DIABETES COLLECTIVE EFFICACY AMONG MEXICAN AMERICAN ADULTS

by

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF TABLES</td>
<td>5</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>6</td>
</tr>
<tr>
<td>CHAPTER 1: INTRODUCTION</td>
<td>8</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>8</td>
</tr>
<tr>
<td>Diabetes Management</td>
<td>12</td>
</tr>
<tr>
<td>Statement of the Purpose</td>
<td>13</td>
</tr>
<tr>
<td>Research Aims</td>
<td>13</td>
</tr>
<tr>
<td>Significance to Nursing</td>
<td>14</td>
</tr>
<tr>
<td>Summary</td>
<td>15</td>
</tr>
<tr>
<td>CHAPTER 2: DIABETES</td>
<td>16</td>
</tr>
<tr>
<td>Diabetes Self-management</td>
<td>17</td>
</tr>
<tr>
<td>Conceptual Framework</td>
<td>18</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>18</td>
</tr>
<tr>
<td>Collective Efficacy</td>
<td>22</td>
</tr>
<tr>
<td>Summary</td>
<td>27</td>
</tr>
<tr>
<td>CHAPTER 3: METHODS</td>
<td>29</td>
</tr>
<tr>
<td>Introduction</td>
<td>29</td>
</tr>
<tr>
<td>Research Aims</td>
<td>29</td>
</tr>
<tr>
<td>Design</td>
<td>30</td>
</tr>
<tr>
<td>Sample</td>
<td>31</td>
</tr>
<tr>
<td>Inclusion/Exclusion Criteria</td>
<td>31</td>
</tr>
<tr>
<td>Sample Size</td>
<td>31</td>
</tr>
<tr>
<td>Setting</td>
<td>31</td>
</tr>
<tr>
<td>Recruitment</td>
<td>32</td>
</tr>
<tr>
<td>Protection of Human Subjects</td>
<td>32</td>
</tr>
<tr>
<td>Instrument</td>
<td>32</td>
</tr>
<tr>
<td>Data Collection</td>
<td>34</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>36</td>
</tr>
<tr>
<td>Summary</td>
<td>38</td>
</tr>
<tr>
<td>CHAPTER 4: RESULTS</td>
<td>39</td>
</tr>
<tr>
<td>Introduction</td>
<td>39</td>
</tr>
<tr>
<td>Summary</td>
<td>49</td>
</tr>
<tr>
<td>CHAPTER 5: CONCLUSION</td>
<td>50</td>
</tr>
<tr>
<td>Introduction</td>
<td>50</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS – Continued

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion/Interpretation of Results</td>
<td>50</td>
</tr>
<tr>
<td>Limitations of the Study</td>
<td>52</td>
</tr>
<tr>
<td>Implications for Nursing Practice</td>
<td>53</td>
</tr>
<tr>
<td>Recommendations for Future Research</td>
<td>53</td>
</tr>
<tr>
<td>Summary</td>
<td>54</td>
</tr>
<tr>
<td>APPENDIX A: ORIGINAL INSTRUMENT</td>
<td>55</td>
</tr>
<tr>
<td>APPENDIX B: ADAPTED INSTRUMENT</td>
<td>58</td>
</tr>
<tr>
<td>APPENDIX C: RECRUITMENT SCRIPT</td>
<td>61</td>
</tr>
<tr>
<td>APPENDIX D: RECRUITMENT FLYER</td>
<td>63</td>
</tr>
<tr>
<td>APPENDIX E: DISCLOSURE FORM FOCUS GROUP</td>
<td>65</td>
</tr>
<tr>
<td>APPENDIX F: DISCLOSURE FORM QUESTIONNAIRE</td>
<td>68</td>
</tr>
<tr>
<td>APPENDIX G: EXPERT NURSE RESEARCHER RATING SCALE</td>
<td>71</td>
</tr>
<tr>
<td>APPENDIX H: FOCUS GROUP RATING SCALE</td>
<td>75</td>
</tr>
<tr>
<td>APPENDIX I: FOCUS GROUP QUESTIONS</td>
<td>79</td>
</tr>
<tr>
<td>APPENDIX J: DIABETES ESSENTIAL SEVEN HANDOUT</td>
<td>82</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>85</td>
</tr>
</tbody>
</table>
LIST OF TABLES

TABLE 1. Expert Evaluators Rating of Collective Efficacy Instrument Trial 1 (n=5) .................40
TABLE 2. Expert Evaluators Rating of Collective Efficacy Instrument Trial 2 (n=5) ...............41
TABLE 3. Demographics of Family Members with T2DM ..........................................................42
TABLE 4. Focus Group Content Validity Results (n=4)....................................................................47
TABLE 5. First Administration of Collective Efficacy Questionnaire (n=5).................................48
TABLE 6. Second Administration of Collective Efficacy Questionnaire (n=4).............................48
TABLE 7. Pearson’s Correlation Coefficient of Collective Efficacy Questionnaire (n=4)..........48
Type 2 Diabetes Mellitus (T2DM) and related complications disproportionately affect
Mexican American adults living in the United States (US) - Mexico border region. The incidence
of T2DM among the Hispanic subgroup in this geopolitical region is higher (16%) than the
national average in either Mexico (14%) or the US (15%). The increased incidence of T2DM can
be linked to genetics, poverty, barriers to accessing health care, and culturally incongruent
interventions.

The purpose of this study was to apply the concept of collective efficacy to T2DM
management among Mexican American adults who reside in the Arizona-Sonora, Mexico border
region. The aims of this study were to: 1) adapt the eight-item Diabetes Self-Efficacy
questionnaire to measure the group referent (family) for diabetes collective efficacy, and 2) test
the validity and reliability of the Diabetes Family Collective-Efficacy questionnaire with a
sample of Mexican American adults who have a family member diagnosed with T2DM.

A mixed method design was used for this study. Content validity was established in two
phases in which expert judges used a five-point rating scale to evaluate the eight items in the
adapted questionnaire. In Phase 1, five researchers with expertise related to the concept of self-
efficacy evaluated the questionnaire for content validity (Lynn, 1986). In Phase 2, four Mexican
American women who had a family member with T2DM participated in a focus group to
evaluate content validity of the questionnaire. Finally, test-retest reliability was assessed with
four Mexican American adults who shared a household with a family member diagnosed with
T2DM.
Content validity of the adapted questionnaire was achieved through 100% consensus in both groups of content experts. Test-retest was determined by responses from five participants who completed the adapted questionnaire electronically (via survey monkey) on two separate occasions 10 days apart. The data were computed via SPSS version 18. Pearson’s correlation coefficient was calculated by comparing Time 1 to Time 2 responses of each item. Four items were accepted at the correlation coefficient of 0.80.

This study contributes to a culturally congruent approach to T2DM management among Mexican Americans in the border region. The collective or family-level approach to T2DM management is culturally congruent with the values and beliefs that underpin the Mexican culture. Further instrumentation with a larger sample size is required to strengthen the adapted Diabetes Collective Efficacy questionnaire. Future research is recommended to translate and test the adapted instrument in Spanish with a sample of Mexican Americans who have a family member with T2DM.
CHAPTER 1: INTRODUCTION

Statement of the Problem

The incidence of diabetes is escalating worldwide. The National Diabetes Information Clearinghouse (2007) estimates that there are 23.5 million people who are 20 years of age or older with diabetes. Furthermore, there are approximately 1.5 million new cases of diabetes diagnosed each year in the United States (National Diabetes Information Clearinghouse [NDIC], 2007). Of the 23.5 million persons with diabetes, the majority (90-95%) has type 2 diabetes (T2DM) (Centers for Disease Control and Prevention [CDC], 2007). The decreased productivity, disability, and medical costs surrounding diabetes total some 174 billion dollars a year (CDC, 2007). It has been estimated that about 48.3 million people will be diagnosed with diabetes by the year 2050 (Coury, 2006).

Diabetes, if uncontrolled, can have many destructive effects. Many of the following complications are due to hyperglycemia associated with uncontrolled diabetes. The serious complications of diabetes can be broken down into microvascular and macrovascular diseases. Microvascular disease is the leading cause of neuropathies, end-stage renal failure, and blindness. Many of the macrovascular problems including coronary artery disease, peripheral arterial disease, and stroke are among the major causes of morbidity and mortality of people with T2DM. Many individuals with T2DM experience early death from heart disease or stroke (Black & Hawks, 2009). The National Institute of Health (2007) notes that 68% of individuals with diabetes die from cardiac-related conditions and 16% from stroke. Higher rates of morbidity from pulmonary artery disease, amputations and gangrene are found in patients diagnosed with T2DM compared to the rest of the population who are not diagnosed with T2DM (NDIC 2007).
More than 55% of major amputations in patients with lower extremity occlusive disease are related to arterial occlusion caused by diabetes mellitus (DM) (Black & Hawks, 2009). Diabetes is also the culprit for many peripheral, autonomic, proximal, and focal neuropathies. Furthermore, all the macrovascular and microvascular diseases caused by diabetes decreases net tissue perfusion and the ability of white blood cells to enter infected areas, thus a person with diabetes is more susceptible to infection (NDIC, 2007).

About 44% of Hispanics and Mexican Americans with T2DM have more than one diabetes-related complication (American Association of Clinical Endocrinologists, 2008). Macrovascular complications of diabetes such as chest pain, coronary heart disease, stroke, and congestive heart failure occur in Hispanics with diabetes at a rate of 22.8% versus 2.2% in those individuals with normal blood sugar levels. Microvascular complications of the feet are also more prevalent in Hispanics with diabetes (20.2%) versus those without elevated blood sugars (13.0%) (American Association of Clinical Endocrinologists, 2008). Chronic kidney disease also occurs at a higher rate in Hispanics with diabetes (37.6%) versus 5.1% in their non-diabetic counterpart (American Association of Clinical Endocrinologists, 2008).

Diabetes disproportionately affects ethnic minorities (CDC, 2007). Mexican Americans, the largest subgroup of Hispanics, are twice as likely to develop T2DM as are non-Hispanic whites (CDC, 2007). The Hispanic population in the U.S. reached 46.8 million by the end of 2008 (PEW, 2008). Hispanic men and women have higher lifetime risks for developing diabetes than any other ethnic group (CDC, 2002). Diabetes is the seventh leading cause of death among non-Hispanic white Americans but the fifth leading cause for Hispanics (CDC, 2002). Hispanics born in the year 2000 have a 2-in-5 risk of developing diabetes (CDC, 2002). Based on the
rapidly escalating Hispanic population in the U.S., this is a major public health concern. A large proportion (64%) of the Mexican American population resides in the border states of California, Texas, and Arizona (PEW, 2007). Among the 50 counties along the U.S./Mexico border, Hispanics make up the majority (33%) of the minority population (PEW, 2007).

Persons of Mexican origin who live in the U.S.-Mexico border region are disproportionately affected by diabetes. Estimates are that 1.2 of the 8 million people living in the 2,000 mile long U.S.-Mexico border region suffers from T2DM (Pan American Health Organization, 2004). Furthermore, another 4.3 million are overweight or obese, which are known risk factors for developing T2DM (Epstein, 2004). Estimates are that another 13.9% of individuals living in the U.S.-Mexico border region are considered to have pre-diabetes (Epstein, 2004). Based on the National Institute of Health (2007), residents of the U.S.-Mexico border region have a higher incidence of diabetes (16%) than the national average of the United States (14%) or Mexico (15%). Additionally, Mexican Americans are more than twice as likely to experience complications of diabetes are non-Hispanic whites (Cohen & Ingram, 2005). The mortality rate from complications of diabetes in the U.S.-Mexico border region is 50% higher than the rest of the United States (Ingram, Gallegos & Elenes, 2005).

Risk factors for developing T2DM such as physical inactivity, genetics, obesity, and gestational diabetes mellitus are more common among Mexican Americans than in whites (Cohen & Ingram, 2005). Obesity is the biggest factor affecting Mexican American’s increased prevalence of T2DM (Martorell, 2005). Mexican Americans are “one of the fattest groups” of people “in one of the fattest nations on earth” (Martorell, 2005, p.1). Some 75% of Mexican American adults were overweight or obese by the end of the 20th century (Martorell, 2005). The
increased risk factors for developing T2DM among Mexican Americans could be related to the challenges to managing T2DM in the US-Mexico border region. Evidence demonstrates that diabetes self-management behaviors help to prevent or delay the complications of T2DM (AADE 2010; Rosal, Olendzki & Reed, 2005). Successfully integrating diabetes self-management behaviors into everyday living is more difficult for Hispanics in the border region when compared to other U.S. Hispanics (McEwen, Rentfro, & Vincent, 2009). Mexican American women with T2DM reported that life stressors related to work and family were often prioritized over diabetes self-management (McEwen, Baird, Pasvogel & Gallegos, 2007).

Many factors contribute to the distressing effects of T2DM in the border region. One factor is that most of the counties along the border are underserved areas which lack pharmaceutical coverage and health insurance (U.S.-Mexico Border Health Commission, 2007). Other issues include: 1) lack of continuity of care due to patients obtaining health care in both the U.S. and Mexico; 2) seasonal employment; and 3) fear of having health care interfere with their immigration status (Ingram, Gallegos, & Elenes, 2005). There are many barriers preventing Mexican-Americans in the border region from obtaining diabetes management resources such as a lack of Spanish speaking certified diabetes educators (CDEs) and an environment that doesn’t encourage physical activity and a nutritious diet (Ingram, Gallegos, & Elenes, 2005). Distinct cultural factors further contribute to the distressing effects of T2DM on the border. A distinct border culture exists that is often marginalized from the mainstream societies of Mexico and the United States (McEwen, Rentfro, & Vincent, 2009). Mexican-Americans along the U.S.-Mexico border region also have a distinct cultural support infrastructure where the family plays a major role in decision making (McEwen et al, 2009). “Culturally competent approaches to Hispanic
healthcare that incorporate the cultural value of family, or *familismo*, are more effective than conventional ways of addressing diabetes in this population” (McEwen et al, 2009, p. 18; Teufel-Shone, Drummond & Rawiel, 2005).

**Diabetes Management**


The seven essential behaviors (AADE, 2010) for diabetes management are commonly underpinned by the concept of self-efficacy (Lorig & Holman, 2003). The term self-management was used in the mid-1960s by Thomas Creer in his work on the rehabilitation of chronically ill children (Lorig & Holman, 2003). Creer and colleagues acknowledged that their work was based on Bandura’s early development of the self-efficacy model (Lorig & Holman, 2003). Such a self-efficacy/self-management approach is aligned with the world view of Euro-American individualism. This alignment has been addressed in similar literature regarding caregiving of older Mexican American family members in communities along the US-Mexico border (Crist et al., 2009, Phillips & Crist, 2008). However, in contrast to Euro-American individualism, Mexican Americans are generally described as collectivistic (Marin & Marin, 1991). Hence, in the US-Mexico border region there exists a tension between the individualistic world views that
underpin diabetes management education programs and the collectivistic world view of Mexican Americans for whom the programs are designed to serve.

The collective efficacy model, which was later formulated by Bandura in 1997, may be a more culturally congruent and effective means of assessing Mexican Americans’ ability to manage their diabetes regimen. Collective efficacy represents the beliefs of group members concerning the performance capability of a social system as a whole (Goddard, Hoy, & Hoy, 2004; Goddard, 2001). If these concepts were applied to T2DM management among Mexican Americans, it would examine how the most proximal social group, the family, contributes to the management of that individual’s diabetes (Goddard, Hoy, & Hoy, 2004). Collective efficacy may be a more culturally appropriate concept than self-efficacy as applied to T2DM management among Mexican American adults.

**Statement of the Purpose**

The purpose of this study is to apply the concept of collective efficacy to T2DM management among Mexican American adults who reside in the Arizona-Sonora, Mexico border region by adapting an existing diabetes self-efficacy questionnaire to measure the concept of diabetes collective efficacy, and then testing the new questionnaire with Mexican American adults who have a family member who has been diagnosed with T2DM.

**Research Aims**

AIM 1. Adapt the eight-item Diabetes Self-Efficacy questionnaire to measure the group referent (family) for Diabetes Collective Efficacy.
AIM 2. Test the validity and reliability of the Diabetes Family Collective-Efficacy questionnaire with a sample of Mexican American adults who have a family member diagnosed with T2DM.

**Significance to Nursing**

There is a large literature base that supports the link between health disparities and race and ethnicity in the United States (CDC, 2002). As noted in the introduction, diabetes health disparities are prevalent among Mexican Americans who reside in the U.S. Mexico border region. The Hispanic population, predominately Mexican Americans, is negatively impacted by diabetes-related health disparities (CDC, 2007). The Hispanic population in the United States reached 46.8 million and is expected to increase exponentially (PEW, 2008). If the health disparities related to T2DM aren’t addressed within this growing vulnerable population, there will be an exponential and potentially uncontainable medical costs and decline in the quality and quantity of life among Mexican Americans in the U.S.-Mexico border region. Many of the existing diabetes education programs are unable to meet the needs of the Mexican American border population due culturally congruent interventions for successfully managing T2DM. (McEwen, Rentfro & Ritter, 2009).

The existing diabetes management programs tend to assume that one intervention or treatment model will work for a variety of people of different cultural backgrounds (Ingram, Gallegos, & Elenes, 2005). Hispanic issues, or more specifically, Mexican American issues are unique and don’t necessarily conform to the philosophy and way of thinking of non-Hispanic whites (Phillips & Crist, 2008). In order to improve quality of life and decrease health disparities experienced among persons of Mexican origin who reside in the US-Mexico border region,
research has to be done to gain knowledge on how to prevent disease and promote health within individual vulnerable populations. Culturally tailored interventions and education may be much more effective than trying to persuade them to comply with the interventions that were designed for other cultures (McEwen et al., 2007).

Before a culturally relevant model that follows the philosophy of collective efficacy can be created, an instrument must be created that accurately captures the concept of collective efficacy as applied to T2DM management. Developing an instrument that is philosophically and culturally congruent will allow Mexican Americans residing in the U.S.-Mexico border region to increase their capacity for collective management of T2DM which may improve their quality of life.

**Summary**

Chapter 1 discussed the statement of the problem, background information on diabetes, the purpose and research aims, and the significance of this problem to nursing. T2DM is a growing problem in the United States. T2DM contributes to a disproportionate health burden among Mexican Americans who reside in the U.S.-Mexico border region who are affected by the complications of diabetes. If T2DM is uncontrolled it has destructive effects on the body from neuropathies to death. Since people, populations, and cultures are unique, one intervention for diabetes will not be effective for everyone. Thus, it is necessary to develop culturally congruent measures of concepts that are associated with T2DM management. That is, a measure of diabetes collective-efficacy - that replaces diabetes self-efficacy - is called for to measure the concept among Mexican American adults with T2DM.
CHAPTER 2: DIABETES

Diabetes mellitus is a “chronic, progressive disease characterized by the body’s inability to metabolize carbohydrates, fats and proteins leading to hyperglycemia” (Black & Hawks, 2009). Diabetes mellitus is characterized by the body’s inability to produce insulin or the body’s resistance to insulin. Diabetes is classified into one of four different clinical states: Type 1 diabetes, type 2 diabetes, gestational diabetes and pre-diabetes (Black & Hawks, 2009). In type 1 diabetes the body can’t produce insulin due to the destruction of pancreatic beta cells from an autoimmune response or secondary to another disease process (Black & Hawks, 2009). Type 2 diabetes is associated with progressively less sufficient response by beta cells to glucose elevations or “desensitization” (Black & Hawks, 2009). Gestational diabetes mellitus occurs when glucose levels are high during pregnancy. Pre-diabetes is where a patient’s blood glucose levels are above normal limits, but aren’t elevated enough to be considered T2DM (Black & Hawks, 2009). Some risk factors that predispose someone for T2DM include sedentary lifestyle, obesity, family history, being a member of an ethnic minority, genetics and metabolic syndrome (Black & Hawks, 2009).

Individuals have to meet certain criteria in order to be diagnosed with diabetes. Fasting glucose values normally range from 70 to 100 mg/dl and a person with a value slightly outside that range isn’t considered diabetic (ADA, 2011). To be diagnosed with diabetes one must have one of the following: 1) random plasma glucose value greater than 200 mg/dl; 2) at least two fasting glucose levels greater than or equal to 126 mg/dl; 3) an oral glucose tolerance test 2 hour plasma glucose level greater or equal to 200 mg/dl; along with 4) hyperglycemic symptoms such as polyphagia, polydipsia, and polyuria (American Diabetes Association [ADA], 2010). If an
individual has a fasting glucose level of 100-125 or an oral glucose tolerance test of 140-199 they would be considered pre-diabetic (ADA, 2011).

Diabetes Self-management

Current diabetes treatment utilizes the American Diabetes Association”s (ADA) model. The ADA has outlined the essential seven self care behaviors for effective self management outlined (AADE, 2008). The essential seven behaviors include: healthy eating, being active, monitoring, taking medication, problem solving, healthy coping, and reducing risk (AADE, 2008). Individuals with T2DM must incorporate these behaviors into their lives everyday. Changing one”s behaviors is dependent on an individual”s belief that they can meet the set tasks necessary for diabetes management (AADE, 2008). For many people, altering their diet is a difficult lifestyle change (Black & Hawks, 2009). Planning healthy meals and snacks and using the carbohydrate counting or glycemic method when preparing meals is necessary for adequate glycemic control. Individuals are responsible for planning activity time into their day and knowing how their blood glucose responds to exercise in order to avoid hypoglycemia when exercising. To ensure that individuals are within normal glycemic limits, individuals with T2DM must frequently self monitor their daily blood glucose level. Should an individual with diabetes fall outside the normal blood glucose limits they need to have problem solving skills to determine how they can achieve glycemic control so they can make lifestyle adjustments accordingly. Part of diabetes self management also involves taking medication in a timely manner to achieve adequate glycemic control. They must understand how their medications affect their glycemic index and how to manage their daily activities respectively. By utilizing the
AADE’s seven essential self care behaviors into everyday life individuals can reduce slow disease progression and reduce their risk for chronic complications.

Self-management for T2DM is extensive and comprehensive. Self management incorporates the patient’s ability to control blood pressure, lipid levels, glucose levels, and the coordination of specialty preventive health services when needed (Bowman & Vinicor, 2005). The ADA recommends that individual’s with T2DM keep their A1C levels below 7.0% and that they are checked twice a year or every three months if glucose levels are poorly controlled (ADA, 2010). The A1C test measures average blood glucose control for the last 2-3 of months (ADA, 2010). Medication requirements vary among individual’s with T2DM. If lifestyle changes are unable to achieve glycemic control, the patient should be started on the oral hypoglycemic, metformin (ADA, 2011). If this therapy doesn’t work, another oral medication of a different pharmacologic class should be added (ADA, 2011). Should A1C levels still be outside normal limits, insulin may be added to the regimen or used by itself (ADA, 2011). The use of oral anti-diabetic agents or insulin should be done carefully because overdose can cause hypoglycemic conditions which could affect brain function, cause a person to become confused or unconscious and be life threatening (Black & Hawks, 2009). Maintaining these lifestyle changes and a complex medication regimen makes diabetes self management challenging.

Conceptual Framework

Self-efficacy

Bandura (1977) describes the concept of self-efficacy as an individual’s belief in their capability of performing a specific task or behavior successfully and meeting his/her goals if
adequate effort is applied. The Euro-American individualistic philosophy that underpins self-efficacy has been linked to T2DM management (AADE, 2010).

Bandura’s concept of self-efficacy is relevant to T2DM self-management as many complex daily tasks of achieving glycemic control are likely to be influenced by the individual’s belief in his or her ability to perform the diabetes management behaviors. Albert Bandura affirms that individuals develop a sense of self-efficacy based on four hierarchical sources of information: (1) the opportunity to master a task; (2) vicarious experiences where role models are observed; (3) verbal praise and/or coaching; and (4) level of arousal or physiological state the individual experiences when attaining the task (Bandura, 1986).

The findings of various studies propose that self-efficacy plays a significant role in predicting an individual’s adherence to T2DM self-management behaviors (Aljasem, Peyrot, Wissow, & Rubin, 2001). A study conducted with African American and Anglos with T2DM (N=309) demonstrated that increased engagement with required self-management behaviors could be predicted by self-efficacy. Four to 10% of the variance in DM self-management behaviors was explained by this cross-sectional study (Aljasem, Peyrot, Wissow, & Rubin, 2001).

The number of studies involving self-efficacy in Hispanics with T2DM is limited. Lorig, Ritter, and Jaquez (2005) set up an experimental design involving a 14-hour chronic disease self-management program. The program was delivered in Spanish to Hispanics (N=319) in the US-Mexico border region who had a baseline A1C < 7.5% (Lorig, Ritter, & Jaquez, 2005). Participants in the experimental group (N=170) demonstrated significantly improved outcomes (P= <0.001) at 4 and 12-months compared to the placebo group (Lorig, Ritter, & Jaquez, 2005).
The results were related to improved health behaviors such as increased self-efficacy, decreased diabetes distress, and increased nutrition and physical activity behaviors (Lorig, Ritter, & Jaquez, 2005). The study concluded that self-efficacy may be essential in successful self-management education. In another study (Sarkar, Fisher & Schillinger, 2006) with 408 participants of which 40% (N=165) identified as being Hispanic, increased self-efficacy was correlated with increased exercise, self-monitored glucose, optimal diet and increased exercise. In addition to self-efficacy, some of the diabetes self management literature includes the concept of group support as an effective means for diabetes management among Hispanic populations (McEwen, Pasvogel, Gallegos & Barrera, 2010; McEwen et al., 2007; Teufel-Shone, Drummond, Rawiel, 2005; Glasgow, Toobert, & Gillette, 2001).

There is diabetes management specific literature on individual versus group approaches that suggest future research of collective efficacy. The terms used in these articles recommended more of a „community/family approach“ to diabetes management among Mexican Americans along the U.S.-Mexico border. Rosal, Olendzki, & Reed (2005) conducted a qualitative study on the concept of self-efficacy with elders (N=41) at a community health center in Baltimore. This study illustrated that the most effective diabetes management outcomes among samples of Mexican-Americans involved activities that were group oriented such as “group-problem solving” and “group games” (Rosal, Olendzki, & Reed, 2005, p. 4). Self-efficacy literature addresses multiple and complex health-illness transitions required for successful diabetes self-management (Rosal, Olendzki, & Reed, 2005; McEwen et al., 2007). The literature hints at the mismatched philosophy between individualism and collectivism and how this relates to why this group is disproportionately affected by diabetes. Specifically, in a sample of 15 Mexican
immigrant women, the participants mentioned having difficulty acknowledging diabetes as part of their life, that they were still adjusting to the diagnosis (some as long as 10 years after diagnosis), and put family first before the activities required to manage their diabetes (McEwen et al, 2007). Coronado, Thompson, Tejeda, & Godina (2004) conducted six focus groups with Mexican-Americans (N=42). The authors reported high levels of diabetes management were explained when group-related activities were used, especially when the social groups are tightly-knit (Coronado, Thompson, Tejeda, & Godina, 2004). The most significant outcomes utilized every intervention, but the most efficient interventions would incorporate the member’s family, the members in the group, and the outlying neighborhood involved diabetes management projects (Coronado, Thompson, Tejeda, & Godina, 2004). Decoster & George (2005) formed a self-efficacy modeled pilot study to explore another clinical aspect of a group oriented diabetes management program. The community group (N=13) in this quasi-experimental pre-post test design conducted over six months utilized the self-efficacy approach but did so in a self-help group format (Decoster & George, 2005). The diabetes club, as the researchers called it, was originally set up and run by two social workers. The club was eventually operated by the elders in the community; the elders worked together and set standards where each of the members supported one another by ensuring each other went to meetings, took their medication, ate appropriate meals, and watched glucose levels of one another (Decoster & George, 2005). The pilot study was effective in diabetes management and further demonstrates use and need for group-oriented diabetes models such as one that would be driven by collective- vs self-efficacy (Decoster & George, 2005). Findings from successful group-oriented diabetes models call for a shift from diabetes self-efficacy to diabetes collective efficacy.
Collective Efficacy

Albert Bandura introduced the idea of collective efficacy as a viable behavioral modification process in 1997 (Bandura, 1997). Collective efficacy represents the beliefs of group members concerning the performance capability (not the actual capability) of a social system as a whole (Goddard, Hoy, & Hoy, 2004; Goddard, 2001). The collective efficacy construct falls under social cognitive theory in which all efficacy-belief constructs operate in regards to “future-oriented judgments about capabilities to organize and execute the courses of action required to produce given attainments in specific situations or contexts” (Goddard, Hoy, & Hoy, 2004, p. 3; Bandura 1997). When applying the concept of collective efficacy to diabetes management, the question becomes how the social group of the person with T2DM contributes to the management of that individual’s diabetes (Goddard, Hoy, & Hoy, 2004). For the purpose of this study the social group is defined as the family (persons 18 years of age and older) who live in the same household as the Mexican American adult who has been diagnosed with T2DM.

Members of a collectivistic worldview operate in small social networks instead of being entirely self-dependent (Goddard, 2001). Collectivists are largely influenced by group-defined roles and norms, and tend to prioritize decisions that benefit the group over their own personal goals (Goddard, 2004; Triandis, 1994). The primary goal of those who share the collectivist worldview is to maintain a state of interpersonal harmony (Triandis, Bontempo, & Villareal, 1988). In contrast, an individualistic worldview is where “members of a culture primarily exhibit independence from groups or organizations;” people who follow the individualistic worldview stress personal freedom, individual expression, independence, and self-reliance (Crist et al., 2009; Triandis, 1995). Application of the individualism-collectivism continuum (Triandis, 1994)
to Mexican Americans would result in their being described as collectivistic vs individualistic (Marin & Marin, 1991).

A focused literature review on the concept of collective efficacy was conducted using the search engines: WorldCat through The University of Arizona Library, PubMed, and Google Scholar. The following search terms were used: collective efficacy, collective efficacy diabetes management, Mexican American diabetes management, self efficacy, Mexican American diabetes self management and border region diabetes management. These online searches occurred between November 2009 and May 2010. No studies were found that applied a collectivist world view to diabetes management. Search parameters narrowed the review to the following subgroups of information: diabetes collective efficacy theory, self efficacy theory, diabetes self-management and Mexican American diabetes management. The concept of collective efficacy has been used in research in other areas such as education, the workforce and sports (Goddard, Hoy, & Hoy, 2004; Greenlees, Graydon, & Maydon, 1998; Little & Madigan, 1997). The concept has also been addressed in the public health literature (Way, Finch, & Cohen, 2006; Cohen, Finch & Bower, 2005; Decoster & George, 2005). Again, no articles were found that applied the concept of collective efficacy to diabetes management.

Collective efficacy has been examined in the context of education with schools and students. Goddard (2001) performed a multilevel analysis that discusses social cognitive theory at the group level to explain the formation and impact of collective efficacy. The study used school and student level data from a sample of 452 questionnaires from 91 elementary schools within one large urban Midwestern school district (N=452). The findings stated that collective efficacy was effective in school improvement despite perceptions of faculty members, school
socioeconomic status, or minority concentration (Goddard, 2001). The article demonstrated the significance and effectiveness of collective efficacy even with other intervening variables (Goddard, 2001). Goddard & Goddard (2001) discussed the positive connection between collective efficacy beliefs and student outcomes. They used multilevel analysis from 438 teachers in 47 schools in a large urban school district (N=438). This study set up a collective efficacy module where the students depend in part on the reciprocal relationships among themselves and with the study’s respective teacher efficacy patterns (Goddard & Goddard, 2001). The construct that was created worked to theoretically disseminate Bandura’s collective efficacy model (Goddard & Goddard, 2001). These projects managed to put theory into practice in an educational setting.

Collective efficacy has been tested in sports psychology research. Greenlees, Graydon, & Maydon (1998) set up an experimental design with randomized groups of small athletic teams (N=22). The two confederates were given the same time trial test; the team that utilized the collective efficacy conditions demonstrated at least some improvement over the control groups (Greenlees, Graydon, & Maydon, 1998). This article doesn’t approach ethnic or medical implications, but it does capture some of the key assumptions in the philosophy of the collective efficacy behavioral model (Greenlees, Graydon, & Maydon, 1998).

Collective efficacy has also been used as a means of improving efficiency among self-managed work teams in the manufacturing sector. Little and Madigan (1997) were able to operationalize the collective efficacy theory so that it could be examined quantitatively. An experimental design of eight manufacturing teams each consisting of thirteen members (N=104) were constructed. The teams were randomly assigned three different factors which involved
certain work site conditions such as rallying to meet production and group problem solving versus self-assigned tasks such as operating a machine (Little & Madigan, 1997). The effectiveness of the collective efficacy conditions were measured by production of automobile parts and questionnaire results (Little & Madigan, 1997). Collective efficacy was operationalized in this questionnaire with questions that started as “how confident are you that the team will” and ended with phrases “is committed to a high level of production…can pull itself out of a slump…can solve performance problems” (Little & Madigan, 1997, p. 525). The study found a positive relationship that higher efficacy is related to higher levels of performance (Little & Madigan, 1997). Again, these relationships may not necessarily be translated into measuring collective efficacy in terms of diabetes management along the U.S.-Mexico border, but they do represent empirical examples of collective efficacy theory in practice.

Collective efficacy has been examined in the context of public health issues. Neighborhood collective efficacy has been associated with individual measures of body mass index (BMI) among adolescents (Cohen, Finch, Sastry & Bower, 2005). A multi-level, cross-sectional survey was done in 684 households in 65 neighborhoods in Los Angeles County (N=3807; 807 adolescents, 3000 adults) (Cohen et al.). The main outcome measures (dependent variables) were: 1) BMI; 2) at risk of overweight; and 3) overweight status (Cohen et al., 2005). The independent variables involved questions coded on a scale of 1 to 5 (strongly disagree to strongly agree) with factors associated with high levels of collective efficacy such as living in a “close-knit neighborhood,” are there “adults that kids look up to,” and are there “people willing to help neighbors” in your neighborhood (Cohen et al., 2005, p. 774). Using a two-level model, they found significant relationships between collective efficacy and all three outcomes. These
authors demonstrated direct application of collective-efficacy management in terms of obesity and suggested that future interventions to control weight should involve the client’s environment and community.

Collective efficacy and the correlation with health related factors such as decreased rates of assaults; homicide, premature mortality and asthma have been examined (Cohen, Inagami & Finch, 2007). A multi-level, cross-sectional survey was done in 65 neighborhoods in Los Angeles County (N=2341). The independent variables involved questions coded on a scale of 1 to 5 (strongly disagree to strongly agree) with factors associated with high levels of collective efficacy such as “people can be trusted,” and are “people willing to help neighbors” in your neighborhood (Cohen et al., 2005, p. 201). The dependent variables were more complicated to measure. The researchers defined low health scores based on socio-economic status (SES) and significant places associated with community health. Each neighborhood had businesses and places coded off as healthy or unhealthy factors to the neighborhood. For example, a park would be coded as a healthy factor and a liquor store would be coded as unhealthy. These locations were coded based on an urban sociology scale and integrated with SES to determine the community’s overall health status. The findings of this study illustrated a positive correlation with collective efficacy and health related factors such as decreased rates of assaults, homicide, premature mortality and asthma. Collective efficacy concepts such as salience of place and what that means to its community and what the individuals bring to that community played a role in the desired public health outcomes (Cohen, Inagami & Finch, 2007).

A cross-sectional design was used to explore a possible relationship between neighborhood collective efficacy and teenage birth rates in Hispanic residential areas in sixty-
five counties of Los Angeles (N=2600; 1435 Hispanic, 677 White, 247 Black, 173 Asian, & 33 other) (Way, Finch, & Cohen, 2006). Way utilized the same LAFANS survey responses for their independent variable measurement of collective efficacy as Cohen et al. (2005). The dependent variable in this study was percentage of births by teenage mothers in certain neighborhoods. The study found that collective efficacy did indeed influence teenage birth rates (Way, Finch, & Cohen, 2006).

While the literature demonstrates effective use of the concept of collective efficacy, the studies reviewed are limited to socioeconomic factors, locations, and relevance to transient communities (Cohen, Inagami & Finch, 2007; Way, Finch, & Cohen, 2006). While these studies may share many similar characteristics to the population of interest in the border region, (Way, Finch, & Cohen, 2006) the published studies don’t target the specific population or deal with collective efficacy in terms of diabetes management specifically.

Summary

Chapter 2 discussed diabetes, diabetes self-management, conceptual framework: self-efficacy, self-efficacy, collective efficacy and diabetes self-efficacy. T2DM self management education follows the philosophy of self-efficacy which is not necessarily the most culturally congruent approach for Mexican Americans in the U.S.-Mexico border region. Bandura’s concept of collective efficacy was examined in the literature and has been applied to areas such as education, the workforce, sports and public health (Goddard, Hoy, & Hoy, 2004; Greenlees, Graydon, & Maydon, 1998; Little & Madigan, 1997; Way, Finch, & Cohen, 2006; Cohen, Finch & Bower, 2005; Decoster & George, 2005). The majority of the articles reviewed captured Bandura’s concept of collective efficacy with a focused questionnaire. There were no studies
conducted in which the concept of collective efficacy was applied to diabetes management among Mexican American adults and their families who reside in the U.S.-Mexico border region.
CHAPTER 3: METHODS

Introduction

In this chapter, the Diabetes Self-Efficacy Scale (Stanford Patient Education Research Center, 2007) (Appendix A) was adapted to shift the referent from an individual (self) level to a group (family) level. That is, to shift from measuring self-efficacy to measuring collective efficacy. This chapter discusses the research aims, design, sample, instrument, data collection, and data analysis.

Research Aims

AIM 1. Adapt the 8-item Diabetes Self-Efficacy questionnaire to measure the group referent (family) for Diabetes Collective Efficacy in two phases using Lynn’s (1986) criteria; the first with expert judges and the second with focus group participants who have a family member diagnosed with T2DM.

AIM 2. Test the validity and reliability of the Diabetes Family Collective-Efficacy questionnaire with a sample of Mexican American adults who have a family member diagnosed with T2DM.

In Aim 1 the Diabetes Self-Efficacy Scale (Stanford Patient Education Research Center, 2007) was adapted to shift the referent from self to group or family. In Aim 2 the newly developed Collective Efficacy for Diabetes scale (Appendix B) was tested for content validity and reliability.

Content validity was established in two phases. In Phase 1, a group of nurse researchers whose research has included the concept of self-efficacy evaluated the adapted instrument for content validity (Lynn, 1986). In Phase 2 a group of Mexican American adults who have a
family member with T2DM participated in a focus group to evaluate the adapted instrument for content validity. Finally, test-retest reliability was assessed with another group of Mexican American adults who share a household with a family member who has been diagnosed with T2DM.

**Design**

A mixed-methods design was used for this study. The process of obtaining content validity for the Collective Efficacy for Diabetes instrument involved two phases that used a quantitative and a qualitative approach. The referent was changed from the individual-level to the family-level on each of the question items for the Stanford instrument. For example, an original individual-level question read, *how confident are you that you can exercise 15 to 30 minutes, 4 to 5 times a week?* This item was adapted to the family-level to read, *how confident is your family to enable the family member with T2DM to exercise 15 to 30 minutes, 4 to 5 times a week?* After each item on the instrument was adapted by the research team, expert judges used a 5-point rating scale to evaluate the eight items in the adapted scale. Second, a qualitative approach was used in which Mexican American participants in a focus group examined the items to verify that the phenomenon of interest (collective efficacy for diabetes) was accurately represented and then they evaluated the adapted instrument using the rating scale previously described. Finally, a quantitative approach was used to test the reliability of the adapted instrument by administering an 8-item questionnaire. A test-retest approach was used to establish reliability of the adapted instrument (Lynn, Morgan, & Moore, 2009).
Sample

Inclusion/Exclusion Criteria

The panel of experts needed for Phase 1 evaluation of content validity consisted of faculty members from The University of Arizona College of Nursing who have included the concept of self-efficacy in their program of research. Experts for Phase 2 of content validity consisted of individuals who were: 1) Mexican American (self-reported) adults between the ages of 18-74 years; 2) residing within the same household as a family member with T2DM; 3) currently a University of Arizona Health Sciences student; and 4) able to speak and read English.

Sample Size

Five faculty members from The University of Arizona College of Nursing were recruited to evaluate the content validity of the Collective Efficacy for Diabetes instrument. Four Mexican American individuals who met the inclusion criteria participated in the focus group. To test reliability of the adapted instrument, five Mexican American health sciences students who met inclusion criteria were recruited to participate in the test-retest of the eight-item questionnaire.

Setting

This study was conducted at The University of Arizona campus in Tucson, Arizona and in an online environment. Tucson Arizona is located in the southwest United States and is within the U.S. – Mexico border region (PAHO, 2004). In the fall 2010 semester, 32% of The University of Arizona student enrollment identified as a member of a minority group. During the fall 2010 semester, 6,712 students identified as Hispanic, and who could potentially meet the inclusion criteria for this study (Total Minority Student Enrollment Trends Fall 1983 to Fall 2010, 2010).
Recruitment

Students enrolled in the Colleges of the Arizona Health Sciences Center at The University of Arizona who met inclusion criteria were recruited into the study. A recruitment script (Appendix C) was used by the PI to recruit students; also recruitment flyers were posted (Appendix D) in student lounges of the Colleges of Nursing, Public Health, Pharmacy, and Medicine. Flyers were also emailed over designated listservs of the Student Nurses at the University of Arizona (SNUA), Professional Achievements in Nursing (PAIN), and the Diabete Cats organizations. The sampling of the focus group was done purposive as to provide a rich amount of cases for content analysis.

Protection of Human Subjects

The proposal was reviewed and approved by The University of Arizona Departmental Review Committee and The University of Arizona Institutional Review Board. The participant disclosure form for the focus group (Appendix E) and reliability testing of the Collective Efficacy for Diabetes questionnaire (Appendix F) were provided to potential research participants in place of obtaining a signature on an informed consent form. This process met the standards of protection as per The University of Arizona requirements for protection of human subjects. The disclosure form was used to initiate the consenting process and promote discussion.

Instrument

Diabetes self-efficacy has been measured using the Self-Efficacy for Diabetes scale (Stanford Patient Education Research Center, 2007). The eight-item scale assesses participants’ confidence in performing specific DM self-management behaviors. The instrument is reliable and valid in both Spanish- and English-speaking individuals with a coefficient alpha of .85 and a
test-retest reliability of .80 (Stanford Patient Education Research Center, 2007). Responses were obtained on a 10-point scale ranging from 1 = not at all confident to 10 = totally confident. The total score is the mean of the eight items; higher scores indicate higher levels of self-efficacy. The eight-item scale has been used in various studies to measure self-efficacy and diabetes in Mexican American adults (McEwen et al., 2007; Sousa, 2004; Maddigan, Majumdar, & Guirguis, 2004; Sarkar, Fisher, & Schillinger, 2006; Lorig, Ritter, & Jacquez, 2005). McEwen, Pasvogel, Gallegos, & Barrera (2010), revised the response options for the Self-Efficacy for Diabetes Scale from the original 10-point Likert scale to a five-point Likert scale. The coefficient alpha for the reduced five-point Likert scale was .71. Approximately five minutes is required for completing the instrument.

Aim 1 was to adapt the eight-item Diabetes Self-Efficacy instrument to measure the group referent (hereafter referred to as family referent) for Diabetes Collective Efficacy. Because the original instrument, diabetes self-efficacy, included items representative of the overall content for measuring diabetes efficacy, the instrument was adapted to measure an individuals' perception of family efficacy for diabetes. That is, the adaptation was intended to measure the family referent capability for diabetes management as opposed to self-referent capability for diabetes management. The object of the efficacy perception becomes “we” instead of “I.” The researcher team (PI and Advisor) revised each item to capture the participants” judgment of how confident their family is about the management of diabetes for their family member who has T2DM.

In order to address AIM 2, the study follows Goddard, Hoy & Hoy”s (2004) recommendations to look at the aggregated measures of individuals” perceptions of the group”s
ability to accomplish set tasks. Responses to the “we” referent items can be averaged to assess the collective sense of efficacy for a specific activity such as diabetes management. This approach of measurement of collective efficacy perceptions works to elicit perspectives on the obstacles, constraints, and opportunities of a given social system more readily than do items asking individuals about their self-capability, which varies more as a function of individual (as opposed to group) differences. Goddard (2003) reported that individual perceptions of group capability varied more than 40% among groups while individual perceptions of self-capability varied less than 5% between groups. This finding is empirically consistent with Bandura’s (1997) assertion that perceived collective efficacy varies greatly among groups. This further supports the necessity of capturing the emergent properties formed by group interdependence by assessing perceived collective efficacy as the aggregate of individual perceptions of group capability. For example, a family member efficacy belief scale item might read, “How confident do you feel that the family can support your family member with T2DM to eat their meals every 4-5 hours every day including breakfast every day?” Responses to this and other “we” referent statements collected from individual family members can be averaged to assess the collective confidence or family efficacy for diabetes management. In this study, the focus is on the adaptation and testing of an instrument to measure family efficacy for diabetes. Therefore, we will collect one family member’s perspective of their family’s capability for T2DM management.

**Data Collection**

To assess AIM 1, data were collected from nurse researchers whose program of research has included the concept of self-efficacy. These researchers (hereafter referred to as expert
evaluators) served as expert judges in the content validity assessment of the adapted eight-item scale Collective Efficacy for Diabetes. According to Lynn (1986) large numbers of experts are not required for this process; a minimum of three experts is sufficient. Therefore, five expert evaluators were recruited to participate in the judgment-quantification stage of content validity. Their expert opinions and validation were used to refine the instrument to ensure that the instrument indeed measured efficacy at the family-referent.

Lynn’s (1986) content validity assessment process was used to determine content validity during the instrument adaptation phase. Criteria for evaluation of content validity were developed by the research team and synthesized from Lynn’s (1986) process for content validity. The recruited expert evaluators rated each item in the questionnaire on a 4-point scale “(4 = very relevant and succinct, 3 = relevant but needs minor revision, 2 = unable to assess or in need of considerable revision, 1 = not relevant)” (Lynn, Morgan, & Moore, 2009, p. 168). The expert evaluators rated the items as instructed (Appendix G). Following Lynn’s (1986) method, each of the instrument items needed at least 75% of the expert evaluators to score a three or greater in order for it to be accepted. Following the approval of the instrument from the expert evaluators, individuals who met inclusion criteria were recruited to participate in a focus group. The participants were asked to rate each item using a modified rating scale that was used by the nurse experts. Additional questions related to readability, gaps, etc were also discussed and collected in the focus group (Appendix H). Data were collected in a 90-minute tape recorded session. These data were used to further refine the instrument to accurately and adequately represent Bandura’s collective efficacy concept in the context of the Mexican American family who has a family member with T2DM.
To assess AIM 2, a quantitative approach was used to collect data to test the reliability of the adapted instrument. The eight-item questionnaire was administered via Survey Monkey to a sample of Mexican American individuals who share a household with a family member with T2DM. Responses on the 1-5 point Likert scale on each of the eight items were collected. The five points are rated from 1 = not at all confident to 5 = totally confident. The number selected is representative of the individual family member’s perspective of how confident their family is about the management of diabetes for their family member who has T2DM. The same questionnaire was administered again 10 days later to the same population using the same data collection method. It is recommended that 10 days to one month be allotted between questionnaire administrations for adequate test-retest reliability (Nunnally, 1978; Lynn, Morgan, & Moore, 2009). This period of time is sufficient for the test/retest and internal reliability evaluations as it shows that the measure is stable over a specified period of time in which no change should occur and that there remains an internal consistency between the items in each scale (Lynn, Morgan, & Moore, 2009; Burns & Grove, 2007). Test-retest reliability was used to determine the stability of the instrument in measuring family efficacy for diabetes (Burns & Grove, 2007).

Data Analysis

AIM 1 data included analysis of both quantitative and qualitative data. The quantitative data collected from the expert judges were analyzed using descriptive statistics of percent and means. Qualitative data collected from the focus group were analyzed using content analysis (Burns & Grove, 2007). For AIM 2, test-retest reliability of the adapted collective-efficacy for
diabetes instrument was measured using a Pearson’s correlation coefficient between the original response and the individual’s response 10 days later.

Data collected from the expert nurse researchers rated each item in the questionnaire on a 4-point scale (4 = very relevant and succinct, 3 = relevant but needs minor revision, 2 = unable to assess or in need of considerable revision, 1 = not relevant) (Lynn, 1986). Content validity was assessed by analyzing the comments posted by the expert researchers and evaluating which items were retained. For the item to be retained 75% of the experts have to score a three or four on each individual item (Lynn, Morgan, & Moore, 2009). In this sample that would mean four of the five expert researchers must give a score of three or four on any one item in order for the item to be retained.

The focus group data were analyzed using content analysis (Lynn, Morgan, & Moore, 2009). Data were analyzed using the priority categories provided by the criteria used to evaluate collective efficacy for diabetes. Categories were prioritized based on the analyzed content from the modified expert rating instrument. The focus group provided another measure of content validity or how representative are the items on this revised instrument of the concept of collective efficacy. Once content validity was determined, final revisions were made and the adapted instrument was prepared for reliability testing.

AIM 2 data were analyzed by examining the consistency of the responses between two administrations of an online questionnaire. Test-retest reliability was assessed by using a Pearson’s correlation coefficient between the participant’s original response and their second response 10 days later. The mean values for the items on the questionnaire were considered the individual’s perspective of diabetes efficacy at the family-referent level. To achieve test-retest
reliability, there should be a positive correlation between the two questionnaires. The internal consistency reliability estimate of the adapted instrument was determined by a correlation coefficient alpha of 0.800.

Summary

In this chapter, the adaptation of the Diabetes Self-Efficacy Scale to measure diabetes collective efficacy was described. The research aims, design, sample, instrument, data collection, and data analysis were discussed. The adaptation of the Diabetes Self-Efficacy Scale for aggregating measures of individuals' perceptions from self-referent to group-referent (family-referent) was described. The adapted instrument was tested for content validity and test-retest reliability. Content validity was accomplished by having the eight-item instrument analyzed by a panel of experts and a focus group from the desired population. Reliability (test-retest) of the collective efficacy for diabetes instrument was examined by administering the electronic questionnaire to Mexican American participants who shared a household with a family member who has T2DM on two occasions, ten days apart. Reliability of the adapted instrument was tested using Pearson Correlation Coefficient.
CHAPTER 4: RESULTS

Introduction

This chapter will review the results from the adaptation of the instrument for content validity, the qualitative discussion from the focus group, and the results from the online questionnaire. The proposed questionnaire, Collective Efficacy for Diabetes, went through multiple phases of examination by the research team before the finalized instrument could be tested for content validity and reliability. For AIM 1, to establish content validity, the members of the research team reviewed and discussed a selected literature set on the concept of collective efficacy. Next the research team revised the items of the original diabetes self-efficacy instrument (Stanford Patient Education Research Center, 2007) to reflect the conceptual underpinnings of the concept of collective efficacy. We continued to reword the items of the adapted instrument until we achieved 100% consensus between the members of the research team. Consensus was accomplished after a second two-hour meeting and consultation with other research experts.

The adapted questionnaire was sent via email to five expert evaluators who had expertise with the concept of self-efficacy and a fifth expert evaluator who had expertise in the area of instrumentation. One evaluator had previously conducted a study that included the concept of collective efficacy (Ruiz, 2007). The expert evaluators received instructions for completing the attached rating scale for content validity (Appendix G), a copy of the original self-efficacy for diabetes instrument (Appendix A) and the adapted collective-efficacy for diabetes instrument (Appendix B). The expert evaluators rated each item in the questionnaire on a 4-point scale (4 =
very relevant and succinct, 3 = relevant but needs minor revision, 2 = unable to assess or in need of considerable revision, 1 = not relevant) (Lynn, 1986). The results are reported in Table 1.

TABLE 1. Expert Evaluators Rating of Collective Efficacy Instrument Trial 1 (n=5)

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<tr>
<th>Expert Evaluator #1</th>
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<th>Q3</th>
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<th>Q5</th>
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<td>Expert Evaluator #3</td>
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<tr>
<td>Number of 3 &amp; 4 responses</td>
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<td>5</td>
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<td>5</td>
<td>3</td>
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<td>4</td>
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<tr>
<td>Percentage of 3 &amp; 4 responses</td>
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<td>100</td>
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<td>100</td>
<td>60</td>
<td>100</td>
<td>80</td>
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<td>Question item accepted (a) or denied (d)</td>
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According to Lynn’s (1986) article concerning content validity, at least 75% of the expert evaluators needed to rate the item with a score of three or four in order for the item to be considered valid. Since there were five expert evaluators, four out of five experts, or at least 80%, were necessary in order for an item to be considered valid. Results from the initial expert evaluation of the adapted instrument demonstrated that items three, five, and eight needed to be revised because the scoring criteria were not met.

Besides rating each of the items in the collective efficacy instrument, the expert evaluators were asked to provide written feedback on items they thought could use some improvement. On item one, a research expert mentioned the uncertainty of the word enable. They were unsure if the word enable meant encouraging the family member to prepare certain meals or actually preparing the meals themselves. On item number two, a faculty member proposed that “their family member” be changed to “the family member” because “their” may indicate that the entire family follows the same diet. On item three, a couple of the evaluators
recommended rewording and that the family can purchase appropriate food but cannot necessarily choose the food one member eats when they are hungry. One of the expert evaluators suggested that the word enable be reconsidered in item number four. Multiple expert evaluators had issues with item number five and said it needed to be rephrased. They were uncertain about what a family member could do when someone is exercising, perhaps it should be specified to examples like supporting the person in adjusting insulin or being sure s/he has timely snacks. There were no comments on items six and seven. One of the expert evaluators said that item eight should be changed to support the person to make decisions instead of helping control the illness.

The expert evaluators’ comments were considered when making adjustments to the collective efficacy questionnaire. Items 3, 5, and 8 were reviewed and revised by the research team until they achieved 100% consensus. A new version of the Collective Efficacy for Diabetes instrument and the instructions for assessing content validity was sent via email to the same expert evaluators two weeks later. All of the revised items received a score of three or four indicating the adapted instrument had achieved content validity. The results of the second round scoring are displayed in table 2.

**TABLE 2. Expert Evaluators Rating of Collective Efficacy Instrument Trial 2 (n=5)**

<table>
<thead>
<tr>
<th></th>
<th>Q3</th>
<th>Q5</th>
<th>Q8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expert Evaluator #1</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Expert Evaluator #2</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Expert Evaluator #3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Expert Evaluator #4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Expert Evaluator #5</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Number of 3 &amp; 4 responses</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Percentage of 3 &amp; 4 responses</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Item accepted (a) or denied (d)</td>
<td>a</td>
<td>a</td>
<td>a</td>
</tr>
</tbody>
</table>
Each of the items that did not meet the required criterion in the first expert rating were slightly reworded and achieved an acceptable score in the second administration. This means that all eight of the newly revised items on the collective efficacy for diabetes instrument met the criteria established for content validity as scored by the expert evaluators.

The next step was to analyze the data that were collected from the four participants who agreed to participate in a 90-minute focus group. The focus group was facilitated by the PI and the Advisor. Focus group participants ranged in age from 20–28. Two participants were students in the College of Medicine the other two were students in the College of Nursing. The participants came from different backgrounds and family experiences. These unique backgrounds helped provide a better portrait of what it is like to be a Mexican American daughter supporting a family member with T2DM. A description of their family members with T2DM is provided in Table 3.

### TABLE 3. Demographics of Family Members with T2DM

<table>
<thead>
<tr>
<th></th>
<th>Family Member #1</th>
<th>Family Member #2</th>
<th>Family Member #3</th>
<th>Family Member #4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship</td>
<td>Mother</td>
<td>Mother</td>
<td>Grandmother</td>
<td>Father-in-law</td>
</tr>
<tr>
<td>Gender</td>
<td>Female</td>
<td>Female</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Years diagnosed with T2DM</td>
<td>20</td>
<td>10</td>
<td>30+</td>
<td>30</td>
</tr>
<tr>
<td>Insulin-dependent</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Have a PCP</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Visits PCP every six months</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The focus group was conducted by both of the key investigators Dr. Marylyn McEwen and David Eisenbise whom both shared the role of facilitator. Another member of the research team, Marco Penazzi also attended for the purpose of translating items into Spanish for the facilitators. Before starting, the facilitators reviewed the disclaimer form with each of the
participants. The focus group was audio-recorded. The focus group questions (Appendix I) followed a structured process in that there was “a strong, preexisting agenda for the research” and there was a “higher level of moderator involvement contribute to meeting this set agenda” (Morgan, 1997, p. 39).

The taped responses to the questions were transcribed and analyzed. Some of the key descriptions regarding each of the focus group questions are discussed in the next couple of paragraphs. The focus group discussed several aspects that provided a better portrait of what it is like to be a Mexican American daughter supporting a family member with T2DM.

The first question was, “how has having a family member diagnosed with T2DM affected your family?” The affect of having a family member with T2DM created a range of responses that revealed family support, frustration, and fear. Participant A responded, “…. everyone in the family has tried to help, encourage her to seek medical care, and things like that. We were scared that they could have lost my mom, you know, what was going to happen afterward, that made us think how can we prevent her death.” Participant B explained, “It’s really impacted our family because … she cares more about the environment than herself and she kind of neglects herself and kind of doesn’t really take care of herself really well and her diagnosis with this has really caused the family to step in and help with the treatment and everything.” Participant C recalled, “I remember my mom saying, make sure you have candy, make sure you have juice, like if we spend a day in town or whatever. There were a number of occasions where my grandmother became hypoglycemic … mom often scolded her, you need to be more on track …. ” Participant D shared, “It’s been a transition from trying to eat healthier and my father-in-law is used to treats and stuff, and he has to adjust to Splenda . . . I get frustrated cause you see everything that
happens and you explain stuff and they seem to listen to it for a few days but then they go back to their routine and you’re like why can’t I get this through to them, especially since you live in the same household. We had close encounters … with the hospital.”

Question number two asked, how confident do you feel about your family’s understanding of the requirements for managing T2DM? Participants were given the AADE Essential 7 (Appendix J) handout (American Association of Diabetes Educators, 2010). While the participants recognized that their family had varying levels of confidence in their understanding of T2DM management, they all expressed frustration with the gap between knowledge and engagement in the required behaviors for successful T2DM management. Participant D assessed her family’s understanding of T2DM management as, “For my family I think it is really low. I was going through them [handout] and I think, I don’t feel like we understand these, for example, exercising, he [father-in-law] doesn’t exercise and if we were to say something, he’d just laugh or get mad or something. But he’s had it for so long that he knows, I mean sometimes he’ll go to classes for portion control and he’s come up and tells us how much meat, how much coffee, or how much of everything, so he knows it, and his wife goes with him to the doctor, and they always weigh him and take his blood pressure, so they know that, she knows that, but that’s as far as they go. They know that, but, that’s it, they don’t implement [the required behaviors].”

Participant B explained, “My family understands the importance of exercise for T2DM management but we have a difficult time enforcing it…” Participant C shared, “I think my sisters, my mom, and my dad know the importance of being active with diabetes, I don’t know
with other things like I don’t think they know about blood pressure, the renal, and the heart, and how it effects those things, but the basics like eating and exercising, they understand.”

The third question was, “How does your family contribute to the management of your family member’s T2DM management?” All of the participants provided examples of how their family contributed to the essential behaviors required for successful T2DM management. Participant A used the Essential 7 handout to review her family’s contribution to her mother’s T2DM management. “… healthy eating, for sure, they are very supportive and stuff, but it depends like, I have a lot of sisters and brothers. So it depends on what family is visiting … some of them are into healthy eating, but as a family as a whole, they’re not into the healthy eating. So my mom and I will grab food before we visit, or we’ll take our own healthy food before we visit because we don’t wanna eat their food. Uh, being active . . . I don’t think it’s very supportive as a family. So I try to tell my mom, let’s go for a walk, or let’s do this and make it sound like its exercise she’ll be like no I don’t feel like it right now. But the way my sister does it, she entices her to do things she likes, so my mom likes shopping, so my sisters like let’s go shopping. She takes her with her and they’ll go shopping, and they walk for a long, long time. Monitoring, so it’s just my mom and I at home, so I help with the monitoring and stuff. Taking the medication, everyone’s good about that, their like did you take your medication today? I fill out her week pillbox. Problem solving, like the [other participant’s] family, always having candy around, being ready for a crisis moment, you know, reducing risks, for sure. Like my mom and I make sure she goes to her primary health provider, the podiatrist, eye exam, and dental and all that that. Like they’ll [other family members] help if she needs a ride or something. Like my
sisters will go and pick her up, and go and take her if I can’t. So they’re good in that, just encouraging her, and healthy coping.”

Participant B stated, “My dad is definitely helpful in fulfilling the prescriptions, so she always has the glucometer. Our family is definitely trying to contribute to it [physical activity] and promote these healthy activities”. Participant C identified her family’s greatest contribution as helping her grandmother cope. “I just feel like my grandma is very independent, and I would say the coping part is the hardest. I think she doesn’t know how to cope. It’s hard to be patient as well so we’re probably not very supportive in that either. I think that’s the biggest thing.”

Participant D also used the Essential Seven to inventory the contributions of her family to her father-in-law’s T2DM management. “We try not to buy cookies, and if we do we buy the sugar free. I check his blood pressure every once and a while and we are always checking his blood sugar. If he doesn’t check it my mother-in-law will be like have you checked it today, what is it? Especially at night, he can get hypoglycemic. Taking medication, we all help out with that, we refill it, or just make sure he takes it, problem solving, yeah. Cause sometimes he’ll get up early and start working, he’ll take the insulin and come inside and his blood sugar is like 50 so we’re like, take some orange juice.”

Because the participants were either nursing or medical students, we asked if they educated their family members about the T2DM disease process and the self management requirements. Participant A responded, “Whenever we’re all together and something comes up … I’ll say yeah this is how that works, you know, this is how insulin actually works, that’s why we do this, when it comes up.” Participants A and B shared their frustration with trying to educate their family members about T2DM. “I think all of our parents are stubborn, especially
when it’s us kids trying to tell them what to do.” “Exactly, I’ve tried. But I feel like it goes in one ear and out the other. I’ve given up. But I’ve definitely tried. My parents never went to college, and them seeing me going so far in education, I think they look at me differently, and maybe that’s why they are resistant to listening to me.”

This series of structured questions and relevant follow-up questions were read as to meet the requirement of objectivity and retrieve relevant information. This content analysis process meets reliability, validity, generalizability, and replicability due to its process which includes “combination of induction and deduction” (Neuendorf, 2002, p. 12).

The focus group questions (Appendix I) were then distributed to each of the participants, they reviewed and discussed the collective efficacy for diabetes questionnaire, and assessed each item in the same way the expert evaluators did using the content validity rating scale (Appendix H). The items were rated and are reported in Table 4.

**TABLE 4. Focus Group Content Validity Results (n=4)**

<table>
<thead>
<tr>
<th></th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Q8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus Group Member #1</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Focus Group Member #2</td>
<td>3</td>
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<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>4</td>
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</tr>
<tr>
<td>Focus Group Member #3</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Focus Group Member #4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Number of 3 &amp; 4 responses</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Percentage of 3 &amp; 4 responses</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Question item accepted (a) or denied (d)</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>a</td>
</tr>
</tbody>
</table>

Each of the items were rated with a score of three or higher by each of the focus group members. This means that each of the individual instrument items are accepted for content validity at the level of the focus group. Following these reviews the instrument was ready for AIM 2, to assess test-retest reliability.
The data for AIM 2 were collected and analyzed. Five individuals were recruited to answer the collective efficacy questionnaires via survey monkey on two separate occasions. Each of the participants’ reported answers are in Table 5.

**TABLE 5. First Administration of Collective Efficacy Questionnaire (n=5)**

<table>
<thead>
<tr>
<th></th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Q8</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Penguin</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>*iQuestion</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>*Sun</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>*Green 87</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>*Sandstorm9</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

* self-selected pseudonyms

Those five participants were then asked to complete the survey a second time ten days later. Their reported answers are in Table 6.

**TABLE 6. Second Administration of Collective Efficacy Questionnaire (n=4)**

<table>
<thead>
<tr>
<th></th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Q8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cazstar7 (penguin?)</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>iQuestion</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>„no data”</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Green 87</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>-</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Sandstorm9</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

The collected data was computed via SPSS version 18. Pearson’s correlation coefficient was calculated by comparing the similarity of Time 1 to Time 2 of each question item. The calculated values are reported in Table 7.

**TABLE 7. Pearson’s Correlation Coefficient of Collective Efficacy Questionnaire (n=4)**

<table>
<thead>
<tr>
<th></th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Q8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlation Coefficient</td>
<td>0.500</td>
<td>1.000</td>
<td>0.761</td>
<td>0.853</td>
<td>0.982</td>
<td>0.302</td>
<td>0.927</td>
<td>-0.333</td>
</tr>
</tbody>
</table>

As mentioned in chapter 3, an item was accepted if it had a correlation coefficient of 0.800 or higher. Based on the results question items 2, 4, 5, and 7 were accepted and question
items 1, 3, 6, and 8 were not accepted at the correlation coefficient of 0.800. Only question items 2, 4, 5, and 7 were proven to have test-retest reliability in this sample. The calculations suggest that some revisions need to be made to the collective efficacy questionnaire.

**Summary**

In this chapter the adaptation of the Diabetes Self-Efficacy Scale to measure diabetes collective efficacy was analyzed and tested. The questionnaire was reviewed by five expert evaluators who had expertise with the concept of self-efficacy and a fifth expert evaluator who had expertise in the area of instrumentation. Minor revisions were made on question items 3, 5, and 8 until there was 100% approval of the questionnaire by the experts. A 90-minute focus group was held with four individuals who met the selection criteria mentioned in chapter 3. The focus group discussed several aspects that provided a better portrait of what it is like to be a Mexican American daughter supporting a family member with T2DM. The members of the focus group also evaluated and approved of the diabetes collective efficacy questionnaire. To evaluate test-retest reliability the questionnaire was also evaluated by having five individuals, who met selection criteria, complete the questionnaire online via survey monkey on two separate occasions. Each question was evaluated using a Pearson Correlation Coefficient to compare the answers of time 1 and time 2. Based on the results question items 1, 3, 6, and 8 were not accepted at the correlation coefficient of 0.800 and suggest some revisions may need to be made. Another possibility is that test-retest may not be able to accurately measure this concept because collective efficacy may change over time. A larger sample would be necessary in order to test for internal consistency which may be a more appropriate measure.
CHAPTER 5: CONCLUSION

Introduction

As discussed in chapter 1, the existing diabetes management programs are built upon the assumption that one intervention or treatment model will work for a variety of people of different cultural backgrounds (Ingram, Gallegos, & Elenes, 2005). Mexican American issues are unique and do not necessarily conform to the philosophy and way of thinking of non-Hispanic whites (Phillips & Crist, 2008). This project looked at how a culturally congruent approach, collective efficacy, could be used to promote health and prevent disease among Mexican Americans with T2DM who live within the border region. Before a culturally congruent model that follows the philosophy of collective efficacy could be created, an instrument needed to be created that accurately captures the concept of collective efficacy as applied to T2DM management. The developed instrument aims to be philosophically and culturally congruent as to allow Mexican Americans residing in the U.S.-Mexico border region to increase their capacity for collective management of T2DM which may improve their quality of life.

Discussion/Interpretation of Results

The adaptation of the Diabetes Self-Efficacy Scale to measure diabetes collective efficacy was analyzed and tested. Following the expert evaluators, the focus group analysis, and the online questionnaire results, it was determined that several items needed to be revised. For test-retest reliability, each question was evaluated using a Pearson Correlation Coefficient to compare the participants’ responses of the time 1 questionnaire administration to the time 2 questionnaire administration. Based on the results items 1, 3, 6, and 8 did not meet the previously
established required correlation coefficient of 0.80. This means these items will need to be revised before a final questionnaire is compiled.

The statements in the focus group had many similarities to that of Laroche et al. (2009) study. These authors found that parents described children as monitoring parents” dietary intake and reminding them what they should not be eating (Laroche et al., 2009). Some children helped with shopping and meal preparation. Families described children reminding parents to exercise and exercising with their parents (Laroche et al., 2009). The children also reminded parents about medications and assisted with tasks such as checking blood sugar (Laroche et al., 2009). These examples of how the children support their parents to improve their diabetes management closely match the statements made by those in the focus group in chapter 4. One difference, however, was that unlike the focus group, the parents and children in the Laroche et al.(2009) study perceived that children played a role in tempting parents to stray from their diabetes diet, because children’s diets included food that parents desired but tried to avoid.

As discussed in chapter 2, no specific literature was found in which an instrument had been developed and tested for collective efficacy of diabetes among Mexican American adults with T2DM. The literature does, however, demonstrate effective use of the concept of collective efficacy (Cohen, Inagami & Finch, 2007; Way, Finch, & Cohen, 2006). While these studies may share many similar characteristics to the population of interest in the border region, (Way, Finch, & Cohen, 2006) the published studies did not target the specific population or deal with collective efficacy in terms of diabetes management specifically. Findings from this current study add to the literature by utilizing Bandura’s concept of collective efficacy, but in the context of T2DM management among Mexican American families.
Limitations of the Study

The study had several strengths and limitations. The strengths will be addressed first. Instead of creating an entirely new instrument, the Diabetes Self-Efficacy Scale (Stanford Patient Education Research Center, 2007), a well tested instrument, was adapted to shift the referent from an individual (self) level to a group (family) level. Another advantage was that the primary investigators had access to several individuals with expertise in the concept of self efficacy. They assisted in the revision and content validity of the adapted collective efficacy questionnaire. The focus group members offered an interesting, new perspective to what it means to support family members with T2DM. Some were bilingual and bicultural and all of them were young adult health science students, these demographics have not been explored before in this context.

This study had some weaknesses that need to be discussed. The most significant issue was having a small sample size (n=5) for testing the reliability of the adapted instrument. Small sample sizes make it challenging to affirm statistically significant data. A larger sample size is required to conduct test-retest reliability before use in future studies. Another weakness was the sample demographics. While having young adults reflecting on parents provides an interesting perspective, it does not match the demographics in the literature, which is primarily focused on children and adolescence. This is considered a strength of the study as well. That is, no other studies were found in which adult children assessed the collective efficacy of their family for engaging in T2DM management of their family member. Furthermore, there were time and financial constraints on this study that precluded recruitment of a larger sample size.
Implications for Nursing Practice

As discussed in chapter 1, there is a large literature base that supports the link between health disparities and race and ethnicity in the United States (CDC, 2002). Also noted in chapter 1, diabetes health disparities are prevalent among Mexican Americans who reside in the U.S. Mexico border region. Mexican Americans are negatively impacted by diabetes-related health disparities (CDC, 2007). Many of the existing diabetes education programs are unable to meet the needs of the Mexican American border population due to there being a lack of culturally congruent interventions for successfully managing T2DM (McEwen, Rentfro & Ritter, 2009).

The success of this project could mean a shift from T2DM management education from the individual to the family. Building on this project and progressing towards a more culturally relevant model that follows the philosophy of collective efficacy could lead to improved diabetes management outcomes among Mexican Americans in the border region.

Recommendations for Future Research

In order to build on the subject of collective efficacy and its utilization in T2DM management among Mexican Americans two major areas need to be addressed. That is the instrument should be translated into Spanish and a much larger sample size needs to be recruited to test the adapted and translated instrument. A large proportion of the Mexican American population in the border region speaks minimal to no English. Therefore, a Spanish version of the collective efficacy questionnaire would be necessary to reach this segment of the population. A larger sample would be necessary to test the reliability of the instrument before inclusion in a randomized, controlled trial. This level of experimental design would allow for the instrument to truly be tested to the caliber that is necessary for the educational theory of the American
Association of Diabetes Educators to shift from self- to collective-efficacy for diabetes management among Mexican American adults in the US-Mexico border region.

Summary

Chapter 5 discussed the interpretation of results, limitations of the study, implications for nursing practice, and recommendations for future research. The research found that revisions need to be made to the Diabetes Collective Efficacy Questionnaire before it is deemed a reliable means of measuring collective efficacy in the context of managing T2DM among Mexican Americans. The study was limited by the small sample size. If the questionnaire were proved to be viable, diabetes education may be taught at the family level instead of the individual level. Further research needs to be done on this subject in terms of translating the questionnaire and testing the questionnaire with a significantly larger sample size. This project aimed and made some strides towards an improved means of T2DM management among Mexican American adults in the US-Mexico border region.
APPENDIX A: ORIGINAL INSTRUMENT
Diabetes Self-Efficacy

Participant identification: __________________ Promotora signature: __________________

Pre-intervention date: ____________________ Post-intervention date: __________________

We would like to know how confident you are in doing certain activities. For each of the following questions, please mark the number that corresponds to your confidence that you can do the tasks regularly at the present time.

1) How confident do you feel that you can eat your meals every 4 to 5 hours every day, including breakfast every day?

<table>
<thead>
<tr>
<th>Not at all confident</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Totally confident</th>
</tr>
</thead>
</table>

2) How confident do you feel that you can follow your diet when you have to prepare or share food with other people who do not have diabetes?

<table>
<thead>
<tr>
<th>Not at all confident</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Totally confident</th>
</tr>
</thead>
</table>

3) How confident do you feel that you can choose the appropriate foods to eat when you are hungry (for example, snacks)?

<table>
<thead>
<tr>
<th>Not at all confident</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Totally confident</th>
</tr>
</thead>
</table>

MORE QUESTIONS ON BACK OF FORM
4) How confident do you that you can exercise 15 to 30 minutes, 4 to 5 times a week?

Not at all confident  1  2  3  4  5  Totally confident

5) How confident do you feel that you can do something to prevent your blood sugar level from dropping when you exercise?

Not at all confident  1  2  3  4  5  Totally confident

6) How confident do you feel that you know what to do when your blood sugar level goes higher or lower than it should be?

Not at all confident  1  2  3  4  5  Totally confident

7) How confident do you feel that you can judge when the changes in your illness means you should visit a doctor?

Not at all confident  1  2  3  4  5  Totally confident

8) How confident do you feel you can control your diabetes so that it does not interfere with the things you want to do?

Not at all confident  1  2  3  4  5  Totally confident

THANK YOU FOR COMPLETING THIS FORM
APPENDIX B: ADAPTED INSTRUMENT
We would like to know how confident you are that your family can participate in the management of Diabetes with your family member who has Type 2 Diabetes (T2DM). For each of the following questions, please mark the number that corresponds to your family’s confidence that they can do the tasks regularly at the present time.

**As a member of a family that has a person with Type 2 Diabetes:**

1) How confident is your family to enable the person with T2DM to eat meals every 4 to 5 hours every day, including breakfast?

   Not at all confident 1 2 3 4 5 Totally confident

2) How confident is your family to prepare healthy foods for their family member who has T2DM when they have to share food with this person?

   Not at all confident 1 2 3 4 5 Totally confident

3) How confident is your family that they can recommend the appropriate foods to eat when their family member with T2DM is hungry (for example, snacks)?

   Not at all confident 1 2 3 4 5 Totally confident

MORE QUESTIONS ON BACK OF FORM
4) How confident is your family to enable the family member with T2DM to exercise 15 to 30 minutes, 4 to 5 times a week?

Not at all confident 1 2 3 4 5 Totally confident

5) How confident is your family that they can recommend ways to prevent your family member’s blood sugar level from dropping during exercise?

Not at all confident 1 2 3 4 5 Totally confident

6) How confident is your family in knowing what to do when the blood sugar level of your family member with T2DM goes higher or lower than it should be?

Not at all confident 1 2 3 4 5 Totally confident

7) How confident is your family to judge when the changes in your family member’s T2DM illness means they should visit a doctor?

Not at all confident 1 2 3 4 5 Totally confident

8) How confident is your family that they can support your family member to control their diabetes, so that the diabetes does not interfere with the things that they want to do?

Not at all confident 1 2 3 4 5 Totally confident

THANK YOU FOR COMPLETING THIS FORM.
APPENDIX C: RECRUITMENT SCRIPT
RECRUITMENT SCRIPT

The University of Arizona College of Nursing

Hello, my name is David Eisenbise and I am a 4th year student in the College of Nursing. I am currently working on my honors thesis with Dr. Marylyn Morris McEwen. I am developing a questionnaire to measure collective (family) efficacy for Type 2 diabetes (T2DM) management among Mexican American adults. This research will hopefully lead to a better understanding of managing of T2DM in a family context. If you volunteer as a participant in this study, you will be asked to either participate in a 60-90 minute focus group or, to participate in completing the questionnaire electronically via Survey Monkey at two separate times - approximately 10 days apart. Completion of the questionnaire should take approximately 10 minutes each time.

Participation in this study is voluntary and you may withdraw at any time without any consequences to your standing as a University of Arizona Health Sciences student. If you are interested in participating in this study, please respond back to this email and I will contact you via email to schedule an appointment.

Thank you,

David Eisenbise, 4th year student

College of Nursing, The University of Arizona

deisenbise@nursing.arizona.edu
APPENDIX D: RECRUITMENT FLYER
RECRUITMENT FLYER

The University of Arizona College of Nursing

DIABETES COLLECTIVE EFICACY AMONG MEXICAN AMERICAN FAMILIES

We are looking for health sciences student volunteers to participate in a study to refine and test a measure of diabetes collective efficacy among Mexican American families who have an adult family member with type 2 diabetes.

You are eligible to participate in this study if you: 1) self-identify as Mexican American, 2) are 18 years of age or older, 3) speak and read English, 4) are a University of Arizona student in one of the Health Sciences Center programs, and 5) currently live in the same household with an adult family member who has been diagnosed with type 2 diabetes. As a participant in this study, you would be asked to either participate in a 60-90 minute focus group with other students, OR complete the questionnaire via Survey Monkey two times over a 10-day period. The questionnaire will require approximately 10 minutes to complete each time.

In appreciation for your time, participants will receive some compensation and the satisfaction of advancing knowledge of diabetes collective efficacy among Mexican American families.

For more information about this study, or to volunteer for this study, please contact:

David Eisenbise
The University of Arizona College of Nursing
at
Email: deisenbise@nursing.arizona.edu
APPENDIX E: DISCLOSURE FORM FOCUS GROUP
DISCLOSURE FORM

Project Title: Diabetes Collective Efficacy Among Mexican American Families

Investigators: David Eisenbise, Dr. Marylyn McEwen

You are being invited to take part in a research study being conducted by The University of Arizona. The purpose of this research study is to test the newly developed Diabetes Collective Efficacy for Mexican American Families questionnaire to ensure that it measures collective efficacy for T2DM management. You are being asked to participate in this study because you are Mexican American, 18 years of age or older, reside within the same household as the family member with type 2 diabetes mellitus (T2DM), are a current University of Arizona Health Sciences student and speak and read English.

If you agree to participate, your participation will involve one focus group interview about Diabetes management among Mexican American Families. The focus group will take place in a location convenient for you and will last approximately 60-90 minutes. You may choose not to answer some or all of the questions. During focus group written notes will be made in order to help the investigator review what is said. Your name will not appear on these notes.

Any questions you have will be answered and you may withdraw from the study at any time. There are no known risks from your participation and no direct benefit from your participation is expected. There is no cost to you except for your time and you will receive a $5.00 coffee gift certificate upon completion.

The researchers will be audio recording during the study so that they can be certain that your responses are recorded accurately.

Information about you will be stored in computer files protected with a password.

Information about you will be kept confidential to the extent permitted or required by law. People who have access to your information include the Principal Investigator and research study personnel. Representatives of regulatory agencies such as the Office of Human Research Protections (OHRP) and entities such as the University of Arizona Human Subjects Protection Program may access your records to make sure the study is being run correctly and that information is collected properly. The University of Arizona may also see your information. However, any information that is sent to them will be coded with a number so that they cannot tell who you are. Representatives from these entities can see information that has your name on it if they come to the study site to view records. If there are any reports about this study, your name will not be in them.
You can call the Principal Investigator to tell him/her about a concern or complaint about this research study. The Principal Investigator David Eisenbise can be emailed at deisenbise@nursing.arizona.edu. You may also contact the Principal Investigator’s advisor, Marylyn McEwen, PhD at (520) 626-6926.

For questions about your rights as a research subject; or if you have questions, complaints, or concerns about the research and cannot reach the Principal Investigator or want to talk to someone other than the Investigator, you may call the University of Arizona Human Subjects Protection Program office.

- Local phone number: (520) 626-6721
- Website (this can be anonymous): http://orcr.vpr.arizona.edu/irb/contact.

By participating in the interview(s) or survey(s), you are giving permission for the investigator to use your information for research purposes.

Thank you.

David Eisenbise
Investigators Name
DISCLOSURE FORM

Testing

Project Title: Diabetes Collective Efficacy Among Mexican American Families

Investigators: David Eisenbise, Dr. Marylyn McEwen

You are being invited to take part in a research study being conducted by The University of Arizona. The purpose of this research study is to test the newly developed Diabetes Collective Efficacy for Mexican American Families questionnaire to ensure that it measures collective efficacy for T2DM. You are being asked to participate in this study because you are Mexican American, 18 years of age or older, reside within the same household as the family member with type 2 diabetes mellitus (T2DM), are a current University of Arizona Health Sciences student and speak and read English.

If you agree to participate, your participation will involve answering a questionnaire about Diabetes management among Mexican American Families on two separate occasions; the second questionnaire will be sent to you 10 days after you complete the first questionnaire. Instructions on how to complete the electronic questionnaire will be emailed to you. Approximately 10-20 minutes total will be required to complete both questionnaires. You may choose not to answer some or all of the questions.

Any questions you have will be answered and you may withdraw from the study at any time. There are no known risks from your participation and no direct benefit from your participation is expected. There is no cost to you except for your time and you will receive a $5.00 coffee gift certificate upon completion.

Information about you will be stored in computer files protected with a password.

Information about you will be kept confidential to the extent permitted or required by law. People who have access to your information include the Principal Investigator and research study personnel. Representatives of regulatory agencies such as the Office of Human Research Protections (OHRP) and entities such as the University of Arizona Human Subjects Protection Program may access your records to make sure the study is being run correctly and that information is collected properly. The University of Arizona may also see your information. However, any information that is sent to them will be coded with a number so that they cannot tell who you are. Representatives from these entities can see information that has your name on it if they come to the study site to view records. If there are any reports about this study, your name will not be in them.
You can call the Principal Investigator to tell him/her about a concern or complaint about this research study. The Principal Investigator David Eisenbise can be emailed at deisenbise@nursing.arizona.edu. You may also contact the Principal Investigator’s advisor, Marylyn McEwen, PhD at (520) 626-6926.

For questions about your rights as a research subject; or if you have questions, complaints, or concerns about the research and cannot reach the Principal Investigator or want to talk to someone other than the Investigator, you may call the University of Arizona Human Subjects Protection Program office.

- Local phone number: (520) 626-6721
- Website (this can be anonymous): http://orcr.vpr.arizona.edu/irb/contact.

By participating in the interview(s) or survey(s), you are giving permission for the investigator to use your information for research purposes.

Thank you.

David Eisenbise
Investigators Name
APPENDIX G: EXPERT NURSE RESEARCHER RATING SCALE
Faculty Expert Questionnaire

Thank you for participating in David Eisenbise’’s Honors Research Project. Our goal is to shift Bandura’’s concept and operationalization of self-efficacy to collective efficacy - in the context of diabetes management among Mexican American family members living with a family member who has type 2 diabetes (T2DM).

Specifically, we are interested in your expert opinion about the change we are proposing in the concept of self-efficacy - from an individual-level to a collective (family)-level.

- Collective efficacy represents the beliefs of group members concerning the performance capability of a social system as a whole.

Instructions:
1. Review the attached Diabetes Self-Efficacy questionnaire. (This is a mature instrument, reliability and validity have been established.)
2. Review the attached proposed Diabetes Collective-Efficacy questionnaire.
3. Respond to each of the following items related to the Diabetes Collective-Efficacy questionnaire. Bold or highlight the number that corresponds to how well you think the item corresponds to measuring collective-efficacy for T2DM management.
4. Return the Faculty Expert Questionnaire with your answers to: deisenbise@nursing.arizona.edu by November 04, 2010.

Thank you for your participation and contribution to my Honors Thesis.
Faculty Expert Questionnaire: Diabetes Collective-Efficacy

Question item #1:
1 not relevant
2 unable to assess or in need of considerable revision
3 relevant but needs minor revision
4 very relevant and succinct

Question item #2:
1 not relevant
2 unable to assess or in need of considerable revision
3 relevant but needs minor revision
4 very relevant and succinct

Question item #3:
1 not relevant
2 unable to assess or in need of considerable revision
3 relevant but needs minor revision
4 very relevant and succinct

Question item #4:
1 not relevant
2 unable to assess or in need of considerable revision
3 relevant but needs minor revision
4 very relevant and succinct

Question item #5:
1 not relevant
2 unable to assess or in need of considerable revision
3 relevant but needs minor revision
4 very relevant and succinct

Question item #6:
1 not relevant
2 unable to assess or in need of considerable revision
3 relevant but needs minor revision
4 very relevant and succinct

Question item #7:
1 not relevant
2 unable to assess or in need of considerable revision
3 relevant but needs minor revision
4 very relevant and succinct

CONTINUE TO NEXT PAGE
Faculty Expert Questionnaire: (Con’t)

Question item #8:
1 not relevant
2 unable to assess or in need of considerable revision
3 relevant but needs minor revision
4 very relevant and succinct

Additional Questions:

As an individual with expertise in self-efficacy, have we missed any important area of collective efficacy in above questions?      ______ yes           ______ no

If so, what additional items are needed to fill the gap that you have identified?

_________________________________________________________________
_________________________________________________________________

Thank you for your participation and contribution to my Honors Thesis.
APPENDIX H: FOCUS GROUP RATING SCALE
Thank you for participating in David Eisenbise’s Honors Research Project. Our goal is to shift self-efficacy (how confident one is to accomplish tasks) to collective efficacy (how confident one believes the family is able to support the person to accomplish tasks) - in the context of diabetes management among Mexican American family members living with a family member who has type 2 diabetes (T2DM).

Specifically, we are interested in your opinion as a family member of someone with T2DM about the change we are proposing in the concept of self-efficacy - from an individual-level to a collective (family)-level.

- **Collective efficacy represents the beliefs of group members concerning the performance capability of a social system as a whole.**

Instructions:
- Review the attached proposed Diabetes Collective-Efficacy questionnaire.
- Respond to each of the following items related to the Diabetes Collective-Efficacy questionnaire. Circle the number that corresponds to how well you think the item corresponds to measuring collective-efficacy for T2DM management.

Thank you for your participation and contribution to my Honors Thesis.
**Focus Group Questionnaire: Diabetes Collective-Efficacy**

Question item #1:
1. not relevant
2. unable to assess or in need of considerable revision
3. relevant but needs minor revision
4. very relevant and succinct

Question item #2:
1. not relevant
2. unable to assess or in need of considerable revision
3. relevant but needs minor revision
4. very relevant and succinct

Question item #3:
1. not relevant
2. unable to assess or in need of considerable revision
3. relevant but needs minor revision
4. very relevant and succinct

Question item #4:
1. not relevant
2. unable to assess or in need of considerable revision
3. relevant but needs minor revision
4. very relevant and succinct

Question item #5:
1. not relevant
2. unable to assess or in need of considerable revision
3. relevant but needs minor revision
4. very relevant and succinct

Question item #6:
1. not relevant
2. unable to assess or in need of considerable revision
3. relevant but needs minor revision
4. very relevant and succinct

Question item #7:
1. not relevant
2. unable to assess or in need of considerable revision
3. relevant but needs minor revision
4. very relevant and succinct

**CONTINUE TO NEXT PAGE**
Focus Group Questionnaire: (Con’t)

Question item #8:
1 not relevant
2 unable to assess or in need of considerable revision
3 relevant but needs minor revision
4 very relevant and succinct

Additional Questions:

As a family member of someone with T2DM, have we missed any important area of collective efficacy in above questions? ______ yes ______ no

If so, what additional items are needed to fill the gap that you have identified?

________________________________________________________________________

________________________________________________________________________

Thank you for your participation and contribution to my Honors Thesis.
APPENDIX I: FOCUS GROUP QUESTIONS
Collective Efficacy for Diabetes
The University of Arizona College of Nursing

FOCUS GROUP QUESTIONS

1. Describe project goal and purpose of the focus group
   a. Review Disclaimer and emphasize that all personal identifying information will be removed from the transcript

2. Introductions
   a. Facilitator introduces self
   b. Participants introduce themselves

3. Facilitator presents rules for the conduct of the focus group
   a. everyone’s contribution is valued
   b. everyone who wants to contribute will be afforded that opportunity
   c. only one person speaks at a time as we are audiotaping the focus group
   d. we will have a 5-minute break after 45 minutes

4. Focus Group Questions:
   We have several questions that we are going to ask about the experience of having a family member with diabetes.

   • How has having a family member diagnosed with T2DM affected your family?
     i. [Probing questions]:
        1. For example, has your family changed the way they eat since the family member was diagnosed with diabetes?
        2. Do family members worry more about the person who has T2DM than other family members?

     a. How confident do you feel about your family’s understanding of the requirements for managing T2DM? (Distribute handout of essential seven).
        i. [Probing Questions]
           1. For example, how confident are you that the family understands the types and combinations of foods required to keep the blood sugar under control?
           2. How confident are you that your family understands the role of regular physical exercise for blood sugar control?
           3. How confident are you that your family understanding the procedure for monitoring blood sugar?
           4. How confident are you that your family understanding the other diabetes care requirements listed on the handout?
b. How confident do you feel about your family’s ability to support your family member with T2DM to control their diabetes?
   i. What are examples of how your family provides support to the family member with diabetes?

5. Tell us about how your family contributes to the management of your family member’s T2DM management.
   a. [Probing Questions:]
      i. For example, do you or any other family member do anything related to their medications such as reminders, filling their pill box, etc?
      ii. Do you or any other family member do anything related to their meals such as counting carbohydrates, promoting healthy eating?
      iii. Do you or any other family member participate in regular physical activity with the family member who has diabetes?
      iv. Are there any other activities that family member engage in related to diabetes management?

- Now we would like to have your feedback about a questionnaire that we developed - the Collective Efficacy for Diabetes Questionnaire.
  b. Facilitator distributes the questionnaire
  c. We would like to give you about 5 minutes to review the questionnaire and then we will ask a few more questions.

  d. We are interested in your interpretation of each of the questions.
     i. We will take a few minutes to discuss each item.
     ii. We are interested in everyone’s perspective so please share, there are no right or wrong responses AND, you may help us to better state the questions.
     iii. As a family member of a person with T2DM, how would you ask this question to another family member in your household?

6. Do you have any suggestions for how this questionnaire might be made clearer?

7. Is there anything else you would like us to know about the contribution(s) your family makes to supporting and/or caring for your family member with T2DM?

8. Finally, on a scale of 1 – 5, with 5 being the most confident, how confident would you say your family is in supporting and/or participating in your family member’s diabetes management?

THANK YOU FOR PARTICIPATING IN THIS STUDY
APPENDIX J: DIABETES ESSENTIAL SEVEN HANDOUT
Diabetes Essential Seven

1. Healthy Eating

The good news is there is no such thing as a “diabetic diet”. Healthy eating for diabetes involves having a balance of carbohydrates, lean proteins, and heart healthy fats. Understanding carbohydrates is a good starting point. As your confidence grows, you can learn more about reading food labels and portion sizes. Fiber content and the timing of meals are also important in diabetes management. Through healthy eating you may be able to achieve and maintain a healthy body weight which is a key factor in optimal blood sugar control throughout your life.

2. Being Active

Regular activity is important for overall fitness, weight management and blood sugar control. With exercise, those with diabetes can improve control, and those at risk for Type 2 diabetes can reduce that risk. Being active can also help enhance weight loss, help control blood fat levels (cholesterol and triglycerides) and blood pressure, as well as reduce stress. If you are already active, you can increase the intensity or frequency. If you are not currently active, discuss with your provider a safe activity plan. Start by taking small steps: walk the dog, take the kids to the park, ride a bicycle to the post office. Everything counts!

3. Monitoring

Daily self-monitoring of blood sugar with a blood glucose meter provides the feedback on how food, physical activity and medications affect blood sugar. Talk to your health care team if you have any questions about how to use your meter or when to check your blood sugar. There is no wrong time to check – different times give you different kinds of information. Monitoring, however, doesn’t stop there. People with diabetes may also want to regularly check their blood pressure and weight.

4. Taking Medication

Some people need medication no matter how carefully they eat and exercise. Understanding how the medication works, when to take it, how much to take and potential side effects is important. Effective drug therapy in combination with healthy lifestyle choices lowers blood sugar levels, reduces the risk for diabetes complications and makes you feel better.

5. Problem solving

Keeping your problem-solving skills sharp is important because on any given day, a high or low blood sugar will require rapid, informed decisions about food, activity and medications. Even after decades of living with diabetes, stability can still be a challenge. The disease is progressive and life situations change. Learn to identify problem areas and find possible solutions.
6. Reducing risks

Being proactive and changing unhealthy habits will help reduce the risks of complications from diabetes, as well as improve your health and quality of life. Actions such as stopping smoking and having regular eye, foot, and dental examinations have a major impact.

7. Healthy coping

Health status and quality of life are affected by mental and social factors such as depression, financial struggles or job loss. Mental stress impacts health and motivation to keep diabetes in control. When motivation is low, the commitment required to perform your day in day out self care tasks can be difficult to maintain. When problems seem impossible to overcome, coping becomes difficult and your daily self care becomes more challenging. Learning to manage stress and life situations is an important piece for controlling blood sugar. A strong support system, and contact with your provider when needed, can help you mange. Begin building your support team today!

-UC Davis Health System
REFERENCES


Pan American Health Organization (PAHO). (2004). New study shows diabetes higher on U.S.-
Mexico border. Retrieved February 21, 2010 from Website:
http://www.paho.org/English/DD/PIN/pr041118a.htm

February 21, 2010 from Website: http://pewhispanic.org/states/population/

& Fact Sheets. Retrieved February, 21, 2010 from Website:


translating estimated average glucose (eAG) to promote diabetes self-management


Manuscript.* The University of Arizona. Tucson, Arizona.

self-management across race/ethnicity and health literacy? *Diabetes Care, 29*(4), 823-
829.

*Research and Theory for Nursing Practice, 18*(4), 293-316.

Stanford Patient Education Research Center. (2007). Diabetes Self-Efficacy Scale [Spanish and
English]. *Stanford School of Medicine.* Retrieved April 6, 2007 from Website:
http://patienteducation.stanford.edu/research/

Teufel-Shone, N. I., Drummond, R., & Rawiel, U. (2005). Developing and Adapting a Family-
based Diabetes Program at the U.S.-Mexico Border. *Previous Chronic Disorder.
Retrieved May 3, 2010 from Website:

Total Minority Student Enrollment Trends Fall 1983 to Fall 2010. *Office of Institutional
Research and Planning Support, 12-07-2010.* Retrieved Jan 18, 2010 from Website:
http://oirps.arizona.edu/files/Student_Demo/Enrollment_trends_for_minority_students_2
010.pdf


