The Dissertation Committee for Sandra Benavides-Vaello certifies that this is the approved version of the following dissertation:

The interrelationship of food, culture, and diabetes among Mexican American women

Committee:

Sharon A. Brown, Supervisor

Brian M. Stross

Alexandra A. Garcia

Gayle Timmerman

Ronald J. Angel

The interrelationship of food, culture, and diabetes among Mexican American women

by

Sandra Benavides-Vaello, B.S.N., M.P.Aff.

Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

May 2008

Dedication

I dedicate this to my husband, John R. Vaello, and to my daughter, Maya Alexandria Vaello; and my parents, Nieves E. Benavides and the late Isidro Benavides, who have unconditionally and lovingly accepted and supported me in my personal, educational and professional endeavors.

I also dedicate this to Francesca Romalda Alcozer. Although she is no longer in this world and we never met, she provided me guidance with her beautiful work.

Acknowledgements

I am indebted to many individuals who have made this dissertation possible. My sincerest gratitude to Dr. Sharon Brown, the chair of my dissertation committee, for her patience, guidance, and support over the last five years. She has been my mentor and under her wing I have been provided such tremendous opportunities for learning. Dr. Brown has been instrumental in my research development and in my development as a scholar.

I truly appreciate the work and efforts of my dissertation committee. Dr. Gayle Timmerman served as the chair for my Doctoral Qualifying Exam as well as a member of my dissertation committee. Without her calm demeanor, kindness, and amazing capacity to keep me focused, my progress towards completion of my dissertation would have terribly hampered. Dr. Alexandra García's assistance in helping me to problem solve, prioritize, and for acting as a sound board for my ideas helped me in more ways than she will ever know. I must acknowledge Dr. Brian Stross' expertise in the methodology of this work. His patience and knowledge during my journey into ethnography was invaluable. Of course I cannot underscore how grateful I am to Dr. Ron Angel who without hesitation stepped onto this committee and has been so supportive throughout this process. Thanks to my committee members for their constructive comments and suggestions during my defense. Your contributions are most valued.

I am grateful to the staff at the Diabetes Alert Field Office in Rio Grande City, Texas for their assistance during my data collection. I want to thank all the informants for sharing their stories with me. This study would not have been possible without them.

There are many current and former faculty at the University of Texas School of Nursing who I would like to thank. Dr. Shirley Laffrey, Dr. Lynn Rew, Dr. Lorraine Walker, and Dr. Gayle Acton for their guidance and interest throughout my doctoral studies. Dr. Rew I do have an answer for you, "yes" I made the correct choice between my PhD and law school. My thanks to Dr. David Kahn who so eloquently introduced me to the world of qualitative research.

I thank the University of Texas at Austin School of Graduate Studies for the Livingston, Graduate Recruitment and Outreach, and Mayve Ann Fox Fellowships, which were instrumental in funding my studies; as well as the University of Texas at Austin School of Nursing for the Stephen Lloyd Barshop Memorial Scholarship, ANE Traineeships, Sigma Theta Tau Research Award, and for the tremendous experience of the Pre-Doctoral Institutional NRSA. I want to recognize the Center for Women and Gender Studies for their support of my research via the Women and Gender Studies Graduate Dissertation Award.

I treasure my friendship with Dr. Elizabeth Kupferer whom I met the first day of class in the doctoral program. Having survived that initial crash encounter, we have supported each other through school and beyond. I am glad for having Alma L. P. Gutierrez in my life and her unwavering belief and reassurances in my abilities to accomplish this work. I thank the staff and my friends at TACHC who have cheered from the sidelines and encouraged me during my studies.

I could not have done this without the love of my husband John, and my daughter Maya. Thank you for your emotional support and for the joy you bring to my life. I thank my mother, Nieves E. Benavides, my sisters, Olivia, Maria, and Frances, and my brother John Paul, for your confidence and belief in me. I am grateful for my second mom, Sylvia R. Vaello. Thank you for your son, your companionship, and your friendship.

The interrelationship of food, culture, and diabetes among Mexican American women

Sandra Benavides-Vaello, Ph.D.

The University of Texas at Austin, 2008

Supervisor: Sharon A. Brown

Diabetes and related complications are one of the leading causes of death for Mexican American women. Although dietary behavior is a critical component of diabetes management, research is lacking in relation to the interplay of food habits, culture, and diabetes among this population. The specific aims of this ethnographic study were to: (1) explore the relationships between culture, food habits, and type 2 diabetes as experienced by low income Mexican American women; (2) examine the role of food in the cultural identity of low-income Mexican American women; (3) examine how trying to adhere to the ADA dietary guidelines for people with diabetes impacts the relationship between food and culture of low income Mexican American women with type 2 diabetes.

This sample consisted of 16 Mexican American women between the ages of 39 to 60 years. Twelve of the sixteen had experienced diabetes for at least 10 years, and were considered experts in the management of their illness. The remaining four had experienced diabetes for a shorter period of time and were considered novices.

Individual interviews were conducted with each informant. All interviews were audiotaped with the exception of one. The interviews, observations, and field notes were analyzed for data. The analysis of data rendered 6 themes: (1) "*la dieta,*" (2) the location and fluidity of food (3) confidence-defiance self-management connection, (4) negotiating

sociocultural and biomedical expectations, (5) eating for diabetes is a family affair, and (6) strategies for self-care. In addition, preliminary comparisons were conducted between experienced and more novice individuals with diabetes.

Table of Contents

List of Tables

Chapter 1: Introduction to the Dissertation Study

Hispanics are the fastest growing ethnic group in this country, representing 12% of the total U.S. population, with Mexican Americans being the largest subgroup (U.S. Census Bureau, 2000). Twenty-four percent of Mexican Americans between 45 and 74 years of age have diabetes (American Diabetes Association [ADA], 2005) and within the next two decades the number of Hispanic Americans diagnosed with diabetes is expected to double (ADA, 2005). The prevalence of diabetes among Mexican Americans is estimated to be two to five times greater than the general population, with the higher prevalence rates noted in South Texas and the Rio Grande Valley located on the Texas-Mexico border (ADA, 2005; Hunt, et al, 2002; Hanis, et al, 1983). Additionally, microvascular complications, such as retinopathy and neuropathy, are more common among Hispanic Americans than non-Hispanic Whites (Harris et al., 1998; Lavery et al., 1999). In 2007, the U.S. incurred an estimated $ 116 billion in medical expenditures, primarily for the treatment of diabetes-related complications, and an additional $58.2 billion in lost productivity (ADA, 2007). Between 2002 and 2007, costs related to diabetes increased by approximately 8 billion per year (ADA, 2007).

Although diabetes is a major health issue across genders, the disproportionate increase in diabetes incidence among the general population of women is alarming. Between 1997 and 2003 the incidence of diabetes, for adults 18 to 79 years of age, increased by 46% for women versus 35% for men (CDC, 2005). Also disturbing is that women who have diabetes are at greater risk than men of developing serious complications, such as diabetic ketoacidosis (DKA) and cardiovascular disease (ADA, 2003). The reasons for the increased risk in these complications among women are unclear. However, evidence supports that women are more likely to have low high

density lipoproteins (HDL) cholesterol levels, and increased levels of triglyceride concentrations, both of which increase the risk of cardiovascular events (ADA, 2003; Beckles & Thomspon-Reid, 2001). In addition, women are at greater risk of experiencing small dense low density lipoproteins (LDL) particles, a condition linked to the development of atherosclerotic plaques (Beckles & Thompson-Reid, 2001; Ho, Paultre, & Mosca, 2003).

Why women experience an increased risk for DKA is a complex question. One explanation may be the indoctrination of women, via social norms, to be more aware of physical changes within their bodies. Henceforth, women are more likely to seek care for acute illness episodes or when body changes are noted than are men, and the elevation in DKA risk in women may be related to a higher diagnosis rate (Corney, 1990; Schumaker & Hill, 1991).

Mexican American women are more likely to be obese or overweight, and are less likely to be engaged in leisure time activity compared to other women in general. Approximately 57% of Hispanic women are sedentary, and obesity in Mexican American women is 1.5 times more common than in the general, female population (Wood, 2004). In Texas rates of sedentary lifestyle and obesity exceed that of the national average. In South Texas, a part of the state in which 80% of the residents is Hispanic, the rates of obesity range from 64% to nearly 70% (Texas State Department of Health and Human Services [DSHS], 2003). Poverty, low social economic status (SES), increased acculturation, and social expectations are significant contributing factors to inactivity and obesity among this population. Low-income Mexican American women serve as the primary caretakers in the family, and as such their needs are frequently secondary to those of the family (Hunt, Pugh, Valenzuela, 1998; Warda, 2000). Therefore, while urgent self-care issues may possibly be addressed, behavior change issues such as making

time for exercise or meal planning are more likely to go unattended (Warda, 2000; Wood, 2002). Also, nearly 33% of Hispanic women live in poverty, limiting their access to care and preventative services, and creating obstacles to opportunities for engaging in health promotion activities (Beckles & Thompson-Reid, 2001). These behavioral factors are worrisome and pose a serious health threat to this population, because excessive weight and elevated Body Mass Index (BMI) are robust indicators of diabetes. It is estimated that for every kilogram of weight increase there is a 4.5% to 9% increase in the prevalence of diabetes (Mokdad, et al, 2006). As the Hispanic female population continues to rise in this country, and as the life expectancy for this group also increases, so does the risk of developing diabetes and its complications (ADA, 2005).

Although much of the extant research regarding diabetes has focused on the pathological, or biomedical, aspects of the disease, there are social implications as well, and these aspects also impact outcomes of those affected. Food, and the connection between food and health, is enmeshed in various systems, including the health beliefs, of most societies such as Mexican American women (Helman, 1994). Food habits are the ways in which individuals produce, consume, and serve food (Kittler & Sucher, 2001). Food habits, or food ways are socially oriented systems and play a crucial role in human interactions. Despite the increased numbers of Mexican American women entering the workforce, they remain the primary caregivers in the family, thus yielding substantial influence over what foods are maintained or introduced into the family. The matriarchal influence on the dietary habits of the household has major implications for the health of its family members, particularly the health of the children in the household, whose food preferences and habits are being developed.

The reverence with which Mexican American women regard their matriarchal responsibilities, including maintaining the health of their children, makes developing

culturally sound interventions that target this group an undertaking of vital importance for the health of multiple generations. Just as the incidence of type 2 diabetes is increasing among adult Americans, the number of children developing type 2 diabetes is also increasing (ADA, 2003). While the data gathered thus far vary, it is estimated that up to 45% of new diabetes cases identified among children are type 2 (ADA, 2002). Thus, type 2 diabetes is no longer a disease afflicting adults; it has encroached upon the youth of this country.

PURPOSE

Qualitative inquiries that examine the cultural aspects of diabetes and food are needed if researchers are to fully understand the multidimensionality of diabetes self care. Qualitative inquiry is an effective and culturally aligned method of collecting data, particularly among certain populations such as Mexican American women (Benavides-Vaello, Garcia, Brown, & Winchell, 2004).

The specific aims of this ethnographic study of Mexican American women were to: (1) explore the relationships between culture, food habits, and type 2 diabetes as experienced by low income Mexican American women; (2) examine the role of food in the cultural identity of low-income Mexican American women; (3) examine how trying to adhere to the ADA dietary guidelines for people with diabetes impacts the relationship between food and culture of low income Mexican American women with type 2 diabetes. The findings from this dissertation study will lead to the development of culturally aligned interventions for the treatment and management of diabetes.

STATEMENT OF THE PROBLEM

Given the continued growth of the Hispanic population and the growth of the aged among them, it is predicted that the prevalence of diabetes prevalence of diabetes

will also increase (ADA, 2007). Considering the social dimensions of diabetes, investigations that address the relationship between food and culture, and how such a relationship impacts Mexican American women with type 2 diabetes, are essential to developing culturally aligned interventions. The purpose of this study was to ethnographically examine the role that food plays in cultural identity, and how this relationship impacts dietary practices of Mexican American women with diabetes. By developing interventions that are aligned with the cultural beliefs of Mexican American women with type 2 diabetes, inroads into the reduction and improved management of type 2 diabetes can be made. This study will serve as a foundation of a program of research on the socio-cultural constructions of type 2 diabetes by low-income Mexican American women, as well as culturally-aligned intervention development.

RESEARCH QUESTIONS

Specific questions examined in this dissertation study of Mexican American women with type 2 diabetes were:

1. How does eating to manage one's diabetes impact the cultural and ethnic identification(s) of Mexican American women?
2. For Mexican American women who have expertise in the management of diabetes, what strategies (cognitive, behavior, and social) related to diet have they developed to successfully manage their disease?
3. How do Mexican American women who eat to care for their diabetes balance providers' expectations with cultural expectations and norms?

SENSITIZING FRAMEWORK

Ethnographic researchers approach an investigation with assumptions that have been partially formed by their personal experiences, as well as existing theories

(Creswell, 1998). Unlike quantitative studies, ethnographic inquiries do not test hypothesis from an existing theory, or concepts within (Polit & Hungler, 1999). Ethnography uses theory as a sensitizing framework, or rather, as a mechanism to guide the inquiry being conducted. The sensitizing framework assists the researcher in setting the context for the phenomenon under study.

Dietary behavior and culture are impacted by social, cultural, economic, and political influences (Helman, 1994), and are best addressed by a synthesizing framework which incorporates elements from the field of nutritional anthropology and a broad ecological model that incorporates culture and self-care. Therefore, the Model of Dietary Change by Jerome (1980) and the Self-Regulation Model by Leventhal (1980) guided this research; both are described in more detail below.

Model of Dietary Change

According to Jerome, a nutritional anthropologist (1980), changes in food habits are based on established food habits and new lifestyles. Changes in dietary behaviors are often made incrementally, but can become major alterations in the cultural group's habits. Jerome's Model of Dietary Change (1975) categorizes food into four areas that reflect the dynamic and static aspects of food habits: Core Items, Secondary Core, Peripheral, and Ceremonial/Marginal. The major premises of Jerome's model of dietary change relate to the cyclic incorporation of food into the diet and individuation of food selection and intake (Jerome, 1975). The cyclic incorporation of food into the diet refers to: 1) expansion/variation, or how people experiment with new food items and explore non-core items in an infrequent and inconsistent manner and 2) expansion/stabilization, a more permanent or continuous inclusion of desired foods into the existing diet. Diet individuation means personal preferences become more prominent in people residing in

industrialized societies where food supplies are consistent with many opportunities to develop and satisfy individual tastes and preferences (Jerome, 1975).

Self Regulation Models (SRM)

Leventhal (1980) proposed that 1) social and cultural norms shape an individual's explanatory model(s) of illness threats; and 2) once the model has been constructed, the individual is better positioned to acquire the needed personal tools for the management of the illness threat, as well the criteria by which the responses to the threat will be evaluated (Leventhal, 2003). Cameron and Leventhal (2003) espoused that as part of the illness experience two parallel processes are engaged: the cognitive and the emotive. The cognitive construct is necessary to recognize the illness threat, formulate strategies to deal with the threat, and establish measures by which the strategies are to be evaluated. The emotive construct pertains to the emotional and social aspects of illness.

Each process contains three elements: 1) representation, 2) coping, 3) and appraisal. Within the cognitive and the emotional, the three components influence each other in a hierarchal manner with a feedback loop from the appraisal component (last) to the first component of representation. In addition, there are also lateral influences between the components so that the component of representation under the cognitive process will influence its mirror under the emotional process, and vice versa. The representation component has been further expanded to incorporate five content domains: 1) identity, or the labeling of symptoms, 2) timeline, or duration of the illness, 3) consequences, or anticipated outcomes 4) cause of illness, and 5) control of the illness (Leventhal et al., 2003).

The roles these frameworks played in this ethnographic study were multifold. Jerome's model of dietary change underscores the influence of culture on dietary habits, while Leventhal's SRM reinforces the complexity of the social and personal aspects of

disease. These two models, used in unison, provide a comprehensive framework through which to more fully examine the relationship of food, culture, and illness. Consequently, both frameworks laid the foundation for the direction and development of the guiding questions to be used during the interviews. For example, questions pertaining to typical foods, preparation of foods, and the identification and consumption of comfort foods were developed in concert with Jerome's cyclic incorporation of food into the diet. The guiding questions related to social situations, the impact of symptoms on dietary habits, and personal experience with diabetes were founded on Leventhal's SRM.

DEFINITIONS

1. Culture-"a set of guidelines (explicit and implicit) which individuals inherit as part of a society, and which tells them how to view and experience the world" (Helman, 1994, p. 2)
2. Cultural identity - an individual's feelings of affinity for a group, and the degree to which the group shapes the ideals and views of that person.
3. Cultural transmission – the passage or passing on of social rules and norms from one generation to the next
4. Ethnography-"a description and interpretation of a cultural or social group or system" (Creswell, 1998, p. 58).
5. Food habits, or foodways - the practices through which individuals produce, consume, and serve food (Kittler & Sucher, 2001).
6. Mexican American woman – any woman who self-identifies as being Mexican American or being of Mexican ancestry, and who resides in the United States.

ASSUMPTIONS

1. Qualitative methods are a valuable research approach to understanding type 2 diabetes, particularly in Mexican American populations.
2. Mexican American women are capable of developing extensive expertise in managing their type 2 diabetes.
3. Mexican American women with type 2 diabetes possess cultural acumen regarding roles and beliefs about diabetes, which is superior to that of the investigator.
4. Mexican American women with type 2 diabetes will be willing to share their narratives with this investigator.

LIMITATIONS

As with most investigations there were limitations associated with this dissertation study. The following are potential or identified limitations associated with this study:

1. Ethnographic studies are qualitative inquiries that are exploratory and descriptive in nature. To accomplish the thick description expected of these studies, sample sizes are limited in size. Therefore, generalizing findings to broader populations is not possible nor is it appropriate. The data collected can only be generalized to low-income Mexican American women with type 2 diabetes who reside in Rio Grande City, Texas, although the findings may have some implications to other Mexican American women who reside in other low-income rural border communities.
2. Although most of the guiding questions were pilot tested in a previous study, limitations may exist related to the researcher's ability to educe narratives from the informants in the study.

3. Given that this ethnographic study addressed a phenomenon intangible and tacitly known to the informants, another possible limitation is the ability of the participants to convey their perspectives on this topic.
4. The researcher is Mexican American and was raised in close proximity to Rio Grande City. While "insider" knowledge can be considered a strength for ethnographic studies, it can also be a limitation. "Insider" perspectives can be difficult to set aside from those of the informants and can be presumptive. Every effort must be made to objectively listen to the narratives provided by the informants, to objectively examine the minutiae both observed and heard, and to approach such inquiries through fresh eyes.
5. The informants were recruited from the rosters of ongoing diabetes studies. Therefore, it is possible that the informants had participated in other research studies before. Although the narratives provided appeared to be forthright and candid, a possible limitation would be the provision of data by informants that was biased, or rather they may have felt obligated to respond in a manner that met the expectations of the researcher.
6. Some of the informants participated in previous diabetes education programs offered through local NIH funded grants, therefore their opinions maybe unique and not representative of the general diabetes population, which usually does not have access to such a resource.

SUMMARY

Diabetes is a serious problem for Mexican American women. The prevalence and the risk factors for developing this disease are higher among marginalized populations, such as Mexican American women.

The purpose of this ethnographic inquiry was to explore the interrelationships of food habits, culture, and diabetes among low-income Mexican American women with type 2 diabetes, residing in Starr County, Texas. Jerome's Model of Dietary Change (1980) and Leventhal's (1980) Self Regulation Model were used as the sensitizing framework to guide this dissertation study. The research method of ethnography was used to obtain a greater understanding of the cultural complexities of Mexican American women's daily aspects of life, such as food practices and their ties to diabetes self-management.

Chapter 2: Review of the Literature

INTRODUCTION

Diabetes is a global issue, affecting an estimated 180 million people; and type 2 is the most prevalent form in industrialized nations, including the U.S. (World Health Organization [WHO], 2006). Nearly 21 million people have been diagnosed with diabetes in this country, and it is estimated that more than 6 million people have yet to be diagnosed (ADA, 2005). North American countries, including the U.S., have experienced considerable increases in diabetes rates over the last two decades. In the U.S., the prevalence increased most dramatically in the 1990's across most age groups and populations, including Mexican Americans (WHO, 1999; AHRQ, 2001). Important to note is that during a similar time period, Mexican Americans in San Antonio experienced a tripling of incidence in type 2 diabetes, illuminating the gravity of this disease among this population (Burke et al., 1999). Also alarming is that in 2004 the mortality rate for Hispanics with diabetes was 50 percent higher than the mortality rate of non-Hispanic Whites with diabetes (Office of Minority Health, 2008).

Diabetes mellitus is an endocrinological disease caused by the insufficient secretion of insulin, a poor cellular response to insulin, or by an amalgamation of these factors. As a result, the body is unable to appropriately utilize glucose resulting in chronic hyperglycemia, or sustained elevated blood glucose levels (WHO, 1999). There are multiple variations of this disease with the three most common being, type 1 (formerly known as juvenile onset or insulin dependent), type 2 (formerly known as adult onset or non-insulin dependent) and gestational diabetes, which occurs during pregnancy (ADA, 2006). Type 2 is the variation of diabetes that will be examined in this study since it is the most prevalent type and likely to be most amenable to lifestyle interventions.

The principal pathology of type 2 diabetes is a combination of inadequate insulin production as well reduced insulin sensitivity, a condition in which the body is unable to properly use insulin (ADA, 2006; WHO, 1999). Under these circumstances chronic or frequent hyperglycemia may ensue, resulting in a myriad of complications at a biochemical level (diabetic ketoacidosis), microvasular level (neuropathy, retinopathy, and nephropathy) and macrovascular level (coronary artery disease, peripheral vascular disease, and stroke), (ADA, 2006).

Symptomatology of type 2 diabetes includes frequent urination, excessive thirst, intense hunger, abnormal weight loss, blurred vision, increased fatigue, and irritability (ADA, 2006). However, it is important to note that there are variations in symptom experience and how populations express symptoms related to diabetes. For instance, Clark and associates (2007) found that more than 43% of persons with type 2 diabetes experience none of the 7 ADA symptoms for the disease; while other research (Brown et al., 2001) revealed that more than 90% of persons endure disease-related symptoms.

The conceptualization of the disease can also vary among cultural groups. Mexican Americans in a southwestern metropolitan area cited frequent headaches, numbness/tingling in extremities, blurry vision, extreme fatigue, and dizziness, in descending order, as the most common experienced symptoms tied to type 2 diabetes, rather than the more commonly cited ADA symptoms (García, 2005). Hence, these socio-cultural belief systems of diabetes must be considered in research, clinical practice and in the development of practice guidelines.

Diabetes serves as the platform for a host of complications that can be life threatening, or at a minimum, lessen the quality of life for those affected, as well as their families. In general, ethnic minorities experience these complications at higher rates than non-Hispanic Whites. Mexican Americans are nearly twice as likely, and non-Hispanic

Blacks are nearly three times as likely to undergo lower-limb amputations. Additionally, it is estimated that Mexican Americans are 4.5 to 6.6 times more likely to develop kidney disease. Rates of diabetes retinopathy are also higher among Mexican Americans and non-Hispanic Blacks, with the former being more than two times as likely and the latter are almost 50% as likely to develop retinopathy as non-Hispanic Whites (ADA, 2006). Research suggests that Mexican Americans experience certain complications at rates higher than the general population perhaps due to worse glycemic control than non-Hispanic Whites with the disease. A study conducted in south Texas found that when compared to non-Hispanic Whites, only 28.2% versus 51.9%, respectively, had HbA1c levels below 7% (Hertz, Unger, & Ferrario, 2006).

Women are also seriously affected by diabetes and its complications. More than 100,000 women die annually from the disease. Over the last 3 decades, there has been a 23% increase in mortality due to heart disease among women with diabetes. Conspicuously, there has been a 27% decrease in heart disease related deaths among women without diabetes. Men with diabetes have also experienced an increase in mortality from heart disease. However, this increase has been only 13%, and for men without diabetes there has been a 36% decrease in heart disease related deaths (ADA, 2006).

As with men, ethnic minority women with diabetes are at greater risk of developing complications. Mexican American women have more than seven times the risk of developing peripheral vascular disease than the general population of women without diabetes, and have nearly four times the risk of developing heart disease or experiencing a stroke (The National Women's Health Information Center, 2006). This population is also 1.5 times more likely to start treatment for end-stage renal disease than non-Hispanic White women (CDC, 2005).

These statistics accentuate the gravity of the negative effects of diabetes on Hispanics in this country, including Mexican American women. This chapter synthesizes the extant literature relevant to the dissertation study. The review creates the context for the importance of exploring diabetes beyond its pathology and the need for an exploration that examines the deeper socio-cultural aspects of this disease.

Literature from various disciplines was employed in an effort to provide context for the phenomenon under study. Thus nursing, anthropology, sociology, behavioral health, and medical sciences were all sources of information. Literature searches were conducted via CINAHL, PubMed, Social Sciences Index, The University of Texas (UT) at Austin Library Literature Search (the areas of Medical Anthropology, Nursing, Medical Sciences, Nutrition, and Sociology), and an anthropological database hosted by the University of Illinois titled, Resources for the Anthropological Study of Food Habits. The keywords employed for the literature searches included: diabetes, food, beliefs, Mexican Americans, Hispanic Americans, nutrition, diet, dietary intake, health beliefs, culture, acculturation, matriarchal roles, gender, self-care, and traditional gender roles. The literature identified was then distilled into five categories: (1) culture and food, (2) cultural versus biomedical constructs of health, (3) personal perspectives of diabetes, (4) the interplay on family/gender roles, and (5) self-care and self-evaluation of diabetes

The review of the literature brought to light the limited number of studies addressing the diabetes social experience for Mexican American women. Thus, much of the literature identified is tangential to the phenomenon under study, but does support the assumptions and framework for this study. However, the scarcity of investigations in this area underscores the critical importance of the study reported here. While diabetes research conducted thus far has been critical to developing management and prevention

strategies, it is imperative to expand inquiries to include the socio-cultural domain of Mexican American women.

CULTURE AND FOOD

For any cultural group, foodways is a complex system of language and symbols that when unencrypted discloses a great deal about the social interactions and values held by a particular group (Helman, 1994). The shape, color, taste of food, method of preparation, and table seating are part of a taxonomy employed by cultural groups to communicate social rules and meanings to its members. Food consumption is an agent in validating one's cultural identity (Kittler & Sucher, 2001). When people consume food, it is a way of identifying with a particular group and of tacitly alerting others that they distinguish themselves from other ethnic or cultural groups. Therefore, members of most every cultural group place greater value on the symbolic use of food than its nutritional composition (Kittler and Sucher, 2003).

Most cultures, including Mexican Americans, also distinguish between profane (common/everyday) foods and sacred foods (special/or deistically tied), (Algert et al., 1998). Such distinctions influence when and which foods will be prepared. Among Mexican Americans sacred foods are more costly and more laborious to prepare. *Tamales* are an example of a sacred food. *Tamales* are small sachets of dough usually filled with meat and wrapped in cornhusks, commonly prepared during the Christmas holiday. Holiday or special occasion foods are important to a culture's identity. The social aspects of food preparation and presentation, and the religious bonds to certain foods create a strong link to one's cultural identity (Helman, 1994).

Since food is inextricably linked to culture, variables that impact culture will also impact foodways. Culture is affected by ecological factors such as politics, income, education, acculturation, ethnicity, health, geographic location, and religious beliefs

(Helman, 1994; Kittler & Sucher, 2001). These factors contribute to the fluidity and temporality of certain aspects of culture, ethnic identity, and food habits. In other words, humans do not consume, prepare, or produce food discretely from those variables that affect culture and ethnic identity.

The variables that make culture and ethnic identity dynamic processes also create subcultures within the Mexican American population. Hence, there are also variations in the diets of Mexican Americans. Increases in education, geography, availability of traditional foods, and income are related to the introduction of new foods into the diet (Algert et al., 1998). Messer (1984) described food habits within a culture as concentric circles, increasing in fluidity as they shift away from a cultural core to a cultural periphery. As individuals move from the center to the periphery social tenets may wane or be pooled with other rules in the immediate environment. Thus, an individual must negotiate and weigh cultural symbols and rules against the environment in which one exists.

This is not to suggest that food habits or cultural identity are bereft of any stability. Jerome (1980) indicates that there are both stability and modifications in the diets of the cultural groups. Some of the variables that can induce change in food habits and ethnic identity can also sustain traditional foodways and traditional values. For instance, availability of familiar foods, reduced intercultural contact, and geography contribute to the stabilization of food habits. Accordingly, food habits are less fluid when individuals of a particular group remain or are surrounded by persons of the same group who have similar ethnic traditions. This speaks to how geography has a major influence on cultural identity. For example, populations who reside on the Texas-Mexico border have a constant influx of Mexican immigrants into these areas. Thus, traditional foodways are more likely to be sustained. Mitchell and associates (2003) also support the

stability of dietary behaviors among Mexican Americans, noting somewhat stable dietary behaviors over a five-year period among Mexican American families in San Antonio. Genetic influences explained a large percentage of the variance on dietary behavior; however, when this variable was controlled, family influences remained a significant factor. This suggests that family influences and related social interactions play a significant role in dietary behavior.

CULTURAL VERSUS BIOMEDICAL CONSTRUCTS OF HEALTH

Cultural rules and values impact how members of a particular group view food and its relation to health and illness. Yet the orientation of most clinicians, and consequently the treatment trajectory, is one that views disease as an organic aberration and one that is biological in orientation. Patients tend to diverge from this paradigm and contend with illness within the social rules and norms of their respective social group (Helman, 1994).

Health is achieved via a balancing act of all systems that affect health, including food intake. Restricted diets or prescriptive diets may not be necessarily in line with this concept. Thus, adherence to such diets creates an imbalance in the culturally constructed ideals regarding health (Cohn, 1997) and potentially creates power struggles between the biomedical paradigm and patient paradigm of health. The dissonance between the patient's cultural configuration of food habits and that of the provider may explain why patients are more likely to comply with medication regimens than diet therapies (Cohn, 1997). Food advice is viewed as a course of action open to interpretation, a directive that is weighed against competing social values. Hence, Mexican Americans commonly engage in the act of "the polite refusal" (Howard, Andrade, & Byrd, 2001), or rather out of respect and deference Mexican Americans will acknowledge or agree to adhere to therapies but will not follow through.

Health and food beliefs are deeply embedded within a culture and their roles tend to be implicit in nature. Persons who suffer from diabetes manage their disease within a socio-cultural structure, and within that structure a taxonomy of symbols and meanings guides the individual in how the disease will be managed (Helman, 1994; Kleinman, 1988). Cultural groups, such as Mexican American women, have preconceived notions of what causes diabetes and how such an illness should be managed. Such a tacit socio-cultural conception of illness is frequently forced to compete with provider expectations, which have been based on a tangible documented approach to disease management. The conflict between explicit and implicit notions of illness often creates a frustrating environment for both the individual and provider. For many Mexican Americans food is linked to providing and sustaining strength, energy, and health. Thus, the idea of food as being bad is difficult to conceptualize, particularly if certain foods, now labeled as forbidden, have been associated with health and strength via social customs and symbolic meanings.

Such struggles can be difficult to reconcile for the individual with diabetes, particularly when the patient perceives diet education and information from a health care provider as being provided in a judgmental manner. Biomedicine is willing to impart knowledge on how to address organic imbalances but can be inflexible about understanding illness from the patient perspective (Kralik, Koch & Webb, 2001).

Mexican Americans may not find that biomedical ideals regarding weight, diet or exercise are in line with their ideology of health, illness, and the uses of food (Luyas, 1991). Among low-income Mexican American women in South Texas, foods recommended by healthcare providers were viewed as diet foods and as such were associated with disease and were considered to be expensive. In contrast, everyday foods were viewed as affordable and acceptable to family members. The dichotomy of diet food

versus everyday food reflected the notion of balance and its relevance to the health belief system for Mexican Americans. This ideology is in line with the cultural expectation of fulfilling the maternal role as nurturer and putting family before the individual (Luyas, 1991).

The entwined elements of health beliefs, social structures, and societal expectations are a clue to the complexities of diabetes as an illness, and speak to the importance of understanding how individuals socially construct diabetes. One of the most significant bodies of knowledge developed on the social constructs of diabetes is work by researchers Paterson, Sloan, and Thorne (Paterson, 2001; Paterson & Sloan, 1994; Paterson & Thorne, 2000; Paterson, Thorne, & Crawford, 1999; Patterson, Thorne, Crawford, & Tarko, 1999; Paterson, Thorne, & Dewis, 1998; Paterson, Thorne, & Russell, 2002; Thorne, Nyhlin, & Paterson, 2000; Thorne & Paterson, 2000; Thorne & Paterson, 1998). These studies created a critical body of knowledge that recognized the important distinction between social and pathological attitudes towards illness. In other words, a patient's web of concern is distinct from that of a clinician's. While both parties desire optimal health, both have distinct beliefs or attitudes about what optimal health means. Such investigations also supported the assumption that individuals are capable of developing extensive expertise in managing chronic illness. The knowledge of both patient and clinician must be taken into account during these processes.

Although the work of Paterson and associates did not include Mexican American women, the methodological approaches utilized and the findings of their research have applications for this population and the inquiry being proposed by this investigator. Their studies used symbolic interactionism, grounded theory, and comparative analysis methods to acquire the participant perspective or interpreting the participant's point of view. Via these methodologies, Paterson and associates were able to extract data from

participants that created a social picture for persons with diabetes and how such a picture deviated from that of the researcher and clinician. Diabetes, as with all chronic illnesses, is a personal experience. Consequently, symptoms and related self-care management strategies of those symptoms, frequently do not follow textbook symptomology (Garcia, 2005). Patients claim that their symptoms, and commensurate self-care responses, do not follow biological models of disease. Therefore, personal indicators of hypoglycemia or hyperglycemia may not be documented in research journals or practice guidelines, as legitimate symptoms of low blood glucose (Paterson & Sloan, 1994; Campbell et al., 2003; Hernandez, 1996).

Yet, clinicians tend to be very prescriptive in their guidance for diabetes management, including dietary management. As a result, views on medical nutrition therapies can become an area of contention between provider and patient (Ferzacca, 2004). Clinicians are inclined to situate food in "bad" or "good" categories, and patients are expected to avoid the former and consume the latter. In contrast most populations, including Mexican American women, do not view food preparation and intake in such concrete terms. Decisions regarding food are culturally based. Thus, a patient must negotiate competing forces, such as economics and cultural norms and expectations, where food habits are concerned (Benavides-Vaello, 2004).

Persons with diabetes are more likely to adhere to therapies related to medication and glucose testing than those related to exercise and diet (Glasgow, Hampson, Strycker, & Ruggiero, 1997; Sullivan & Joseph, 1998). Conceivably, this may be partly due to the issues surrounding dietary behavior and diet adherence going beyond the biological constructions of health and being deeply rooted in the subconscious. Consequently, the individual's culture, health belief system, and self-identity have a major influence on what modifications, if any, will be made to a person's diet. Accordingly, interventions

that target diet but that discount cultural values face failure or short-lived success (Patterson et al., 1999).

INTERPLAY OF DIABETES DIETARY MANAGEMENT AND FAMILY AND GENDER ROLES

Family structure and organization affect adherence to diabetes self-management (Fisher et al., 2000). Culture and other social forces bind the family structure and organization, and environmental elements affect the dynamics of culture and identity. In view of these factors the context within which Mexican American women live must be considered when looking at adherence, particularly with dietary advice.

Motherhood and the matriarchal responsibilities attached to this role are highly valued in the Mexican American culture (Mendias, Clarke, & Guevara, 2001). When parental responsibilities, particularly of the mother, are hampered by illness or disease, friction and discord can develop in the structure and organization of the family routine. Mothers' abilities or willingness to engage in self-care behavior is important but barriers present themselves to this sort of indulgence. To Mexican American women, family comes first; and as caregivers, their health is secondary (Kittler & Sucher, 2001;Van Boemel & Lee, 1999;). Dietary advice will be followed only to the extent that it does not interfere with what is perceived as the well being of her family. Other issues that present challenges to following dietary advice include: concerns of spouses being unsupportive of their illness (Van Boemel & Lee, 1999), obligations of mothers and wives as perpetuators of tradition (cultural transmission), particularly as they pertain to food (Ebaugh & Chavez, 1999), and feeling disconnected from their peers, since food is so tied to cultural identity (Rivera Adams, 2003).

All women have to reconcile several competing identities, particularly when disease enters the domain. Negotiating between these identities is a difficult course for many, including Mexican American women. To accept the disease identity can mean

moving away from a comfortable place to one that is foreign and difficult to conceptualize. Eating to manage one's diabetes falls within the domain of foreign and uncomfortable and is at odds with their established ethnic identity (Paterson et al., 1999).

The organization of the family and preferences of each member of the family are also shaped by culture. Family habits of what to expect at the table, especially at family gatherings, makes adherence to dietary restrictions difficult (Fuenekes et al., 1998). Family food rules determine what will be eaten, when, where, and with whom to eat, the result of the importance of social networks in shaping foodways. Food habits create an order in the family; and family is crucial to many Mexican American women. Diabetes and accompanying therapies can alter this order.

Gender roles are tightly connected to foodways and the health belief system of Mexican Americans, and women usually carry the responsibilities of nurturer and health decision maker in the family. Mexican Americans approach health as a balancing act between the spiritual, family needs, and how the individual feels. Since health beliefs are socially constructed, Western norms for issues such as ideal body weight or what constitutes a healthy meal may not be in line with certain ethnic groups. For many Mexican Americans, weight gain during a marriage is seen as a positive sign of fulfilling gender obligations to husband and family (Kittler & Sucher, 2003). The increase in weight signals that as the matriarch she is able to nourish and please her husband's and family's palates by preparing food that is appreciated and valued. Moreover, the additional weight gain experienced by Mexican American women after marriage, signals to others that she and her family are healthy. Therefore, food is used as a means of portraying that she is fulfilling her obligations of mother and wife (Yetley et al., 1981).

Another crucial role expected of a mother and wife is the perpetuation of traditions, also known as cultural transmission. Women in nearly every culture have the

responsibility of ensuring that traditions, particularly as they pertain to food, are carried forward to subsequent generations. Many Mexican American women view instilling cultural food values as a major matriarchal responsibility. Religious meal preparations are opportunities for mothers to teach their daughters in the meanings and traditions of ethnic meal preparation (Ebaugh & Chavez, 1999). Hence cultural values are transmitted, via foodways, to the proceeding generations. Included in these cultural transmissions are what constitutes adequate portion size, taste, food preferences, and the feelings of satiation that should be invoked after a meal has been eaten. Consequently, when eating to manage one's diabetes does not meet familial expectations, or the aforementioned factors, adherence to such therapy becomes a struggle. Complaints from family members regarding taste or not eating food is a reflection on the woman's abilities as the matriarch and creates additional pressures in an already pressure-ridden life. Taste of the altered diet is foreign, not familiar, does not evoke those emotions or cultural memories that binds individuals to other members of a group (Dietrich, 1996; Ferzacca, 2004).

Ethnic food values become extremely important when experiencing major life-course changes related to illness or role transitions (Devine et al., 1999). Alterations in health can create disputes over health values between health providers and the individual, as well as internal disputes within the person when health care advice departs from ethnic food values (Devine, Sobal, Bisgoni, & Connors, 1999). The competing tensions between following dietary advice from health practitioners and adhering to traditional food practices are major issues with which Mexican American women must contend. Since food is so integral to cultural identity, following dietary advice from health providers can leave women feeling disconnected from their peers. Diet restrictions sets Mexican American women apart from their peers, therefore altering their affiliation to their cultural group and identity (Rivera Adams, 2003). This is particularly poignant during

social gatherings. Social gatherings are closely tied to food and food serves as the focal point of the gathering. However, these social unions can become opportunities to further alienate the person with diabetes, whether others present have or don't have the disease. Rather than engage in the usual social banter and information exchange, the disease becomes the point of conversation. For many women, disengagement from the disease, or ignoring it, is an acceptable method of re-identifying with their ethnic identity. Thus, there are competing identities, particularly when disease enters the arena.

Balancing disease identity with the identities of ethnicity, mother, and wife can be problematic for many Mexican American women. This is especially true for low-income Mexican American women. Social economic status (SES) influences culture as well as dietary behavior, which partially explains why people of low SES are less likely to be successful with self-initiated dietary change than well-educated individuals (Neuhouser et al., 2002). Even if willing to attempt adherence to eat to care for their diabetes, economic factors are a reality for this group of women. While there is research to support that nutritious foods (low-energy-dense) are as affordable as high-fat/high calorie (high-energy-dense) or other less nutritious foods (Raynor, Kilanowski, Esterlis, & Epstein, 2002; Scott et al., 1979), there is equally compelling evidence that contradicts these findings (Drewnowski & Darmon, 2005; Hample & Sass, 2001; Newby, 2006). Fruits and vegetables can be costlier and perceived as less satisfying or filling than grains and meats (Hample & Sass, 2001); and in rural or low-income communities supermarkets are scarce as are the variety of foods they offer. Advances in food technology have made processed foods, including fast foods, highly accessible and inexpensive. Thus, foods deemed by clinicians as "good," but not consumed by children or other members of the family, due to a dislike for the food or alternate food preferences, are considered a squandering of precious funds. Individuals of low SES must stretch meals to feed and

satisfy all family members. Such factors can supersede adherence to any diabetes management plan.

SELF-CARE AND EVALUATION OF DIABETES MANAGEMENT

The dominance of the biomedical model is also evident in practitioner attitudes towards the management of diabetes on a daily basis (Kralik, Koch, & Webb, 2001), especially when defining the patient/provider partnership. The presiding ideal of a provider/patient relationship assumes that the expertise lies in the health care professional, the healthcare system serves as a steward for directing and controlling services, and that patients will be engaged in self-care activities, as long as those activities are inline with the biomedical directives (Thorne et al., 2000).

Therefore, the idea of the individual with diabetes as the expert in the day-to-day management of their care remains a concept of consternation and one that is reluctantly accepted among members within the biomedical culture. Such a philosophical tenet challenges the biomedical notion of health care practitioner as the leading expert, regardless of evidence to support that persons with diabetes will administer more than 95% of their personal care (Anderson, Fitzgerald, & Oh, 1993).

Research also supports that a person with diabetes, or any chronic illness, has the capacity to develop expertise in the management of their illness (Hunt, et al., 1998; Paterson & Sloan, 1994; Paterson & Thorne, 2000). It has been estimated that persons who have had diabetes for 5 to 15 years develop the expertise to manage their illness (Hernandez, 1996; Paterson & Sloan, 1994; Nyhlin, 1990). During this developmental period of expertise, individuals with diabetes create and refine approaches for managing their illness. These include: interpreting body cues, foreseeing threats to control, creating cooperative relationships with health care practitioners, and garnering support from significant others (Paterson & Sloan, 1994). However, prior to reaching this echelon of

expertise, the individual must internalize their illness, or rather they must recognize that diabetes poses a threat to their health.

Once patients reach the level of expert, their knowledge on how to manage their illness commonly exceeds that of the provider, especially within the individual's milieu of personal body responses to the various components of diabetes management therapies (Brown & Piper, 1995). Diabetes, like most chronic illnesses, is a personal experience. Consequently, symptoms and related management strategies of those symptoms frequently do not follow textbook symptomology. Patients claim that their symptoms, and commensurate self-care responses, do not follow biological models of disease (Paterson & Sloan, 1994; Campbell et al., 2003; Hernandez, 1996). For example, personal indicators of hypoglycemia may not be documented in research journals or practice guidelines as legitimate symptoms of low blood glucose.

Hernandez (1996) describes a three-phase process of disease assimilation, or the integration of the personal and the diabetes persona. The three phases are: 1) having diabetes, which begins with diagnosis, 2) turning point, or the moment at which one can no longer ignore the disease, and 3) the science of one developing the expertise to live with disease. At the third level, patients do not religiously follow the plan dictated by their healthcare practitioner, but do gain confidence about achieving and maintaining good glycemic control. This is supported by other research that has demonstrated that individuals who have had diabetes for at least 10 years rely on personal cues to determine the degree to which they will modify diet and other therapies (Aljasem, Peyrot, Wissow, & Rubin, 2001; Campbell et al., 2003).

Additionally, experts in self-care of diabetes engage in activities known as strategic or planned cheating (O'Connor, Crabtree, & Yanoshik, 1997). These departures from clinically prescribed regimens allow persons to incorporate management of diabetes

into their everyday lives. This also speaks to an individual's ability to negotiate between risks and benefits related to straying from prescribed therapies. Individuals who engage in these strategies are more likely to maintain good glycemic control than those who stray from therapies without a plan of action (O'Connor, et al., 1997). Rather than an all or nothing attitude, particular meals or days of the week are selected for dietary therapy departures. The satiation for desired foods is met, thus an accord is reached between provider expectations and individual needs.

Also of importance is that persons who are experts in the management of their disease recognize that flexibility in prescribed therapies is essential, and that their practical knowledge is critical to good control (Pattersonet al., 1999). Self-adjusting prescribed therapies are crucial for the individual to connect with themselves and their social networks. Hence, confidence, competence, and social support are factors associated with persons who are experts in managing their illness and with good glycemic control.

In a meta-ethnography by Campbell and associates (2003), qualitative measures of well-being and having control over of one's diabetes centered around six main principles: 1) a true partnership between the health care practitioner and patient was essential; 2) the individual had to gain confidence in his or her ability to manage diabetes; 3) gaining expertise required the passage of time; 4) knowledge regarding diabetes pathology was necessary; 5) the threat posed by diabetes must be recognized; and 6) it was important for health care practitioners to accept and support self-care management strategies. Unlike most clinical models the principles were not linear in nature. In other words, participants in these qualitative studies did not necessarily have to experience all of the above, nor did they have to experience these processes in any particular order to

achieve good glycemic control. The principles provide a framework for how researchers can measure the adherence environment for good control in qualitative queries.

The issues that surround self-identification versus clinical determination of adherence or good control, in relation to diabetes, stem from the disease versus illness dichotomy. Most studies have based success of diabetes control and adherence to therapies on standards established by American Diabetes Association. Standard methods employed by clinicians and researchers to evaluate adherence to diabetes therapies normally involve a hemoglobin A1c value of less than 7.0 and a fasting blood glucose level of 90 to 130 mg/dl (ADA, 2003). Symptoms of unsuccessful control of glucose levels include: tremulousness, thirst, altered mental status, and lethargy ([hypoglycemia] ADA, 2006; [hyperglycemia] ADA, 2006). When laboratory values deviate from the aforementioned parameters, the patient is frequently labeled as non-compliant or non-adherent to prescribed therapies. Additionally, if symptoms reported by the patient are not congruent with those that have been biomedically defined, the information is discarded or attempts are made to create a paradigm shift in the way the patient views the pathology (Nyhlin, 1990; Paterson & Sloan, 1994).

Adding to the complexity of biomedical versus self-care of diabetes are the varying results of self-reported adherence and glycemic control. While there are a significant number of studies which have demonstrated that self-reporting of adherence and/or good glycemic control are predictors of good metabolic status (Paterson & Sloan, 1994; O'Connor, 1997), other studies (Cramer, Scheyer, & Mattson, 1990; Haynes et al., 1976; Hunt, 1998; Langfield, 1973; Schechter, 2002) have found that socio-demographic variables, evidence of self-care behaviors, and self-reporting do not provide consistent predictors of adequate diabetes management. According to Schechter (2002), research participants overestimate adherence in an effort to satisfy a health practitioner's probes.

Also, participants' recall is impacted by the chronology of events. Or rather, those events in recent history are more likely to be recalled than events that have occurred farther back in time (Cramer et al., 1990). These issues pose an interesting and complex dilemma for researchers and clinicians when analyzing data in an effort to predict adherence to diabetes therapies and metabolic status of the disease. Among low-income Mexican American women this was also anticipated, as memories for food intake and adherence to dietary therapies are competing with daily responsibilities and expectations.

SUMMARY

The literature reviewed in this chapter brings to light the interrelationship of food and culture, the divergent conceptualizations of diabetes between clinicians and researchers and the individual with diabetes, the interplay of dietary management of diabetes and gender roles, and the individual as the expert in management and evaluation of diabetes. Pathophysiological and socio-cultural aspects of diabetes play major roles in the management of diabetes. Also noted in this review, was the dominance of quantitative inquiry in examining diabetes, and the glaring absence of investigations that explored diabetes from the perspectives of low-income Mexican American women.

Themes within the literature emphasized the discrete perspectives between providers and persons with diabetes. Practitioners and those afflicted with the disease, approach diabetes from parallel orientations, the former from a biomedical model and the latter from a socially constructed model of illness. These positions are not necessarily diametrically opposed, but can create contentious environments between provider and patient, making successful management of diabetes a challenge. The dominant biomedical model approach to disease also creates imbalances of power between provider and individual with diabetes. While the concept of provider-patient relationship is gaining acceptance in the management of chronic disease, clinicians and patients have

divergent views on what such a relationship means. Clinicians' expectations are that the patient will comply with the management plan, while the patient wants to be acknowledged as the expert in their own care. These different perspectives on daily management of diabetes can create an impasse between clinician and patient on particular aspects of care, such as dietary management.

Another theme illuminated in the literature was the lack of understanding of gender roles and expectations for women who have diabetes. The responsibilities of caretaker within the home, including health management and food preparation, continue to fall largely on the shoulders of Mexican American women. These duties frequently have priority over personal health. Needed are research investigations that closely examine the context of these women's lives. With a better understanding of how this population conceptualizes illness and how diabetes and its management is realized in their everyday lives, appropriately aligned interventions can be developed.

Culturally and contextually oriented inquiries, interventions and approaches to diabetes management are in great need, but remain an under investigated area of research, particularly low-income rural Mexican American women. Strictly biological and clinical examinations of diabetes play an important role in furthering diabetes management and prevention. However, the burgeoning population of those with diabetes and the associated costs of the disease are a testament to the need for research that goes beyond the biological and into the realm of the socio-cultural.

The next chapter will describe the methodology used for this dissertation study. The population of interest, sampling procedures and setting will be also be explained, as will be the means for the verification of data.

Chapter: 3 Methods

The purpose of this chapter is to describe the methodology used in this dissertation study. Via the methodology of ethnography the investigator aimed to examine the interplay of culture, food, and diabetes from the perspective of low-income Mexican American women residing in a rural border community in South Texas. The examination of the phenomenon through ethnography assisted the researcher in answering the following research questions:

1. How does eating to manage one's diabetes impact the cultural and ethnic identification(s) of Mexican American women?
2. For Mexican American women who have expertise in the management of diabetes, what strategies (cognitive, behavior, and social) related to diet have they developed to successfully manage their disease?
3. How do Mexican American women who eat to care for their diabetes balance provider expectations with cultural expectations and norms?

This chapter will also describe the research design, setting, sample, procedures for data collection, and the methods employed during data analysis.

DESIGN

The design elected for the dissertation study was ethnography. Research conducted in the ethnographic method is done so through a cultural lens, or rather, it is an examination of a phenomenon from the perspective of a particular cultural group, the one being described. A major goal of this method of inquiry is to comprehend a social group's way of life and to do so from the native, or emic, perspective (Spradley, 1979). In

providing such detail, a greater understanding of the complexities of daily aspects of life, such as food practices and their ties to health can be gained.

The principal components of ethnography are discovery and description. Discovery involves the researchers ability to decipher the taxonomy, or cultural vocabulary, a particular group employs to describe a phenomenon. The latter is the researcher's ability to translate and/or explicate the cultural panorama under study, while taking into account the cultural group's language (Spradley, 1979; Rubin & Rubin, 1995). Thus, the ethnographic method of qualitative inquiry was an appropriate choice for the study of the interrelationship of food beliefs, cultural identity, and illness among Mexican American women. Comprehending their perspectives of diabetes, including this cultural group's language regarding diabetes and its management, is crucial if researchers are to develop interventions that resonate with Mexican American women.

The specific aims of the dissertation study were to: (1) acquire a better understanding of the relationship between culture, foods habits, and type 2 diabetes; (2) examine the role that food plays in determining cultural identity; (3) and examine how the relationship between food and culture impacts the dietary adherence of Mexican American women with type 2 diabetes. The method of inquiry employed for this study was ethnography, a method that is 1) primarily based upon participant observation; 2) depends significantly on interviews with the members from the culture under study; and 3) relies upon knowing and using their language (Spradley, 1979).

SAMPLING AND SETTING

Sampling

Purposeful sampling methods were employed to identify the interviewees with diabetes. Staff from the Diabetes Alert Research Field Office identified informants from

rosters of ongoing diabetes studies. Conversations were held with the staff to address any questions or issues pertaining to the study, including recruitment or participation criteria. Recruitment efforts targeted residents of Rio Grande City. However, given the proximity of smaller surrounding communities within Starr County and the similarity of these locations to Rio Grande City, in terms of ethnic composition, socioeconomic status, and diabetes prevalence, individuals from these areas also recruited.

Saturation of data was achieved by the eighth informant, who met the inclusion criteria for the study. Saturation is the point at which conducting additional interviews provides marginal returns in regards to information about a particular cultural phenomenon (Rubin & Rubin, 1995). The sample size in ethnographic studies varies, depending on the cultural phenomenon under study. The number of participants is determined by how complete a picture the researcher is provided. A review of other qualitative studies which examined personal experiences with chronic disease support that the sample was of adequate size to provide rich and robust data (Hernandez, 1996, O'Connor et al., 1997, Paterson et al., 1999;;).

Inclusion criteria for the study sample were: (1) non-pregnant adult female between 40 and 60 years of age; (2) resident of Starr County; (3) self-identified as Mexican American; (4) diagnosed with type 2 diabetes for at least 10 years; (5) a willingness to share stories with the PI; and (6) able to speak English or Spanish. The basis for the established criteria was multifold. Mexican American women were the focus of this study due to their under representation in research and the significant matriarchal responsibility for food preparation and cultural transmission of food habits in this predominantly traditional culture (Ebaugh & Chavez, 1999; Kittler & Sucher, 2001). The age range was important for two primary reasons: a) the incidence of type 2 diabetes begins to increase dramatically among Latinos between 40 and 59 years of age (CDC,

2005); b) the life experiences, including diabetes self-management, of a young adult versus a person approaching middle age, will be vastly different. The inclusion criteria related to a diagnosis of type 2 diabetes for at least 10 years was based on data (Aljasem, et al, 2001; Campbell et al., 2003; Patterson, 1999) which support that individuals with chronic disease require at least 9 to 10 years of experience before they can be nominated as "experts" in illness self-management. Expertise comes from experiencing most diabetes self-management issues that will arise. Within 10 to 15 years of developing a chronic illness, such as diabetes, an individual will have encountered most issues pertaining to their illness and will have developed plans of action to manage these episodes (Aljasem et al., 2001; Campbell et al., 2003). Persons who are experts in the management of their disease recognize that flexibility in prescribed therapies is essential and that their practical knowledge is critical to good control (Patterson et al., 1999). During an instrumentation study of a health belief scale, Brown et al. (2002) found that, although most participants did not routinely test their glucose levels at home and did not comprehend the various laboratory analyses, they were surprisingly proficient at approximating their glucose control.

Setting

Sixteen low-income Mexican American women were interviewed during this study. All interviews, with the exception of one, were conducted at Diabetes Alert Research Field Office located in Rio Grande City. Accordingly, all the interviews barring one were audiotaped. The excepted interview was conducted at a restaurant, as agreed upon by the informant and the researcher, and was not audiotaped due to circumstances and location. Due to the time of day, the number of patrons at the restaurant was low. The informant and researcher were seated in a corner of the establishment, with the location of the table being bordered by two walls. The closest patrons were seated at least eight

feet behind the researcher. The table was short in width, thus the researcher and informant were able to converse at a normal speaking level, or rather, without raising voices to hear one another. By all appearances the interview was a conversation between two individuals. Thus, the privacy of the informant's conversation was maintained.

In addition, not all the informants met the criteria for the study. The breakdown for those who did versus did not meet criteria was twelve and four, respectively. Nevertheless the data from the interviews that did not meet the criteria were analyzed and provided exceptional insight. Considering that saturation was met with eight interviews (of women who met criteria) and that the information from the individuals who did not meet the study criteria provided exceptional insight and an added dimension to the study, the data from these interviews were included. The four individuals who did not meet the study criteria were invited to the interviews due to their relationships with other interviewees or the office staff and were perceived as excellent informants regarding diabetes self-management. These individuals did not meet the selection criterion regarding the length of time they had been diagnosed with diabetes. However, their inclusion enabled preliminary comparisons between experienced and more novice individuals with diabetes.

The sample was recruited from Starr County, a rural community in the lower Rio Grande Valley on the Texas-Mexico border (see Table 3.1). The entire county has an approximate population of 61,193 (Texas State Data, 2008). Rio Grande City is the county seat and the largest community in the county with a population estimate of 13,949, followed by Roma with a population estimate of 11,379 (Texas State Data, 2008). Starr County represents one of the poorest areas in the country with 51 % of the individuals in this county living below the poverty level, as do 47 % of families. In addition this community experiences an uninsured rate estimated at 39 %, more than

twice the uninsured rates of Texas (19 %) and the U.S. (14.2 %) (U.S. Census Bureau, 2002). Moreover, Starr County has one of the highest diabetes rates in the state, 8.0% versus the state rate of 6.2% (Texas Department of Health, 2004). Dismally, an estimated 50 % of the adult residents who reside in this county has diabetes or has immediate family with the disease (Hanis et al., 1983).

These factors create a challenging environment for those encumbered with such a complicated disease such as diabetes. Starr County was selected as the community for this investigation due to: 1) the high rate of diabetes in this County, 2) the familiarity with the area and population by the researcher, and 3) the lack of research among rural Mexican Americans, particularly low income women.

METHODS

Data were collected using the ethnographic method. Data collection, or discovery, in this method of inquiry, entails participant observation, individual interviews, and the collection or reviewing of documents and/or objects. These data collection methods allow the researcher to interpret and gain a greater understanding of the native perspective, as it pertains to the interrelationship of food beliefs, cultural identity, and illness (type 2 diabetes) among Mexican American women.

Individual interviews conducted in cultural studies, including ethnography, typically do not embody the investigator-respondent pattern of data collection. The participant in an ethnographic interview is referred to as a consultant or teacher, and the investigator is the apprentice. Moreover, the participant in an ethnographic interview has expertise that the investigator requires in order to comprehend a cultural phenomenon (Spradley, 1979). Interviewees in ethnographic encounters do not respond to a survey or scripted set of questions. Such a practice utilizes the language of the scientist rather than that of the culture being examined. Queries in cultural studies are fashioned using the

participants' language. Thus, guiding questions employed in ethnographic interviews must be crafted in such a way to allow the consultant to provide narratives about relevant topics from which can be extracted their social norms, values, and beliefs, while allowing the researcher to garner additional information about the issue under investigation.

Therefore, it is imperative that the language, including interview techniques and guiding questions, used by the researcher during individual interviews is culturally and linguistically aligned with the group under study. In order to move towards this objective, the researcher had been involved as a graduate research assistant in studies with Mexican Americans with type 2 diabetes who reside in Starr County, under the direction of two Principal Investigators (Starr County Diabetes Education Project [Dr. Sharon Brown]; Exploring Mexican Americans' Diabetes Symptoms [Dr. Alexandra Garcia]). As a result, this investigator was able to examine patterns of conversation and verbal cues to which participants respond. Also, and as part of the previous studies mentioned, the researcher was able to refine interviewing skills while serving as the moderator for five focus groups, three of which were held in Starr County.

Finally, the researcher conducted a pilot study of the guiding questions to be used during the interviews in the dissertation study. The intent of the pilot study was to appraise the lucidity of guiding questions used during personal interviews as part of the dissertation study that was conducted. The information obtained from this pilot study was used to amend, as needed, these guiding questions. The following is a brief synopsis of the pilot investigation.

IRB approval was obtained prior to commencement of the pilot study and as well as prior to the commencement of this dissertation study.

Pilot Study

In preparation for this dissertation study and to verify the validity of the interview questions to be used in this dissertation the researcher conducted a pilot study in Rio Grande City, Texas. The information gleaned from the pilot study was used to refine and modify, as needed, the guiding questions. The pilot study was conducted via in person individual interviews and one group interview. The interviews occurred over a two-day period.

SETTING AND SAMPLING

Data collection for the pilot occurred during March 2005 in Rio Grande City in Starr County, Texas. This community has also served as the headquarters for the Diabetes Alert Research Field Office for over 20 years where numerous federally funded genetic, epidemiologic, and self-management research have been conducted (Hanis et al., 1983; Brown, García, Kouzekanani, & Hanis, 2002; Brown et al., 2005). For the pilot study interviews, the Field Office staff contacted individuals in the community with type 2 diabetes who were listed on the rosters of some of these previous diabetes studies conducted by Brown or Hanis. Narratives were collected from six women, in the form of three in person interviews and one group interview with three staff members of the Diabetes Alert Research Field Office. The criteria for participation were: 1) self identified Mexican American non-pregnant woman with type 2 diabetes, 2) 25 to 65 years of age, 3) Spanish or English-speaking or bilingual, and (4) diagnosed with type 2 diabetes for at least 9 years.

MEASURES

The individual interviews were guided by a set of questions developed by the researcher. The guiding questions pertained to how Mexican American women perceived changes or affectation of ethnic identity due to adherence to a diabetes diet; perceived challenges at home or social events in relation to a diabetes diet, perceived alterations in the enjoyment of favorite foods, and perceived problems related to diabetes and adhering to a diabetes diet. The researcher developed a list of six guiding questions to be employed in the pilot study. This list can be located under Appendix A of this dissertation.

PROCEDURES

The University of Texas at Austin IRB approved the pilot study procedures. Staff involved in the Diabetes Alert Research Field Office identified participants in the study. The researcher was not a member of the Diabetes Alert Research Field Office, but the project staff in Rio Grande City is well connected to the population in the area and was in a better position to identify women who met the study criteria. Potential participants were identified from the Diabetes Alert Research Field Office roster of people with type 2 diabetes in the community. The Diabetes Alert Field Office staff contacted individuals from the roster via telephone and explained the purpose the study. Individuals who were interested in participating in the study were invited to visit the Diabetes Alert Research Field Office to obtain an information letter that described the study. Once the participants were recruited, the researcher reviewed the recruitment data to ensure that all participants met the criteria.

The individual interview sessions were conducted at the offices of the Diabetes Alert Research Field Office in a private enclosed office. Each session was audiotaped after obtaining verbal consent. The interviews lasted between 45 and 90 minutes and were conducted by the researcher, who is fluent in Spanish and English. To protect the

identity of the participants, each selected a pseudonym that was used during the audiotaping and was also used to mark the field notes taken during each interview. Each participant received a project letter stated in both English and Spanish, which described the pilot study and which contained contact information for both the Diabetes Alert Research Field Office staff as well as the researcher. The researcher explained the purpose, risks, and benefits of the study, and all questions were answered.

DATA ANALYSIS

The researcher transcribed the audiotapes and conducted the analysis of pilot study data. Transcripts and field notes from the individual interviews were analyzed using a qualitative analytical approach. Words, context, consistency, frequency, intensity, and specificity of the participants' comments were examined and key issues identified. In order to accomplish this, each audiotape was listened to multiple times.

The primary intent of the pilot study was to evaluate the guiding questions to be used in the dissertation reported here. Thus, the review of the tapes and notes taken during the interviews were executed with this as the paramount goal. Commentary from the participants regarding the guiding questions and field notes taken during each interview were organized into general input and question specific input. This information was then used to rework the original guiding questions. Input that was broader in scope was used to change the tone of the questions in an effort to make them more aligned with the cultural milieu of the area. Commentary that was specific to particular questions was employed accordingly and if or where appropriate. These changes were more related to literacy level or dialectical issues.

A secondary goal was to ensure that the ethnographic interviews would elicit narratives that would answer the research questions put forth during the dissertation study. Again, words, context, consistency, frequency, intensity, and specificity of the

participants' comments were examined and key issues were identified. Data were first organized into broad overarching categories. Categories were then collapsed into domains, and domains were subsequently reduced to preliminary themes.

PILOT STUDY RESULTS

The pilot study interviews were extremely helpful in refining the guiding questions to be used in the dissertation study and described further below. Once the researcher analyzed the data, modifications were made to the guiding questions in both the style and actual wording of the questions. In general, the point of each question was understood, but participants felt that with mostly minor modifications, future participants would be more comfortable with the language and would be more willing to share their narratives.

Participants in the pilot indicated that while the syntax and translation of the questions were correct (both Spanish and English versions), some of the word choices were not appropriate for this community. Portions of the wording used in the questions were considered judgmental, out of place, and lacking colloquialisms commonly used by this population. This feedback (Appendix B) is supported by comments made such as: "don't assume that the diet has changed. It will make people feel guilty if they haven't," "they'll just say what you want to hear," and, "use more basic words. I haven't heard people use those words here." In reference to the term "prescribed diet," one participant stated that "sounded like prescriptions, like medicine, not food." In addition, participants deemed a few of the questions to be too lengthy and cumbersome to absorb. This feedback was noted in comments such as "you need to break up long questions, because they are too long and will confuse people. They'll forget what you were asking them to begin with." Based on the participant feedback obtained and the general discussions that

occurred during the pilot study, the guiding questions were revised and are discussed later in this chapter.

Preliminary Themes

The preliminary themes (Appendix C) derived from the pilot study data suggested that participants did grasp what was being asked of them. The guiding questions elicited narratives relevant to the issue the researcher planned to examine in the dissertation study reported here. Some of the preliminary themes included that: 1) participants continue to eat cultural foods but are more cognizant of portion size; 2) traditional foods are still consumed particularly during celebrations, such as weddings, and *quincieñeras* (societal introduction of 15 year old young women); 3) when traditional foods were prepared in accordance with a prescribed diabetes diet, they frequently do not taste good and require time to acquire taste; 4) the provision and acceptance of food as gifts, prepared in the traditional manner, remain a common important practice; and 5) moments of stress were common triggers for eating "bad foods." Further, all women in the pilot study interviews indicated they were open and willing to speak about the topics introduced by the researcher.

PILOT SUMMARY

The findings of the pilot study supported that ethnography is a form of inquiry that resonates with the population of interest (low income Mexican American women), and was an appropriate methodology for the dissertation study. Data from the pilot study demonstrated that food and food habits continue to be a major part of this culture. Additionally, the inextricable links between food, culture, and illness was also supported by this pilot study.

It is important to note that although the researcher is Mexican American and a native to the area, the guiding questions did require some modification. The need for such action reflects the confounding influences affecting culture and the temporal nature of culture. Being a former resident of a community is not analogous with cultural fluency. However, sharing some of the same cultural attributes was extremely beneficial and allowed the researcher to establish a rapport with the participants and create an environment in which narratives were willing to be shared. Additionally, due to the researcher's ethnic background, the wording and phrasing of the original guiding questions were developed with sufficient clarity and cultural alignment that participants understood what was being asked of them. Thus, while not a requirement, researchers from the same cultural background are critical to the success of a study such as the one reported here. The sharing of cultural traits comes into play when grasping the subtleties and tacit aspects of language. Word choices, word order, and the routine mixture of the English and Spanish languages during the interviews are characteristics that can go unnoticed unless there is some level of cultural similarity between researcher and participant. Such characteristics are imperative to data analysis, thematic development, and the dissemination and sharing of knowledge gained from investigations.

Food and foodways were an important issue for the group of low-income Mexican American women who participated in this pilot investigation. This was evident by the level of enthusiasm and passion expressed in the narratives collected and in the willingness of these women in this community to openly contribute information on food and culture.

Dissertation Sample Guiding Questions

The individual interviews used in this dissertation investigation were guided by a refined set of questions developed by the researcher and modified based on the feedback

from the pilot study participants, as previously mentioned. The guiding questions pertained to how Mexican American women perceive changes or affectation of ethnic identity due to adherence of the diabetic diet; perceive challenges at home or social events in relation to a diabetic diet; perceive alterations in the enjoyment of favorite foods; and perceive problems related to diabetes and adhering to a diabetic diet. The individual interviews were audiotaped, minus one, and the researcher recorded field notes of nonverbal behaviors, emphasis, and other contextual nuances. Transcriptions of the audiotapes and the field notes were used in the analyses.

The following is an inventory of questions the researcher drew from during the individual interviews as part of this dissertation study. The order in which the questions are listed is from the broader to the more specific relationship of food to this population. In addition the questions are prioritized, in ascending fashion, from less personal to the more personal. The sequence of the questions is important, as it enabled the researcher to establish a rapport with the participant, as well as allowed the participant to formulate and articulate their narratives (Spradley, 1979). It is significant to note that the guiding questions were a menu for the researcher to select from, and to guide the conversation. It was not necessary for the researcher to employ all the guiding questions in every interview during this dissertation study. However, the questions were developed in the event the researcher needed assistance in drawing out knowledge, or guiding the conversation. To assist the participant in orienting the conversation to food and its relationship to diabetes, a broad touring question was used at the start of the interview. Finally, the guiding questions have been marked to indicate which were relevant to the respective research questions. The questions that were used to guide the interviews were:

1. Tell me about a typical day for you. Start with what you do when you get up and end with what you do right before you go to bed (grand tour question).

2. Tell me about a typical dinner you prepare for you and/or your family. (Research Questions #1 and #2)
3. Tell me about comfort foods, or those foods that we like to eat to make us feel better when we are sad, scared, and/or frustrated. (Research Questions #1 and #2)
4. We as Mexican Americans eat typical foods like beans, tortillas, and rice. Have there been changes to what you eat since you were diagnosed with diabetes? Tell me about that. (Research Questions #1 and #2)
5. Where did you learn about your diabetes? Who taught you about diabetes? (Research Questions #1, #2 and #3)
6. Tell me about the things you learned in the diabetes education program. Research Questions #1, #2 and #3)
7. Where did you learn about how to eat for your diabetes? What sorts of things did you learn about food and diabetes? (Research Questions #1, #2 and #3)
8. What does "good diabetes control" mean to you? (Research Questions #1, #2, and #3)
9. Tell me about the foods served and eaten during special events such as weddings or holidays, such as Thanksgiving. Has your diabetes changed this? (Research Questions #1 and #2)
10. During special events, like weddings, birthdays, or holidays, how do you deal with eating food for your diabetes and eating traditional foods? (Research Questions #1 and #2)
11. How does eating to take care of your diabetes affect your home life or social life (making food for your family, going to a wedding, and going to dinner with friends)? (Research Questions #1 and #2)

12. When you bring a friend a gift, do you think about giving or not giving food or certain foods when that friend has diabetes? (Research Questions #1)
13. When you as a person with diabetes receive food as a gift, what do you do? How do you feel when you are given foods that you think or know you should not eat because of your diabetes? (Research Questions #1, #2 and #3)
14. Does having diabetes and eating to care for your diabetes create problems for you (in the family, and work)? If so, what kind? (Research Questions #1, #2 and #3)
15. Tell me about the moral support and encouragement you get or don't get from your husband and how this affects the way you eat to care for your diabetes. (Research Questions #1 and #2)
16. How does stress, like being sick, work problems, or family problems, affect the way you eat to care for your diabetes? How do you deal with this? (Research Questions #1, #2 and #3)
17. How often do you think about the complications of diabetes? How does this affect the food choices you make for your diabetes? (Research Questions #1 and #2)
18. How do symptoms or scares (like feeling really sick or wanting to faint) affect the food choices you make for your diabetes? How do these things play a role in making you work harder at being careful about you eat? (Research Questions #1 and #2)
19. What advice would you have for me if I were going to create a program on diabetes and healthy eating habits? (Research Questions #1, #2, and #3)
20. What sort of advice would you give other women who have diabetes and are having trouble making healthy food choices to care for their diabetes? (Research Questions #1, #2, and #3)

PROCEDURES

Staff who are employed in the in the Diabetes Alert Research Field Office identified participants for this study from rosters of ongoing studies involving genetics, diabetes epidemiology, and lifestyle programs. Although the researcher was a member of the Starr County Diabetes Education Project, the Diabetes Alert Research Field Office staff members in Rio Grande City are well connected to the population in the area and were in a better position to identify women who met the above criteria. The Field Office staff, used the eligibility criteria when they contacted the potential participants via telephone, provided a general idea of the study and asked if the individual was interested scheduled a meeting time. All participants, with the exception of one, selected the Field Office as the meeting place for the interview.

The researcher received a waiver from the IRB for written consent from participants for the study. However, the researcher provided each participant with an information sheet that explained the purpose of the study. Those interested in participating were provided this document the day of the study and at the location of the scheduled individual interview. The researcher was in contact with the Field Office staff during recruitment to ensure that the integrity of recruitment methods was maintained and to answer questions of potential participants or Field Office staff.

Research Protocol:

Data collection was completed during a one-week time period. Once the participants were recruited the researcher verified with the Field Office staff the recruitment data that all participants met the criteria. The researcher was informed of four individuals who did not meet the study criteria but were invited to the interviews due to their relationships with other interviewees or the office staff, and were perceived as

excellent informants regarding diabetes self-management. The researcher collected additional narratives beyond the saturation point (which was met at 8 interviews) and clarifications of ambiguous points were reviewed with informants immediately following the interviews, while still at the Diabetes Alert Field Office.

The researcher conducted all the individual interviews, in Spanish, English or both, depending on the participant's language preference. The individual interview sessions lasted between 45 and 90 minutes and were tape-recorded. While follow-up sessions were requested as part of the IRB process, and had been considered a potential necessity for data collection, analysis, and clarification, the additional sessions were unnecessary. The researcher, who is fluent in Spanish and English, asked the guiding questions and asked participants to respond to what they felt the questions were asking of them. The focus of these interviews was to garner information on how eating to care for their diabetes impacts the ethnic identity of Mexican American women. Demographic information such as age, length of time since diagnosis of diabetes, educational level, and marital status were collected as part of the interview process and preceded the guiding questions. The researcher took field notes during the interviews of the informants' gestures, body language, inflection or other forms of nonverbal communication expressed as part of the narratives. In addition, the researcher commuted daily from a nearby city into Rio Grande City to conduct the interviews, which provided opportunities to garner supplementary field data of the surrounding community. Although the researcher is indigenous to this part of the state, the excursions were used as opportunities to observe the area through *fresh* eyes rather than through the eyes of someone accustomed to their surroundings.

Individual interviews began with introductions between the researcher and participant, and were followed by the provision of a letter of explanation regarding the

study, a verbal summary of the study, expectations of the participant, and an inquiry if the participant had any questions, or if any part of the study required clarification. The use of a pseudonym was explained to the participant, and the participant subsequently provided the assumed name to the researcher, or the participant had the researcher select a pseudonym. In general the use of proper names was avoided altogether during the interviews. With agreement from the participant, the tape recorder was situated and set to record. Once demographic information had been collected, the researcher proceeded with the guiding questions. A broad touring question was employed to introduce the informant to the topic. As the interview progressed the guiding questions became more specific and more personal. At the conclusion of the interview, the researcher inquired as to whether follow-up interviews or contact would be allowed, should clarification or additional information be required. None of the participants denied a follow-up visit if necessary. At the conclusion of the interview, the informant was: provided the opportunity to ask questions, received one $15 gift card to a local grocery store (Wal-Mart), and was thanked for their time.

DATA ANALYSIS

The steps for ethnographic data analysis as outlined by Creswell (1998) and Spradley (1979) were employed. These steps entail the organization of data collected; review and initial coding of transcripts; descriptions of the setting, participants, and events; the development of themes; and interpretation of findings. Electronic files and document files, where appropriate, were created for each type of data collected: field notes, transcripts, literature review, and other relevant information.

In their original state, each transcript contained large volumes of unstructured data that were eventually reduced to categories or themes, so that then the cultural picture could emerge. Thematic development is an iterative process and mandates that every

domain, broad themes, themes, and codes, be revisited until all the data are organized in a cogent manner, but most importantly in a manner that expresses the emic perspective of the informants.

Thus, the researcher began the analysis by conducting a general review of all transcripts, which provided a sense of the entire panorama of the data. Due to time constraints, copies of the audiotaped interviews were distributed among four transcriptionists. Two of the four were of Mexican American descent and had parents who were originally from Mexico. Both of these transcriptionists were familiar with the population of study. The other two transcriptionists were white non-Hispanic, fluent in Spanish, and had a history of conducting translations of Spanish-speaking Mexican Americans. All of the transcriptions, regardless of the individual who rendered the document, were reviewed for cultural and linguistic competency.

Following this review, the researcher scrutinized each transcript for data, or pieces of transcripts, that could be grouped into topics. Once this was accomplished, data within each transcript were reviewed again, similar subject matter was merged into major topics or issues, and lone subject matter was isolated as unique topics. This type of brief notation and labeling of transcript data is called coding. The researcher developed a database in Microsoft Excel (Microsoft, Excel X for Mac, 1985-2001) and was able to efficiently organize, modify, and re-code data as necessary. Within Microsoft Excel, a file contains separate spreadsheets for: (a) domains, (b) broad themes, (c) themes, (d) demographic information, (e) other analyses, and (f) selected narrative pieces.

Verification of Data

There are several means of substantiating data within the qualitative domain of research. The most commonly employed are those by Lincoln and Guba (1985), proponents of a naturalistic form of inquiry. Credibility, transferability, dependability,

and confirmability are an established set of criteria for verification (Lincoln & Guba, 1985). The researcher of this dissertation study elected to use these four criteria as a guide for the accounting of the findings and data gathered in this inquiry and each criterion is described in detail below.

Credibility

Credibility is a principal mean by which to ensure the rigor of qualitative data. Credibility refers to the confidence in and value of the data obtained during a study. The essence of credibility in ethnographic studies entails that the informants' narratives, and consequently their emic perspectives are fittingly expressed in the interpretations presented by the researcher. Measures that can be taken to procure credibility are triangulation and prolonged engagement by the researcher amongst the cultural group of interest. Part of the prolonged engagement includes keen observation of the group.

In qualitative studies triangulation refers to the merger of various sources of information and the use of these various pieces of datum to verify the results of a study. As part of this dissertation study, sources of information included the informants' narratives, transcriptions, and an audit trail of how themes were established. Additionally, extensive field notes were taken during and after each interview. Another information source in the triangulation process was the creation of transcripts for each audiotaped interview. The development of broad themes, reduced themes, codes, and other notes are readily identified in the margins of the documents. Furthermore, an electronic version of every transcript, without the researcher's notes, is available. Thus, an independent investigator would be able to review the transcripts and develop a unique set of themes and codes, allowing for a critical review of the original researcher's work.

The degree of immersion and length of time the researcher spent within the population of interest's environment, or the degree to which the researcher observed the

daily minutiae of the culture study group is difficult to define. The researcher is originally from a neighboring rural community with a very similar population make-up, has family in Rio Grande City, and has participated in research studies in Starr County, including Rio Grande City. Furthermore, the researcher conducted a pilot study, over two days in March 2005, for the evaluation of the guiding questions used as part of the dissertation study.. Finally, the data collection for the dissertation study occurred over a one-week period in August, 2007. During this time, the researcher conducted all the individual interviews, took extensive field notes, and recorded notes of the surrounding and immediate communities. These activities were executed via an *outsider* lens to the extent possible, while recognizing that some level of *insider* bias, or someone indigenous to the community, must be acknowledged.

Dependability

The dependability of qualitative data speaks to its longevity or stability of a qualitative study over time, or its replication in other settings. The most viable process for capturing this criterion of verification is an inquiry audit, the ability of an external evaluator to review data and relevant documentation in a study and be able to follow in a cogent manner an audit trail of the study process. The audit trail would allow at minimum, replication of the qualitative design, in another study in other settings and with other groups.

Confirmability

Confirmability speaks to the impartiality and dependability of the data. One step towards establishing confirmability is to verify information collected, the findings, including themes identified in a study, with informants of the study. This is also called *member checks* (Creswell, 1998, pg. 202). The researcher conducted informal member

checks with a few of the participants during the interviewing process. This was done to ensure that the questions asked by the researcher were understood and the responses provided by the informants were intended. In every case the informants indicated the questions asked of them were understood and the corresponding responses were correct.

The results were shared with three low-income Mexican American women with diabetes from a neighboring rural South Texas community. The women were asked if the findings were realistic or believable. All three confirmed that the findings resonated with their cultural experiences of foodways and diabetes. In addition, the findings were also shared with two providers who primarily work with low income Mexican Americans. Both agreed that the findings also were in line with what they experience in their practices.

Audit trails are also a core method through which the confirmability of data can be addressed. Polit and Hungler (1999) identify six essential types of records that should be included in an audit trail:

1. Data in its rudimentary or rawest form, such as informant interviews, audiotapes, transcripts, and field notes
2. The distilling or progression of data from its raw form to the analytical process
3. Notes of the research process, including those related to methodology, and member checks
4. Documentation pertaining to the aims and position of the study and the biases of the investigator.
5. Information regarding instrument development
6. The rendering of study findings in final drafts of reports or similar documents

The researcher left an easily identifiable audit trail that could be followed by external researchers as the data evolved from its rudimentary or raw form such as interview transcripts, notes, and demographic data to the interpretive form rendered in the themes and analysis as part of this dissertation. The progression of data from its concrete or raw form to the analysis, interpretation, and findings are documented in a logical manner, are in electronic form and archived. Accordingly, an independent researcher would be able to follow the audit trail to evaluate the confirmability of the data.

Transferability

Transferability is similar or akin to generalizability in quantitative studies. In qualitative inquiries, such as the ethnographic study conducted as part of this dissertation, transferability is the degree to which the information, data, and findings can be transferred to other population groups. Thus detailed and meticulous, or rich description is a central component of this verification criterion (Polit & Hungler, 1999).

Thick, or detailed description is a core part of ethnography. It is the researcher's ability and responsibility to translate the cultural experience being examined into a verbal format, while employing the native language (Spradley, 1979). The delicate balance of participant view and researcher interpretation makes description the most exigent component of ethnography. Verbal description poses a major challenge for most researchers involved in cultural studies. While idiomatic translations (translating from one language to another) can present challenges for researchers, conceptual translations and/or nuances from interviews or observations represent an even more difficult task. During a qualitative study involving Spanish-speaking Mexican Americans, Benavides-Vaello and colleagues (2004) found that complete/holistic translation of participant transcripts was incredibly difficult to accomplish. However, ensuring that members of the research team included individuals that were of the same cultural group and indigenous to

the area proved to be a critical step towards a more comprehensive analysis and description of the findings.

The researcher feels that transferability has been addressed via thick description of the setting, informants, thematic development and other relevant data, such as field notes; and that other researchers would be able to determine the applicability of study findings to other study groups or settings. Also, the researcher reviewed every audiotape and transcription to ensure that verbal and conceptual translations were aligned.

SUMMARY

Ethnography is a method of inquiry in which the researcher creates a cultural picture based on the information from the study informants. In these inquiries, the emic, or native perspective, is of great consequence as the participant is considered the expert, while the researcher is the student. The researcher must interpret the tacit and implied knowledge shared by the experts (informants), and combined with the explicit information obtained construct the phenomena of interest within this cultural image.

For this dissertation study, the informants were sixteen Mexican American women residing in Starr County, Texas. The data from the sixteen informants were gathered via individual interviews, field notes, and observations. As with most qualitative methods, the analysis and examination of the data was a continual process from the inception of the study to its closure.

This iterative approach used by the researcher during the analysis and examination of data is also part of verification process. Examining data at different points in time is a component of triangulation, a key element of credibility. By employing the verification criteria of credibility, confirmability, dependability, and transferability, the rigor of the research study, and data collected as a result of the investigation was established.

The following chapter presents a detailed discussion of the dissertation study findings. The themes developed, interpretation of the data from the analysis, and unanticipated findings are included in the discussion.

Chapter 4 Analysis and Presentation of Findings

INTRODUCTION:

This chapter presents the analysis from data collected for this dissertation study. Data were extracted from the narratives of 16 informants, field notes, and observations. Via these narratives informants were able to share normally tacit notions of foodways, culture and illness. Thus the mundane and implicit contextual details so important to understanding diabetes within its social structure and so key to a more elemental comprehension of diabetes among low-income Mexican American women, in a rural South Texas community, have been explicitly described and organized by themes in this chapter.

The purpose of this study was to ethnographically examine the interrelationship of food, culture, and diabetes among Mexican American women. The research questions that guided this study were:

1. How does eating to manage one's diabetes impact the cultural and ethnic identification(s) of Mexican American women?
2. For Mexican American women who have expertise in the management of diabetes, what strategies (cognitive, behavior, and social) related to diet have they developed to successfully manage their disease?
3. How do Mexican American women who eat to care for their diabetes balance provider expectations with cultural expectations and norms?

ANALYSIS AND FINDINGS

Panorama

Ethnographic studies not only entail collecting narratives from informants, but also the notation of extensive field notes and close observation of the area in which the cultural phenomenon exists. Accordingly, in order to place the narratives of the participants and consequently the findings of this study into context, a description of Rio Grande City is a vital requisite. Thus a panoramic view of this community and the surrounding areas is provided.

Rio Grande City is located in Starr County, and is in immediate proximity to the Texas-Mexico border. This rural town has fewer than 14,000 residents (Texas State Data, 2008), excluding the populations in the adjacent ranching locales and neighboring *colonias*, or unincorporated housing developments (Texas Secretary of State, 2007). Residents who live in *colonias* frequently lack indoor plumbing, electricity, safe drinking water, paved roads, and adequate or safe housing. Due to poor drainage in these areas, *colonias* are commonly subject to flooding, creating dangerous and unsanitary conditions. There are 27 counties in Texas, including Starr, with designated *colonia* developments. Starr County alone has 257 designated *colonia* communities, excluding any informal communes that regularly form on the fringes of established developments or on ranches (Texas Secretary of State, *Colonias* in Starr Co., 2007).

As you approach Rio Grande City from US Highway 83 West/Northwest (US 83), you encounter a clash of economies, cultures, and countries. To your left of US 83 is semi-arid countryside with a few abandoned fruit orchards, scattered homes, mesquite trees, cactus, and dried creek beds. Depending on how the road curves, Mexico may be less than 400 meters away, easily within view. Along this stretch of highway cellular phone service is frequently lost or interrupted by the Mexican telephone companies; or

Spanish conversations from Mexico may become enmeshed in your own. Most creeks (Olmos Creek, Roma Creek, Los Blancas Creek, Las Escobas Creek) and surrounding communities (La Casita-Garciasville, Las Lomas, Los Villarealles, La Rosita) have been named using Spanish monikers and surnames (field notes).

However, continuing a few miles on US 83 towards the fringes of Rio Grande City commercial development has made its way here, and by all appearances seems to be experiencing the same economic boom that the rest of the Rio Grande Valley has seen since the North American Free Trade Agreement (NAFTA). A heavily trafficked Wal-Mart store helps to form the eastern border of the commercial zone, followed by fast food chain restaurants, motels, and small private businesses in Mediterranean styled strip malls. Another striking feature are the numerous slick bill boards advertising health care services and private physician services (field notes).

In contrast, across US 83 (on the right hand side) and closer in to the actual city limits is a black sandwich sign (two pieces of wood leaning against each other at the top, as in a steeple) positioned on the ground with bright pink letters indicating that a physician's hours have been expanded. The commerce noted at the fringes of Rio Grande City is gone as are the glossy expansive billboards soliciting business for the various healthcare services offered in the area. US 83 becomes a divided road with the original central part of the town creating the median. The architecture is vastly different, remnant of an older rural community. The buildings abut US 83, and many are linked by a continuous sidewalk and awning, although in numerous places these are cracked and warped. The infrastructure is a mixture of local family restaurants, small stores selling different wares, vacant and dilapidated buildings. Within a block, north or south, residential areas are clearly visible, as is Starr County's notoriety for being the 3rd poorest community in the country, based on per capita income (U.S. Census Bureau, 2002,

Summary File 3, Tbl p.82). Roads are poorly maintained, stray dogs roam about, and most homes are modest with the exteriors in need of repair. Some window air conditioning units are visible, but central heating and cooling systems are absent. The latter are likely unaffordable for many who reside here. While winters are normally mild in this part of the country the spring and summer are stiflingly hot. Many residents in this community rely on air flow from open windows for cooling, which is usually ineffective given the high level of humidity in the Rio Grande Valley and the large amount of dust and dirt that gets siphoned in from the roads (field notes).

The Community Action Council Corporation of South Texas, a federally qualified health center (FQHC), is located in the older part of town and provides healthcare services to the underserved. FQHCs must be located in medically underserved areas (MUAs), which are regions lacking adequate personal health services (Texas Department of State Health Services, 2007). There are also federal designations for Health Professional Shortage Areas (HPSAs), which refers to counties, or portions of, with an insufficient ratio of primary care, dental, and mental health providers to its population (U.S. Department of Health and Human Services, 2008) Starr County is both an MUA and a Health Professional Shortage Area . Established in 1980, the Diabetes Alert Research Field Office is located within a few blocks of the FQHC and as part of their research efforts provide diabetes screening, education and other health services to those in this community. While both provide excellent care and strive to improve the health outcomes of those in Starr County, neither are able to meet the demand, not surprising considering that more than half of the county residents live below the U.S. federal poverty levels and uninsured rates are more than twice of those in state of Texas and U.S. (U.S. Census Bureau, 2000).

Informants

Informants in this dissertation study were all residents of Rio Grande City or the immediate surrounding areas. On average the women in the study were 51.8 years of age, the majority were married (75%), and employed full-time (69%). For those employed, their backgrounds were varied and included dietitian, schoolteacher, administrative assistants (for the school district), hair stylist, school crossing guard, and bookkeeper. Two of the sixteen had graduate degrees, five had instruction beyond high school, three had completed 12 years of education, and six had not completed high school (see table 4.1). The mean for years diagnosed with diabetes was 14.5. Fourteen of the 16 informants were engaged in pharmaceutical management for their diabetes. Twelve of the sixteen informants stated during their narratives that they had an immediate family member, such as a parent or sibling, with diabetes. Three did not offer this information as part of their stories during the interviews, and one informant stated she was the first in her family to be diagnosed with the disease.

Four women did not meet the criteria for the study. Nevertheless their data was analyzed. Considering that saturation was met with eight interviews (of women who met criteria) and that the information from the individuals who did not meet the study criteria provided exceptional insight and an added dimension to the study, the data from these interviews were included. The four individuals who did not meet the study criteria were invited to the interviews due to their relationships with other interviewees or the office staff and were perceived as excellent informants regarding diabetes self-management. These individuals did not meet the selection criterion due to: (a) the length of time they had been diagnosed with diabetes, and (b) one did not meet the age criterion for the study. All four had been diagnosed with diabetes for four-five years, and diagnosis of at 10 years was the criterion, and one of the four had only recently completed her 39th year

of age, with 40 years of age being lower range of the age criterion. However, their inclusion enabled preliminary comparisons between experienced and more novice individuals with diabetes.

When informants did receive educational or structured diabetes information, it was in the form of pamphlets or booklets. These resources were provided to the informants from sources such as Diabetes Alert Research Field Office, Starr County Diabetes Education Project, private doctors' offices, and hospitals (while admitted for an illness). Informal knowledge from family or friends was generally gained from observation, caretaking of a parent with diabetes, or social gatherings.

Bi-national use of health care services (U.S. and Mexico) remains a common practice in this part of the country. Lilia (Interview #2) said, (Translated) "Yes, because from '95 to…I was taking Mexican pills for a long time. I would see a doctor in Camargo [Mexico], you understand, because I didn't have any benefits. I didn't have money to get checked here because it's very expensive here." Mel (Interview #13), another informant, also visited a physician in Camargo, Mexico for her diabetes management and felt she received adequate support, wasn't rushed during the appointment, and could expeditiously be seen unlike her healthcare visits in the U.S. "The thing I don't go here, because they take a long time. Basically, that is the reason why I don't go here. To go to the doctors you take four or five hours just to see the doctor. In Mexico, as soon as you get in, you are in."

The informants revealed a wide range of emotions during the interviews. Most women in this study expressed defiance, both in words and body language, towards diabetes, confidence in being able to care for themselves, their families, as well as provide advice to others. Yet also exposed was anger at not only having the disease but the risk it posed to their families, friends, and the lives it had already claimed. Three of

the informants openly cried during the interviews, the first in retelling a story of a relative who had died, the second recalling the day she was diagnosed, and the third frustrated by the constant battle with emotional eating, as well as the lack of information and education related to this issue available in the area. These emotions were woven into the themes developed as part of this analysis.

Additionally, a taxonomy, or a vocabulary, set of symbols, meanings or language common to the informants emerged during the interviews. An index for these phrases noted among the study group has been included below to provide clarification for some of the dialogue expressed in this chapter.

Taxonomy

1. "*Con puro tenedor*" (using only the fork, or use the fork) – Using the fork to pierce meat, beans, or other food items on the plate rather than scooping it up with a tortilla or slice bread; can also be in reference to using a fork instead of eating food in tacos or sandwiches. By using the fork, carbohydrate intake is limited since food is not placed in a tortilla or a slice of bread to eat, or is not accompanied by tortillas or bread
2. "Everything else with a spoon"– As with the "use the fork" this reference applied to those food items that were too thin in consistency to eat with a fork, but tortillas or other bread products could still be consumed as an accompaniment to the meal. The informants were suggesting to simply use the spoon to eat the meal and nothing else.
3. Carne (refers to beef)- While carne literally translates to meat, among this population it refers to beef. Thus any references to carne are directed at consuming beef.

4. "*Tiene Azucar*" (he or she has sugar) – meaning that the person has diabetes, not that they have table sugar
5. *"La Dieta"* - A standard or a proxy for the healthy foods (as defined by this group of women) that the women in this study believe they should be eating to manage their diabetes.
6. "Domesticism" - An indoctrination of the Mexican American woman into the role of the traditional matriarchal role, which includes primarily stovetop food preparation versus baking or broiling.

Table 4.1 Demographic Information of Informants

	Informants n = 16	Information not provided[1]
Age (years)		
<40	1	
40-45	2	
46-50	4	
51-55	4	
56-60	5	
Marital Status		
Married	12	
Single	2	
Widow	1	
Divorced	1	
Level of education		
< 12 years	6	
12 years	3	
> 12 years-14	5	
>14 years	2	
Occupation		
Full-time	11	
Disabled	1	
Homemaker	4	
Number of years with diabetes		
<5 Years	4	
10-15 Years	6	
16-19 Years	3	
≥20	3	
How do you care for your diabetes?		
Diet and Exercise	2	
Medication (oral)	10	
Medication (insulin)	4	
Diabetes education (primary source)		
Family	4	
Clinic		
Doctor	6	
Diabetes Project Field Office	4	
Other	2	
Immediate family history of diabetes		
Not stated		3
Yes	12	
No	1	

[1]**Informants did not share this information with researcher;**

Themes

Six themes were identified during the analysis of the data: (1) "*la dieta*," (2) the location and fluidity of food (3) confidence-defiance self-management connection, (4) negotiating sociocultural and biomedical expectations, (5) eating for diabetes is a family affair, and (6) strategies for self-care.

Although there was much discussion related to the concept of what it meant to be in good control, this did not emerge as a theme. Participation in this investigation was based on having expertise in diabetes self-management. Being in good control would be one major aspect and underlying foundation of this expertise. Nonetheless, their conceptualization of what constituted being in good control was critical, since this study was largely founded on their expertise in managing diabetes as experienced within their culture. Accordingly, the data were collected via their narratives.

Interestingly, most of the responses provided by the informants on what constituted being in good control were aimed at actions rather than specific biomedical markers or lab values such as Hemoglobin A1c or blood glucose laboratory values. For example when the informants were presented with the question "What does it mean to be in good control to you?" the responses varied from "(translated) keep a calm routine"; "…have a lot of rest….go for a walk, a jog,…watch what you eat."; or "I have to take care of myself, I come first." Also of significance was the strong undercurrent of emotional health within their stories tied to good control. The inclusion of this facet speaks to the importance of balance within the health belief system of this culture, as well as the recognition by these informants that good control is beyond the physical realm of diabetes management. The annotations pertaining to being in good control, as defined by the women in this study are illustrated in Table 4.2. These comments were organized into

three broad categories: (1) action oriented, (2) emotional, and (3) clinical values. By far the statements in the action-oriented category outnumbered the other two groupings.

Table 4.2 *Good Control* as described by study informants

Action Oriented

- Taking care of yourself
- Try and try and you are going to get healthier
- Working towards being healthy
- Being educated about diabetes
- Access to a good doctor
- Financially able to make good choices
- Reducing stress
- Keeping the meals the way it should be
- Keep a calm routine
- Exercising a lot
- Trying to rest
- They know more about what they eat
- She takes care not to get sick
- She eats what she supposed to eat
- Following the doctors instructions
- Taking your pills like the doctor indicates
- Avoiding fats and a lot of black soda
-
- Drink water, instead of other drinks
- Get used to diet drinks

Emotional

- Do it because you want to
- Doing it on your own
- I come first
- Feeling great all the time
- Stop to think that something will happen to you, stay calm
- Try to have control, to not feel pressured, to not feel stress
- I'm gonna live more, gonna have a long life

Clinical Values

- Controlling sugar levels
- My sugar being normal
- By the way I feel
- Reaching my goal (weight loss)
- Checking my sugar

Theme #1: "La Dieta"

Theme one was developed around a term that frequently resurfaced, "*la dieta*," in Spanish, and "the diet" in English. This taxonomy is in reference to a standard, or a proxy, for the healthy foods and techniques (as defined by this group of women) that these women believe they should be eating and use to manage their diabetes (Table 4.3). There isn't a single diet put forth by the American Diabetes Association called the "diabetes diet." However, there are several meal planning guidelines that have been developed by the ADA, such as the Diabetes Food Pyramid, Counting Carbs, Rate Your Plate, Exchange Lists and Food Choice Lists from which most doctors offices or diabetes

educators teach. The ADA meal planning guides provide information regarding a variety of choices and tools that individuals can employ and address topics such as calorie requirements, food options from selected food groups, increasing vegetable and fruit intake, limiting and careful monitoring of carbohydrate consumption, reducing saturated fats, and increasing lean protein sources such as fish and chicken (ADA, 2007).

In line with Jerome's Model of Dietary Change, "*la dieta*" had general or common elements that most informants acknowledged and as well as individualized adoption of this standard(s) of food habits. Foods or rules that were common to the informants were: the intake of more vegetables and fruits, reducing the consumption of bread and flour tortillas, baking versus frying foods, and limiting the use of oil to prepare most meats as most contained enough fat. Nonetheless, "*la dieta*" was also individualized in relation to what constituted a portion, the definition of incorporating more fruits and vegetables into the diet, and personal preferences for omissions and inclusions on "*la dieta*." Individuations were based on several factors such as level of education, food preferences, availability of food, and economic status. Edie, a dietitian, (Interview #6) explains as part of her narrative:

> I can afford to go and buy whatever I want at the grocery store. I buy fresh fruits and vegetables. I have a car and I can go three or four times to the grocery store where other people are feeding a family of eight. Even though I try to teach them [family, friends, clients] that you don't have to buy chicken breast, but chicken breast goes further than a chicken thigh because you're throwing away the skin, the gristle and the bone and if you take the meat that you've got here, which is all you're going to eat, but it's a sense of… I guess I'm just a very fortunate person. Other people have to deal with costs. I have diabetics who make things stretch and they can't go out when they need to get things. They don't have the strips. I go out and buy $200 worth of strips so I can test myself as often as I want. Sometimes I just run little tests to see how my blood sugar is doing with different foods. And I have a luxury. They are fortunate to do one test a day. So I guess finances too, very much so and selections of food. I go into the grocery store and I can make choices. I buy nuts, how many people can go into the grocery store and

> can afford to buy nuts. I buy almonds and I make sure that I get this or that or tea. How many people buy tea at 3 or 4 dollars a box?

In describing where she learned about what foods to eat to care for her diabetes this informant responded (Estrella, Interview #12),

> (Translated) The doctor, because I had to go to the hospital because of an infection in my throat…Due to the diabetes, it would not get better so the infection appeared quickly, there they taught me how to eat. They gave me a paper and where it explained all about it. How much to eat, and what to eat and you had to follow a diet. But after a while you get tired of it, and you stop following it for a while and the diabetes went up again. So, then I got on the diet again. I got rid of stuff that I knew were bad for me.

Lilia (Interview #2) makes a reference to "*la dieta*" in her discussion about having received some diabetes education targeting diet in a neighboring *colonia* .

> (Translated) And I learned a little from there. If someone doesn't follow the diet, it's because they don't want to because no. They did teach them, they did teach me.

The most frequent techniques associated with "*la dieta*" that were employed by the informants were portion control, or limiting the amount of particular foods one consumed, and the use of a fork. The latter is briefly defined as consuming foods without the accompaniment of tortillas or bread.

The following comment demonstrates what portion control meant when following the rules of "*la dieta*." (Translated)... I do eat flour tortillas because corn tortillas tire me…But I don't have more than two. I don't have more than two because I know I shouldn't."

"Using the fork" was an important part of "*la dieta*" for many of the women who shared their stories. This is exemplified by Mel (Interview #13) in this comment,

> "A friend of mine told me that to lower the amount of tortillas you eat, get a fork. That is why I started… Like a *picadillo* (stew usually of ground beef) *con papas* (with potatoes) or whatever…instead of using the flour tortillas, I get two corn *tortillas* and a fork and that's it. That's like (how) I limit how much I can eat."

"*La dieta*" was also akin to abiding by a set of tacit rules, pertaining to foodways, established by the individual based on her experiences in managing her diabetes, as well as social and cultural norms for how diabetes should be addressed. The suppliers of the values came from a variety of sources such as family, friends, health care workers and providers. Some values were implicitly learned while others were overtly asserted. Implicit values or norms were normally from family and friends, whereas the overt usually originated from the healthcare system via pamphlets, classes, or direct provider commentary. Lilia (Interview #2) also conveys that remaining true to "*la dieta*" was akin to staying in line or following the rules.

> (Translated) And well, I do what I can to take care of myself for my own good. You understand? I do everything possible to not be out of line . To maintain my meals in line, you understand? But, well, I try everything...

Nelie (Interview #1) describes how straying from the rules of "*la dieta*" causes guilt. When questioned by the researcher how she felt when an individual brought her a food gift or item that she felt she shouldn't consume, Nelie (Interview #1) responded by saying,

> (Translated) Yes, because I feel bad because I know I'm eating something I should not be eating. Yes, well, it's because there isn't always this food. They don't always come and bring you something nice. I feel bad because I shouldn't eat those things but the temptation is very big. I just taste a little, just a little, but, to satisfy the craving…

Reba (Interview #7) elaborates on her "keeping a diet" to care for her diabetes, but also articulates about her ability to create a sense of balance between bending the rules of "the diet," caring for her diabetes, and maintaining an open dialogue with her provider.

> Well, they (glucose readings or levels) go up a little bit, I'm not on medication though, I have not been on medication. I have told my doctor, "are you sure that I don't need medication for my diabetes?" He says, "not yet, not yet", he keeps holding me back. He says "I'll let you know when you need it." I get checked

> once a year for that. He says "I'll let you know, don't worry. As long as you maintain your"…Because most of the time I do try to keep a diet, but it's not going to be all the time so there is going to be times when my diabetes is high, but that's very seldom but there is times, I'm on the very safe side, I'm always controlling my…

In describing someone who is in good control of her diabetes Lilia (Interview #2) again mentions "*la dieta*."

> (Translated). Try to…have control, [but] to not feel pressured. To not feel stress. If you're maintaining the diet and the medication and everything, well, there's no reason to feel (stressed)…

If she were designing a health program for Mexican American women with diabetes, Estrella (Interview #12) offered,

> (Translated) I would say to her. Look here is all the sweet stuff, and try only to eat better. This will do you good and this will not. Help her do the diet.

Table 4.3 Items and techniques that were identified as part of "*la dieta*"

"*La Dieta*"	
o Foods to avoid	o Less flour tortillas
o Remove the fat	o Not a lot (eating)
o Don't eat everything on the plate	o Use Splenda®
o Remove the frosting (from cakes)	o Diet candies
o More vegetables	o More fruit
o Diet Sodas (drink instead or regular)	o "Only what I can eat"
o "Use the fork"	o "Follow the rules"
o More salads	o Chicken breasts
o Baking meats instead of frying	o Portion control

Theme #2: The location and fluidity of food

Theme two discloses the manner in which the informants organized food into several categories, good, bad, acceptable, profane, and deistical. However, unlike biomedical models of care that tend to have strictly demarcated labels of "good" and "bad" foods (Benavides-Vaello, 2004), the categorizations developed by the women in this study were fluid. When necessary, food could be recategorized from the "good"

category to the "bad" or visa versa. Conditions necessitating this sort of action were both personally motivated, or dependent upon culturally and socially accepted values. For instance, personally motivated values might be the need to satisfy a craving, while attending a wedding would require to move food to another category in order to meet social expectations of sharing victuals, even if in smaller portions. Hence, as culture is temporal and fluid so were the foodways demonstrated within these narratives. Factors such as ceremonial events, religious events, generation, socioeconomic status, prior residence external to Starr County, and other issues all contributed to the categorization of foods, as well as the introduction of new foods into the home.

Food as Good

Good foods were generally those that would assist them in caring for their diabetes and were less likely to be a source for elevated glucose levels. Thus, vegetables, fruits, salads, and lean sources of protein fell into the category of good or acceptable food choices.

Mel (Interview # 13) articulates,

> And I'm trying to eat more fruit or salad. If I'm still hungry I eat a fruit or a salad…I already got used to the salad…like more chicken and vegetables, fish…like the fish you can prepare with no fat, just bake it. Before I used to fry the fish and… (now) I just bake it.

Food choices of more vegetables and fruits and fewer obvious carbohydrates or fats were unanimously categorized as good options.

Letty (Interview #10) states,

> We went to a bridal shower last weekend, for my nephew, and it was at Simple Temptations in Mission and my sister-in-law, she's a dietitian, but what they served was the salad with chicken salad in the middle then with fruit. And of course, they had the sweet dip and they had the ranch dip for the lettuce, but they had slices of melon, slices of strawberries, apples and grapes! (speaking in an animated manner and more loudly) Which is fantastic, you know! And she

> wasn't used to that. We used to order into the... when we were at work and we used to order our salads like that, so that was fantastic, and I said man, finally somebody is changing, so that was really good. I think we ourselves in this generation have changed a lot of our eating habits, and we're expressing it also, so...

Marisa (Interview #3) concurs:

> So, I try to, you know, change it. Substitute something different and eat it with, I put some vegetables. Different kinds carrots or cabbage, I boil it and, you know, sometimes I just boil it by itself and I put it like just a vegetable there or vegetable mix like broccoli with cauliflower or, you know. A little like that. Or the other vegetables that are fresh that doesn't have to be boiled or steamed, you know…I already got used to that habit, you know…and I do avoid. I try to avoid a lot of oil when I do the cooking as much as that. Just really touch it, you know, like that and stay out of too much of that. Or other things that have to do with a lot of grease and…

Food as Acceptable

While flour *tortillas*, *menudo*, rice, or other traditional favorites were not labeled as "good foods," for most informants no victuals were taboo as long as portion control was enlisted as part of the consuming plan. Thus a balanced approach that included eating a varied cuisine, making sure to include vegetables and fruits, and with portion control in the forefront was an avenue for being able to justify bad foods being recategorized as acceptable foods.

Mel (Interview #13) makes this point in the comment that follows,

> You can eat anything you want, but limit the amount. Like if you like *menudo*, just get a small cup. You don't have to drink the whole bowl or whatever. Limit the amount you eat. There are some people that tell you. There are many things you can eat, just leave the amount out. If it is candy, just don't eat the whole bar (laughing) get a little portion. Those smallest (small) candies. Sometimes it's hard to eat candy or chocolate, sometimes I take a bite and my daughter will take it away.

Food as Bad

Bad foods were comestibles or habits that via both formal and informal education were tied to having a negative impact on their diabetes. Thus fried fare, using lard, high intake of carbohydrates via foods such as tortillas, breads, potatoes, and candy were relegated to this undesirable category. These foods were also re-categorized under certain circumstances. Again, this feat would be dependent upon personal motivation and social and cultural values.

Patty (Interview #8) elucidates on the labeling of food as bad in this point here:

> Yes, I think about them [complications] a lot. My mother just passed away just 8 or 9 months ago and it was complications having to do with her diabetes. She was in the kidneys, you know the dialysis and heart problems and all of that came from her sugar levels. She wouldn't control her eating. And like I say, when you have too much *harina* [flour], too much tortillas, too much potatoes, it's bad for your sugar level. It's really bad. And it destroys, it destroys a little bit of everything, slowly.

Reba (Interview #7) shared a similar perspective,

> Because I know they're bad for you. Flour tortillas are very bad for us. You can have an exception, a small portion. But you can't just have one flour tortilla. Once you have one, you want to have another one. Especially when you make 'em good. Not everybody makes 'em good, but when you know how to make 'em good, oh my god!

In recalling her dietary habits prior to her diagnosis of diabetes, Letty (Interview #10) states,

> The Coke, I left it right away and my weight went down a little bit and then it fluctuated, started going up and down, but I did quit drinking the Coke. I used to drink a lot of orange juice, I remember I was always so thirsty, (animated) I hadn't thought about that. I worked around daycare all the time, monitoring daycare center, and the juice is always there for the kids and the juice was always there for us. So, I felt like, how weak and no energy, always sleepy and they would say, "Have a glass of orange juice," and then man, I was making...I was, poisoning myself at the time until I found out I was a diabetic, but I'd have a good glass of orange juice in the morning before, and that was like... wow.

Profane Foods

Profane foods were eaten on a daily basis for sustenance, a household staple. They were usually easy and quick to prepare and normally did not require huge amounts of time or financial resources. The banality of profane foods is not to suggest that they were frowned upon or not enjoyed by those who ate them. Profane foods were a primary source of pleasure as well as a critical element of cultural identification for the informants. Foods in this category normally included beans, rice, lettuce, tomatoes, chilies, *salsa de chile* (salsa), *nopalitos* (cactus), tortillas, ground beef, steamed vegetables, cereal, eggs, and *picadillo* (a stew of ground beef with potatoes and spices). There was a greater willingness to change the recipes of these foods, to reduce portion sizes or the amounts eaten, and the frequencies that they were consumed.

The following excerpts provide some insight into how the informants made such distinctions between the profane and deistical and where they placed these foods in their value system.

> Nelie (Interview #1) describes her attachment to chilies and nopalitos in the following passages:
>
> (Translated) Salsa always has to accompany a meal.
>
> (Translated) But I like cactus a lot…I like them boiled or I eat them like pills [chunks by themselves] also. But I didn't boil them a lot. I just wanted to give them a little…. Just so they would be al dente… Well, I left a little because that is so tasty and I didn't boil all of them. They were crispy, really good. [inaudible] only the meatballs. Oh, forget about it. Very tasty. I ate them only with a fork. I didn't get any tortillas or anything. And that was breakfast…)

This statement also embodies the location of profane food in this informant's culture as she (Lilia, Interview #2) describes when eating alone or when wanting something quick. (Translated) "Common food, like they say. Meat, beans. I usually eat

beans in the morning and sometimes for lunch also. Bean tacos or… But, yes, I also eat beans sometimes."

Deistical Foods

Although there are rituals associated with nearly every meal one consumes, the rituals and meanings tied to ceremonial or religiously related food events such as birthdays, weddings, Thanksgiving, Easter, or Christmas appeared to have a more profound meaning for the women in this study. The latter were celebratory, opportunities for informal family reunions, and social exchanges. While "*la dieta*" and their diabetes played on the subconscious of many of the informants, most made a resolute decision to enjoy the food and the moment before them, but used their sense of balance and confidence to get back on track. Religious holidays or celebrations were occasions for foods to be prepared in customary ways and trespasses of "*la dieta*" were forgiven. Family, obligations to family and culture preceded any contracts with "*la dieta*." Deistical foods included tamales, *cabrito* (goat), turkey, *pan de polvo* (shortbread dredged in cinnamon, anise, and sugar), *barbacoa* (beef cheek, tongue, and head parts smoked or steamed until cooked), *fajitas* (beef skirts), *mollejas* (beef adrenal glands), and *menudo* (beef tripe stew).

As this informant (Letty, Interview #10) recalls foods she normally prepares during the Christmas holidays, the emotion in her voice becomes more elated and her speech quickens as she shares her narrative.

> …A lot of lard. What she does, she usually buys some type of pork meat and pork lard or pork, the lining or the roast of pork, I don't know what it is, for the *manteca* [lard] and then she'll cut it up and make *chicharrones* [fried pork rinds], out of it. She uses the *manteca* [lard], from that for the *tamales* and then she grinds up *chicharrones*, [fried pork rinds], *no se como se dice el molino* [hand grinder] [how do you say, *the molino*?] And she uses that for the *masa* [dough]. The same [inaudible], *chicharrones* [pork rinds], so everything is like... she makes the best *tamales*, girl!…And she makes the *chorizo*, [spiced sausage], homemade

> also. We have a lot of hunters at home so they always kill deer. There's a lot of deer meat and pork meat, so she makes homemade *chicharrones*, [fried pork rinds], *chorizo*, [sausage]… I'm sorry. That's the way we were brought up, because she makes a lot of homemade stuff, a lot.

When asked if diabetes had changed how the food was prepared, Letty (Interview #10) replied, "not when it comes to home gatherings," again underscoring the placement of ceremonial foods and the prioritization of family and socialization over disease and following the rules of "*la dieta*."

Marisa (Interview #3), another informant, expresses similar feelings about maintaining particular aspects of traditional foods and habits intact. In discussing the making of *tamales,* she describes her willingness to alter the filling of the *tamale*, but not the *masa* (dough), which is the most difficult part of this dish to prepare. "New Year's – tamales…just for the family (I make them)…Yes, I've made them with turkey or chicken, (I) still use lard for the *masa* (dough)."

Fluidity of Foods

Family members also introduced foodways into the family. In response to the researcher's question, "so you have also gotten ideas from your children?" Nelie (Interview #1) responds,

> (Translated) Well, one time one of the girls made it [a potato] like that in the microwave and I liked it because it didn't oil. It didn't need anything. So, I put it in for like nine minutes and if it's not ready I put it again and the potato comes out really soft…Yes. And they get some of mine [ideas] and that's how we are.

Younger generations were also responsible for introducing new foods into what were considered traditional ceremonial food habits. Letty (Interview #10) explains changes she's noted in foods served during special events in the following passage.

> Oh, girl, they have the *menudo* [tripe soup] in all the weddings here in Rio Grande Usually, you know what, now that you're saying that, it used to be a lot of *carne guisada* [beef tips] and the rice and the beans. No salad in the weddings, and the

> cake and the *pan de polvo* [sugar cookies] now, in a lot of *quincieneras* [coming of age celebration] and a lot of weddings they've gone into the... maybe cream cheese in the tables, instead of having something else, and they've become more modern, more up to date. The last, my niece's *quincienera* back in November, they had, I think it was chicken with cheese and what is it, chicken…Cordon Bleau, that's what they had, with salad, and a vinaigrette dressing, I think it was and maybe, I can't remember what. I guess it was, I don't know what else they had. I know the Cordon Bleau, the salad, I don't know if it was stuffing or, I can't remember what else now, that's what they have these days, you know.

Geographic location had an impact on the food habits of several of the study informants. The changes described by the informants were in line with Jerome's Model of Dietary Change and the incorporation of food (Jerome, 1980) into one's diet, as well as other research (Helman, 1995; Kittler & Sucher, 2001; Algert, et al., 1998) that has addressed how access to traditional foods affects changes in food habits.

Letty (Interview #10) describes the changes she noted upon her relocation from Corpus Christi, Texas back to Rio Grande City:

> A lot of *tortillas*, when we moved from here 8 years ago, when we moved to Corpus Christi, people eat different up there. We seem to eat more *tortillas* here, more *arroz* [rice], more *frijoles* [refried beans], over there everybody eats, everybody's into the salads and the fork. And we got used to it, and we got used to not eating too much of the fried food. That's when we changed our eating habits. My husband has lost a lot of weight. Because he eats very smooth to the way I eat and we don't eat with a *tortilla*, we eat with a fork.

She then (Letty Interview #10) nostalgically recalls eating foods she no longer has access to in the U.S.,

> …there used to be a market in our old town (in Mexico) where they used to sell the fresh meat and they would sell the lungs and they call them *bofes*. They... she used to do those and before daddy passed away two years ago. They were buying them in Mexico because they still sell them in Mexico. They're illegal here, but they have' em in Mexico and you can bring them across, but they call them "*chicharonnes de bofes*", which is the lungs and they're really good. They taste good with a little *tortilla de masa* (corn *tortilla*) and avocado. Girl, that would be good, that's a good thing.

Selma (Interview #11) depicts the introductions of new foods during her residence in Georgia and the challenges she encountered upon returning to Rio Grande City in this passage,

> (Translated)…well, it changed because I left from here. I left to Georgia. We were there about ten years. So, the change in food was very different. The food was collard greens and the food from Davenport. (inaudible) From Bar-B-Que or the corn bread. I would make chicken and corn and tomato, all mixed. The food was very different. Later I ate chicken and I ate hot dogs. The food was very, different. So, later when I got back, it was difficult. So later we stayed here. Every now and then I get the collard greens and (inaudible) and the pork chops and pork meat.

Edie (Interview #6) speaks of the alterations in food habits as access to traditional foods became limited and touches upon her perspective on the hesitance of Mexican Americans in embracing changes in certain food habits, such as whole-wheat flour.

> …the problem here. People from Mexico eat corn *tortillas* and then when they get here they eat flour *tortillas*. And that's not just a dilemma in our culture it's the whole American way. It started in Europe. It's a caste system. You could only make cakes and cookies and fancy breads with the white flour, refined flour so only the very rich had the cookies and cakes and stuff. So it was a culture switch. Only the common people ate whole grain bread. And it is still imbedded in pretty well. Telling, oh, that stuff [whole-wheat products] looks so ugly, how can you eat it? So it's a mind set thing that we're going to have to change in the food preparations and in the acceptance of change.

Although more nutritious, whole wheat flour products continue to be viewed by many cultures as being sub-par, compared to white flour. The classist system has been referenced back to the Roman period, and was one manner by which the rich distinguished themselves from the poor (Counihan, 1999). The system remains today and disbanding a core belief of this magnitude can be difficult, for such a request not only speaks to one's health but also threatens one's position in society. It is similar to placing an obvious label of "poor" on an individual. To be marked as "poor" suggests an inability

to provide the best for one's family. For some families whole-wheat flour products carry that stigma.

Theme #3: Confidence-defiance self-management connection

The third theme to evolve from the data was the confidence the informants had developed over the years in dealing with their illness. Dealing or management of diabetes for this group of women included an intimate knowledge of their bodies, avoiding complications, getting back to "*la dieta,*" not conceding or permanently breaking from "*la dieta*", balancing the various social roles they played and the expectations that others held, being able to negotiate with their providers in the management of their disease, and being as stress-free as possible. The confidence gained also allowed for the informants to provide advice to others with diabetes on how to manage their illness and where to seek assistance, and for the provision of guidance to the PI in the development of a diabetes education program.

The confidence that the informants had cultivated over a decade had led to the development of other attributes as well, one being defiance towards this illness. Those with children were intently engaged in activities that would prevent diabetes in their children and other family members, and defied the disease by refusing to passively allow it to claim more lives. Many of the informants considered diabetes to be an invader and enemy of their bodies, but between their sense of confidence and their defiance towards the malady they felt that they were able to manage their illness. Thus many of the activities the informants were engaged in, and which served as indicators of their confidence, were also gauges of their defiance. Their willingness to provide guidance about diabetes to strangers, family, and the PI; negotiating with providers regarding their therapeutic management plans; and taking action to deal with a diabetes issue based on personal body cues; were measures taken as a defiant charge against the disease.

Nonetheless a respectable fear of the disease was noted as well. The common and expected culprits were amputations, blindness, and renal failure. Yet more intangible sources of fear were also verbalized, such as the threat diabetes posed to their families and community, particularly those who had experienced or witnessed these complications in family members.

Patty (Interview #8) imparts her fear of the increasing morbidity of diabetes among Mexican Americans.

> …It's something that people don't take very seriously and we have to, we have to take this very serious. I hear more and more people having diabetes. And when I was younger I wouldn't never hear, you know it was very, very picky who had diabetes. But the older I get the more people I know that have diabetes and they tell, they say that the Mexican Americans have more than any other…

However, the confidence the women had gained over the years in managing their diabetes did not allow the fear of disease to be immobilizing. Its potential damage was recognized, and this knowledge was used, along with the experiences they had gained over their tenure with their illness, to defy diabetes. By becoming more educated about their illness, being more involved in the therapeutic plans presented by their health providers, and recognizing the need to prioritize their own health, the informants were on more solid footing to take a stand against diabetes.

Defiance

Marisa (Interview #3) stated,

> And that's like saying it's a, what do they call it, like an enemy. That it would tell you. And it would tell you that it's there and you don't, you never find out that it's in your system until it grabs you, you know, and it's too late by then.

She (Marisa Interview #3) goes on to say

> …I don't want to get too much here [pointing to chest/body)]with that [talk about fear because I think if I feel fear here [pointing to body/chest] it gets you worse because I…I don't wanna have anything to do with those. But what you do is

what you do [inaudible]. I'm all set every day. You know, I don't wanna think it and say that it's… I guess that's why I just control it with just one a day… You know, I take pills, of course I do. But there are times that I don't, sometimes I run out of it for a week or two and I just try to hold it there. Maybe because of what I also eat. You know, I don't say "I'm not with it." I do. I take it but, if I take it, because I have to take it … …

Patty, (Interview #8), states,

So, I'm glad that I found out in time so that I didn't lose my eyesight. And for me, for what my mother and grandmother went through, it was terrible, so it's something that I'm coping with [her mother died 8 months ago]. Anything I find about diabetes, I read it. Any new medicine, I read it right away. And everything that comes in about diabetes I try to research. I read what it's about because we need to know. We need to know what it's about. We that have diabetes, we need to know what's going on with our diabetes…

She continues to say,

What I have read about diabetes, what I have learned about diabetes is that when your sugar level is very high it destroys a little bit of everything when your sugar level is very high. Yes, yes, because I've seen it. I've seen the complications of my grandmother and mother and I know what it is to have heart failure. It's bad. You know a lot of people take that for granted. Oh, it's okay I'm on medication. But you have to work for yourself. It's not just the medication…Or when it goes…you have to keep it stable. And they have to do it on their own. They have to learn how to change their lives. When you have diabetes your life changes. It's different…

Patty (Interview #8) describes some of those life changes since diagnosed with diabetes in this passage,

In the beginning I was not controlled, I used to have this pressure right here [points to chest] and I think my sugar level was high. Now I don't feel anything. Because maybe my sugar level has been under control….When I first used to come here [Diabetes Alert Research Field Office] I was at 13, 14, [HbA1c] and they used to tell me you need to be careful, it's very high. But now I've been walking and cutting down on my food and I'm seeing what I'm eating more often. The older you get the wiser you get. You go to a restaurant and try to order the baked, grilled whatever, with a salad on the side….Exercise the more you can. Exercise in the morning, walk. You don't have to really exercise that much. Only 15 minutes, go gardening or take your dog for a walk…walk in the neighborhood. Make time for yourself. Read a good book. You need to relax.

Perhaps one of the most palpable messages of defiance, in not losing the battle to diabetes, was from Selma (Interview #11) in the following dialogue regarding how she defined a person who is in good control.

> Selma (Interview #11): For me, that I'm gonna' live more. [laughing] Yeah, I'm gonna' have a long life.
>
> Moderator: And how would you know that you are in good diabetes control? What tells you that you are in good control?
>
> Selma (Interview #11): Well, by the way that I feel and in the way that I've been checking my sugar. And that I've been making the diet.

Confidence to Advise Strangers

The confidence in management and the defiance towards diabetes also compelled the informants to take action. These actions took the form of sharing the knowledge they had established with others and assisting others in developing a sense of self-reliance to manage their disease. Patty (Interview #8) said, "And I'm the type that I have friends with diabetes and I try to help them out…and I tell them, 'Oh this came up, go try it. There was a sugar-free cake that came out at Wal-Mart, go and get it,' or I'll take it to them."

The informants also had confidence in rendering unsolicited advice to strangers or non-family members:

> *Mel (Interview #13) stated,*
>
> I saw a lady that [Inaudible] I saw them at Whataburger. She was eating a burger with fries and regular coke. And she knows she has diabetes, like she is in denial. I remember one time she got angry because I called her at her job and asked her… I asked somebody else to give her a message [Inaudible] to come here [Starr County Diabetes Field Project Office] and she got angry at me. I see her basically every Sunday, she is eating at Whataburger and she is drinking regular coke. She never changed.

Marisa (Interview #3) tells a similar story in providing advice to a woman who is struggling to change food habits at home,

> I saw this, one of the ladies who was there [community gathering] I never knew before, she's from here [Diabetes Alert Research Field Office] you know… … We got to see each other at this other place [community gathering but I didn't know her name. She didn't know my name, then we met each other, you know "My name is so and so, and I work [at] so and so." And I said [to her] "you know what, I like the idea about, you know, fixing the table, what to cook and in this way, like the way they were saying it [at the community gathering].Yes, that's the best way, you know, because it works. Once you start it right now and it's going to work for you and for the kids, you know, for the whole family. You gotta prepare what you're going to set up at the table and you're going to tell them "This is what it's going to be for today." And I go [continued to tell the other woman], "I think they're [other woman's family] going to go for that too."

Advice for Creating a Diabetes Education Program

Letty (Interview #10) with great adamancy, conviction and confidence in her voice advised the researcher on what information should be included in a diabetes food education program for Mexican American women and how such a program should be structured.

> First of all I would say, work with them to their own customs. They're used to doing things their own way. They can't change from one day to the next. It has to be at a certain pace. Hispanic women, around this area… follow the man. It's a macho world around this area, and they have to satisfy what the man wants. So you're gonna have to work with the woman to see what the needs are. Not just for her, but for her family also, because if not, it will be creating problems, and she will not want to go to the classes. She'll stay away. And that's what used to happen with the other program. People, because the men are the ones that are the leaders around this area. You have a lot of men that are very understanding, and yet you have the *machismo* around this area.
>
> Don't work against them, work with them, you know. That would be one thing. And they're set in their ways, it's gonna take them a little while. And we cannot force people to change from one day to the next. And that's one thing that needs to be done in this area. A lot of problems come in and they expect for you to change overnight and you can't. Especially the Hispanic culture is set in their own ways. It's very hard for you to change them. And they will start changing eventually, but you can't expect for them to go home and start doing steamed rice instead of baked rice. You know. It's gonna take a while, quit using the consommé and just use a little bit of salt and pepper, you know. They'll throw out

the [inaudible], the [inaudible], will fly out the doors, you know..[(Translated)The *machismo* controls much in this area)]….

Letty (Interview #10) went on to say…

People need to be educated here. I mean there's people that just don't realize what harm we're doing to ourselves. And it's gonna take them a little while to learn, you know. But eventually, they will…They will change the way they do things. And they will change the way they think. But it's gonna take a little bit of education. They have no idea that if you steam something instead of deep-frying it in lard or using oil, what the difference is. They have no idea that the saturated fat to, what's the other fat?…Non-saturated, what the difference is a what it does to our system, you know. How we're clogging our heart vessels with Contessa *manteca* the lard,, you know.. [(Translated)There are many changes, many changes, many changes if we listened, you know. It takes time.]

You would still have a good life, you could still enjoy life, it's just the way of changing the way we eat. Not exactly what we eat, but the way we eat. And probably, I mean I'm not too much into the nutrition that I could speak about nutrition, but having a nutritionist come in and just explain a little details, but in simple, in simple language. Because if you go into very harsh in describing things, they just won't listen to you. It has to be simplicity. Show them. Cook for them maybe and just show them the difference. That should work, I mean, we're not idiots, we all have a head above our shoulders, you know, and sometimes we may [be] *contradistas* [stubborn or contradictory]. No matter what they tell us, we just do the opposite, you know, and it's true.

Intimate Insight

This group of women had also gained tremendous insight into the workings of their bodies, and had the confidence to trust these cues when noted. For instance, when glucose levels were elevated, measures were identified that could be employed to reduce such elevations, as well as what foods in particular that caused elevations, or even at what point in the evening did eating have to end to avoid glucose spikes in the early morning.

Lilia (Interview #2) eloquently makes this point in the following explanation:

(Translated) And I don't know, I don't eat anymore after 8:00. I don't eat anymore because it's happened to me before where out of necessity I've had to eat after 8:00 and my sugar comes out high in the morning. I know my system. Do you understand?

Edie (Interview #6) too makes the case in her discussion,

> I was at Applebee's and I don't' know what I ordered and they put a slop, a bunch of potatoes and I said, "Oh God, don't put it on my plate!" you know, but I monitor my blood sugar and if I eat potatoes its just through the roof. It's almost worse than sugar and people don't realize that. I have a stronger reaction to potatoes than I do bread or even sugar. There's some sugar things that I can actually eat that I won't react to…where potatoes, it shoots up, and I know it. So those are the two hardest things that I've had to learn to do without.

Negotiating With Providers

The women in this study had acquired a solid skill set in building dialogues with their health care providers. Discussions regarding expectations from their providers in the management of their disease were not uncommon remarks during the interviews. Further, most felt that they had the confidence to be honest about what foods they were eating, any alternative therapies they had attempted or were considering, and to contest aspects of their treatment plans.

When referring to her provider, Letty (Interview #10) says, "He knows what he's doing, usually if I have something to say I say it, so I don't keep quiet…Oh yeah, if he doesn't seem to be doing it, I'll get back to him anyway. Yes ma'am."

In relation to confidence in management and taking control of illness, Patty (Interview #8) also shares her ability to negotiate self-care and provider expectations.

> Me and my doctor, we have a beautiful communication. He is one of those doctors that "if your sugar goes up high, I need to know." So I call him and he tells me, get on the treadmill. And it works, it does. And a lot of people don't believe it, but slowly, you don't have to run on the treadmill. You don't have to run on the treadmill, you just have to walk and your sugar level will go down. To me that's point, that's the, I don't know, to me that's something that works. If I get on the treadmill after I eat, like after an hour and then if I get up for 20 minutes my sugar level will go down.

She continues on this topic of provider and patient relationship, but simultaneously exemplifies her confidence and expertise in playing an active role in the management of her illness. Patty states:

> You know and a lot of people take that for granted. "Oh, it's okay, I'm on medication." But you have to work for yourself. It's not just the medication. When I go to the doctor I always ask questions, I'm never, you know [shy]. Hey that's why he gets paid, so [laughs].

Protecting the Family

A sense of urgency was recognized in the voices and narratives of the women in this study to protect their families from diabetes. Also noted was the informants' determination to be heard by their families in regards to the dangers of diabetes and complications. That being said, the informants articulated a confidence in their abilities to connect with their loved ones on this serious health issue either by tacit intervention or explicit guidance.

Marisa (Interview #3) provides an example of the guidance she provides in the following passages:

> And what I see in my family and they're working at this stuff too. They see that we're going through this because I try to tell them. Let's start it now because you are on another generation. By the time you are on your 40s maybe you're not going to make it to that age. We're just barely going there and you see the problems we're going through, and we don't want that to happen to you all. So the best thing is for you all to take care right now and not later.

Marisa (Interview #3) continues…

> …And I think in my mind when I go sometimes to HEB and I see candies like that different kind, and I just go around to another way. I stay off of there [that aisle] even for my kids. Sometimes they say, they beg "Mom, get them because they're on special." And I say if I get them I did the wrong thing to them to themselves too. If I know I'm going to do to me, I'm going to do to them so I have to think about [it] both ways.

She (Marisa, Interview #3) continues later when speaking of providing guidance to her older daughter,

> …because my daughter she always asks for that [flour tortillas]. So I just buy it for whenever she needs [them] but I always tell her "Don't let yourself go more than two. If you have two, cut it there, or maybe three, cut it there." And for me telling her, I have to put myself in there for me not to eat none of it.

Theme #4: Negotiating sociocultural and biomedical expectations

Theme four elucidates the intricacies involved in maneuvering, or negotiating, between the importance of biomedical notions of health and the realities of socio-cultural governance. While the women in this study recognized how important modification in food habits were, social expectations were powerful influences on behavior. Therefore, careful negotiations between failing to meet socio-cultural expectations and staying true to "*la dieta*" required higher level mediation skills. During social events, such as weddings or other social gatherings, it was unusual for the women in the study to say "no" to food offered. Nearly all recognized that doing so would have been considered offensive. Instead, they opted not to attend, to accept a plate of food but consume less, or to make it appear they had eaten by moving the food around with a utensil. Marisa (Interview #3) articulates the point in her discussion of accepting wedding cake and *pan de polvo* (shortbread cookies), "Of course I accept it…but just a small piece. Then I share the rest for family. And only 3 pieces of *pan de polvo*… [then] straight to trash."

One of the most difficult balancing acts, and the most difficult to articulate, for some of the informants was that of the implied generalization of Mexican American food traditions as being bad and a primary cause for the rate of diabetes and its complications among this population. Their affliction with diabetes was analogous to serving a penance for adhering to Mexican American traditions and values. Identifying the culprits for this intangible sense of wrongdoing felt by the informants is challenging. Medical nutrition

therapies have historically been dictated from healthcare professionals to those with diabetes with varying levels of cultural sensitivity. The Starr County Diabetes Education Project, an NIH funded effort, via The Diabetes Alert Research Field Office has provided culturally aligned diabetes education since 1980, but the disease invaded Starr County long before that. The issue is likely intertwined with politics, policies, the media, and numerous socioeconomic factors influencing health. While several informants alluded to the implied penance for holding on to traditional ways, only one was able to articulate the sentiment.

Patty (Interview #8) alludes to this amorphous sense of culpability, while simultaneously displaying her confusion in having to accept wrongdoing for having diabetes.

> But the older I get the more people I know that have diabetes and they tell, they say that the Mexican Americans have more than any other. And we blame everything on our food that we eat, but it's our culture, our tradition. But I don't know what it is. It's something, I don't' know [sadly].

Letty (Interview #10) similarly implies this self-imposed blame for diabetes or poor management of the disease in the following statement.

> Show them. Cook for them maybe and just show them the difference. That should work, I mean, we're not idiots, we all have a head above our shoulders, you know, and sometimes we may [be] *contradistas* [stubborn or contradictory]. No matter what they [healthcare providers] tell us, we just do the opposite, you know, and it's true.

The reason for Patty 's (Interview #8) conflict and confusion is understood when shortly thereafter she describes with great enthusiasm holidays and food traditions shared in those moments.

> Thanksgiving, wow! That's a big thing. I mean, we're a big family. My husband has eleven brothers and sisters. And with him that's twelve. So when you all get together you bring all kinds of sweets and all kinds of foods and I can't control myself. I mean when it's Christmas, Easter, special holidays, good luck!

Others share similar stories of the importance of family and upholding traditions during religious holidays or ceremonial feasts. Although these were moments of indulging in bad foods or larger portion sizes of acceptable foods, they were done so as part of a negotiation system of values among that of their providers, culture, and illness. Nelie (Interview #1) discloses this as she speaks of a typical Christmas gathering. "Yes, during those times I gain a little weight, well, it's the holidays. We all get together [Christmas]. Sometimes some are missing and other times…And they come, almost of them come."

The transmission of norms, values, and ways is a requisite for any culture to sustain itself (Helman, 1994). Since much of the transmission falls onto the women of any cultural group, it was not surprising to find this to be the case with the informants of this study. The majority had garnered knowledge regarding foodways from their mothers, and had very vivid accounts of these encounters. Additionally, the informants were able to bargain on what aspects of the food rituals which had been transmitted to them would change, in an effort to support their and their family's health, and which were to remain constant.

Letty (Interview #10):

> Everything, everything, that was what, you know. She did the *cabrito* (goat) the carne guisada (beef tips), the pork *chicharrones* (pork rinds), you know one thing they used to do back the…My momma always cooked, as growing up there was always something on top of the stove. But there was always a full meal. She never was too much into the vegetables, to be honest with you, but it was always into something with gravy or something with arroz (rice), o fideo (vermicelli), the frijoles (refried beans), on the side. But the vegetable, my mom, (pause), I guess that's the way she was, not to put her down or anything, but very little vegetable, very little.

Letty (Interview #10) continued, "The *chilito* (small hot peppers), *la salsa tomate* (tomato salsa) with *chile picante* (hot sauce) on the side. That was always made available."

The importance of sharing food preparation between generations is exemplified in this passage as mother and daughter share a recipe for the making of cactus, or *nopalitos*. With great nostalgia and pleasure in her voice, Nelie (Interview #1) recollects:

> … (Translated) And she said "You'll see, mom, I'm going to make some also." I say, good, invite me when you make them or bring it [the ingredients] here and I'll make them and we'll both eat. Because she was also, how do you say, on the edge for diabetes.
>
> (Translated) And when she [daughter] comes to my house she says, "Oh, this is so good." I said "Well, let's eat with a cup of coffee." Then she said "Oh, these are so good." I made six, two for her, two for me and she said "I'm going to try them." "Alright, there they are." Well, she ate also. And they were so tasty. I didn't even put salt. I didn't put anything and they came out so good with the tomato and onion.

While keeping cultural foods connected to subsequent generations was essential to the informants, balancing this expectation with health was also of importance.

Reba (Interview #7) states,

> Flour *tortillas*, we know how to make flour tortillas, we make 'em once in a while because my grandson likes them. He loves 'em. But we try not to get hooked to it, with all the flour. But we don't make 'em very often. Not like we used to. We'd make them everyday. And we'd have them for breakfast and again for dinner.

Edie (Interview #6) also supports the importance of maintaining a link to ancestral foods, but also acknowledges flaws in the some of the rituals. For this informant, cultural transmission included *domesticism*, or learning to prepare foods to satiate. These foods were stovetop meals limited in scope and high in fat.

> We've been trained and taught you the skill of domesticism. It's not cooking. They don't know how to use the oven. I can literally say that I walk into hundreds and hundreds of homes here and start counting that the oven has never been used. They don't know what it is to broil, they've never used a broiler, they

> don't know what the broiler pan is for. They don't know what it is to steam. Everything has to have fat. Everything, even in my home I can remember back on Sunday mornings we'd go to my grandma's for breakfast and my aunt would put fat not lard, shortening into the skillet to fry the bacon. I thought that was the way everybody did it. I was just a kid 8, 9, 10 running around watching her fix breakfast. I think the reason she added the fat was to add the amount, she'd fry the bacon and then she'd use a big old frying skillet to fry the eggs. I remember my mother putting shortening, because that was what we used at home, and frying hamburger.

However, Edie (Interview #6) acknowledges the importance of foodways and the transmission of those rituals to subsequent generations.

> So just learning how to cook differently. I think teaching them how to use fresh vegetables. They think everything has to be processed. Getting away from all that processed food back to the way our parents used to cook, our grandparents when the brought in stuff from the garden. Making oatmeal, they think that everything has to be instant. They think that all bread has to be a loaf of white bread and people buy 4, 5, 6 loaves to take home a week. And before it was tortillas. They've come down, they don't want to cook anymore.

Theme #5 Eating For Diabetes Is a Family Affair

Theme five illuminates the value of family in the Mexican American culture in this South Texas community. Immediate family, siblings, cousins, and parents and friends played a major role in supporting and patrolling what the informants consumed. For those who had the disease for at least ten years, most issues related to food purchases, food preparation, and food negotiations amongst most family members had been experienced and resolved, thus they had developed the confidence to deal with such situations.

For these women, the focus of foodways was to care for themselves so that they could fulfill their other roles and duties. Among the informants, family was normally a great source of support and their involvement was part of the management plan. Children and grandchildren were frequently mentioned as food patrol or sentries who sounded the alarm when food violations were possible or when other issues merited attention.

Letty (Interview #10) describes this below,

> Actually, my family (nuclear) got me to change after I had been diagnosed. My kids were still small at the time and they take sugar away from my hands, you know, somebody would bring me something to eat. They put the fork in it and eat it first and then they leave me a little piece for me to taste. "And my mom can't eat that, my mom can't eat that." They took a lot of good care of me in the beginning. And later on we just learned that I just couldn't have that. But my cravings have always been there.

Star (Interview #12) concurs,

> (Translated)The grandkids will also remember. I was outside and I forgot to take the injection, "grandma, grandma the shot, the shot!" [laughing]. In the morning my daughter gets here early and the little one that is about two or three, "grandma' grandma' the shot, the shot!" I'm asleep then I wake up, "yes *mijito* [little one], I'm going to take it now."

Children could play food sentinels for their mother's dietary management without even commenting on what was being consumed. The informants' concern for their children's welfare was enough to incite self-policing. In speaking to an informant regarding her acclimation to some of the dietary changes she had made as part of eating to care for her diabetes, the question posed to her and response immediately follow.

> *(Translated) Moderator:* You mentioned before that they told you about the broccoli and about the enchiladas. At first, did you think, "no, I can't do this." How did your opinion change? That you could do it and eventually say to yourself that you could eat that way?

Selma (Interview #11) said,

> (Translated) Many times I say, like if they put that temptation in front of you. You know that you should not eat it, whether you want it or not. If you want to live and if you want to be healthy then you will follow the diet. If you give in, then the enchiladas will make you sick. You should eat what they tell you to eat, that is what is going to help you. So, you will prepare the broccoli. I love broccoli, but if they tell me I'm going to die, then I will not take the enchiladas. …Follow your diet. You must do all you can to follow the diet. I do all for me and for my children. My children are the most important. If I don't take care of myself, my son will tell me. "Mom, what am I gonna do if you die?" That was just last week. "Why ? I'm not going to die now." [laughing] "No, I miss you. What is going to

> happen to me?" "Well, I will try not to die." [laughing]. I will always put my children in first place and I think about them… If we do not take care of ourselves, who will? I put my children in first place. That is when I react. If I noticed that I'm eating something I should not, then I on my own react. He reminds me. "What am I going to do without you?" Many times, we need to think that way. It is not just us, our children are here as well. Like anyone who has children, if you do not take care of yourself, who will take care of them? If you don't take care of yourself, then maybe you do not love your children. Because you don't care about your life. I always think of my kids first. Don't do it for yourself, you must think of the future of your children.

Family involvement can be crucial to success in dietary management but can also be a stressor for those who are have managed their illness for so long. Input from others was viewed at times as intrusive and unwelcome. The point is beautifully illustrated in the following narrative, as are the strong attachments between food and memories.

Letty (Interview #10) said,

> …everything was negative to me. Three days after that, my niece had been diagnosed with a tumor in her brain and she had gone though the operation and everything. And they removed the tumor and they never gave us a warning that she would have short-term memory loss. And she started gaining a lot of weight. Her hormone level went kaput, everything went bad for her. She couldn't eat sugar because her diabetes had gone kaput, her thyroid was out of whack, her hormone level was out of whack. And I remember her having a little piece of cake, she had already had one, but she had forgotten she had the first piece of cake, 'cause she'd forget everything. She would remember everything three months to twenty years ago to the tiniest detail, she could tell you what it was. But she'd call you, "Hi! What are you doing? It's so good to hear your voice!" She'd hang up, five minutes later she'd call you again. "Hey momma, what are you doing, girl? I haven't spoken to you in such a long time!" Short-term memory was so bad. She had had a piece of cake and then my sister came, grabbed the other piece of cake and took it from her hand and she said, "But mom, you're so mean," she acted like a little girl, she's 30 some years old, "you're so mean to me mom, you don't love me any more?" She would cry like a baby. The three days after they broke into my trailer, …and everything was going bad, she [niece] got up feeling real sick, she went to the bathroom she couldn't get out of the shower, my sister went to pull her out, called 911, while my sister was dialing 911, she [niece] had a heart attack, died on us, died on us. And ever since then, I tell my sister, "Don't you dare ever criticize me for eating a piece of cake, don't you dare take it away from me." [crying]…. In my case, I know if going to have it or not. But I

> tell my family and there are my words, "Don't [expletive] with me," if I have a little piece of candy or a little piece of cake, I know that I can have a little piece of cake. I know that I'm not supposed to, okay. But let me eat it. Let me enjoy that little piece of candy, because I just might be gone tomorrow. I was there when they took that piece of candy from her [niece], piece of cake from her, and she cried like a baby. I know what she went through, and a couple of days after that, she died. She died.…it's hard not to think that way, but you can't want something and have the craving and knowing, cause you haven't gone through it, knowing that you want to at least taste it and people refused to allow you to taste it, because you are diabetic. [crying] That is one of the reasons when you're asking me, would I eat it and I say Yea! I'm gonna eat it because I don't wanna stay with my craving.

Theme #6: Strategies for Self-Care

Theme 6 describes strategies the informants had developed in relation to managing changes in food habits and in meeting social and cultural expectations. These strategies were developed over time, had been tested, and provided the women with an arsenal of skills to manage a myriad of complex social situations and to maneuver through the roles and responsibilities tacitly expected of Mexican American women in the area.

As noted in the descriptors employed for good control, the strategies employed for self-care related to food habits, social ways, and home life were also created within a broader socio-cultural context. The strategies drew from cognitive, emotive, and behavioral arenas, but did so within the Mexican American culture in rural South Texas. The more commonly articulated strategies by the women in this study are listed in Table 4.4 and have been organized into the categories of a) environmental controls, b) avoiding overeating or stress eating, c) lifestyle changes, d) family, e) cooking tips and f) active self-management. The strategies are not bound to a single category. Many were fluid and could be applicable to more than one grouping. "Drink more water" would be one such

strategy that could be placed under lifestyle change or avoiding overeating or stress eating.

For issues related to food cravings, one informant suggested limited acquiescence to the desired comestible as a strategy to avoid overeating.

Letty (Interview #10) stated,

> I will usually have a little piece of candy. I'll buy the bite size candies and I'll just grab a Baby Ruth, which has the peanuts, I love the peanuts and the caramel. That's about the only candy I usually buy, the Baby Ruth. I remember they say if you crave chocolate just eat piece of it and the craving will go away. That'll take my craving away and I'll be fine after that. And I don't have to be picking like…, I'll go grab a piece of apple. I'll go get some grapes, a piece of orange, I'll get a nectarine. And I'm eating and eating and I'm going to get that tummy ache really soon. And I still have that craving. And at that time that I got that craving if I just go grab that piece of candy and eat it, whoosh, I get rid of it. And I don't have to be stuffing myself with different things I didn't want to eat. You know, so, I've learned to deal with that, you know. That instead of eating, I know I'm not supposed to eat it. But if I don't satisfy that craving, I'll be picking at things. I'm just eating for no reason. I'm not hungry. I'm just eating and eating and eating. And I never satisfied that craving I had from the beginning. And if you satisfy that craving in the very beginning, you don't have to be grabbing here and grabbing there and getting a cracker, some popcorn, that didn't work, oh, let me go get some Triscuits, no that didn't work. Excuse me, let me grab some Fritos, they're too salty, that still doesn't work. You know what I'm gonna go try a corn tortilla with a piece of cheese. No, that didn't work. I'll go through that little phase, you know, and in the beginning if I would've eaten that little piece of candy that would have worked from the very beginning. That usually works for me.

Another spoke of avoiding feeling deprived, but portion control being critical. Patty (Interview #8) illuminates the point here,

> Like I tell you, I try to get, you know like when I go to Wal-Mart they have those sugar free cakes, and those are good too, and the candies which the doctor says not to deprive too much because they may be low in sugar but they may be high in sodium and other stuff, so that's why he says don't deprive yourself. Eat just a little bit of everything. Like when you have [prepare] a whole turkey, you don't eat the whole turkey, you eat just a little bit not the whole turkey or the whole chicken. No, I'd rather not deprive myself. It's like I was saying, it's like the doctor says, don't deprive yourself of not eating that little piece of cake, but don't have, …[just] have a little bit. You're going to go to Whataburger or whatever,

> don't have a big one [burger], have a small one. Cut down on your plate. That's the best way. That's the way I see it. And don't use too much fat, that's the way to go.

To avoid eating when feeling stressed Lilia (Interview #2) developed these strategies:

> (Translated) Yes, yes, yes, [emphatically] I do everything possible and I control myself. I try to control myself, to not eat a lot if I feel that way [stressed]…And I drink a lot of water. That's what I do almost always, drink a lot of water.

In social situations or gatherings such as a wedding, Marisa (Interview #3) met social expectations, fulfilled her desire for taste, and engaged in self-care for her diabetes.

> Well, there are times that they serve you the cake but I don't finish the whole, you know, the whole piece. Whatever they had, small or big, I just try one or two, three little [bites] fork, you know, like four pieces and...just a little bit because when I see it…the first thing that comes to my mind…I know I'm not supposed to have it.

If "*la dieta"* was going to be strayed from, it was going to be done with special foods or on special occasion as this informant describes (Patty, Interview #8).

> Sometimes, like we don't have menudo or red meat during the week, we stick with chicken or fish. So we want to go and have steak. We want to go have something good like menudo or barbacoa. Like when we go to Red Lobster on the weekends those little breads that they give you, that's tasty. So you want to have tasty foods because you haven't had it all week. Maybe on weekends we can. But we don't do it everyday, it's something we do once in a while.

Balance was once again put forth as an essential part of the informant's approach to health and was frequently included in strategies for managing their diabetes. Lilia (Interview #2) underscores the value of balance when dealing with diabetes, "[Translated] Worry just enough to eat like you're supposed to but not so much that you stress out and make your sugar go up."

Another informant supports the importance of balance as a component of the health belief system in this culture. Patty (Interview #8) supports this by relating her

approach to food at weddings, "they put on the tables… Well me, what I try to do is what the doctor says, don't deprive yourself of stuff. So like for me, what I do when I go to a wedding they give me a piece of cake I'll eat half the [piece of] cake."

In providing advice to someone who is struggling in managing her diabetes, the reference to balance is very strong in the following commentary by Lilia (Interview #2).

> (Translated)… Stop to think that something will happen to you because you're diabetic, right. There are some people that have a lot of stress, a lot of worries because they are diabetics. That's why I control myself [stay calm]. I don't' think of anything. Just trying to take medication, the medicine the way it should be. Keep the diet the way it should be. Staying calm and not feeling stress or anything. You live very well. It's been seven years since my husband died, and, well, I do have problems. Like I said, I have family. But that doesn't make me feel stressed. I sometimes feel stress at work but that's normal.

This informant presents what she believes is an extreme measure in diabetes management, and indicates the need to move towards more balanced efforts…Marisa (Interview #3) stated,

> …because I know this friend that she eats and she's going…. She's not taking no pills whatsoever at the time because I think she just found out may be about 2 or 3 years but since then you know she was only going to limit to what she eat…And then I was there sometime this summer and she showed me what she eats but that's way over. She's doing it strictly to the line. In other words, because she doesn't wants to go through…no pills whatsoever. She doesn't want to [inaudible]. And I was like that…, at the beginning before I started taking pills. I would just, the same when I first started but you know.

Table 4.4 Strategies developed in managing their diabetes

Strategies

Environmental Controls

- Make your own burgers and tacos
- Cook more at home
- Go to the grocery store alone
- Avoid aisles in the grocery store that have the food items on sale that are bad for you
- Remove temptation from your home
- Not making *tortillas* helps because when you buy, once the package is gone, they are gone

Avoid Overeating/Stress Eating

- Don't let yourself get hungry
- Limit in between snacking
- Keep active, walk
- When you feel stressed or want to eat go for a walk
- Drink more water

Lifestyle Changes

- (Eat) Foods better for you the sugar in their bodies
- You can eat anything you want-even *menudo*-just limit the amount
- Get into a routine
- The progress takes time, don't do everything at once, just step by step
- Make separate meals
- Smaller portions of the foods you love
- Eat whole wheat flour *tortillas*
- Get away from processed foods
- *Tortillas*-flour, limit to once a week
- Eat earlier in the evening

Family

- Put them (kids) first
- (think) Your family is going to be healthier
- Go to the grocery store alone
- They may not like it at first, just keep trying, think of what will happen to you
- Set the table and serve the food, no choices
- Put 2% or 1% milk in the whole milk container, keep the same label, family thinks they are drinking whole milk

Cooking Tips

- Don't drink regular coke-try lemonade with Splenda® or water
- Learn how to use the steamer, broiler, and oven
- Stick with natural foods

Active Self-Management

- Ask (health care providers and other staff) what exactly you should eat to take care of your diabetes
- See her doctor to make sure she is on the right medicines
- See your dietitian
- Take medicines religiously

Table 4.5 The six major themes identified in the narratives

Theme One:	"*La dieta*"	
	o Portion control	o Less flour tortillas
	o Using the fork	o Increased intake of fruits and vegetables
	o Baking versus frying	o Keeping track of food intake
Theme Two:	The location and fluidity of food	
	o Bad: excessive flour tortillas, refined carbohydrates or high-fat content foods	o Good: fruits, vegetables, whole wheat
	o Profane: common foods like rice, beans, *nopalitos*	o Deistical: *Tamales, cabrito, menudo, pan de polvo*
	o Acceptable: flour tortillas, refined carbohydrates or high-fat content foods	
Theme Three:	Confidence/defiance self-management continuum	
	o Familiarity with one's body cues or changes	o Defying the enemy with confidence gained
	o Confidence to take action came with experience	
Theme Four:	Negotiating sociocultural and biomedical expectations	
	o Social situations create tension between social rules and disease limitations	o Conflict between severing cultural transmission and endangering self and family
	o Willing to breach provider guidance for special occasions	
Theme Five:	Eating for diabetes is a family affair	
	o Children and grandchildren are food police	Children and grandchildren are motivation to manage diet
Theme Six:	Strategies for self-care	
	o Balance	o Concerned about health to take action, but not stress
	o No deprivation	
	o Planned cheating from "*la dieta*"	

Unanticipated Findings

The original intent of the study was to only include women who had experience in managing their diabetes for at least 10 years, and therefore were designated as "diabetes experts." However, there were four individuals who were invited to the interviews due to their relationships with other interviewees or the office staff and who were perceived as excellent informants regarding diabetes self-management. These individuals did not meet the selection criterion regarding the length of time they had been diagnosed with diabetes, and one of these four was also just under the age requirement criterion. Nonetheless, there inclusion enabled preliminary comparisons between experienced and more novice individuals with diabetes.

The most glaring distinction between the two groups (experienced versus novice) was the confidence in their abilities to negotiate between the various socio-cultural and biomedical expectations. Maneuvering between meeting sociocultural values and optimal health was a much more complex and frustrating task for the novice informants. When one informant was asked about how she felt in relation to receiving foods as gifts that she thought were unhealthy for her diabetes, the reply was, "…Makes me guilty, just guilty. Because I do want to eat it, I do want to taste it and I know that I can't. Sometimes I wonder what's worse, cancer or the diabetes."

For the novice informants, finding balance and the ability to strategize was much more difficult to accomplish. Management styles tended to swing towards more of an "all or nothing" or an "I can" or "I can't do it" approach. Provider expectations of eating to care for one's diabetes seemed to be more unrealistic and unattainable for the novice, as was their ability to negotiate provider treatment modalities or expectations. Listening to familial complaints regarding changes to food habits could be taxing and difficult to manage. Further, strategizing and identifying ways to assert modifications in foodways,

or simply in taking a stance for their own welfare with other family members, was an overwhelming task for the inexperienced.

Mandy (Interview #9) articulates this point in the following,

> He [husband] helps me as much as he can, he helps me to meet my needs, "you need to get your sugar, your sweet and low sugar." It's hard, in a sense, like I will admit that the kids want to have and he uses regular sugar so there's a lot of conflict there. He'll say things about the sugar free, he doesn't like the taste of it, but he's getting used to it now. Even the drinks, with the diet coke, like the caffeine diet coke, he likes. But when I make lemonade or juice with fresh fruit, he doesn't like it. I do it mostly for the kids, so we'll do it, but not for him. So there's conflicts there with our drinks. The food, he's very sweet eater, so one time I had to tell him, "you know what, don't bring sweet bread." Which is very tempting for me to grab a piece, and not only me for the kids. Because when they like something, they want to eat it until they finish it. And he would bring bags and bags of sweet bread and I would say, "you're making the kids gain weight and it's not good for them," so we had the whole issues there, but he finally understood, because my son's been having problems right now. So now he's not bringing the sweet bread anymore, but it is a conflict between us because he likes to bring foods that are sweet and I don't or I do, but I don't want to have them at home so that I don't have the temptation of eating anything. But other food, salty food, it's basically the same thing.

Dolores (Interview #4), a 57 year-old woman who had been diagnosed for two years, describes her frustration in trying to advise her adult sons about their eating habits, but feels bound to her social obligations as their mother to make them happy.

> … because I buy myself. If I need to go get some things for my diet or whatever I need, I get it.
>
> Moderator: Yeah. And, but he (her son) won't eat what you eat?
>
> Dolores: No, I have my bread there (inaudible)… the whole day and he (son) says "I'm not gonna eat those. You make me *tortillas de harina* (flour *tortillas*)."
>
> Moderator: You have to make him *tortillas de harina* (flour tortillas)?
>
> Dolores: I mean "David, you have to change your diet, *hijo* (son)." [Son responds (Translated) "nah, you eat whatever you want. Eat whatever you want to."]
>
> Moderator: So you still feel like you have to make him flour *tortillas*?

> Dolores: …uh, hmm [agreeing]… I keep telling him, the way he eats. He keeps… And I try to cut it off and try, today, he's gonna eat this, this. "No." (Son's response)

This is not to suggest that the novice individuals with diabetes were not cognizant of their actions. On the contrary, they were very much aware and quite frustrated at their perceived limited abilities and confidence to manage such situations. Attempts were made, albeit inconsistently, to eat for their diabetes and to guide their families to healthier food choices. Mandy (Interview #9) comments on feeling challenged between negotiating her roles between a mother who ensures her family is happy and as a mother with diabetes, who is aware of her health issues and is trying to keep her disease from encroaching upon her children. "I really tried cutting them down [amount of food consumed]. If I eat a sandwich, they'll eat a sandwich, if I eat half of a sandwich more, they want to eat that other half…I adore my kids and it's hard for me to tell them not to."

Mandy (Interview #9) in another part of her narrative proclaims…

> Yes, I try not to make them too much, but the pastas, they love them. I could make them every day of the week. And that's just, I try to stay away from it, because they are things that they just keep eating and eating they don't want to stop eating. And I try to make them only so often. Sometimes I make them *envueltos* [rolled corn tortillas softened in oil] with cheese, which is with ground beef and the kids just love 'em. It's like I serve them a portion and they want to eat more. Or I'll limit them when I'm making them and I'll say, you know what, you're just going to eat two. Daddy is having three and I'm having three. But you know if I make more… even my little one. That's the one I'm worried about. If he sees that there's extra then he'll come up and say, can you make it for me for tomorrow, I want it for tomorrow. Slow down, you need to eat for today. You don't need to worry about tomorrow. So those kinds of food I try not to bring so much of in the house. The pizza's another one. They get two pieces each and that's it. Because they want to be eating it every day.

The difficulties that the novice, or those lacking experience with diabetes, faced with maneuvering between the various social expectations was not only limited to children or spouses, it included parents as well. Whereas the experienced informants felt

confident to communicate their feelings or had strategies for dealing with cultural norms, the inexperienced were more likely to describe acquiescence to difficult or uncomfortable situations, even at the cost of their own health.

Mandy (Interview #9) presents this scenario with her mother and conveys how in this community societal norms call for respect for elders, particularly parental requests.

> She [mother] just does. I can have breakfast at home and she'll tell me come and have something, it's all ready. I'll say, "I already had breakfast," …"but it's so good"…"Mom, I already had breakfast."… "Just a little bit," she'll say, a little bit of one and a little bit of the other, and the kids'll want more. So….she's a bad influence. So, she cooks very good so she's the one who has it the way we like it, so we gain so much weight.
>
> Moderator: Is she the one who taught you how to cook?
>
> Mandy: Yes, she's the one.
>
> Moderator: Do you feel like you can tell her "no" if she makes stuff for you?
>
> Mandy: I do, but she gets hurt, she will get upset. "I made all this stuff for you!" or she'll just start telling you stuff. You know, it makes you feel bad. "No mom, I'll just taste it" or "okay, I'll take it to the house." And sometimes I'll take it home and I won't even eat it. Or sometimes I'll take it home and my husband will eat it. Whatever we made for us, we have to take it home or we have to eat there because she'll get upset.

The ability to provide advice for other women who were having difficulty eating to manage their diabetes, or in offering advice to a health educator who may be developing a diabetes education program, was not as well formulated as among the experienced informants. Advice tended to be more general and unfocused. Comments were along the lines of "eat smaller portions and eat other things that are going to be good." Most of the novice group also had more difficulty in articulating specific actions women could take. Categorizations of foods, or even what foods might go into these categories, could not be as clearly verbalized. Portion control and the need to reduce glucose levels were mentioned as important to diabetes management and to good diabetes

control, but these ideals seemed loosely conceptualized and were used inconsistently in their narratives.

> Mandy (Interview #9) exemplifies a sense of feeling overwhelmed and an inability to articulate steps to care for herself in the following,
>
> I don't know. You see, I know what I'm supposed to do and I can recommend it, but I don't do it. Like have your three meals a day, smaller portions, but I don't even do it myself. It's hard because you're working to decide what kinds of food to eat. We just grab whatever we can grab. It's that, either stress or work. And I know that I've recommended people there at the shop. I have a friend, she's a diabetic and I diagnosed her myself. She was like, she started having problems and I said "Ginny you have diabetes, you need to stay away from the sugar, you need to see a doctor." She's a working person, always on the go. The doctors didn't ever tell her that she was a diabetic until three visits later. They said "did you get your medication?" and she said "what medication?" He said, "you're a diabetic." That was hard. And I can make recommendations, but like I said I don't even do it myself and I know what I need to do, but it's just hard.
>
> Moderator: What do you think would have to happen for you to do that?
>
> Mandy: I would have to have somewhere my food could be ready and I could just go sit down and eat. My food would be prepared and I could just go and sit down and eat. If someone would prepare it for me it would be much easier.
>
> Another informant, Ella (Interview #5), states,
>
> I would tell them, not to continue what they are eating, Or maybe not big portions, but to shorten to smaller portions and try to eat other things that are going to be good. You know, for the sugar levels in their bodies. And I know that it can be hard, because they'll probably say…. well don't like it like that and I've never had it like that. But, you need to start developing a taste for it, because in the long run it is going to do all of us more good than the harm, you know.

ADDITIONAL ANALYSIS

Changes in Food Habits with Changes in SES

The researcher noted differences in foodways between informants with less than a 12th grade education and those who had more than 12 years education. Those with less than 12 years of education described brisket, *carne guidsada,* potato salad, rice, potato

salad, barbecued meat, barbecued chicken, grilled potatoes, and ribs as common celebratory foods served. Women with greater than 12 years of education more commonly mentioned variations of chicken, such as chicken and vegetables, chicken breasts, *Chicken Cordon Bleau*, chicken breasts with broccoli stuffing and accompaniments of rice, potatoes, green salad with vinaigrette dressing as being the food choice for weddings and *quincieneras*. Also worth noting were the celebratory foodways mentioned by informants who had completed 12 years of education. These women were sandwiched between the least educated and most educated of the informants in the study. The data were not as clearly demarcated but reflected more of a union between women with lower educational levels and those who had attained an education beyond the 12th grade. The foods mentioned were a combination of the two extremes. Thus, stuffed chicken breast, *carne asada* (barbecued meat), *carne guisada*, chicken and vegetables, brown rice, rice, beans, green beans, and mashed potatoes were all listed as possible food options during these special events. While this study was purely qualitative in nature and quantitative analyses were not conducted nor were the aim, a trend was noted in the foodways at celebratory events as described by the informants. The foods provided during celebratory feasts were less likely to be typical and traditional Mexican American fare as the level of education increased.

Experienced Versus Novice

There were distinctions noted between those informants who were experienced in dealing with diabetes (10 years or more) versus those at the novice stages (less than 10 years). The experienced expressed a greater capacity to negotiate between cultural, societal, and provider expectations than did the novices. When faced with pressures from family or work, novices voiced greater difficulties in being able to make better food choices or negotiate a balanced solution. That is, their narratives lacked the confidence,

their experienced counterparts had, to view illness from a balanced perspective. Even the tone of the conversations during the interviews was that of urgency, "I can't" or "it's hard."

The distinctions between the experienced and novices carried through in experimenting with foodways and food choices. The experienced voiced a greater willingness to try different methods of preparing foods, were more confident of being able to return to "*la dieta,*" and had struck accords between the various ADA dietary guidelines used by healthcare providers and traditional foods they still enjoyed and consumed. The degree of confidence expressed by the experienced to carry out explorations with food was not as clearly articulated in the less experienced, or novice, informants. The novices voiced hesitance and at being able to negotiate between the ADA dietary guidelines and their own foodways. Their perspectives on the location of food, in relation to good, bad, and acceptable, what rules and foods applied to "*la dieta,"* and strategies to maintain a balance between these various notions of food were not well articulated. Thus, the inexperienced seemed to lack the capacity to develop strategies to maintain equilibrium and avoid straying towards less desirable food choices and return to healthier foodways. Although these distinctions are preliminary, they are aligned with other research (Aljasem, et al, 2001; Campbell et al., 2003; Patterson, et al., 1999) that supports the development of expertise requires time and exposure to chronic disease.

SUMMARY

The women in this ethnographic study provided vital insight, via a cultural lens, of the interplay of foodways, culture and illness for low-income Mexican American women in Starr County. Their eloquent narratives informed the PI of how inextricably linked food habits are to this culture. Additionally, invaluable knowledge was gained regarding how interloping agents such as diabetes can create tremendous but not

impossible challenges for low-income Mexican American women, with expertise in chronic disease management, as they balance a myriad of sociocultural expectations.

The next and final chapter is a discussion of the findings from this dissertation study. A discourse regarding the implications of this research study for nursing practice, education, and research is also included in the subsequent chapter.

Chapter 5: Summary, Recommendations, and Conclusions

INTRODUCTION

Between 1997 and 2005 the incidence of diagnosed diabetes amongst Hispanic Americans increased from 7.4 to 10.2 percent (CDC, 2005). With no signs of dampening in incidence, means must be taken to address this growing threat among Hispanic Americans. A greater understanding of the deeper and implicit meanings of food habits and their relevance to one's culture as shared by the women with type 2 diabetes in this study may offer researchers and health practitioners novel insight that can be applied to extant nursing practice, research and education. This chapter presents a summary of this dissertation study, implications and recommendations for nursing practice, research and education, and a discourse on the conclusions of the study results.

This ethnographic study examined, via individual interviews, observation, and field note documentation, the interplay of foodways among low-income Mexican American women with type 2 diabetes. The researcher individually interviewed a purposeful sample of 16 Mexican American women diagnosed with type 2 diabetes.

Since ethnographic studies examine cultural phenomena, Mexican American women in the Rio Grande City area of Texas were exclusively and intentionally selected for this investigation. The staff of the Diabetes Alert Field Office recruited all informants. The informants ranged from 39 to 60 years of age, with an average age of 51.9 years. Educational attainment varied within the group, with more than one-third not completing high school and nearly one-half exceeding a 12^{th} grade education, including two with graduate degrees. The mean for years diagnosed with diabetes was 14.5; and 75% of informants stated that they had an immediate family member diagnosed with type 2 diabetes.

Unexpectedly, 4 of the 16 participants did not meet the study criterion related to the length of time diagnosed with diabetes as an indicator of diabetes self-management expertise. However, adequate sampling and data saturation was achieved with eight informants. Thus, inclusion of the informants that did not meet the study criteria was superfluous for adequate sampling. Nonetheless, the data from their narratives provided an interesting and rich dimension to the study.

DISCUSSION

The purpose of this investigation was to examine how eating to manage one's diabetes impacts the cultural identity of Mexican American women with this disease. The specific aims of this ethnographic study of Mexican American women were to: (1) acquire a better understanding of the relationship between culture, food habits, and type 2 diabetes as experienced by low income Mexican American women; (2) examine the role that food plays in the cultural identity of low income Mexican American women; and (3) examine how eating to care for one's illness impacts the relationship between food and culture of low income Mexican American women with type 2 diabetes.

The research questions that guided this ethnographic study were:

1. How does eating to manage one's diabetes impact the cultural and ethnic identification(s) of Mexican American women?
2. For Mexican American women who have expertise in the management of diabetes, what strategies (cognitive, behavior, and social) related to diet have they developed to successfully manage their disease?
3. How do Mexican American women who eat to care for their diabetes balance provider expectations with cultural expectations and norms?

The results of the analysis generated of a set of six themes that described and explained the context of food, or eating behaviors, for Mexican American women with type 2 diabetes. Consequently the themes were able to address the research questions that guided this dissertation study. The six themes were: (1) "*la dieta,*" (2) the location and fluidity of food, (3) confidence-defiance self-management connection, (4) negotiating sociocultural and biomedical expectations, (5) eating for diabetes is a family affair, and (6) strategies for self-care. The themes are part of the component of ethnography known as *description*, and were used by the researcher to translate the cultural experience being examined into a verbal format, while employing the native language via direct passages from narratives (Spradley, 1979).

Research Question #1: Dietary habits and ethnic identity

This ethnographic study demonstrated a powerful link between culture, food habits, and diabetes among low-income Mexican American women in rural South Texas. Since culture and cultural identity are fluid and temporal, and affected by factors such as environment, economy, education, then one can assume that a pervasive disease such as diabetes can also influence how culture and identity are shaped. For the Mexican American women of Starr County who participated in this study, the added dimension of diabetes and eating to manage this disease impacted their cultural identity Although the experienced informants had maintained many of their traditional foodways after their diagnosis of diabetes, their management of the illness was posed against existing memories of food traditions and family values, requiring the informants to make concessions on what norms or traditions were more valued than others. These concessions have an impact on culture and cultural identity. For example in developing strategies to control or avoid environmental factors, some participants avoided social events such as weddings. By doing so the risks of being exposed to tempting foods would

be mitigated. However, such tactics also isolate the individual from participating in the cultural milieu of social events, and abstinence from these activities has a potential for inflicting alterations in one's cultural identity.

Jerome's model of dietary intake is also useful in providing a framework for this investigation, and for examining how eating to manage diabetes influences cultural identity. The major premises of Jerome's model of dietary change related to the cyclic incorporation of food into the diet and individuation of food selection and intake (Jerome, 1975) were noted especially in commentary related to the theme of movement and fluidity of food. Although many preparatory elements of core cultural foods remained intact, different preparatory methods impacted how foods were integrated into the culture, as did other factors such as geographical changes, and familial introduction of new foods. This was particularly true for deistical foods that continue to hold great meaning and value among the women interviewed.

Research Question #2: Diabetes self-management strategies

Leventhal's SRM (1980) was also a valuable framework employed during this study, including the examination of the strategy development by the informants, in response to their illness threat and within their sociocultural context. Under the SRM, social and cultural norms fashion an individual's views or explanatory model(s) of illness threats. Self-regulation is continual and undergoes constant evaluation, so that the individual is better able to develop the needed personal tools for addressing the various components of the illness threat, and to do so within their social and personal context.

As identified during the analysis those with greater experience had more confidence in managing how they ate to care for their diabetes versus those with less experience with the disease. The former were more adept at balancing social and cultural expectations, and had a more extensive arsenal of strategies to manage how they ate to

care for their diabetes. The strategies included environmental controls that could be enacted, maneuvers to avoid overeating or stress eating, implementing lifestyle changes, self-management strategies, cooking tips, and family matters.

It is interesting to note that not all strategies would be embraced or recognized as healthy measures by the biomedical community. In some instances strategies involved drinking diet sodas instead of regular soda (not low-calorie), or low-sugar and low-fat snacks, regardless of research that may indicate that even drinking lower calorie drinks and eating lower fat snacks may be detrimental to optimal diabetes management. Additionally, other strategies were eating tamales prepared with lard but in smaller quantities, or eaten less often. From a biomedical perspective these strategies are not aligned with healthy food choices for diabetes care; however, they were recognized and identified by the informants as strategies that had been effective in assisting them in managing their illness within their contextual realities. For the informant who exchanged her food habit of regular soda on a daily basis, a few times a day, to diet soda, the change represented to her a major positive shift in diabetes self-management. From her perspective, this change in habits led to other positive changes. Thus the biomedical community must also balance their willingness to support strategies that don't meet textbook standards or approaches with those created and founded on the sociocultural realities of the individual.

Research Question #3: Balancing health care provider expectations

The ability to balance provider expectations with cultural expectations and norms came with experience and confidence. Findings from this dissertation study are in line with work by Paterson and associates (Paterson & Sloan, 1994; Paterson et al., 1999; Paterson et al., 1998; Paterson et al., 2002; Paterson & Thorne 2000; Paterson & Thorne 2000) and other researchers (Aljasem et al., 2001; Campbell et al., 2003). That is, after at

least nine years of experience with a chronic disease, a person develops extensive expertise in managing chronic disease, such as diabetes. These findings were noted among the informants; with time and exposure to diabetes came expertise as well as confidence to manage their diabetes. However, self-management went beyond the biomedical indicators of diabetes and extended to the socio-cultural elements of illness, such as balancing family needs and wishes, expectations at social gatherings, or recommendations of the existing health belief system. Although the informants did not manage each situation perfectly every time, learning to negotiate and maneuver amongst a host of cultural and societal expectations, including those of family and provider, was also a tremendous skill the informants in this study had gained.

The balancing of expectations was crucial to dietary management and in having the confidence to experiment with food habits. These experiences contributed to the acquired expertise of the informants. Accordingly, striking a balance between the ADA dietary diabetes guidelines and traditional Mexican American foods required insight into their bodies, prioritization of the social values of foodways, and the ability to balance these tensions against those of matriarchal roles.

Preliminary and Outlier Data

There were other findings that did not emerge into themes but did provide preliminary data that merit investigation in future studies. The results pertaining to SES and foodways were aligned with the literature (Helman, 1994; Kittler & Sucher, 2001; Algert, et al., 1998) that has addressed the various factors that impact culture, and consequently foodways. One factor is the level of education as well as the confluence of the changing economic structure in the Rio Grande Valley. As the level of education increases for some, so do the opportunities for higher earning potential, and thus greater access and introduction to a more variety of foods. It was not surprising then that as level

of education increased amongst the informants, changes were noted in the celebratory foods described in the narratives.

Another potential factor is the exposure to diabetes education classes. ADA guidelines were employed by some, but served as a loose guide for others. For those informants whom had been exposed to formal diabetes education courses, such as those offered by the Starr County Diabetes Education Project, the influence of the ADA guidelines was more readily recognized. The nomenclature employed by health institutions such as "carbs" (carbohydrates) or saturated fats was also used by this subgroup of informants.

Those without formal diabetes education classes or training were more likely to describe how food was prepared and the types of food they consumed, rather than use verbiage commonly associated with the healthcare industry. Eight of the fifteen informants had received diabetes education through the NIH funded grant, The Starr County Diabetes Education Project, from staff at the Diabetes Alert Field Office.

However, regardless of taxonomy utilized, the informants had cultivated an impressive portfolio of strategies, knowledge, and confidence to manage various food scenarios, under a myriad of circumstances. Thus, women with confidence were in a much better position to create individualized eating plans with cultural norms and values as the constant backdrop.

Although data regarding body weight did not emerge into a major theme, the dearth of dialogue regarding this topic, or feelings regarding their bodies, was surprising, given the extremely high rates of obesity in this community. However, one woman did comment on her perceptions of why weight loss is so difficult to manage in a rural community such as Rio Grande City. This interview was not audiotaped due to the

location, thus the following is paraphrased and taken from detailed interview and field notes.

> (Interview #15) Around here if you lose weight people think that you have cancer or that you are fooling around. The women's movement hasn't completely made it down here yet, we haven't all burned our bras. If you lose weight you get to go back to Austin and lose yourself with all those people. But I have to stay here. I have to listen and deal with rumors that I am having an affair. My husband trusts me, but after awhile he gets tired of hearing it too. So, I lost weight the first time I was diagnosed, but I gained it back. I didn't want to deal with it.

Other informants did speak of weight but in general terms, as in the importance of not being overweight, losing weight for health, or the challenges of maintaining weight loss. However none other than the aforementioned delved into the complexities of body perception and food.

Research Issues to Consider

Balancing the views of the informants with that of the researcher's interpretation of the data made *description* the most demanding component of this ethnographic study. Idiomatic translations alone can present challenges for researchers, however conceptual translations and/or nuances from interviews or observations can pose an even more taxing charge. Four consultants were utilized for transcription of the audiotaped interviews. All were fluent in Spanish, and two of the four were Mexican American. Of the latter, one was from El Paso, Texas and the other from a small town in South Texas. Despite the adequate fit and the excellent work conducted by all four consultants, the researcher, who is bilingual, found that the transcripts required modifications to achieve the most complete and holistic translation of informants' narratives. Most of the issues were related to local or geographical enunciation, which were perceived by the translators as mumbling. Consequently, transcript pieces were frequently labeled as inaudible. Since the researcher was from the area and had conducted the interviews in person, the dialect

and subtleties in enunciation and cadence were more readily recognized; fortunately several of the inaudible pieces of transcript were replaced with actual verbiage.

Another issue in which translation or cultural misalignment occurred was in defining Spanish named food dishes in the transcripts. The researcher noted instances, and consequently corrected, where the names or of foods or food dishes in this community were translated from Spanish into English as something inequitable in meaning. However, several steps were taken to ensure a more comprehensive analysis and description of the findings: 1) the researcher is a bilingual Mexican American and indigenous to the area, 2) the audiotapes were reviewed three times, not including revisiting particular segments of the narratives for the researcher's clarification, to make certain all data were captured and that the interpretation was as sound as possible, 3) transcripts were reviewed and compared to audiotapes to determine accuracy, and 4) field notes and notes taken during interviews were compared to transcripts and audiotapes to verify that all data pertaining to the informant had been captured.

Finally, it is important to note that this dissertation study did not explore the role of culture versus SES on disease risk, management, prevalence, and incidence among Mexican American women. The dissertation study examined the interplay of culture, food habits and diabetes, and SES may account for some of the findings of this study, rather than culture. Since culture is affected by a multitude of factors, including SES, it is logical that the background for this study and the informants' narratives would include discussions that were social and economical in nature. Further, the literature supports that ethnicity, culture, and SES are significant contributing factors to the management, risk, prevalence and incidence of chronic disease among Mexican Americans, even when they have been controlled for in the investigations (Kurian, & Borders, 2006; Oladele & Barnett, 2006; Ribisl, Winkleby, Fortmann, & Flora, 1998; Saydah, Cowie, Eberhardt,

De Rekeneire, & Naravan, 2007; Sundquist & Winkleby, 1999; Sundquist, Winkleby & Pudaric, 2001; Winkleby, Gardner, & Taylor, 1996; Winkleby, Kraemer, Ahn & Varady, 1998). Thus even today the role of SES versus culture remains unclear. The message to be taken away is that nursing must continue to examine all sides of the issue. Whether one variable contributes the larger variance is of import, but we cannot disregard the impact of the others.

IMPLICATIONS AND RECOMMENDATIONS

Nursing Practice

The findings from this ethnographic study have implications for nursing and other healthcare practice. The data collected from the informants support previous research (Kleinman, 1990; Helman, 1994) that reported that individuals do not experience disease in isolation from their sociocultural values and norms. The informants' approach to diabetes, including foodways related to the management of this ailment, was ensconced within their cultural value system. One central element of this value system was balance, that is, moderation was a key convention in this study group. Thus, the diabetes management plans formulated by the informants intersected at some points with the biomedical and cultural domains, and at times these domains were in tandem with one another, but balance was always key. Consequently, diabetes management therapies that are strongly biomedically oriented with no regard for the social aspect of disease are likely to be unsuccessful, or short lived at best, among this population.

In healthcare practice, determinants of acceptable diabetes control are strongly in the domain of quantitative laboratory values. Hemoglobin A1c, fasting glucose levels, and other such biomedical markers rule the direction of diabetes management and patient education. This is in stark contrast to the commentary provided by the informants in this

study. “Good control” of one’s diabetes was usually defined as something much greater than a single marker and was action oriented rather than laboratory values or quantitative criteria commonly used by healthcare professionals. Thus, “reducing stress,” “keeping the meals the way it should be,” “keep a calm routine,” “exercising a lot,” and “trying to rest” were all definitions employed by the informants for describing “good diabetes control.” The difference in how “good control” is conceptualized by the informants versus healthcare practitioners speaks to the need to reconcile, or at minimum recognize, these divergent perspectives. This underscores the importance of alternate or more holistic approaches to diabetes dietary management education by healthcare professionals.

The findings of this study also supported extant literature that most cultures view food as more than nutrition (Helman, 1994; Sucher and Kittler, 1991; Jerome, 1980). All of the informants were aware that changes were expected, most had heard via different health providers (clinic, hospital, private practice) of the ADA guidelines for diabetes. All had made some modifications to existing foodways, but none were willing to expunge traditional foods from their repertoires. This is an important consideration for practitioners, educators, and researchers as this has implications for not only Mexican Americans but for populations of various cultures. Asking an individual to leave one set of food habits for another would be comparable to insisting someone stop being Mexican American, or to relinquish one’s memories or traditions.

Interestingly, the experienced women in this study who had defied diabetes and who were confident in their ability to stray from and return to “la dieta” seemed uncertain about where to place the subtle impugning towards their Mexican American culture. Social pressures from biomedical establishments had implicitly ingrained that “your food is the problem, your culture is the problem,” and some of the informants did express “our

culture is an issue." Yet, specifics concerning the immoral diabetes-inducing attributes of their culture could not be readily verbalized.

The unintentional influence of inferred condemnation by the biomedical community must be considered when developing interventions in education, as well as in practice. The idea of asking an individual or a community to completely deny its traditional foods as a way of treating or caring for the body is a foreign concept for many cultural groups as their belief system links such foods to healing and strength. To suggest otherwise can create confusion, uncertainty, and be perceived as lacking respect for one's cultural values. When the biomedical community employs tactics of implied condemnation for the sake of reducing diabetes or chronic disease morbidity, these machinations can backfire. Largely because dietary management for diabetes has implications beyond eating habits, it impacts family gatherings, the transmission of values and expectations, religion, and the concept of family within the Mexican American household.

Nursing Research

The findings of this dissertation study support ethnography as a valuable method of inquiry in nursing research. Forays that are ethnographic in nature allow for meticulous examinations of complex phenomena such as foodways among specific cultural groups, in this instance Mexican American women with type 2 diabetes in Starr County, Texas. While focused scrutiny of a social group's cultural minutiae are considered limited in applicability and scope, that is the data are not generalizable to other populations, there are benefits gained from such explorations. Cultural norms and values within a social group are difficult to quantify and to express, but are crucial in the development of interventions, patient and nursing educational programs, and in aligning health practices to be more convergent with a patient's health belief system.

Ethnographic studies allow for the exploration of the former so that quantitative studies can deliver the latter. Employing this formulation, especially with underresearched groups, interventions stand a greater chance of resonating with a social group, research is in a better position to translate into practice, and nursing education can build curriculums from a more informed foundation.

Via this dissertation study, informants were able to educate the researcher about an underresearched phenomenon, and from their narratives the researcher was able to articulate typically tacit notions of food habits and the related norms and values through the development of themes. While further investigations are needed, this study is building knowledge towards a deeper understanding of the meaning of food to Mexican American women in this area of the country and the applicability of this meaning to dietary changes, as conceived in the biomedical model, in the management of type 2 diabetes. More explorations are merited in the areas of a) strategies developed by the experienced informants in the study, especially the concept of "using the fork," b) employing their language in the development of educational programs and tools, c) developing peer mentoring or pairing of novice or newly identified women with diabetes and experienced women with diabetes, d) finding ways to maintain the cultural transmission of food habits while maintaining health, e) the impact of disease on cultural transmission in relation to food ways, and f) a careful examination of the implicit culpability of this culture's foodways for the high rate of diabetes in this community, the source of this feeling of blame, and its role in creating stress in already stressful lives.

Nursing Education

Hispanics are the fastest growing ethnic group in this country and Mexican Americans are the largest subgroup within this burgeoning population (U.S. Census Bureau, 2000). A disproportionate number of them remain uninsured and at greater risk

for complications of chronic diseases such as diabetes. Adding to this complexity is the multitude of subcultures within the Mexican American population. There is no single Mexican American culture in this country, and there is certainly no Hispanic culture. While there may be some social norms and values common among Mexican Americans, there will be a taxonomy and language specific to each of the various subcultures within this population. Included in these taxonomies are those symbols, values, and norms tied to food habits. Nursing education will need to expand or direct curricula towards these concepts to ensure that as students enter into practice they are prepared or at least aware of this reality.

Moreover nursing students will need to come to terms with their own biases and extant biomedical constructions of health, so that they are better able to weigh this knowledge against the social constructions of health from their patients. Such a journey will require guided instruction by faculty knowledgeable in the link between culture and health.

Further, discernment between language and cultural alignment is an issue that education, research, and practice have all struggled with. Language does not assume cultural affiliation, nor does ethnic assignation. Culture is influenced by a variety of factors including economy, geography, and degree of generation. It is common to find Mexican Americans who do not speak Spanish and whose food ways have become totally permeated by Western values. Thus, presuming a nursing student who is Mexican American will comprehend the health belief system, or share a similar language of same ethnic patients, is an erroneous postulation. The study of culture and food ways, when examining health and disease prevention among diverse populations, should be extended to all students, and will be an important step in preparing nursing students for practice and research.

CONCLUSIONS

This study contributes to the limited literature on the interplay of food habits, culture, and diabetes among low income Mexican American women. A unique as well as critical component of this study was the population itself. There is a small body of knowledge regarding the sociocultural experiences of low-income Mexican American women with type 2 diabetes in Starr County. Another unique aspect of the study was the examination of foodways as part of a larger value or cultural system, within this population. The current study findings reveal that low-income Mexican American women in Starr County with at least 10 years of diabetes, in spite of making changes in how they eat to care for their diabetes, continue to maintain traditional foodways. The key in maintaining these cultural ties is balance via moderation, portion size, and frequency, in consuming certain traditional foods.

The results of the dissertation study also showed that with experience came confidence to manage diabetes. However, management went beyond biomedical confines of how this is usually defined. For the women in this inquiry, management meant learning about one's body, taking control of one's health, asserting foodways in the home for themselves and their families, defying diabetes, offering advice to strangers and family, and negotiating care plans with their healthcare providers. As research, interventions, and education in diabetes management related to foodways expands, the sociocultural relevance of how this and other populations define management will need to be closely examined.

Finally, unanticipated findings were identified among women who were experienced (ten years or more with diabetes) versus inexperienced (less than ten years) with managing the food habits and other issues related to diabetes. The former were more adept at negotiating and balancing the various identities than the latter. These

unanticipated findings alone merit further exploration and offer opportunities for research in areas such as intervention development, practice, and patient education.

Given the explosion in chronic disease levels the U.S. has experienced within last few decades, and the limited success in addressing this issue via the biomedical model, it stands to reason that approaches need to be broadened to include disease as a cultural experience. Exploratory studies, similar to this dissertation inquiry, are required to understand how diabetes operates within the realm of the culture and sub-cultures of low-income Mexican American women. As the data of this study indicate, dietary management of diabetes went beyond minor changes in nutrient choices. Food habits were part of a greater social system, thus the indoctrination of eating to manage diabetes required the incorporation of various values and norms, all vying for a place within this culture of low-income Mexican American women in Rio Grande City, Texas.

While culture is fluid and temporal, there are values and norms that are transmitted from one generation to the next, an unbroken strand of cultural boundaries, norms, traditions, food habits, and customs. Asking members of any culture to break this strand is akin to developing amnesia for those things that bind them to their culture.

The epidemic of diabetes and other chronic diseases have taken decades to reach the levels that the world is experiencing today, particularly westernized countries such as the U.S. Solutions will not be immediate, including those interventions initiated at the community level.

Appendices

APPENDIX A: PILOT STUDY GUIDING QUESTIONS

The guiding questions employed in the pilot study were as follows:

1. Tell me about preparing a routine meal for your family.

2. Tell me about your favorite foods and has diabetes altered your ability to enjoy or prepare them?

3. Tell me about special events such as weddings or holidays such as Thanksgiving and how you cope with balancing your diet with eating traditional foods.

4. Does following the diabetes diet prescribed by your provider create issues for you at home or at social events? If so, tell me about that.

5. What does diabetes mean to you and what does it mean in relation to foods you consume?

6. Does having diabetes, and following a diabetes diet create problems for you? If so what kind?

APPENDIX B: PARTICIPANT FEEDBACK (PILOT STUDY)

Table 1: Feedback and comments on guiding questions

Feedback and Comments	
Wording too cumbersome; questions too lengthy	"Need to break up the long questions, because they are too long and will confuse people. They'll forget what you were asking them to begin with."
Some wording judgmental	"Don't assume the diet has changed. It will make people feel guilty if they haven't, and they'll just say what you want to hear".
Wording out of place;	"Use more basic words. I haven't heard people use those words here."
Wording not appropriate	In reference to the phrase "prescribed diet" "…sounded like prescriptions, like medicine, not food…"

APPENDIX C: PILOT STUDY PRELIMINARY THEMES

Table 2: Preliminary themes from pilot study interviews

Preliminary Themes		
Theme		Supporting Comments
#1	Participants continue to eat cultural foods but are more cognizant of portion size and/or limitations	"I kept making them [flour tortillas] but I kept making less. They would ask for more, but I would say "that's it". If you want more you can eat corn."
#2	Traditional foods are still consumed particularly during celebrations, such as weddings, and *quincieneras* ;	*Buenos so no cambia. Etienne de to-do* (Well that doesn't change. They have it all). Salad, *pan dulcet*, (Mexican pastry) you know, same foods."
#3	When traditional foods were prepared in accordance with diabetes dietary guidelines, they frequently do not taste good and/or require time to acquire taste;	"You get used to it. When I was first told about my diabetes, I had to take the skin off the chicken, all of that. It was hard at first, because I like the skin and it's a lot of work. It takes time, but you get used to it."
#4	The provision and acceptance of food as gifts, prepared in the traditional manner, are a common important practice;	(a) "I still give food. I don't make it "diet" or anything. I don't want to make the other person feel bad. They know if they can eat something or not." (b) "I have a neighbor with high blood pressure. I take a small cup of unsalted peanuts, and we sit and eat them together. You don't need to eat a whole bag."

APPENDIX D: DEMOGRAPHIC FORM

Información de Participantes / Participant's Information

Su **edad**:_____

Estado civil:
Casada(o) o _____ Unión libre
Soltera(o) _____

Viuda(o)_____
Divorciada(o) _____

Nivel de estudios de usted: _____

Ocupación:
Empleado tiempo completo _____
Empleado medio tiempo _____

Ama de casa _____
Estudiante _____

Jubilado (a)_____
Discapacitado _____

¿De donde aprendio del diabetes y como se debe de comer para manejar su enfermedad?

____Familia
_____Doctor

____Clinica
_____Otro

¿**Cuanto tiempo tiene con la diabetes**?

_____ años y _____ meses

¿**Como se cuida su diabetes**?
Pastillas _____
Pastillas y inyecciones ____

Inyecciones _____
Solo Dieta/Ejercicio _____

Your **age**:_____

Marital Status:
Married or _____ Living together
Single _____

Widowed _____
Divorced _____

Highest educational level you've achieved: _____

Occupation:
Work full time _____
Work part time _____

Homemaker _____
Student _____

Disabled _____
Retired _____

Where did you learn about diabetes and eating to manage your disease?

____Family
____Doctor

_____Clinic
_____Other

How long have you had diabetes?

_____years and _____months

How do you take care of your diabetes?
Pills _____
Pills and shots _____

Shots _____
Only Diet/Exercise _____

Pseudonym_____ Participant Number_____Date/Time_____

APPENDIX E: IRB DOCUMENTS

OFFICE OF RESEARCH SUPPORT & COMPLIANCE

THE UNIVERSITY OF TEXAS AT AUSTIN

P.O. Box 7426, Austin, Texas 78713 (512) 471-8871 - FAX (512 471-8873)
North Office Building A, Suite 5.200 (Mail code A3200)

FWA # 00002030

Date:

PI(s): Department & Mail Code:

Dear:

IRB APPROVAL – IRB Protocol #

Title:

In accordance with Federal Regulations for review of research protocols, the Institutional Review Board has reviewed the above referenced protocol and found that it met approval under an Expedited category for the following period of time:

Expedited category of approval:

___**(1)** Clinical studies of drugs and medical devices only when condition (a) or (b) is met. (a) Research on drugs for which an investigational new drug application (21 CFR Part 312) is not required. (Note: Research on marketed drugs that significantly increases the risks or decreases the acceptability of the risks associated with the use of the product is not eligible for expedited review). (b) Research on medical devices for which (i) an investigational device exemption application (21 CFR Part 812) is not required; or (ii) the medical device is cleared/approved for marketing and the medical device is being used in accordance with its cleared/approved labeling.

___**(2)** Collection of blood samples by finger stick, heel stick, ear stick, or venipuncture as follows: (a) from healthy, non-pregnant adults who weigh at least 110 pounds. For these subjects, the amounts drawn may not exceed 550 ml in an 8 week period and collection may not occur more frequently than 2 times per week; or (b) from other adults and children2, considering the age, weight, and health of the subjects, the collection procedure, the amount of blood to be collected, and the frequency with which it will be collected. For these subjects, the amount drawn may not exceed the lesser of 50 ml or 3 ml per kg in an 8 week period and collection may not occur more frequently than 2 times per week.

___**(3)** Prospective collection of biological specimens for research purposes by Non-invasive means. Examples:

(a) hair and nail clippings in a non-disfiguring manner;
(b) deciduous teeth at time of exfoliation or if routine patient care indicates a need for extraction;
(c) permanent teeth if routine patient care indicates a need for extraction;
(d) excreta and external secretions (including sweat);
(e) uncannulated saliva collected either in an un-stimulated fashion or stimulated by chewing gumbase or wax or by applying a dilute citric solution to the tongue;
(f) placenta removed at delivery;
(g) amniotic fluid obtained at the time of rupture of the membrane prior to or during labor;
(h) supra- and subgingival dental plaque and calculus, provided the collection procedure is not more invasive than routine prophylactic scaling of the teeth and the Process is accomplished in accordance with accepted prophylactic techniques;
(i) mucosal and skin cells collected by buccal scraping or swab, skin swab, or mouth washings;
(j) sputum collected after saline mist nebulization.

___**(4)** Collection of data through noninvasive procedures (not involving general anesthesia or sedation) routinely employed in clinical practice, excluding procedures involving x-rays or microwaves. Where medical devices are employed, they must be cleared/approved for marketing. (Studies intended to evaluate the safety and effectiveness of the medical device are not generally eligible for expedited review, including studies of cleared medical devices for new indications). Examples:

(a) physical sensors that are applied either to the surface of the body or at a distance and do not involve input of significant amounts of energy into the subject or an invasion of the subject's privacy;
(b) weighing or testing sensory acuity;
(c) magnetic resonance imaging;
(d) electrocardiography, electroencephalography, thermography, detection of naturally occurring radioactivity, electroretinography, ultrasound, diagnostic infrared imaging, doppler blood flow, and echocardiography;
(e) moderate exercise, muscular strength testing, body composition assessment, and flexibility testing where appropriate given the age, weight, and health of the individual.

___**(5)** Research involving materials (data, documents, records, or specimens) that have been collected, or will be collected solely for non-research purposes (such as medical treatment or diagnosis). (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(4). This listing refers only to research that is not exempt).

___**(6)** Collection of data from voice, video, digital, or image recordings made for research purposes.

___**(7)** Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(2) and (b)(3). This listing refers only to research that is not exempt).

____ Please use the attached approved informed consent

_____You have been granted Waiver of Documentation of Consent
According to 45 CFR 46.117, an IRB may waive the requirement for the investigator to obtain a signed consent form for some or all subjects if it finds either:

___ The research presents no more than minimal risk

AND

___ The research involves procedures that do not require written consent when performed outside of a research setting

<OR>

___ The principal risks are those associated with a breach of confidentiality concerning the subject's participation in the research **AND**

___ The consent document is the only record linking the subject with the research

AND

___This study is not FDA regulated (45 CFR 46.117)

AND

___Each participant will be asked whether the participant wishes documentation linking the participant with the research, and the participants wishes will govern.

____ You have been granted Waiver of Informed Consent
According to 45 CFR 46.116(d), an IRB may waive or alter some or all of the requirements for Informed consent if:

___ The research presents no more than minimal risk to subjects;
___ The waiver will not adversely affect the rights and welfare of subjects;
___ The research could not practicably be carried out without the waiver; and
___ Whenever appropriate, the subjects will be provided with additional pertinent information they have participated in the study.

___ This study is not FDA regulated (45 CFR 46.117)

RESPONSIBILITIES OF PRINCIPAL INVESTIGATOR FOR ONGOING PROTOCOLS:

(1) Report **immediately** to the IRB any unanticipated problems.

(2) Proposed changes in approved research during the period for which IRB approval cannot be initiated without IRB review and approval, except when necessary to eliminate apparent immediate hazards to the participant. Changes in approved research initiated without IRB review and approval initiated to eliminate apparent immediate hazards to the participant must be promptly reported to the IRB, and reviewed under the unanticipated problems policy to determine whether the change was consistent with ensuring the participants continued welfare.

(3) Report any significant findings that become known in the course of the research that might affect the willingness of subjects to continue to take part.

(4) Insure that only persons formally approved by the IRB enroll subjects.

(5) Use **only** a currently approved consent form (remember approval periods are for 12 months or less).

(6) **Protect the confidentiality of all persons and personally identifiable data, and train your staff and collaborators on policies and procedures for ensuring the privacy and confidentiality of participants and information.**

(7) Submit for review and approval by the IRB all modifications to the protocol or consent form(s) prior to the implementation of the change.

(8) Submit a **Continuing Review Report** for continuing review by the IRB. Federal regulations require **IRB review of on-going projects no less than once a year** (a Continuing Review Report form and a reminder letter will be sent to you 2 months before your expiration date). Please note however, that if you do not receive a reminder from this office about your upcoming continuing review, it is the primary responsibility of the PI not to exceed the expiration date in collection of any information. Finally, it is the responsibility of the PI to submit the Continuing Review Report before the expiration period.

(9) Notify the IRB when the study has been completed and complete the Final Report Form.

(10) Please help us help you by including the above protocol number on all future correspondence relating to this protocol.

Thank you for your help in this matter.

Sincerely,

Protocol # Approval dates: -

References

American Diabetes Association (ADA) 2007. Direct and Indirect Costs of Diabetes in the United States. Retrieved on March 10, 2008 from http://www.diabetes.org/diabetes-statistics/cost-of-diabetes-in-us.jsp

American Diabetes Association (ADA) (2003). Standards of medical care for patients with diabetes mellitus. *Diabetes Care*, 26 (suppl 1):S33-S50.

American Diabetes Association (ADA) (2006). Diabetes Type 2. Retrieved on December 12, 2007 from http://www.diabetes.org/type-2-diabetes.jsp

American Diabetes Association (ADA) (2006). Diabetes Type 2: Conditions and Treatments. Retrieved on December 12, 2007 from http://www.diabetes.org/type-2-diabetes/treatment-conditions.jsp

American Diabetes Association (ADA) (2007). Making health food choices. Retrieved November 21, 2007 from http://www.diabetes.org/nutrition-and-recipes/nutrition/healthyfoodchoices.jsp

American Diabetes Association (ADA) (2008). Economic costs of diabetes in the U.S. in 2007. *Diabetes Care* 31:1–20, 2008.

American Diabetes Association (ADA) 2005. Centers for Disease Control and Prevention. National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2005. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2005.

American Diabetes Association (ADA) (2005). Diabetes Statistics for Women. Retrieved on March 10, 2008 from http://www.diabetes.org/type-1-diabetes/women-diabetes.jsp

American Diabetes Association (ADA) (2002). National diabetes fact sheet. Retrieved on November 18, 2003 from http://www.diabetes.org/info/facts/facts_natl.jsp,

Aljasem, L.I., Peyrot, M., Wissow, L. & Rubin, R. (2001). The impact of barriers and self-care efficacy on self -care behaviors in type 2 diabetes. *The Diabetes Educator*, 27, 393-404

Agency for Healthcare Research and Quality (AHRQ). (2001). Improving care for diabetes patients through intensive therapy and a team approach. Research in Action, Issue 2. AHRQ Publication Number 02-2005. http://www.ahrq.gov/research/diabria/diabria.pdf

Algert, S.J., Brzezinski, E. & Fernandez-Van Zante, G. (1998). Mexican American food practices, customs, and holidays. In, Ethnic and Regional Food Practices, A Series. The American Dietetic Association & The American Diabetes Association.

Anderson, R.M., Fitzgerald, J.T., & Oh, M. (1993). The relationship between diabetes-related attitudes and patients' self-reported adherence. *The Diabetes Educator*,19, 287-292.

Beckles GLA, Thompson-Reid PE, editors. Diabetes and Women's Health Across the Life Stages: A Public Health Perspective. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Diabetes Translation, 2001.

Benavides-Vaello, S., Garcia, A., Brown, S. Winchell, M. (2004) The use of focus groups to plan and evaluate diabetes self-management interventions for Mexican Americans. *Diabetes Educator*, March/April 2004.

Brown, P.A. & Piper, S.M. (1995). Empowerment or social control? Differing interpretations of psychology in health education. *Health Education Journal*, 54, 115-123.

Brown, S.A., Becker, H.A., Garcia, A.A., Barton, S.A., & Hanis, C. L. (2002). Measuring health beliefs in Spanish-speaking Mexican Americans with type 2 diabetes: Adapting an existing instrument. *Research in Nursing & Health*, 25, 145-158.

Brown, S.A., Blozis, S.A., Kouzekanani, K., Garcia, A.A., Winchell, M., & Hanis, C.L. (2005). Dosage effects of diabetes self-management education for Mexican Americans: The Starr County Border Health Initiative. *Diabetes Care*, 28, 527-532.

Brown, S.A., Upchurch, S.L., Garcia, A.A., Barton, S.A., & Hanis, C.L. (2001) Symptom-related self-care of Mexican Americans with type 2 diabetes: Preliminary findings of the Starr County diabetes education study. *The Diabetes Educator, 24, 331-339*.

Burke, J.P., Williams, K., Gaskill, S.P., Hazuda, H.P., Haffner, S.M., and Stern, M.P. (1999). Rapid rise in the incidence of type 2 diabetes from 1987-1996. *Archives of Internal Medicine*, 159, 1450-1456.

Cameron, L.D. & Leventhal, H. (2003). Self-regulation, health and illness: An overview. In Self-Regulation of Health and Illness Behavior, pp. 1-14, New York: Routledge.

Campbell, R., Pound, P., Pope, C., Britten, N., Pill, R., Morgan, M. & Donovan, J. (2003). Evaluating meta-ethnography: a synthesis of qualitative research on lay experiences of diabetes and diabetes care. *Social Science and Medicine*, 56, 671-684.

CDC (Center for Disease Control and Prevention) (2005), National Center for Health Statistics, Division of Health Interview Statistics, data from the National Health Interview Survey. Data & Trends, National Diabetes Surveillance System: Incidence of Diabetes Crude and Age-Adjusted Incidence of Diagnosed Diabetes per 1000 Population Aged 18-79 Years, by Sex, United States, 1997-2004. http://www.cdc.gov/diabetes/statistics/incidence/fig4.htm

CDC (Centers for Disease Control and Prevention) 2005, National Center for Health Statistics, Division of Health Interview Statistics, data from the National Health Interview Survey. Data computed by the Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Diabetes Translation. http://www.cdc.gov/diabe2007.tes/statistics/incidence/fig6.htm, last modified March 26, 2007.

CDC (Centers for Disease Control). (2005). National Diabetes Surveillance System. Retrieved on December 20, 2007 from: http://www.omhrc.gov/templates/content.aspx?ID=3324.

CDC (Centers for Disease Control). (2007). Health, United States 2007. Table 29. Retrieved on November 13, 207 from http://www.cdc.gov/nchs/data/hus/hus07.pdf

Clark, N.G., Fox, K.M., and Grandy, S. (2007) [For the Shield Study Group]. Symptoms of diabetes and their association with the risk and presence of diabetes. *Diabetes Care*, 30, 2868-2873.

Cohn, S. (1997). Being told what to eat: Conversations in a diabetes day centre. In Food, Health, and Identity. Caplan, P. (Ed). pp. 193-212. New York: Rutledge.

Corney, R.H. (1990). Sex differences in general practice attendance and help-seeking for minor illness. *Journal of Psychosocial Research*, 34, 525-534.

Counihan, C.M. (1999). *Bread as World in: The Anthropology of Food and the Body*. Routeledge: New York, NY.

Cramer, J.A., Scheyer, R.D., & Mattson, R.H. (1990). Compliance declines between clinic visits. *Archives of Internal Medicine*, 150, 1509-1510.

Creswell, J.W. (1998). Qualitative inquiry and research design: Choosing among five traditions. Thousand Oaks, CA: Sage Publications.

Devine, C.M., Sobal, J., Bisogni, C.A., & Connors, M. (1999). Food choices in three ethnic groups: Interaction of ideals, identities, and roles. *Journal of Nutrition and Education*, 31, 86-93.

Dietrich, U.C. (1996). Factors influencing the attitudes held by women with 2 diabetes: A qualitative study. *Patient Education and Counseling*, 29, 13-23.

Drewnowski, A. & Darmon, N. (2005). The economies of obesity: dietary energy density and energy cost. *American Journal of Clinical Nutrition*, 82 (suppl), 265S-73S.

Ebaugh, H.R.& Chavez, J.S. (1999). Agents for cultural reproduction and structural change: The ironic role of women in immigrant religious institutions. *Social Forces*, 78, 585-612.

Ferzacca, S. (2004). Lived food and judgments of taste at a time of disease. *Medical Anthropology,* 23, 41-67.

Fisher, L., Chesla, C.A., Skafe, M.M., Gilliss, C., Mullan, J.T., Bartz, R.J., et al. (2000). The family and disease management in Hispanic and European-American patients with type-2 diabetes. *Diabetes Care*. 23, 267-272.

Garcia, A. (2005). Symptom prevalence and treatments among Mexican Americans with type 2 diabetes. *The Diabetes Educator*, 31, 543-554.

Glasgow, R.E., Hampson, S.E., Stryker, L.A. & Ruggiero, L. (1997). Personal model beliefs and social-environmental barriers related to diabetes self-management. *Diabetes Care*, 20, 556-561.

Feunekes, G.I.J., de Graaf, C., Meyboom, S., & van Staveren, W.A. (1998). Food choice and fat intake of adolescents and adults: Associations of intakes within social networks. *Preventive Medicine*, 27, 645-656.

Hampl, J. & Sass, S. (2001). Focus groups indicate that vegetable and fruit consumption by food stamp-eligible Hispanics is affected by children and unfamiliarity with non-traditional foods. *Journal of the American Dietetic Association*, 101, 685-687.

Hanis, C.L., Ferrel, R.E., Barton, S.A., Aguilar, L., Garza-Ibarra, A., Tulloch, B.R., Garcia, C.A., and Schull, W.J. (1983). Diabetes among Mexican Americans in Starr County, Texas. *American Journal of Epidemiology*, 118, 659-672.

Harris, M.I., Flegal, K.M., Cowie, C.C., Eberhardt, M.S., Goldstein, D.E., &, Little, R.R., et al., (1998). Prevalence of diabetes, impaired fasting glucose, and impaired glucose tolerance in the U.S. adults. *Diabetes Care*, 21, 518-524.

Haynes, R.B., Sackett, D.L., Gibson, E.S., Taylor, D.W., Hackett, B.C., Roberts, R.S., et al. (1976) Improvement of medication adherence in uncontrolled hypertension. *Lancet*,1, 1265-1268.

Helman, C.G. (1994). Diet and nutrition. In, *Culture health and illness* (3rd ed.) (pp.37-62). Oxford: Butterworth-Heinemann.

Hernandez, C.A. (1996). Integration: The experience of living with insulin dependent (Type I) Diabetes Mellitus. *Canadian Journal of Nursing Research*, 28, 37-56.

Hertz, R. P., Unger, A.N., and Ferrario, C.M. (2006). Diabetes, Hypertension and Dyslipidemia in Mexican Americans and non-Hispanic Whites. *American Journal of Preventive Medicine*, 30, 103-110.

Ho, J.E., Paultre, F., Mosca, L. (2003). Is Diabetes Mellitus a cardiovascular disease risk equivalent for fatal stroke in women? Data from the women's pooling project. *Stroke*, 34, 2812-2816.

Howard, C., Andrade, S.J., & Byrd, T. (2001). The ethical dimensions of cultural competence in border health care settings. *Family and Community Health*, 23, 36-42.

Hunt, L.M., Pugh, J. and Valenzuela, M. (1998). How patients adapt diabetes self-care recommendations in everyday life. *Journal of Family Practice*, 46, 207-209.

Hunt, L.M., Valenzuela, M.A., & Pugh, J.A. (1998). *Porque me toco a mi?* Mexican American diabetes patients' causal stories and their relationship to treatment behaviors. *Social Science & Medicine*, 46, 959-969.

Hunt, K.J., Williams, K., Resendez, R.G., Hazuda, H.P., Haffner, S.M., Stern, M.P. (2002). All-cause and cardiovascular mortality among diabetic participants in the San Antonio heart study: Evidence against the "Hispanic paradox". *Diabetes Care*, 26, 1557-1563.

Jerome, N. (1975). On determining food patterns of urban dwellers in contemporary United States society. In *Gastronomy, the Anthropology of Food and Food Habits*. Margaret L. Arnott (Ed.) pp. 91-110. Chicago, IL:Aldine.

Jerome, N.W., Kandel, R., & Pelto, G. (1980). Nutritional anthropology. Pleasantville, NY:Redgrave. pp 36-42.

Kittler, P.G. & Sucher, K.P. (2001). Food and Culture.(3rd ed.). Belmont, CA: Wadsworth Publishing.

Kittler, P.G. & Sucher, K.P. (2003). Food and Culture (4th ed.). Belmont, CA: Wadsworth Publishing.

Kleinman, A. (1980). Patients and healers in the context of culture: An exploration of the borderland between anthropology, medicine, and psychiatry. Berkeley and Los Angeles: University of California Press.

Kralik, D., Koch, T. & Webb, C. (2001). The domination of chronic illness research by biomedical interests. *Australian Journal of Holistic Nursing*, 8, 4-12.

Kurian, A.K. & Borders, T.F. (2006). Racial and ethnic differences of regular providers and self-management education on diabetes preventive care. *Ethnicity and Disease*, Autumn 16, 786-791.

Langfield, S.B. (1973). Hypertension: deficient care of the medically underserved. *Annals of Internal Medicine*, 78, 19-23.

Lavery, L.A., van Houtum, W.H., Ashry, H.P., Armstrong, D.G., & Pugh, J.A. (1999). Diabetes-related lower-extremity amputations disproportionately affect Africa Americans and Mexican Americans. *Southern Medical Journal*, 92, 593-599.

Leventhal, H., Brissette, I. & Leventhal, E. (2003). Representations of chronic illness. In Self-Regulation of Health and Illness Behavior, pp. 97-118, New York:Routledge.

Leventhal, H., Meyer, D. & Nerenz, D.R. (1980). The common sense representation of illness danger. In Contributions to Medical Psychology, vol. 2, S. Rachman (ed) pp. 7-30. New York: Pergamon Press.

Lincoln, Y.S., and Guba, E. G. (1985). Naturalistic inquiry. Beverly Hills, CA: Sage.

Luyas, G. (1991). An explanatory model of diabetes. *Western Journal of Nursing Research*, 13, 689-705.

MaClean, H.M. (1991). Patterns of diet related self-care in diabetes. *Social Science & Medicine,* 6, 689-696.

Mendias, E.P., Clark, M.C., and Guevara, E.B. (2001). Women's health perceptions and self-care practice: implications for health care delivery. *Health Care for Women International*, 22, 299-312.

Messer, E. (1984). Anthropological perspectives on diet. *Annual Review of Anthropology*, 13, 205-249.

Microsoft® Excel X for Mac® Service Release 1. © 1985-2001 Microsoft Corporation. All rights reserved.

Mitchell B.D., Rainwater D.L., Hsueh, W., Kennedy A.J., Stern M.P., & Maccluer, J.W. (2003). Familial aggregation of nutrient intake and physical activity – results from the San Antonio family heart study. *Annals of Epidemiology*, 13,128-135.

Mokdad, A.H., Bowman, B.A., Ford, E.S., Vinicor, F., Marks, J.S., Koplan, J.P. (2001) The continuing epidemics of obesity and diabetes in the United States. *JAMA*, 286, 1195-1200.

The National Women's Health Information Center, US Department of Health and Human Services, Office on Women's Health, Health Problems in Hispanic American/Latina Women: Diabetes. Retrieved from http://www.4woman.gov/minority/hispanicamerican/diabetes.cfm

Neuhouser, M.L., Miller, D.L., Kristal, A.R., Barnett, M.J. & Cheskin, L.J. (2002). Diet and exercise habits of patients with diabetes, dyslipidemia, cardiovascular disease or hypertension. *Journal of the American College of Nutrition*, 21, 394-401.

Newby, P. K. (2006). Examining energy density: Comments on diet quality, dietary advice, and the cost of healthful eating. *Journal of the American Dietetic Association*, 106, 1166-69.

Nyhlin, K.T. (1990). Diabetic patients facing long-term complications: coping with uncertainty. *Journal of Advanced Nursing*, 15, 1021-1029.

O'Connor, P.J., Crabtree, B.F., & Yanoshik, M.K. (1997). Differences between diabetic patients who do and do not respond to a diabetes care intervention: a qualitative analysis. *Family Medicine*, 29, 424-428.

Office of Minority Health. (2008). US Department of Health and Human Services. Retrieved on March 10, 3008 from http://www.omhrc.gov/templates/browse.aspx?lvl=2&lvlID=21

Oladele, C.R. & Barnett, E. (2006). Racial/ethnic and social class differences in preventive care practices among persons with diabetes. *BMC Public Health*, 6, 259.

Paterson , B. (2001). Myth of empowerment in chronic illness. *Journal of Advanced Nursing,* 34, 574-81.

Paterson, B.L. & Sloan, J.A. (1994). Phenomenological study of the decision-making experience of Individuals with long standing diabetes. *Canadian Journal of Diabetes Care,* 18,10-19.

Paterson, B.L. & Thorne, S. (2000). Expert decision making in relation to unanticipated blood glucose levels. *Research in Nursing &Health*, 23, 147-157.

Paterson , B. L.., & Thorne S. (2000). Developmental evolution of expertise in diabetes self-management. *Clinical Nursing Research,* 9, 402-419.

Paterson, B., Thorne, S., Crawford, J., & Tarko, M. (1999). Living with diabetes as a transformational experience. *Qualitative Health Research,* 9, 786-802.

Paterson, B.L., Thorne, S., & Dewis, M. (1998). State of the science. Adapting to and managing diabetes...clinical sidebar by Mary Gillespie. *Image - the Journal of Nursing Scholarship,* 30, 57-62.

Paterson, B., Thorne, S., & Russell, C. (2002). Disease-specific influences on meaning and significance in self-care decision-making in chronic illness. *Canadian Journal of Nursing Research,* 34, 61-74.

Polit, D. F. & Hungler, B.P.(1999). Nursing Research, Principles and Methods. Philadelphia, PA: J.B. Lippincott, Williams & Wilkins.

Raynor, HA. Kilanowski, CK, Esterlis, I, Epstein, L.H. (2002). A cost-analysis of adopting a healthful diet in a family-based obesity treatment program. *Journal of the American Dietetic Association,* 102, 645-656.

Ribisl, K.M., Winkleby, M.A., Fortmann, S.P., & Flora, June A. (1998). The interplay of socioeconomic status and ethnicity on Hispanic and White men's cardiovascular risk and health communication patterns. *Health Education Research*, 13, 407-417.

Rivera Adams, C. (2003). Lessons learned from urban Latinas with type 2 diabetes mellitus. *Journal of Transcultural Nursing*, 14, 255-265.

Rubin, H.J. & Rubin, I. (1995). Qualitative Interviewing: the Art of Hearing Data. Sage Publications: Thousand Oaks, CA.

Saydah, S., Cowie, C. Eberhardt, M.S., De Rekeneire, N. & Naravan K.M. (2007). Race and ethnic differences in glycemic control among adults with diagnose diabetes in the United States. *Ethnicity and Disease*, Summer 17, 529-535.

Schechter, C. (2002). Improving adherence to diabetes self-management recommendations. *Diabetes Spectrum*, 15, 170-175.

Scott, L.W., Foreyt, J.P., Young, J. Reeves, R.S., O'Malley, M.P., Gotto, A.M. Jr. (1979). Are low cholesterol diets expensive? *Journal of the American Dietetic Association*, 74 (5), 558-561.

Shumaker, S.A. & Hill, D.R. (1991). Gender differences in social support and physical health. *Health Psychology*, 10, 102-111.

Sullivan, E.D. & Joseph, D.H. (1998). Struggling with behavior changes: A special case for clients with diabetes. *Diabetes Educator*, 24, 45-52.

Spradley, J.P. (1979). Ethnography and culture. In, The ethnographic interview. Holt, Rinehart, and Winston: Florida.

Sundquist J. & Winkleby, M. (1999). Cardiovascular risk factors in Mexican American adults: a transcultural analysis of NHANES III, 1988-1994. *American Journal of Public Health,* 89, 723-731.

Sundquist, J. Winkleby, M. A., & Pudaric, S. (2001). Cardiovascular disease risk factors among older Black, Mexican-American, and White women and men: An analysis of NHANES III, 1988-1994, *Journal of the American Geriatrics Society,* 49, 109-116.

Texas Department of State and Health Services (2003)**.** Cardiovascular Disease in Texas: A Surveillance Report and Program Strategies 2003 [On line Information] 2003. Retrieved on November 01, 2004 from http://www.tdh.state.tx.us/wellness/data/cvdsurveillance.ppt;

Texas Department of State Health Services (2007). Medically Underserved Area (MUA) and Medically Underserved Population (MUP) Designations in Texas. Retrieved on March 3, 2008 from http://www.dshs.state.tx.us/chs/hprc/MUACovr.shtm

Texas Department of State and Health Services (2004). Diabetes Prevalence in Texas 2004. Texas Diabetes Council. Retrieved on February 13, 2005 from http://www.tdh.state.tx.us/diabetes/tdc/diabetes.html.

Texas Secretary of State (SOS) (2007). Texas Border and Mexican Affairs. What is a *colonia*? Retrieved on November 21, 2007 from http://www.sos.state.tx.us/border/colonias/what_colonia.shtml

Texas Secretary of State (SOS) (2007). Texas Border and Mexican Affairs. *Colonias* in Starr County. Retrieved on March 3, 2008, from http://www.sos.state.tx.us/border/colonias/reg-colonias/starr-7.shtml

Texas State Data Center and Office of the State Demographer (2008) Retrieved from http://txsdc.utsa.edu/

Thorne, S.E., Nyhlin, K.T., & Paterson B.L. (2000). Attitudes toward patient expertise in chronic illness. *International Journal of Nursing Studies*, 37, 303-311.

Thorne, S., & Paterson, B. L. (1998). Shifting images of chronic illness. Image – the *Journal of Nursing Scholarship*. 30, 173-178.

Thorne, S.E., & Paterson, B.L. (2000). Two decades of insider research: what we know and don't know about chronic illness experience. *Annual Review of Nursing Research*, 18, 183-25.

U.S. Census Bureau (2002). Year 2000 Census, Summary File 3, Table p82. Retrieved on March 08, 2008 from http://factfinder.census.gov/servlet/DCGeoSelectServlet?ds_name=DEC_2000_SF3_U

U.S. Census Bureau, Census 2000: Population Projections. Retrieved on November 19, 2003 from http://www.census.gov/population/www/projections/popproj.html,

U.S. Department of Health and Human Services (2008). HRSA, Health Professional Shortage Areas. Retrieved on March 3, 2008 from http://hpsafind.hrsa.gov/

Van Boemel, G.B. & Lee, P.P. (1999). Effects of adherence to traditional female sex roles on compliance with diabetic regimens: A case history. *Journal of Visual Impairment & Blindness*, 93, 17-27.

Warda, M.R. (2000). Mexican American's perceptions of culturally competent care. *Western Journal of Nursing Research*, 22, 203-224.

Winkleby, M.A., Kraemer, H.C., Ahn, D.K., & Varady, A.N. (1998). Ethnic and socioeconomic differences in cardiovascular disease risk factors: findings for women from the third national health and nutrition examination survey, 1988-1994. *JAMA*, July 22/29, 280, 356-362.

Winkleby, M.A., Gardner, C.D., & Taylor, B. (1996). The influence of gender and socioeconomic factors on Hispanic/White differences in body mass index. *Preventive Medicine*. 25, 203- 211.

Wood, F. (2002) Leisure time activity of Mexican Americans with diabetes. *Journal of Advanced Nursing*, 45, 190-196.

World Health Organization Department of Noncommunicable Disease Surveillance (1999). Definition, Diagnosis and Classification of Diabetes Mellitus and its Complications (PDF).

World Health Organization (2006) Fact Sheet No. 312, What is diabetes? (PDF).

Yetley, E.A., Yetley, M.J., & Aguirre, B. (1981). Family role structure and food related roles in Mexican American families. *Journal of Nutrition Education*, 13 (Suppl), S96-S101.

Vita

Sandra Benavides-Vaello was born in South Texas. Sandra graduated from Hebbronville High School, Hebbronville, Texas. In 1986 she received a Bachelor of Science in Nursing from the University of Texas at Austin. That summer she joined the staff at University Hospital (formerly known as Bexar County) in San Antonio, Texas in the Adult Coronary and Medical Intensive Care Unit. In 1988 Sandra returned to Austin and continued to work as a critical care nurse through 1991. During the early 1990's her interests moved into public health nursing. Her focus broadened to include health policy and in August of 1994 she earned her Master of Public Affairs from the Lyndon Baines Johnson (LBJ) School of Public Affairs, at the University of Texas at Austin. After graduating from the LBJ School Sandra accepted a position with the Texas Association of Community Health Centers, Inc. (TACHC), a not for profit organization. Sandra's work with TACHC led to an opportunity to pursue doctoral study at the University of Texas at Austin, School of Nursing. Sandra resumed her position at TACHC as Director of Clinical Affairs, in 2006, and continues in this capacity today.

Permanent address: 8208 Siringo Pass, Austin, Texas 78749

This dissertation was typed by the author.