as having (or having had) borderline diabetes related to borderline diabetes will be explored in relation to personal, familial, and cultural beliefs and values as well as in relation to community or institutional structures and availability of resources.

Figure 1: Social Ecological Model



From “Using the Socio-Ecological Model to frame agricultural safety and health interventions.” Lee, B. C., Bendixsen, C., Liebman, A. K., & Gallagher, S. S. (2017). *Journal of Agromedicine*, 22(4), 298-303. doi:10.1080/1059924x.2017.1356780 ©2017, Taylor & Francis. Used with permission. (Adaptation by Lee et al. from “The social-ecological model: A framework for prevention.” Centers for Disease Control and Prevention. <https://www.cdc.gov/violenceprevention/publichealthissue/social-ecologicalmodel.html>).

Individual and Interpersonal Levels

In Mexican American culture, health and well-being are often viewed in context of beliefs and values about family (“familismo”) and about individual identity (e.g., machismo or marianismo; Nuñez et al., 2016). Familismo comprises a set of values and beliefs about family ties, loyalty, well-being (Ayón, Marsiglia, & Bermudez-Parsai, 2010; Lopez, 2006; Ruiz & Ransford, 2012) and characteristics of healthy families (Davila, Reifsnider, & Pecina, 2011). In a study conducted by Collins et al. (2006), Mexican American participants defined health as a gift from God, but also indicated the ability to spend time with family was just as

important as health. Smith (2003) described that there are many members in a family unit that oversee health care for the individual placing a high value on the family unit and community inclusion in health care decisions. Martinez (2009) found that the women in Mexican American families take charge of medical issues and decisions related to healthcare, providing a direct link to those pre-existing interpersonal relationships. There is some evidence that familismo has a higher significance to elderly individuals in regard to health matters and health care encounters (Ruiz and Ransford, 2012).

Machismo is a term that is used to characterize a set of beliefs about manhood or masculinity, the role of a man in the context of family and community, and the values that are held to describe what it means to be a man in Mexican American culture (Nuñez et al., 2016; Sobralske, 2006). There are also strong cultural values and beliefs pertaining to women, femininity and motherhood, such as modesty, faithfulness, respect, and self-sacrifice, sometimes referred to as marianismo (Nuñez et al., 2016). Exploring these family and community relationships may lead to addressing and adjusting community climates which shape health-related behavior choices (McLeroy et al, 1988).

Organizational Level

In exploring the topic of health care as part of self-care it will be important to consider not only healthcare services organizations as places to seek and receive health services, but also healthcare in general as an institution. Availability, affordability, and quality of healthcare affects entire communities as well as individuals and their family support systems. Relatively little is known about how Mexican Americans who self-identify as having borderline diabetes interact with this institutional level of diabetes education and care.

Community Level

Community factors are defined by McLeroy et al, (1988) as the relationships between institutions that are located within clearly defined geographical or political boundaries and also informal networks that community members and organizations develop. McLeroy et al, (1988) also observed that in addition to social and political aspects, a community has psychological and spatial characteristics related to how members sustain themselves and each other. Nies and McEwen (2014) asserted that community can be defined in geopolitical or phenomenological (experienced) terms. Geopolitical communities are defined as the community that is formed by physical and geographic boundaries (Nies &McEwen), whereas phenomenological communities are formed and experienced in a psychosocial context and are concerned with support (Nies and McEwen, 2015). In this study, I will explore Mexican American individuals' understandings about borderline diabetes and self care in to the context of these various types of community in the Amarillo / Texas Panhandle region. Findings could help provide valuable insight to inform future community support structures needed to support persons with borderline diabetes in terms of self-care and action to prevent or delay progression to type 2 diabetes.

Public Policy Level

McLeroy et al. (1988) defined public policy as any local, state, or national regulation that directly impacts targeted individuals or populations. This level of context would include policies or guidelines that value and promote important cultural and social systems of Mexican Americans and encourage healthy behaviors. As found in a review by Soderlund (2017) of studies for the years of 2000-2015, diabetes programs for Hispanic women should

focus on multiple level interventions and culturally sensitive approaches that are effective and acceptable to Mexican Americans.

“Borders” in the Social Ecological Model

There is a border region between adjacent layers of the SEM that is not rigid. Little is known about how an individual “moves” across the different borders of the social ecology in forming their perspective and in practicing self-care behaviors, perhaps because the social-ecological model is focused more on how each layer influences or is influence by other layers rather than the boundaries between layers. Borders and boundaries have long been contentious in the context of population health, especially in regard to the Mexican American population. Dating back to the 1800s, the authority given to physicians to maintain public health by keeping Americans healthy included attention to keeping disease from crossing the US-Mexico border (McKiernan-Gonzalez, 2012). Recent political, racial, and cultural conflicts in the United States are also emblematic of such concerns. Mexican Americans in the Panhandle area often have personal or family-historical experiences of the U.S.- Mexico border that might influence their perspectives on barriers to adequate services and resources for managing their borderline diabetes.

Concepts of Health and Chronic Illness

Health is an important concept that can directly contribute to a productive and successful society. Individual members should have an opportunity to meet professional and personal goals, without the undue burden of illness or disease. The ability to meet these goals depends on the capacity of individuals to personally experience optimal health.

Diabetes health is a multidimensional concept and as such should be approached in a holistic manner. The World Health Organization (WHO, 2006, 2017) in 1948 declared the

definition of health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.” This definition encompasses a holistic approach, widely accepted by nursing professionals. In a global society where rates of chronic illness have increased, a fresh perspective must be taken regarding healthcare. In recent years there have been extensive criticisms of the definition as it was dated to a time when acute illness was the primary health concern. Recently, a shift in attaining health has occurred from simply treating acute illness to treating chronic illness in such a manner that a state of optimal health can be achieved. Huber et al. (2011) argued that there were three problems with the definition of health as stated by the WHO. First, the emphasis on complete well-being opens the door to medicalizing even minor departures from the ideal state. Second, the definition does not account for people’s ability to adapt and cope with increasingly prevalent chronic, non-communicable disease and associated disability. Third, the definition does not lend itself to measurement (Huber et al.,2011) Indeed, the sheer magnitude of chronic disease and disability requires that definitions of health and associated health care and self-management do not presume some fundamental incompatibility between attaining optimal health and chronic illness or disability (Huber et al.,2011; Hwu, Coates, & Boore, 2001).

Improving health outcomes and eliminating health disparities have become the focus of health professionals (CDC, 2019b). The American Nurses Association (2007) recognizes that disparities in access to health services and quality of health care and outcomes are prevalent among groups defined and marginalized by race, ethnicity, and socioeconomic status, or those with chronic health conditions (LaVeist and Isaac, 2013).

In an effort to understand health and achieve wellness, Mexican American individuals must be able to verbalize their personal understanding of health and the specific behaviors

that are taken to maintain health. Collins et al. (2006) compared health beliefs of Hispanic and African American elders. They found that fewer Hispanic than African American elders believed that health promotion and health maintenance were important (56% vs. 90%, respectively). In contrast, the importance of belief in God and of maintaining a positive attitude and outlook were comparable. In addition, they found that providing culturally competent care and the direct knowledge of culture by healthcare providers could improve outcomes (Collins et al., 2006).

The CDC (2020a) defines a chronic disease by three defining characteristics: the disease lasts one year or more, limits activities of daily living, and necessitates ongoing medical care. The CDC (2020a) also lists diabetes as one of the three chronic diseases that most directly contribute to death and disability. Chronic illness presents healthcare providers with multifaceted problems that benefits from both a holistic approach to health and an emphasis on establishing a partnership with patients and their families and communities. Such partnerships are focused on identifying mutually acceptable goals and providing guidance and feedback along the journey of achieving health goals to preserve or attain health (Hwu et al., 2001).

The prevalence of chronic illness has altered the ways in which the term health is approached and analyzed, by individual and health care providers. The personal perspectives, values, beliefs and behaviors are of such a significant value that is it imperative to understand how health is defined by members of marginalized groups (Betancourt & Maina, 2004).

Strauss et al. (1984) described chronic illness as having the following features: long-term in nature, associated with co-morbidities and uncertain outcomes, usually expensive and resource-intensive for palliation (not cure), disproportionately intrusive in daily life, and

requiring a wide variety of ancillary services. These features may not be as troublesome for persons with increased risk for a chronic condition (e.g., borderline diabetes) as opposed to having the condition (e.g., type 2 diabetes), but they must deal with long-term threat, uncertainty, and perceived intrusiveness of having to make lifestyle changes.

Chronic Illness Management

Strauss et al. (1988) identified a number of problems that individuals with chronic illness commonly encounter in daily living: While some of those problems are more characteristic of longstanding chronic illness (e.g., crisis management, social isolation), several are relevant to prediabetes. These include management of regimens, symptom management, and beliefs about the trajectory of illness.

Management of regimens

Little is known about how individuals diagnosed with borderline diabetes understand its significance and impact on usual activities. The recommended regimen usually involves significant lifestyle change (e.g., diet, exercise, quitting smoking) and may involve addition of medications or changes to an established regimen. However, very often the perceived benefits of lifestyle change are not immediately evident. Strauss et al. (1988) identified a number of characteristics that impact willingness to adhere to a prescribed regimen. Of particular relevance to the person with prediabetes is the degree of ease or difficulty incorporating the regimen into daily life (e.g., time constraints, potential disruption of dietary and social routines).

Symptom Management. Symptoms often interfere with activities of daily living. However, with borderline diabetes, symptoms may be few, infrequent, or mild, and are highly variable from one individual with the condition to another. The severity and frequency

of symptoms and the extent to which they interfere with daily life may determine if an individual will be motivated to make or maintain lifestyle changes (Strauss et al., 1988). Having few or infrequent symptoms may make it harder to perceive benefits of lifestyle change.

Beliefs about the Trajectory of Illness. Unless borderline diabetes is taken seriously in terms of following recommended regimens of diet, exercise, and medications, the trajectory of illness will result in developing diabetes. Identification of a precursor state at least offers some opportunity to prevent or delay that progression. This requires a commitment to adhering with recommendations of a variety of health care providers (e.g., primary care physicians or advanced practice nurses, diabetes educators, possibly a nutritionist, etc.) Adapting to a chronic condition often involves changing one's underlying mental model or representation of what it means to have an illness from common experiences of acute conditions to having a problem that may be asymptomatic at present but is likely to last a lifetime (Leventhal, Phillips, & Burns, 2016). For example, in diabetes care an individual is expected to examine what the future might look like if blood glucose levels are or are not controlled and make regimen decisions based on that picture rather than based on current symptom perceptions. In addition, Strauss et al. (1988) identify the critical contribution that family plays in chronic illness. This is particularly true in Mexican American families, with the importance placed on the family structure (Davila, and Pecina, 2011; Lopez, 2006). For example, family members may need to adjust their diet or habitual shopping or cooking practices to make dietary change easier for the member with borderline diabetes. They may need to attend classes or accompany the family member to appointments.

And they, too, will need to adjust their expectations about the meaning and trajectory of illness.

Traditional, Complementary, and Integrative Treatments

According to the National Center for Complementary and Integrative Health (2018) more than 30% of American adults use treatments that are considered outside of Western or mainstream medicine. The use of complementary and alternative medicine (CAM) is highly influenced by an individual's or family's beliefs and the attitudes toward western medical treatment including taking prescribed medication (McQuaid et al., 2014). Martinez (2009) found that traditional folk CAM use was associated with Mexican Americans who were less acculturated. They also found that as income decreased the use of traditional folk remedies increased.

Nguyen et al. (2014) found that the use of CAM in Mexican American patients corresponded with the personal values with regard to health and living, and the personal perceptions that this approach was appropriate and acceptable in their cultural traditions. In particular, Mexican Americans used CAM in place of western medications resulting in lower medication adherence in treating diabetes. It was discovered that the recurrent use of prickly pear and, aloe vera and use of herbalists to treat diabetes were of cultural importance and aligned with the personal belief that these types of CAM were of health benefit (Nguyen et al., 2014). Johnson et al. (2006) found that the use of herbal remedies by Hispanic women was not positively correlated with increased severity of illness or elevated A1C. They also found CAM usage by patients was frequently not mentioned in the medical record, despite being fairly common for Hispanic individuals. This finding should encourage health professionals to have open communication about CAM use with the Mexican American

patients that would provide further understanding and help to establish trust between the patient and healthcare provider. Effective communication would also explore self-care practices in a non-judgmental manner (Rogers, 2010).

One area of potential intervention involves the traditional reliance on culturally valued, complementary remedies as previously discussed. The National Health Statistics Report found that the use of CAM approaches varied significantly by age and those of Hispanic or Latino origin and other race groups (Clark et al., 2015). The specific knowledge of complementary medicine or herbal remedy use is still not widely understood in patients with diabetes although the diagnosis of diabetes was found to be a predictor of CAM usage (Egede et. al, 2002). Amirehsani and Wallace (2013) conducted a study with a convenience sample of 75 Hispanic/Latino participants of whom 85% were from Mexico and had lived in the United States 16 years on average. The use of herbal remedies for self-care was common. This finding supported the previous findings of the Poss et al. (2003) study of 22 Mexican-American adults who had been diagnosed with type 2 diabetes who were taking both prescribed western medication and using traditional Mexican folk remedies. This indicates that the traditional use of herbal remedies in this population is surviving the process of assimilation into American culture, but yet is not being addressed in diabetes care.

Martinez (2009) conducted a telephone survey with Mexican Americans from border regions (n=1,001), and non-border regions (n=1,030) to explore the use of traditional folk therapies. They found among those who used CAM that herbal therapies were the most commonly used, with women more likely than men to use CAM. In any event, with regard to managing diabetes as a chronic illness, the extent of self-care is not just limited to taking prescribed medicine, using herbal remedies, or diet modification, but it is the inclusion of

culturally important aspects of wellbeing. These elements of self care have not been examined extensively among Mexican American individuals who self-identify as having borderline diabetes.

Misconceptions about Diabetes

In the United States common misconceptions related to diabetes include the belief that sugar diabetes comes from consuming sugar (National Diabetes Education Program,(n.d.); Latino Diabetes Association, 2018). Rodriguez-Gutiérrez, Millan-Ferro & Caballero (2015) performed a literature review of 12 articles of Latino/Hispanic views of insulin. The review spanned research over the period of 22 years, all studies conducted in the United States (U.S.) with one exception that was conducted in Mexico. The review yielded common misconceptions found in Hispanic populations related to insulin therapy, such as it was a punishment (Rodriguez-Gutiérrez, et al., 2015), it is scary (Hue, 2012; Rodriguez-Gutiérrez et al., 2015;), it kills (Hu et al., 2012), it is not beneficial, and it is related to more difficult and time consuming care.

Another common misconception found in diabetes care was the belief that diabetes is not really serious (Latino Diabetes Association, 2018). The National Diabetes Education Program (n.d.) described several others, such as “no diabetes in my family so no need to worry,” symptoms will be present to provide notification of the disease, drinking extra water will cure diabetes, insulin pills can be taken, diabetes medicine is required to make it a serious condition, insulin is a cure, and---particularly relevant to the proposed research---having borderline diabetes means there is no need to worry. Others added by the Latino Diabetes Association (2019) are the misconception that diabetes is an “American problem”,

an “old people” problem, that it is not serious, that only “fat people” get it, and “I have a normal reading and so there is no diabetes.”

A misconception that was mentioned by the National Diabetes Education Program (n.d.) is the belief that borderline diabetes is an insignificant diagnosis. In reviewing the literature there is little research on the meaning of borderline diabetes in the Mexican American population. There is a dissertation study (Hart-Kepler, 2017) that is focused on the self-management of type 2 diabetes by 12 Mexican-born immigrants living in California who were given a borderline diabetes diagnosis in Mexico. Hart-Kepler found that “keeping” the borderline diabetes status and using as few medications as possible were prioritized. Her informants indicated that it was important to them to hold on to the “almost diagnosis” as a means to avoid “owning” an actual diabetes diagnosis. In this context having borderline diabetes was viewed somewhat positively as a condition that could be managed through self-care. In contrast, type 2 diagnosis was not viewed negatively and believed to require far more interaction with the health care system. However, a limitation of the study was that it did not include individuals with Mexican heritage who were born in the United States.

Conclusions and Implications

The development of culturally specific care includes identifying and analyzing important perspectives, self-care practices, and policy recommendations of the group of interest. Using the framework of the SEM, guidelines for diabetes education and care informed by Mexican American perspectives may be developed from a personal level to a macro level as originally proposed by Bronfenbrenner (1977), and later modified by McLeroy et al. (1988). Little is known about how traditional and other self care practices practiced by Mexican American individuals with borderline diabetes. The incorporation of

Mexican American perspectives on borderline diabetes into policy, health education or treatment plans could potentially improve the health of Mexican Americans with prediabetes or even diabetes. Listening to participants in this research will create knowledge to improve health education, care and patient outcomes. Obtaining this information could be a missing link to current diabetes treatment that would help address the disproportionate prevalence of diabetes disparities documented in this cultural group.

There is limited available research regarding Mexican Americans with borderline diabetes. This study will look at the personal perspectives of Mexican Americans residing in the Texas Panhandle regarding borderline diabetes and self-care. It is important to understand cultural perspectives on the condition and the extent to which perspectives include misconceptions or useful positive perspectives and insights into self-care strategies. This could potentially provide insight into positive, culturally valued approaches to improve diabetes care for a population that clearly needs improvement to diabetes outcomes.

Chapter 3: Methods

This chapter summarizes the methods that were used for this study of Mexican Americans' perspectives on borderline diabetes. The interpretive-descriptive qualitative approach was used (Thorne, 2016). This chapter provides an overview of the study setting and sample as well as processes of recruitment, consent, and data collection methods. In addition, processes related to data analysis and rigor of interpretation and the steps taken for protection of human subjects are summarized.

The study was submitted for institutional review board (IRB) approval after the onset of the COVID-19 pandemic, and, therefore the protocol had to take into account events related to the pandemic and adjust study procedures accordingly. For reasons to be detailed in this chapter a number of adjustments to the protocol as approved by the dissertation committee were necessary in terms of recruitment and consent, data collection, and protection of human subjects.

Interpretive Descriptive Qualitative Approach

This study used an interpretive descriptive qualitative approach, which is suitable for studies of focused issues relevant to clinical practice in nursing and other health fields and practice professions (Thorne, 2016; Thorne, Kirkham, & MacDonald-Emes, 1997; Thorne, Kirkham, & O'Flynn-Magee, 2004). This approach requires a real-world question, synthesis of what is known about the topic based on empirical evidence, identification of gaps in understanding, and "appreciation for the conceptual and contextual realm within which a target audience is positioned to receive the answer the researcher generates" (Thorne, 2016, p. 40, para 3). This approach combines clinical or practice-related wisdom with available

empirical evidence and other knowledge grounded in the participants' experiences and points-of view (Thorne, 2016). It serves as an avenue to "advocate for the vulnerable, by allowing communication of their concerns, critiques the health sciences, identifies and records crucial actions of care, and provides a moral commentary on removing inhumane practices and creating humanizing change" (Morse, 2012, p. 68). The approach helps to ensure that the research is "... conducted in as naturalistic a context as possible in a manner that is respectful of the comfort and ethical rights of all participants" (Thorne, 2016, p. 82) and relevant to concerns arising from practice. As with other qualitative methods, interpretive description assumes that human experiences are socially constructed, and, therefore, the researcher must value participants' experiences and subjective judgments as potential sources of practical wisdom (Thorne, 2016 p. 82 para. 3). Interviews using this approach focus on asking participants systematically to review aspects of their personal experiences in relation to a focused area (e.g., a medical diagnosis or type of treatment, experiences of problems accessing health or social services, etc.). Multiple perspectives from different participants shape conclusions that the researcher reaches about the nature and characteristics participants' experiences and how they cope with the problem(s) the study focuses on.

Researcher Bias

As a researcher it is important to contain and limit researcher bias in an effort to maintain credibility and validity in the study. I am Hispana and fluent in Spanish and English. I am a registered nurse who has worked professionally and as a volunteer with patients with diabetes and their families. I have experience providing patient and family education about diabetes in English and Spanish. Several of my family members have been diagnosed with diabetes. In those ways, I am more an insider than outsider to the Mexican

American community in the Amarillo area, and, as such, I am familiar with earning trust and developing rapport with others in that community. My personal experiences with racism, both generally and with my own and family members' health care experiences could bias my expectations or interpretations of the data. As a nurse, my professional knowledge of diabetes care could possibly influence my ability to listen non-judgmentally or set aside my own biases in analysis. In this study, participants knew of my nursing background and that might have led them to say what they thought I wanted to hear. In addition, I found it challenging to remain within the role of the researcher and refrain from trying to provide education or health advice to the participants during or after interviews. I maintained a journal during the interview process to personally reflect on the research process and document personal feelings, thoughts, biases that I experienced. I also engaged in frequent debriefing with my dissertation chair, a seasoned qualitative researcher, throughout data collection and analysis. This helped to alert me to possible biases or role conflicts that needed attention. .

Research Questions

The study had three research questions.

1. How do Mexican Americans who self-identify as having borderline diabetes understand the concept of borderline diabetes?
2. How do Mexican Americans who self-identify as having borderline diabetes practice diabetes management self-care?
3. What are the implications of Mexican Americans' perspectives on borderline diabetes for health care education and health care delivery?

Sample and Setting

The study took place in Amarillo, Texas. Amarillo has population of approximately 200,000. The combined population of Potter and Randall counties is approximately a quarter million (U.S. Census, 2019b). A community assessment in 2018 found that approximately 21% of Amarillo residents reported having diabetes compared with only 11% in 2013 (City of Amarillo, 2019). Reasons for the increase are unknown, but may reflect both in-migration and improved case-finding in addition to actual incidence. The United States Census (2019b) estimates that the Hispanic, Latino in Amarillo in 2019 was 32% of the city's population.

Sampling

To obtain diverse experiential accounts (Thorne, 2016). I included men and women who self-identified as Mexican American and “borderline diabetic” who were born in Mexico or who were descended from one or more parents, grandparents, or great-grandparents from Mexico. The sample also included underinsured and insured individuals.

Setting

Recruitment took place at Heal the City Clinic and the Wesley Community Center. Heal the City is a local urgent and chronic care clinic that serves uninsured individuals in Amarillo, TX, including a substantial proportion who identify themselves as Mexican American or Hispanic (Heal the City, 2019). This clinic provides health and wellness services to individuals with acute or chronic health problems, without regard to legal status. Individuals travel from around the Texas Panhandle to seek medical care in this Amarillo clinic. The Wesley Community Center is located in the Hispanic Barrio of Amarillo, an area in which most residents identify as Mexican American. It provides community education, recreation, and spiritual activities for children, youth and adults (Wesley, 2019). Prior to the

pandemic Zumba classes were offered in the evening and there was also a daytime activity and social program for elders.

Originally, I planned to recruit and enroll participants in person at both locations with face-to-face interviews at a location of the participant's preference. However, due to COVID-19 nearly all routine activities at both locations were canceled or severely restricted. In particular, in person recruitment for a research study was not possible. Therefore, participant recruitment for this study was conducted by distributing the IRB approved flyer at both locations and via their social media. Flyers were written in Spanish and English that described the purpose of the research study, confidentiality, the incentive for participation and the researchers contact information. Permission was obtained from the Executive Directors of each site, and once permission was granted the IRB approved flyer was sent to the facility for placement on their social media sites and in publicly visible areas of their facilities. I did not involve clinic nurses or staff or ancillary service personal in the recruitment process, although they were aware of the recruitment flyers posted in their facilities. The recruitment flyers had contact information that interested individuals could use to contact me to learn more about the study. In addition, respondent-driven (snowball) sampling was used. Participants were asked if they knew of others with borderline diabetes who might be interested in participating. If they knew of someone, they were asked if they would be willing to pass along information about the study and my contact information.

Informed Consent

The study was approved as exempt research by the University of New Mexico Health Sciences Center Human Research Protections Office (UNM HSC HRPO). Requirements for signed, informed consent were waived. All participants gave verbal consent to participate as

described below. When contacted by phone or email by a person who expressed interest in the study I personally assessed their eligibility and explained the study. I then reviewed the amount of time the interview would take and the plans that I had to do with the results of the interview (Creswell, 2013). A consent script was read in English or Spanish, as each individual preferred. The potential participant was invited to provide verbal consent, and verbal consent was obtained from all who participated. Participants were advised they could withdraw at any time with no consequence for withdrawal, and they could refuse to answer any of the questions. They also were advised that their responses would not be shared with others, including family members and healthcare providers. Participants had the choice to have their interview conducted in Spanish or English.

All interviews were conducted by phone, either at the time of enrollment or scheduled at a later time, depending on participant preference. None of the participants requested my professional nursing advice regarding self-care; had any done so, I would have provided them with contact information for a certified diabetes educator. Participants were mailed a \$20 merchandise card if they wanted; cards were mailed to a preferred address obtained at the end of the interview. The address was written only on the envelope used to mail the card.

Risks and Human Subject Protections

The risks associated with participation in this study included possible emotional distress from discussing personal stories related to health. The loss of confidentiality was the main risk of this study. Therefore, participants' name and contact information were used only for initial contacts and conducting interviews. All transcripts were aliased and assigned anonymous code numbers; no identifiers were kept. Raw data (recordings and transcripts) were stored on a secure server at the UNM HSC.

In order to protect confidentiality, the participants were given a confidential code and the code was used to identify the participant in the recorded interviews. Participants were informed that their names would not be published or included in the results of the study. All the interviews were transcribed by a professional bilingual transcription service that was approved by the UNM HSC HRPO. . The interviews in Spanish were first transcribed in Spanish and then translated to English by certified translators. The transcription service complied with HIPAA and with IRB-approved research ethics and data security training requirements.

Data Collection

Data collection for this study took place with the interviewing of the participants by phone. No data were collected from medical records of any HIPAA-covered entity. In interpretive descriptive design interview questions are open-ended, general and focused on the understanding of the phenomenon in the study (Creswell, 2013). For this study phone interviews with an interview guide, in Spanish or English, that contained open ended questions took place and varied in time and could last up to approximately 60 minutes, although most were shorter. The interview guide ([Appendix A](#)) included 5-6 open ended questions related to the main research questions. In addition, demographic data such as year of diagnosis and number of years living in United States was collected. After each of the first 12 interviews, I discussed interviewing technique and approaches in depth with the dissertation chair in addition to reviewing interview content. Subsequently, debriefings with the chair continued on a regular basis, but not necessarily after every interview.

I personally conducted all the interviews in the language preference of the participant. This was a one-time interview with the participant. I used an Olympus DS-9000 digital

recording device to record the interviews. This uses 256 bit AES file encryption in real time as a security measure to help secure the interviews performed in this qualitative study (Olympus, 2019; CISION, 2018). All participant identifiers were removed prior to information being sent to transcription services.

Data Analysis

In interpretive description the purpose is to find thematic patterns that might recur but are broad in nature (Thorne, 2016). While analyzing data, I kept the following questions in mind:

“What are the main messages here for the practice field?”

“What is it that I know now, having done this study, that I did not know before or did not know in quite the same way?” (Thorne, p. 218)

According to Thorne (2016) using these questions to focus analysis facilitates identifying major themes, usually from two to six themes (Thorne, 2016). While initially coding, I took the transcribed interviews and hand-coded each one (Creswell, 2014; Brod, Tesler & Christensen, 2009) by placing notes in the margins and highlighting recurring terms, ideas, or practices. Thorne (2016) recommends “flagging” data elements that offer poignant or characteristic examples, possible outlier accounts or other “attention grabbers” to draw attention to important variations in the data within and across interviews.

As with other qualitative research approaches, data collection and analysis were iterative, and I maintained a reflexive journal throughout data collection and analysis. Hand-coded data and reflexive journal entries were shared and discussed extensively with the dissertation chair. With her guidance, I sorted and aggregated those data into broader themes that synthesized principal findings (Nowell, Norris, White & Moules, 2017; Thorne, 2016).

During the analysis I completed and dated thematic lists, and noted any patterns that I might want to pursue in later interviews (Thorne, 2016). I was careful to not stop at the first instance of a finding, assuming that findings across multiple interviews are more credible overall, although idiosyncratic findings may be revealing in other ways.

For research question one, a category analysis (Stemler, 2001) was conducted to identify the various self-care practices related to borderline diabetes (Table 1). The social ecological model (SEM) was used in the content analysis for research questions two and three to situate findings in a social-ecological context. For question two I paid attention to how specific practices related to the various levels of the model, particularly the intrapersonal, interpersonal and community levels. For research question three, I paid attention to how the data relates to institutional, community, and public policy levels (Table 1). The goal was not to develop theory, or to “confirm” the SES model, but to describe the study findings in social ecological context.

Table 1: Summary of analysis type and procedure for research questions

Research Question	Analysis Type	Procedure
Research Question 1 How do Mexican Americans who self-identify as having borderline diabetes understand the concept of borderline diabetes?	Category analysis (Stemler, 2001; Yanow, 2003)	Analyze how Mexican American individuals give their own meaning to the term borderline diabetes.
Research Question 2 How do Mexican Americans who self-identify as having borderline diabetes practice diabetes management self-care?	Content analysis (Stemler, 2001)	Content analysis conducted to identify the various self-care practices related to borderline diabetes (Stemler, 2001) For content analysis a list of self-care practices will be developed, and the most common ones will be identified.

<p>Research Question 3 What are the implications of Mexican Americans' perspectives on borderline diabetes for health care education and health care delivery?</p>	<p>Thematic Analysis (Nowell et al., 2017)</p>	<p>Identify themes relating institutional, community, and public policy levels.</p>
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Rigor of the Study

In an effort to ensure rigor of the study I relied on Lincoln and Guba's (1985) framework, which emphasizes trustworthiness as a primary goal of analysis. According to Lincoln and Guba, components of trustworthiness include dependability, credibility, transferability, and confirmability. These are roughly analogous to reliability, internal and external validity, and objectivity in quantitative research, and it is fairly common that not all of these aspects are of equal importance in a given study (Morse, 2015). For example, because the focus of this study was beliefs and practices in a particular community and location, transferability was of less concern than credibility and dependability.

Among a number of supports for credibility recommended by Lincoln and Guba (1985), prolonged engagement in the "culture" (p. 301) helps to build trust and reduce misinformation and misunderstanding. I had prolonged engagement with the community prior to conducting the study and will continue that engagement after completing it. This study used a one-time interview as the principal data source, but to support both credibility and dependability, I purposefully sought variability by including English- and Spanish-speaking participants who were immigrants themselves and others who were second or third generation descendants of immigrants from Mexico. In addition, I was under constant guidance of my original dissertation chair during the entire data collection, analysis, and

interpretation phases of the study. Peer debriefing with the dissertation chair was used to determine when a sufficient number of interviews had been conducted and to enhance credibility and dependability of findings (Lincoln and Guba, 1985; Morse 2015) Confirmability was supported through maintaining the reflexive journal that detailed thoughts, emotions, insights, and other reactions that I experienced during data collection and analysis (Lincoln & Guba; Morse). Together with maintaining an audit trail of raw data transcripts, a log of data collection dates and sites, hand coded transcripts, and data analysis charts to develop content and thematic findings, the reflexive journal contributed to dependability and confirmability (Lincoln & Guba, 1985).

Conclusion

This chapter provided the description of an Interpretive Descriptive qualitative design that was used to conduct my research. This chapter provided the research design, information about the sample and recruitment, the methods for gathering the data and the manner in which data analysis occurred. Given the limited knowledge about how Mexican Americans understand and practice self-care for “borderline diabetes,” the proposed interpretive descriptive study will begin to address this gap.

Chapter 4: Findings and Interpretive Themes

In this chapter, I will describe adjustments to the protocol necessitated by the pandemic and the characteristics of the participants. I will then summarize the principal themes I identified from the data.

COVID-19

As I was preparing to submit the study protocol for IRB review, the COVID-19 pandemic hit the United States, causing widespread disruptions or adjustments in health care delivery. The resulting ‘lock-downs’ and widespread shifting from in-person to video visits for outpatients created significant challenges in reaching potentially eligible persons. In particular, it was no longer possible to recruit and enroll participants in person at either site. Of necessity, recruitment depended on posting approved flyers in the study sites and via social media instead of in-person recruitment. In addition, while the study was ongoing, one of the recruitment sites actually closed, and the other limited access to patients. A consequence of not being able to recruit in person was that approximately half of the people who contacted me to find out more about the study did not meet the inclusion criteria. The main reason for those exclusions was that they already had with a diagnosis of diabetes, in most cases for at least several years. Therefore, they did not have a current status of borderline diabetes or prediabetes. For persons who were eligible and willing to participate, I had to shift from face-to-face interviews to phone interviews. These factors slowed the recruitment, enrollment, and data collection.

Transcription of Interviews

Following the completion of each interview, the encrypted audio file was uploaded to a secure shared folder to be transcribed by the IRB-approved transcription service. The completed transcripts were put back in the secure folder for me to access. I removed any names or other potentially identifying information.

During the initial interviews, despite having extensive experience working with this population clinically, I found conducting research interviews by phone to be challenging. Thus, the first few interviews were somewhat less robust than subsequent interviews. The dissertation chair, Dr. Welle, provided guidance to help me refine interviewing skills (e.g., using prompts such as, “can you tell me more about that?” or “is that all you wanted to discuss?”).

Participants

There were 16 participants (12 women and 4 men) who enrolled and completed interviews. All participants self-identified as being “borderline diabetic,” for at least 6 months. All were at least 21 years of age. Participants included both Spanish- and English-speaking individuals who self-identified as Mexican American, Mexican, or Chicano and who were insured or underinsured. Of the 16 participants, 7 emigrated from Mexico as adults, 2 emigrated as children, and 7 were born and raised in the United States with either parents or grandparents having emigrated to the United States. Six of the interviews were conducted in Spanish, and 10 were conducted in English. In consultation with my chair, data collection ceased after 16 interviews were completed because saturation was apparent.

Interpretive Themes

Family History

Participants in the study first provided some information about their family's migration story. Common reasons included agricultural work or to escape poverty.

–They came here back in '78.as migrant workers.

–I mean they were following crops...they were immigrants, they work the fields.

–Where my parents came from, was a lot, lot of poverty. They did it for their kids, for us.

Others described migrating “for a better life,” or “better opportunities.” Some knew the details of their migration history, but others did not. Several participants had some difficulty identifying a specific time frame of migration: “As far as when my family came from Mexico, I’m not sure.” “My parent came in the ‘70s, I believe.” “I was 12 years old, so I don’t remember the exact date.”

Overall, the degree of certainty about and comfort with recounting details of the family history varied from interview to interview. Some family histories were fragmented and lacked important details, such as place of origin in Mexico, year of migration, and which family members originally migrated: “All I know is I think my grandma was first generation here, if what my mom said was correct.” Several participants’ comments suggested a lack of open dialogue within the family or vagueness about migration history or about their family’s movements. For example, one man explained: “We started moving around, you know, it’s just wherever my parents could find work, and try to hide from immigration.” Perhaps unsurprisingly, participants who had, themselves, emigrated from Mexico were able to state more definitely when (e.g., in what year) that occurred; most of those interviews were conducted in Spanish. Several participants spontaneously shared the history of diabetes in their families or mentioned having one relative in particular who experienced poor outcomes

or death from diabetes. “I know that my grandpa died of diabetes. They took his foot first, and then his leg. Then it was so bad he just passed away.” Others related that multiple family members had diabetes, in a few instances over generations. One participant mentioned “My grandpa, he’s diabetic. . . . I can think of at least four of his siblings who are diabetic.”

Another participant explained: “My dad is diabetic, the majority of aunts and uncles on his side are diabetic, so is my grandpa”. Thus, many of the study participants viewed their family histories through the double lens of immigration and diabetes.

First Learning About Borderline Diabetes Diagnosis

Participants described various reactions to learning about their borderline diabetes. Some described the diagnosis as a terrible blow. One participant explained, “I kept thinking, ‘If I become a diabetic, it's all gonna be terrible, It's gonna be terrible for me.’” Others reported feeling “shocked,” “scared” or “devastated.” One woman explained, “It was a shock to me when they told me that I had borderline diabetes at the time.” Another woman said, “It was just a scare of mine that I was gonna be, uh, like, diabetic.” This kind of reaction occurred in both English-language interviews (“it was very scary”) and by Spanish speaking participants (“it felt pretty serious”). Most participants described a strong emotional reaction to the diagnosis. One participant stated:

I was kind of devastated because I knew it ran in my family, and I know what happened to my grandpa because of it. So, you know, I, I took it-- I took it to heart, you know. It's pretty serious.

However, other participants described being unaffected by learning of their borderline diabetes or indicated they took it in stride. One male participant stated, “I didn’t take it that hard actually” and another claimed “I just continued on like it, it was nothing.” In addition,

two female participants attributed their diagnosis to receiving cancer chemotherapy, and both used the term, prediabetes. One simply stated “I ended up with prediabetes due to the chemotherapy;” the other said, “When I was prediabetic, that’s when I was in chemo, my sugar shot up.”

Disclosure vs. Secrecy

When they learned they had borderline diabetes, participants typically told close family members: “My wife and my family;” “I spoke with my husband;” “My immediate family”. Several participants talked about the importance of keeping diabetes diagnoses “in the family.” One man asked, “Who else needs to know?” Some participants reported telling a close friend, in addition to family members, about their borderline diabetes: “My best friend, I called her and she kinda helped me.” Another participant stated that support was from “A friend of mine that I used to work with.”

In contrast, several participants attempted to maintain secrecy about their health. “If somebody doesn’t ask, I’m not saying ‘I’m [pre]diabetic,’ you know?” Another participant said, “I didn’t need to tell anyone that I was prediabetic.”. This emphasis on secrecy was more common in the interviews conducted in English. In contrast, Secrecy regarding diabetes was not as evident in the Spanish speaking interviews. Only one Spanish-speaking participant described keeping their borderline diabetes diagnosis from others.

For several participants, a perceived need for secrecy also applied to their or their family’s immigration circumstances. For example, one participant recounted the family maintaining secrecy about their immigration because of having to hide from immigration authorities while continually migrating to find work within the United States. Another

participant whose parent was a member of an influential Mexican organization described secrecy in his family as well.

My mother immigrated me in 1963 . . . the living conditions and crime. My mother came from the main handful of cartels, so they seek to find a better life.

Thus, for some participants' families, the ability to maintain secrecy became an important aspect of survival in the US.

Explaining Borderline Diabetes

Explanations for borderline diabetes included defining characteristics and also causal attributions. Several participants gave fairly vague and simple definitions of borderline diabetes. "You're not diabetic yet, but you're close," One male participant said,

In simple terms, the way it was put to me is that I'm basically on the line, you still have that chance to not have diabetes, as long as you start taking care of yourself now and making life changes. . . . When you can, you're able to control it with just a diet and exercise and just take care of yourself. That's what I would call borderline.

Other participants referred to test results in their characterization of borderline diabetes.

The doctor explained to me that I had high triglycerides and cholesterol. So she told me that all of that is related as well. I don't know if that's true, or if I didn't understand right, but that it also has a lot to do with diabetes.

Another participant described "My A1C is like a 7 right now. It's a little high, but she told me that I should be at least a 6 or below." Participants' explanations of borderline diabetes also related to various contributing factors and sought to provide some explanation or cause for the development of the condition. For example, as noted previously, two participants attributed a prediabetes diagnosis to having undergone treatment for cancer.

–[My prediabetes is] related to that somewhat because I’ve had other health problems that have come after having chemo and, and having to, you know, try and recuperate, as far as immunity goes.

–I didn’t stress out over this at all, because I saw it, like, that it was something normal, due to chemo.

Both of these participants saw their developing prediabetes as relatively “normal,” a known side effect of chemotherapy. A few participants attributed the diagnosis to hereditary or genetic factors. “You know, this was genetic. You know, if this is happening to me, this can happen to you”. Another stated, “Like the doctor says, it’s due to their—hereditary, I don’t know how he says it. Due to being hereditary.” These participants discussed disclosing their condition to family because of the possibility it might have been hereditary.

Several participants questioned whether diabetes is caused by diet or weight. One participant stated, “I am heavier and have gained a lot of weight since I left school and, um, so it was-- it was a fear of mine but not totally a surprise.” Another participant said, “It wasn’t unexpected because my whole life, I have battled, you know weight problems.” Another participant explained “Something triggers it-- when you first catch it, you can control it with, you know, diet, exercise. And not necessarily... that's when they told me I was borderline.” Another participant added, “I was, well, overweight. And, and all that was harming me.”

One participant blamed the pharmaceutical industry and its medications as a cause of diabetes.

For me which is the same thing with big pharma and-- big pharmaceuticals. Because they want to sell you stuff . . . that doesn't even really work. They just want to get you hooked on it.

Seeking Information

The majority of the information obtained by participants in this study was gained by personal research or conversations with friends or family. Many participants stated that they did not receive adequate or any information from providers at their time of diagnosis. One participant explained, “Well, in fact, this, they didn’t tell me to do anything”. A second participant explained, “Like, he is just a primary care doctor, so he wasn't—you know, we didn't get into too much then and there.” A third participant highlighted, “I mean they didn’t give me accurate information about what it is I could do in case, well in case I got diabetes.”

Participants discussed various ways of exploring and obtaining further information about the borderline- or prediabetes, in particular related to informing themselves about the implications of the diagnosis and to better understand lifestyle changes, such as diet and exercise. Participants discussed how they conducted “research online”. One participant described a video on social media from Mexico.

Basically this gentleman who, who was in a plaza somewhere in Mexico saying how fruits and vegetables can be beneficial besides a form of medication. It's just a form of how certain vegetables and certain fruits help you with certain things and like cholesterol, high blood pressure, diabetes.

Other participants conducted internet searches: “I took hours on the laptop. We have a laptop and I just Google diabetes and then it just gives you some information.” “What I read on the

internet and, you know, trying to figure out what are things that I can do.” Another participant discussed searching for and finding information about cutting out carbs.

In addition to “research online” several participants discussed how talking to other individuals such as family, co-workers or friends was helpful in obtaining information. One participant explained:

My sister definitely is my rock. She's the one that has always been real health conscious, and she's always taking care of herself. So she's always sending me, different recipes or different ideas to try on different meals that, are things that I can eat. So, she's the one that's really helped me try to figure out how to relearn to eat correctly.

Another participant identified her best friend as a source of information as she described the recipes for diabetes her friend shared. Knowing she likes sweets, her friend provided recipes for healthy snacks.

Lifestyle Changes

The majority of the participants in this study discussed how lifestyle changes were necessary with a borderline diagnosis. They spoke of various changes they made to their personal habits which included diet, exercise and some type of control to either portion of food or control of personal weaknesses. Participants had various views regarding diet. They explained how they stopped eating certain types of food, particularly sweets or sweetened beverages. One participant mentioned, “I used to eat a lot of sweets. I cut a lot of that out.” Others mentioned giving up sugar, chocolate bars, Cokes or Pepsi, and Powerades. The complete removal of high carbohydrate food items was mentioned by several participants who said they cut-out bread, bananas, or rice. .

The majority of the participants discussed how the Mexican cultural diet was not conducive to self-management of borderline diabetes. In addition to removing sugary items from their diet they also discussed the reduction of cooking with grease or lard. One participant said, “Potatoes are completely out.” Nearly all mentioned cutting out or reducing their consumption of tortillas.

One participant had a unique perspective regarding being placed on a diet by explaining “nothing that comes on a diet is good.” She further explained,

We make a mistake (in our diet) and (providers) say, ‘No, well, take care of yourself, eat fruit, don’t eat that, don’t eat bread.’ But sometimes, this, is worse, this, to not eat. It’s preferable to eat a little bit of a portion, better. And for me, I prefer a regular meal than a diet. There’s a lot-- a lot of sugar. And for me, that-- for me, I feel that it does a lot of damage. And it’s better, if you can’t stop the habit of cola, but if you take a little sip, two sips, just so to give it up, and people don’t see that as so drastic. She stated that she thought diabetes education focuses too much on cutting out foods. She emphasized, instead, portion control and making gradual changes in diet. She said this allowed her to feel she was eating “a regular meal” rather than a medical “diet.”

The breakfast meal was specifically mentioned by several participants. One female participant discussed at length the need to eat breakfast:

(A lot of people) don’t eat breakfast, and breakfast is the most important. And in the morning, the most important is the breakfast. You can, this, ah, not have a meal, but breakfast, that’s what you always have to have. And nutritious, I mean, you have to eat protein early, rather than really late.

Another participant explained, “for breakfast I have oatmeal in water with fruit.” A male participant also described his breakfast meal to consist of “two eggs, uh, two sausage patties, and, uh, two slices of bread, and that's all I ate.”

Another female participant discussed using supplements with natural plant-based products.

Plexus—that is what I'm doing. They're backed by clinical studies, and I wanted to really make sure that if I did start supplementing, that I did it right. And so there's no synthetic fillers in there, they're all, like I said, non, non-GMO. There's no artificial sweeteners, and so they have different products that, um, they target. It's not a weight loss. It-- they target inflammation, gut health, um, balancing the blood sugar levels and nutrition deficiency.

Her approach used natural, plant-based supplements to enhance her nutrition and address her health in terms of her body's systems: a perspective largely not discussed in the literature.

Exercise

Exercise was mentioned by all participants. They discussed different methods of adding exercise to their lifestyle. One participant mentioned, “exercise, you know, directly affects, you know, me gaining the weight.” Another female participant explained how she purchased a treadmill and walked on the treadmill for 20 minutes a day, Monday through Friday and rested on the weekend. One male participant explained how he integrated exercise with an increase in daily activities:

I warm up with a run. I could put in anywhere from one to five miles, depending on what I feel like doing. And then I'll go lift weights, and then I'll try to stay active

throughout the day, you know, doing more chores around the house, running around with the kids.

This participant emphasized how intentional increases in activity can be added into normal daily routines. Some participants described additional benefits from exercising. A female participant discussed having chronic knee pain. Starting yoga helped her knee and also made her feel better about herself.

Taking Action with Supportive People

Many of the participants discussed how supportive relationships were pivotal to their ability to make adequate and necessary changes to their lifestyle or diets. One female participant talked about how her husband accompanies her on daily walks.

My husband and I are going on walks for, I think for like a little more than half an hour, or almost an hour. Not all the time, because, well, sometimes things get in the way and you just can't go.

Several other participants mention family members as participating in self-care in supportive ways. "My children are adults, they're all adults so they're extremely supportive, we try new recipes." The support given by family members---including husbands, children, siblings, and mothers---was not gender specific.

Other types of relational support were offered by coworkers. For both participants who mentioned this, the co-worker(s) were the same sex as the participant. One female participant described how she and her female co-worker collaborated.

Really, you know, support each other, and, you know, we just like-- she did some research and found that cinnamon lowers your-- she takes cinnamon pills. And we do essential oils. We put a little bit of cinnamon oil in our coffee 'cause that will lower

your blood sugar. You know, we used to snack on bad stuff during the day. Now we will snack on some fruit in the morning and more vegetables so, it's really nice to have that support. You know, and she is diabetic 'cause hers was really bad. But, you know, it's just nice to have that support, especially with the people you work with. It makes it a lot easier.

A male participant described the support of a male co-worker.

A friend of mine that I used to work with . . . used to weigh 300-and-something pounds, but you would've never have believed it because he was just this tall, scrawny dude. And he showed me pictures of what he used to look like until, until he started ketoing, and then, when I-- that's when I started my research and started finding out also that, hey, not only is keto good for losing weight, if you're diabetic or have epilepsy, doctors recommend it's the diet that you should do anyway. So that's how I started learning more about it.

In addition, both of these participants described their co-worker friends as “doing research” that they implemented together.

In two of the Spanish speaking interviews, participants described providing *others* with support, specifically by being a role model for children and grandchildren. One grandmother described,

I'm caring for my grandchildren. Grandma, let's go grab a burger. Grandma, a pizza. And, I tell them "No," I tell them, "Let's cook here at home." So I make their vegetables, their fruit, I have that in the refrigerator. And I tell them, "Let's eat healthy. And no, we're not going to eat--" Yes, once in a while I buy them that, but not like, if they're imposing.

Another participant added,

I always tell my- my children too, that you have to watch what you eat. Because, well, when you're young you eat everything, you don't care, you eat whatever you want, especially prepared food. Um, I explain to them that, well, they have to exercise first, and that they should watch what they eat, too.

These participants discussed being the supportive individual to the younger generation within their family to change the whole family's (and the next generation's) ineffective lifestyle habits.

The “Struggle” to Change Habits

The discussion of the “struggle” of changing cultural eating habits was a common theme among the study participants. Several shared how it was difficult for them to change their diet.

It's hard to find food that-that's healthy and taste good, and that's my biggest thing. I like a food to taste--like a lot of Mexican food, like I said, that would be as--beans, rice, all those things, you know, high in carbs.

A Spanish-speaking interviewee explained,

But I-I'm trying to watch what I eat, though not 100% because it's hard. When you're Mexican you eat a lot of tortillas, bread, rice, and all that, and sugar, you know.

Another Spanish speaking interviewee explained,

It's hard because, oh, you feel like Coca-Cola, you feel like a hamburger, and, right? It's seems like all the junk food is the yummiest.

An English-speaking interview participant highlighted how, “Food is always the center of family gatherings and it's hard not to focus on, on other things, you know, whenever we

come together as a family.” A female participant added “I do miss my culture foods what are still rich in carbs.” The change of diet was described as a cultural loss for most of those who participated in the study. This was especially emphasized by one male participant, who related a hypothetical conversation.

I eat grilled chicken constantly, but I don't put all the extra stuff and I don't roll it up in a tortilla or bread. Like right now, I just had a cup of chicken broth with a tablespoon of butter because I need fats. I guarantee you, if someone knocked on the door that was Mexican, would say ‘Why are you drinking that crap?!’ I'd be like, ‘Well, because I can't have all the other stuff.’ They'd be like, ‘Oh whatever. You're letting the doctor tell you what to do. You can have it.’ You know, that's just how Mexicans are. We need to stop being stubborn.

He went on to describe how he has gained control over his carbs consumption.

I would just experiment on different ways to do stuff, you know, as far as keeping my carbs under 20 grams a day by watching what I eat, reading labels, read them correctly, my portions. And, and I come to find out that I also enjoy it.

He described how he discovered it was enjoyable to make these changes, and that he could continue to identify with the Mexican culture. “People need to think just because you don't eat the way traditional Mexicans eat on a daily basis does not mean you're not Mexican.”

Participants also mentioned that having the ability to see individuals that are relatable to demonstrate that they were able to successfully manage borderline- or prediabetes would be helpful. Several participants mentioned that stories from “average” people or “true testimonials” by individuals living with borderline diabetes would help demonstrate successful management of borderline diabetes.

This study described personal perspectives of Mexican American individuals about having borderline diabetes. The interviewees described their family history related to migration, their personal descriptions of and reactions to the diagnosis, important lifestyle changes, and how exercise was important to the diagnosis. The participants also discussed how it was a “struggle” to change, but that change was possible with the support of others. The information provided will provide first hand account to providers attempting to help others with the same condition.

Chapter 5: Discussion and Conclusions

In this chapter, I will synthesize the major findings of the study and compare them with relevant literature. I will also discuss ways in which the findings relate to the theoretical framework, the Social Ecological Model. The chapter concludes with a summary of strengths and limitations of the study and its significance in terms of clinical, research, and policy implications for Mexican American individuals diagnosed with prediabetes.

Summary of Study Findings

For the most part, participants in this study understood borderline diabetes in a context of family history that also was related to when the family emigrated from Mexico and what the circumstances were. Spanish language interviewees had more detailed recollection of when and why they came to the US, whereas English language interviewees tended to lack specific information about family migration. Participants' stories of immigration and of family or personal medical history reflected varying degrees of disclosure or secrecy. After receiving their diagnosis of borderline- or prediabetes, most participants reported telling close family members but not disclosing to people outside their immediate family. Participants described strong emotional reactions to learning about their borderline- or prediabetes diagnosis, but personal interpretations varied widely and were, in some cases, characterized with conflicting information from health care providers and other sources of information. Several women participants attributed developing prediabetes to having had cancer chemotherapy or gestational diabetes. Most other participants did not attribute it to specific causes, although they recognized that diet and weight likely had something to do with it.

Participants felt that information they received from health care providers was often vague or unhelpful. They obtained further information about their diagnosis by “researching” online and by asking family members or co-workers. In some cases, participants also developed more supportive relationships with family members, close friends, or, co-workers or who encouraged self-care and positively reinforced appropriate choices. Participants attempted to manage their borderline diabetes by lifestyle changes,, such as increasing exercise or through dietary modifications or portion control. In particular, participants noted the “struggle” to control what they viewed as personal weakness, particularly in relation to changing their intake of culturally significant foods and searching for healthy alternatives.

Participants’ main recommendations for health care education and delivery were that it would be more helpful to have a health care provider or diabetes educator who can relate to Mexican-American culture and provide culturally informed and sensitive recommendations for lifestyle change (in Spanish if needed). They recognized that patient and family education related to borderline diabetes should focus on appropriate diet choices, exercise, portion control, and how to limit carbohydrate intake. Among their recommendations was that greater use of “true testimonials” or narratives of “average” individuals with borderline diabetes would help demonstrate ways of living with the condition and that successful management of disease was achievable.

Significance of Study Findings

The rate of new cases of diabetes among Mexican-American adults in the Texas Panhandle has increased dramatically in recent years (City of Amarillo, 2019). This study is significant in its focus on understanding personal and cultural perspectives on living with borderline diabetes. The unique perspectives of this potentially vulnerable population offer a

potential source of insight into factors that potentially could prevent or delay the progression of prediabetes to type 2 diabetes and possibly reduce poor long-term outcomes. Study findings also highlight issues related to trust, disclosure vs. secrecy, and health disparities related to lack of cultural awareness, racism, and socioeconomic disadvantage.

Trust

There is extensive literature on the development of trust in the nurse-patient relationship, having established trust will directly impact patient safety and quality care (Jones, 2014). Providing culturally competent care has been a common theme in nursing and health care when speaking of providing quality care to patients from diverse backgrounds. Cultural competence helps to establish trust and comfort for patients and their families (Jones, 2018). However, it is also the case that Hispanic or Latino / Latina as a broad characterization of heritage or ethnicity subsumes many culturally distinctive populations (Casagrande, Menke, et al., 2018; Casagrande, Sotres-Alvarez, et al., 2018) that differ substantially in values, culture, dietary practices, and health beliefs.

Trust is also important to develop in qualitative research and important when working with vulnerable populations (Laenen, 2009). The literature does show a lack of trust with medical providers/outside (Armstrong et al., 2007; Frakt, 2020). In addition, current immigration policies in the United States have contributed to a heightened sense of vulnerability and lack of trust that may discourage Mexican-Americans in the Texas Panhandle from seeking health care services or from disclosing aspects of personal and family history to health care providers or researchers.

In interviews for this study, in conjunction with use of the reflexive journal and discussions with my dissertation chair, it became apparent that trust was wrapped up in

broader judgments about who could be trusted with different kinds of information under what circumstances. After recognizing that trust was along more of a continuum, we developed a broader theme of disclosure vs. secrecy under which the degree of trust or lack of trust varied in different contexts.

Cost of Secrecy and Health Disparities

Individuals in the study discussed topics and situations in which they believed the use of secrecy was important. Individuals reported not openly discussing their immigration histories or their borderline diagnosis with certain others, with the possible exception of family members or very few others they trusted. Some participants, described “hiding” or “never went to the doctor,” or that they did not seek ongoing treatment after a diagnosis of prediabetes. Keeping the diagnosis secret could delay appropriate treatment or lifestyle changes that, in turn, could be detrimental to the participants, in the form of lack of adequate access to care, essential information, or support (Ussher et al., 2017). The literature shows that undocumented individuals in particular may delay seeking treatment (Dang, Giordano & Kim, 2012), a kind of “living in the shadows” (Mendez-Shannon, 2010).

Acculturation

Participants in the present study discussed the significance of both traditional diet and a less healthy American diet in connection with difficulties making needed dietary changes. There is considerable evidence that persons who migrate to the United States enjoy better health than subsequent generations due to effects of gradual acculturation (Barcellos, Goldman & Smith, 2012). For example, greater acculturation has been found to be associated with obesity risk, and with an increase in fat and sugar consumption among Mexican-Americans (Perez-Escamilla, 2011; Perez-Escamilla & Putnik, 2007; Wingo et al., 2009).

Plasencia, Hoerr, Carolan and Weatherspoon (2017) conducted qualitative interviews of Mexican American individuals with type 2 diabetes and found that greater acculturation was correlated with reduced diabetes control, reduced leisure-time physical activity, and increased physical disability. In the present study, English language interviewees (most of whom were second- or third-generation) discussed problems with making adjustments to a more Americanized diet, whereas Spanish language interviewees (most of whom had personally migrated to the United States) made adjustments to a more traditional diet. This finding is important because it demonstrates the different perspectives on US and Mexican culture foods based on migration history and length of a person's time in the US.

Education of Family

The need for formal and family-based diabetes prevention education was identified by most participants in their interviews. Diabetes education programs have been successful in this population in terms of reducing A1C levels (Culica, Walton, & Prezio, 2007). Peer-led diabetes education programs have also been found to be successful in improving diabetes outcomes (Philis-Tsimikas, Fortmann, Lleba-Ocana, Walker, and Gallo, 2011). Hu, Wallace, McCoy, and Amirehsani, (2014) found that family-based interventions were effective in reducing A1C levels and in improving diabetes knowledge and self-efficacy. Thus, the literature supports family-based education approaches suggested by some participants in this study. However, whether such programs are as effective in preventing or delaying onset of diabetes in persons with prediabetes has not been as extensively studied.

Reproductive Health

Several women in this study reported that they developed prediabetes during pregnancy that persisted after delivery. Literature has identified that pregnant women who

develop gestational diabetes may have had undiagnosed prediabetes before or may develop prediabetes or diabetes after pregnancy. The control of prediabetes is highly dependent on the successful lifestyle changes made by the woman during and after pregnancy. The ability to control or manage prediabetes will assist the woman to reduce the risk of developing type 2 diabetes (CarePoint Health, 2015; Hollingsworth, Vaucher & Yamamoto, 1991). However, few studies of diabetes during pregnancy include Mexican-Americans (or lack information on ethnicity). One study that did focus on Mexican-Americans reported much higher rates of gestational diabetes than in Whites (4.5% vs 1.5%, respectively) (Hollingsworth et al., 1991).

Managing Borderline Diabetes in a Relational Way

The Mexican American participants of this study took a relational approach to self-management of borderline diabetes. Having a relational approach to borderline diabetes management was evident not just within the family through the concept of familismo (Smith-Morris, Morales-Campos, Alvarez, & Turner, 2013). Inside the family, members helped each other regardless of gender or family role. Participants in this study also found support for managing their health with friends or co-workers outside the family. Women participants described how their women friends and coworkers served as a support system. In the case of a male interviewee several male coworkers were pertinent support individuals. So support was not limited to only family relationships. In reviewing the literature little is known about the establishment of relationships outside the family in prevention or treatment of diabetes, although it is established that relational strategies are an important aspect in social and family relationships and could improve healthcare (Scott & Hofmeyer, 2007). This relational strategy of borderline diabetes management needs further study in the Mexican-American population.

Relevance of Theoretical Framework

The theoretical framework that was used in this study was the Social Ecological Model (McLeroy et al. 1988). This framework was used in developing and framing questions on the interview guide. At the individual level, study findings highlighted emotional and behavioral reactions to a prediabetes diagnosis. At the interpersonal level, participants framed their personal stories in a context of family history and emphasized the importance of support from family, co-workers, and friends. Participants had relatively little to say about influences at the organizational and community levels. However, the interview guide did not specifically ask about the influence of organizations or the wider community, although some follow-up probes were relevant to those levels. Accordingly, organizational or institutional supports were mentioned infrequently. For example, one participant mentioned a community event to teach about diabetes, and several made general recommendations related to community organizations concerned with health care. At the policy level, participants shared many suggestions to improve access to health care and public access to exercise equipment, public messaging about diabetes and prediabetes, and making healthy food more readily available and affordable.

Overall, most of the supports or strategies for self-care that participants described were at the individual and interpersonal levels (particularly family and workplace supports). At the individual and family level, there is adequate trust to make behavior change and willingness to give and receive support. At the institutional (health care), community (public health), and policy levels, participants described fewer supports for managing their health, and it is possible that more attention is needed to develop adequate supports at these levels.

Study Limitations

. There are numerous limitations to a study such as this with a small convenience sample in a single metropolitan area. Those aspects obviously limit generalizability of findings. There also were several more particular limitations for this study including dependence on self-reported diagnosis, use of single phone interviews, my inexperience as a researcher, and potential biases related to my experience as a registered nurse and nursing instructor.

Dependence on Self-reported Diagnosis

A number of individuals who contacted me about possibly participating in the study could not clearly describe if they were prediabetic or had type 2 diabetes, possibly because their provider had not been specific or perhaps due to communication barriers. However, self-reported borderline diabetes was the topic of interest and primary inclusion criterion for the study. Limiting participation to people who did not already have diabetes was an attempt to ensure that experiences and perspectives were not dependent on recall.

Single Phone Interview

I interviewed each participant one time by phone. The participants were asked about a variety of experiences related to their borderline diabetes with minimal preparation. The participants knew the general topic of research, but prior to the interview itself did not know what, specifically, would be asked. This proved to be a potential disadvantage as some participants did not know or could not remember some details regarding family history. Had they known in advance that this would be asked about, they might have had an opportunity to ask other family members for relevant information. Also, the phone interview could seem impersonal when talking to a stranger about personal experiences, emotions, and support

systems. In addition, with phone interviews, the interviewer does not have the ability to assess facial expressions or body language during the interview.

On the other hand, conducting interviews on the phone may have contributed to trust. Due to the interview being anonymous, not face-to face. The methods literature shows that phone interviews/anonymity can facilitate participation and disclosure for vulnerable populations (Carr & Worth, 2001). The participants agreed during the consent process to complete a recorded interview and were pleasant with conversation, but as soon as it was announced that the recording would start, some gave very short responses. After reflecting on this, the researcher stopped making a major announcement, and focused on getting consent to record.

Novice Researcher

I am Mexican-American and have worked extensively with Mexican-Americans in the Panhandle as both a professional nurse and a nursing program faculty member. As such, I have substantial experience working with persons with diabetes and borderline- or prediabetes in this population in a variety of clinical settings and also in settings such as health fairs in the local area. However, as a researcher, I was a novice at the outset of this study, which proved to be challenging. Focusing on a different pattern of communication and questioning was difficult, particularly at the beginning of data collection. I used the reflexive journal to document my reactions to interviews to help identify my own biases arising out of my nursing experience. For example, I felt certain frustrations when something participants said seemed to indicate misunderstanding or lack of knowledge about their own medical diagnosis or treatment. Through journaling and ongoing dialogue with the dissertation chair, I became more aware of potential conflicts between my identity as a nurse

and my role as researcher (Thorne, 2016). Over the course of successive interviews, I became better able to listen and accept participants' perspectives without intervening or correcting. As my comfort with research interviews increased, my understanding of how to pace interviews, when to probe for clarification, and my ability to listen non-judgmentally all improved. As my communication skills improved, the quality of successive interviews was enhanced.

Strengths of the study include that I was able to recruit, consent, and conduct interviews in either Spanish or English, which potentially increased participants' comfort level. This also made it possible to enroll participants from a wider variety of backgrounds than if the researcher were not bilingual. In addition, this study contributes to showing how trust can be developed with Mexican-American research participants. For example, beginning the interview by asking about family history and immigration from Mexico communicated a broader interest in participants than just inquiring about health matters. Many were pleasantly surprised although the question caught some off guard. For Spanish speakers, interviewing in Spanish helped build trust with the researcher. Interview questions expressed interest in the experience of diagnosis and individual ways of doing self-care.

Implications for Clinical Practice

The findings in this study suggest that for Mexican-Americans with borderline- or prediabetes, education by nurses or other providers (e.g., CDEs) has been hit or miss. Nurses working with Mexican American individuals with prediabetes need to understand the unique needs of this population. Nurses need to be knowledgeable in a holistic and culturally appropriate approach to assessing and caring for Mexican-Americans with borderline- or

prediabetes. For example, taking time to assess how traditional or Americanized an individual's dietary preferences before recommending modifications.

This study has several implications for clinical practice.

- There is a need to teach nurses and nursing students to relate to and build trust with Mexican-American patients, avoiding stereotypes and implicit bias.
- Providing unbiased care means there is a need to examine and improve educational materials for persons with prediabetes or diabetes. For Mexican Americans, culturally aware and sensitive materials should reflect healthy and acceptable ways that Mexican cultural foods can be prepared or modified.
- There is a need for family education focused on how members of Mexican American families can support relatives with borderline diabetes or diabetes.
- There is a need to address prediabetes and borderline diabetes among Mexican American women during pregnancy (Hollingsworth et al., 1991). Health education for prediabetes self-care during pregnancy and after delivery is needed.
- There is a need for more community programs for Mexican-Americans to learn more about healthy lifestyles. In addition to learning about healthy cooking of cultural foods, a number of participants were clearly interested in alternative and complementary treatments (e.g., traditional remedies and dietary supplements) and also in specific diets (e.g., keto and plant-based). They also were interested in different exercise options such as yoga, cardio-, and walking. Community programs have been successful in teaching about diabetes (Philis-Tsimikas & Gallo 2014). In a vulnerable population that is experiencing high rates of diabetes, it is important to develop and strengthen a community approach to prevent or delay the progression of prediabetes to type 2 diabetes.

Implications for Research

There are several implications for future research regarding Mexican-Americans with borderline- or prediabetes.

- Research focused on women's health is needed among Mexican-American and other Latina women of childbearing age in relation to prediabetes or borderline diabetes during and after pregnancy (Pérez-Escamilla & Putnik, 2007).
- Additional research that is specific to Mexican-Americans with borderline- or prediabetes is needed to identify specific social determinants and health disparities related to risk for prediabetes and diabetes.

Policy Implications

This study identified participants' recommendations for policy change to support Mexican-Americans with borderline- or prediabetes.

- There is a need for Mexican-Americans to receive care without the fear of deportation or other legal consequences.
- There are also needs for culturally-informed practices in health care and health education, including, but not limited to, availability of patient and family educational materials in idiomatic English and Spanish.
- Many Mexican-Americans perform agricultural or food processing work, but ready access to wholesome, fresh foods may be limited in communities where they reside. There is a need to create policies to improve availability of and access to affordable, healthy foods and ingredients (CDC, 2017a).

- One participant suggested there was a need for a foundation that could assist with education for newly diagnosed individuals and providing them with support services. There would also be benefit from increased funding for education for Mexican Americans interested in becoming nurses or diabetes educators.

Conclusion

Health disparities experienced by Mexican-Americans with diabetes or prediabetes persist. This study was conducted to further understand the perspectives of Mexican-Americans in Texas and their understanding of needs related to borderline diabetes care as conceptualized from an individual to policy approach. Although standardized diabetes care exists, there is less standardization regarding prediabetes education and support. Foundational and systemic changes are needed to help improve outcomes in this population. As the Hispanic or Latino population increases in number and diversity, healthcare providers will need to seek new approaches to insuring health equity in the management and treatment of illness in diverse Hispanic or Latino populations.

This small qualitative study ($N=16$) regarding the perspectives of Mexican-American individuals with borderline- or prediabetes identified significant needed elements to borderline diabetes care that are missing and are viewed as important by the study participants. It is important to note that these individuals voiced their need for further health education and support to successfully tackle this disease. It is crucial that we continue to determine factors that positively improve the outcome of Mexican-American individuals with prediabetes in Texas and beyond.

Appendix

Consent and Authorization

English

Spanish

Approved Study Flyers

English

Spanish

Interview Guide

English

Spanish

The University of New Mexico Health Sciences Center
Consent and Authorization to Participate in a Research Study

Dear Prospective Participant,

Researchers at the University of New Mexico are inviting you to take part in the research study “Mexican-Americans’ perspectives on ‘Borderline Diabetes’ in Amarillo, Texas.” The study involves one phone interview that lasts about 60 minutes. You may do the interview in English or Spanish, whichever is most comfortable to you. You will be asked questions about having “borderline diabetes” and what you do to take care of yourself. A lot of people feel they have “borderline diabetes” but health care providers don’t know much about what it means to you to have “borderline diabetes” as a Mexican American. This study will help fill in that knowledge.

WHAT ARE THE KEY REASONS YOU MIGHT CHOOSE TO VOLUNTEER FOR THIS STUDY?

A person may want to participate in this study, because they want to help health care providers to better understand what it means to have ‘borderline diabetes.’ Another reason for participating, is to help share your knowledge about what other Mexican Americans with ‘borderline diabetes’ can do to take care of themselves.

Although you may not get personal benefit from taking part in this research study, your responses may help us understand more about how to improve diabetes education and care that Mexican Americans receive.

WHAT ARE THE KEY REASONS YOU MIGHT NOT CHOOSE TO VOLUNTEER FOR THIS STUDY?

- This study will not give you personal feedback or medical advice on your diabetes care.
- The phone interview will be audio-recorded and transcribed. However, the researchers will protect your interview data by using password protections and encryption so that others can’t access the information. The researchers will also delete

any names or other identifying information mentioned in your interview, including your own name or the names of family members.

You will receive a \$20 Walmart merchandise card for taking part in this study. At the end of the interview, we will ask for an address where we can mail your merchandise card. We will write the address on the envelope and will not keep that information as part of the study.

The phone interview will take about 60 minutes to complete.

The study does have a risk of loss of confidentiality. Even though we make every effort to protect your confidentiality, there is always a small chance that someone outside of the research team could access a person's interview transcript. To protect against loss of confidentiality, any names, or locations, or other personal information will be removed from the transcript. The researchers also have password-protected computers, and no names will appear or be used on research documents, or be used in presentations or publications. Your response to the interview will be kept confidential to the extent allowed by law. When we write about the study and its results you will not be identified.

Your information collected for this study will NOT be used or shared for future research studies, even if we remove the identifiable information like your name or others' names. All data will be kept for three years in a locked file in Dr. Dorinda Welle's office and then destroyed.

We hope to complete interviews from about 20 people, so your answers are important to us. Of course, you have a choice about whether or not to complete the interview, but if you do participate, you are free to skip any questions or discontinue at any time, and you will still receive the merchandise card.

You can request to withdraw your data from the study. If you request to withdraw your data from the study, the Co-Investigator (who is conducting all of the interviews) will talk with you to recollect your interview content. The Co-Investigator will then attempt to match the de-identified transcript to the Co-Investigator and participant's recollection of the interview content, and the Co-Investigator will withdraw/delete that transcript from the study's data base.

Please be aware, while we make every effort to safeguard your data we send to the online transcription service, as with anything involving the Internet, we can never guarantee the confidentiality of the data while it is on the transcription company's servers, or during transmission to either them or us.

If you have questions about the study, please feel free to ask; my contact information is given below. If you have questions regarding your legal rights as a research subject, you may call the UNM Human Research Protections Office at (505) 272-1129.

If you want to learn about the findings from this study, you can contact Dorinda Welle or Priscella Correa.

Thank you in advance for your assistance with this important project. Participation in the study is voluntary. By telling me that you want to do the interview, you will be agreeing to participate in the above described research study.

Sincerely,

Dorinda Welle, PhD (PI)

College of Nursing, University of New Mexico Health Sciences

PHONE: 505-272-4142

E-MAIL: dwelle@salud.unm.edu

Priscella Correa, MSN, RN (Co-Investigator)

College of Nursing, University of New Mexico Health Sciences

PHONE: 806-382-3562 (Cell phone)

E-MAIL: correap@salud.unm.edu

**El Centro de Ciencias de la Salud de la Universidad de Nuevo México
Consentimiento y Autorización para Participar en un Estudio de Investigación**

Estimado futuro participante,

Los investigadores de la Universidad de Nuevo México le invitan a participar en el estudio de investigación "Perspectivas de los Mexicanos y México-Americanos sobre estar al borde de ser diagnosticados con diabetes (Prediabetes) en Amarillo, Texas". El estudio implica una entrevista telefónica que dura unos 60 minutos. Puede hacer la entrevista en inglés o en español, lo que le resulte más cómodo. Se le harán preguntas acerca de tener "prediabetes" y lo que usted hace para cuidarse. Muchas personas sienten que tienen "prediabetes", pero los proveedores de servicios de salud no saben mucho sobre lo que significa para usted tener "prediabetes" como Mexicanos y México-Americanos. Este estudio nos ayudará a completar ese conocimiento.

**¿CUÁLES SON LAS RAZONES PRINCIPALES POR LAS QUE USTED PODRÍA
DECIDIR PARTICIPAR COMO VOLUNTARIO EN ESTE ESTUDIO?**

Una persona puede querer participar en este estudio para ayudar a los proveedores de servicios de salud a entender mejor lo que significa tener "prediabetes". Otra razón para participar, es para ayudar a compartir su conocimiento sobre lo que otros Mexicanos y México-Americanos con "prediabetes" pueden hacer para cuidarse a sí mismos.

Aunque es posible que usted no obtenga un beneficio personal al participar en este estudio de investigación, sus respuestas pueden ayudarnos a entender más sobre cómo mejorar la educación y el cuidado de la diabetes que reciben los Mexicanos y México-Americanos.

**¿CUÁLES SON LAS RAZONES PRINCIPALES POR LAS QUE USTED PODRÍA
DECIDIR NO PARTICIPAR COMO VOLUNTARIO EN ESTE ESTUDIO?**

- Este estudio no le dará retroalimentación personal o asesoría médica respecto a sus cuidados de diabetes.
- La entrevista telefónica será grabada en audio y después transcrita. Sin embargo, los investigadores protegerán los datos de su entrevista mediante el uso de protecciones con contraseña y encriptación para que otros no puedan tener acceso a la información. Los investigadores también borrarán cualquier nombre u otra información de identificación mencionada en su entrevista, incluyendo su propio nombre o los nombres de los miembros de su familia.

Usted recibirá una tarjeta de compras de 20 dólares por participar en este estudio. Al final de la entrevista, le pediremos una dirección donde podamos enviarle su tarjeta de compras. Escribiremos la dirección en el sobre y no guardaremos esa información como parte del estudio.

La entrevista telefónica tardará unos 60 minutos en completarse.

El estudio tiene el riesgo de pérdida de confidencialidad. Aunque hacemos todo lo posible por proteger su confidencialidad, siempre hay una pequeña posibilidad de que alguna persona fuera del equipo de investigación pueda tener acceso a la transcripción de la entrevista de una persona. Para protegerse contra la pérdida de confidencialidad, se eliminarán de la transcripción todos los nombres, lugares o cualquier información personal. Los investigadores también tienen computadoras protegidas por contraseña y no aparecerán ni se utilizarán nombres en los documentos de investigación, ni se emplearán en presentaciones o publicaciones. Su respuesta a la entrevista se mantendrá confidencial en la medida en que lo permita la ley. Cuando escribamos acerca del estudio y sus resultados, usted no será identificado.

Su información recopilada para este estudio NO será utilizada o compartida para futuros estudios de investigación, incluso si eliminamos la información identificable como su nombre o los nombres de otros. Todos los datos se guardarán durante tres años en un archivo cerrado en la oficina de la Dra. Dorinda Welle y después serán destruidos.

Esperamos completar las entrevistas de unas 20 personas, por lo que sus respuestas son importantes para nosotros. Por supuesto, usted tiene la opción de completar o no la entrevista, pero si usted elige participar, puede saltarse cualquier pregunta o dejar de participar en cualquier momento, y de todas formas recibirá la tarjeta de regalo.

Puede solicitar que se retiren sus datos del estudio. Si solicita retirar sus datos del estudio, el Co-investigador (que está llevando a cabo todas las entrevistas) hablará con usted para buscar el contenido de su entrevista. El Co-investigador intentará entonces hacer coincidir la transcripción no identificada con lo que recuerden tanto el Co-investigador como el participante respecto al contenido de la entrevista, y el Co-investigador retirará/eliminará esa transcripción de la base de datos del estudio.

Por favor, tenga en cuenta que, aunque hacemos todo lo posible por salvaguardar sus datos que enviamos al servicio de transcripción en línea, al igual que con cualquier cosa que involucre al Internet, nunca podemos garantizar la confidencialidad de los datos mientras estén en los servidores de la compañía de transcripción o durante la transmisión ya sea a ellos o a nosotros.

Si tiene alguna pregunta acerca del estudio, no dude en preguntar; mi información de contacto se encuentra a continuación. Si tiene preguntas sobre sus derechos legales como sujeto de investigación, puede llamar a la Oficina de Protección de Investigaciones Humanas de la UNM al (505) 272-1129.

Si desea conocer los resultados de este estudio, puede ponerse en contacto con Dorinda Welle o con Priscella Correa.

Agradecemos de antemano su ayuda en este importante proyecto. La participación en el estudio es voluntaria. Al decirme que quiere hacer la entrevista, usted estará aceptando participar en el estudio de investigación descrito anteriormente.

Atentamente,

Dorinda Welle, PhD (Investigadora Principal)

Escuela de Enfermería, Universidad de Nuevo México Ciencias de la Salud

TELÉFONO: 505-272-4142

E-MAIL: dwelle@salud.unm.edu

Priscella Correa, MSN, RN (Co-Investigadora)

Escuela de Enfermería, Universidad de Nuevo México Ciencias de la Salud

TELÉFONO: 806-382-3562 (Teléfono celular)

E-MAIL: correap@salud.unm.edu

Mexican Americans' Perspectives on "Borderline Diabetes"



This study wants to hear your story about living with
"borderline diabetes."

Who can participate and tell their story?

- Mexican American adults with "borderline diabetes"
- 21 years or older
- Living with "borderline diabetes" for 6 months or longer.

This is a voluntary research study. If you decide to
participate, you will be asked to:

- Complete a confidential interview by telephone or
online.
- The interview will take approximately 45-60 minutes.
- You can choose to do the interview in Spanish or
English.

You will receive a \$20.00 merchandise card for your
participation.

*Dorinda Welle, PhD and Priscella Correa, MSN, RN from
the
University of New Mexico are conducting the study.*

To learn more about the study or to schedule an interview,
please call 806-382-3562 or email correap@salud.unm.edu

If you know someone who might be interested, please share the
contact information with them.

HRRC# 20-191 Version 04/14

Perspectivas de Mexicanos y México-Americanos Respecto a estar al borde de ser diagnosticados con diabetes (Prediabetes)



En este estudio queremos escuchar su historia acerca de vivir
con
“prediabetes.”

¿Quién puede participar y contar su historia?

- Adultos Mexicanos y México-Americanos con “prediabetes”
- Que tengan 21 años de edad o mayores
- Que lleven viviendo con “prediabetes” durante 6 meses o más.

Este es un estudio de investigación voluntario. Si usted decide participar, se le preguntará lo siguiente:

- Completar una entrevista confidencial por teléfono o en línea.
- La entrevista tardará aproximadamente 45-60 minutos.
- Puede elegir hacer la entrevista en español o en inglés.

Usted recibirá una tarjeta de compras de \$20.00 por su participación.

Dorinda Welle, PhD y Priscella Correa, MSN, RN de la Universidad de Nuevo México llevan a cabo este estudio.

Para más información acerca del estudio o para programar una entrevista, favor de llamar al 806-382-3562 o envíe un email a correap@salud.unm.edu

Si usted conoce a alguien que pudiera estar interesado, por favor compártale esta información de contacto.

HRRC# 20-191 Version 05/04

Mexican Americans' Perspectives on "Borderline Diabetes" in Amarillo, Texas

Qualitative Interview Guide

Thank you for participating in this study. I'm going to ask you some questions about your thoughts and experiences relating to "borderline diabetes." It should take us about an hour. There's no right or wrong answers; you can just answer based on your own thoughts and experiences. If you need to take a break at any point, just let me know. And because participation is voluntary, you are free to not answer any of the questions I ask you.

The Concept of Borderline Diabetes

1. Tell me a little about your family history and when your family came from in Mexico.

2. Please tell me about when you first learned you have "borderline" diabetes. What was that like for you?
 - 2a. Who did you tell or talk about it with?

3. Some people haven't heard the term "borderline diabetes." How would you explain what "borderline" diabetes is, to someone who doesn't know what it means?

Self-Care for "Borderline Diabetes"

4. After you were diagnosed with "borderline diabetes," what kind of changes did you make in your life or in the things you do?

4a. Tell me about the people who have been supportive or helpful, since you got diagnosed with “borderline diabetes.” [Probe for family members, organizations, workplace, health care providers]

4b. What kinds of things can Mexican Americans do, to help their “borderline diabetes”?

Recommendations to Improve Diabetes Education and Care

5. So besides doing research I am also a nurse, and I teach my nursing students in Amarillo how to help people with “borderline diabetes” when they come to the clinic or hospital. What do you think my students need to learn, to help Mexican Americans with “borderline diabetes”?

5b. This is our last question. If you were the Governor of Texas, what would you do to make life better for Mexican Americans with “borderline diabetes”?

Perspectiva de los Mexicanos y México-Americanos Respecto a estar al borde de ser diagnosticados con diabetes (Prediabetes) en Amarillo, Texas

Guía de Entrevista Cualitativa

Gracias por participar en este estudio. Voy a hacerle algunas preguntas sobre sus ideas y experiencias relacionadas con estar al borde de ser diagnosticados con diabetes (Prediabetes). Debería tomarnos alrededor de una hora. No hay respuestas correctas o incorrectas; puede responder en base a sus propias ideas y experiencias. Si necesita tomarse un descanso en algún momento, sólo me lo indica. Y como la participación es voluntaria, usted tiene la libertad de no responder a cualquiera de las preguntas que le haga.

El Concepto de Prediabetes

6. Cuénteme un poco acerca de su historia familiar y cuando su familia llegó de México.

7. ¿Me podría contar cuando usted se enteró que era “prediabético”? ¿Cómo fue eso para usted?
 - 2a. ¿A quién le contó o con quién habló al respecto?

8. Algunas personas no han escuchado el término “prediabetes.” ¿Cómo le explicaría usted qué es la “prediabetes” a alguien que no sabe lo que eso significa?

Auto-cuidado en la “Prediabetes”

9. Después de que usted fue diagnosticado con “prediabetes,” ¿qué tipo de cambios hizo usted en su vida o en las cosas que hace?
 - 4a. Cuénteme acerca de las personas que le han dado apoyo y ayudado desde que fue diagnosticado con “prediabetes.” [Piense en miembros de la familia, organizaciones, su trabajo, proveedores de servicios de salud]
 - 4b. ¿Qué tipo de cosas pueden hacer los Mexicanos y México-Americanos para mejorar su “prediabetes”?

Recomendaciones para Mejorar la Educación y Cuidados en la Diabetes

Además de hacer investigación, también soy enfermero(a), y les enseño a mis alumnos de enfermería en Amarillo a ayudar a las personas con “prediabetes” cuando van a la clínica o al hospital. ¿Qué piensa usted que necesitan aprender mis alumnos para ayudar a los Mexicanos y México-Americanos con “prediabetes”?

- 5b. Esta es la última pregunta. Si usted fuera el Gobernador de Texas, ¿Qué haría para mejorar la vida de los Mexicanos y México-Americanos con “prediabetes”?

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