

Water, not chocolate:  
Type 2 diabetes education for Hispanics

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## Précis

Type 2 diabetes is a public health crisis in the United States. Among Hispanics, the rate of diabetes, diabetes-related complications, and diabetes-related death is two to three times higher than among non-Hispanic whites, and the incidence is projected to increase significantly within the next ten years. Because patients with diabetes conduct most of their own care after training, it is necessary to understand the impact of diabetes education on patient self-care. Further, effective diabetes education for Hispanics must be culturally sensitive to the unique needs of this population. This represents an understudied area of health care research and practice. The goal of this research was to identify the issues affecting self-care and effective diabetes education for Hispanics with Type 2 diabetes. General suggestions were presented for how these issues could be addressed in a comprehensive program of culturally competent diabetes education for Hispanics.

To identify these issues, current literature on diabetes education research was reviewed in-depth. The primary research journals included *The Diabetes Educator* and *Diabetes Care*. Web sites from organizations such as the American Diabetes Association were used for national data. Preliminary findings were applied to ideas for diabetes education programs for Hispanics. Next, a small survey of diabetes educators was conducted to verify findings and expand on ideas for the proposed program. A small sample of diabetes educators from selected Hispanic communities in Washington State provided in-depth interviews probing topics identified as primary concerns for Hispanics with diabetes. Survey results were integrated into a proposed program of diabetes education for Hispanics. The proposed program utilized Social Cognitive Theory, a

theory that posits influences on self-regulated behaviors.

Issues facing Hispanic diabetes patients included the impact of traditional gender roles, lack of family support, the use of traditional foods and remedies, and barriers imposed by economic limitations. Other issues that were identified included the phenomenon of "doctor worship," language barriers, educational limitations, over-reliance upon insulin and other medications, and a fear of symptoms associated with hypoglycemia. The responses obtained from providers reinforced the findings from the literature review. Providers suggested ways that programs could address these barriers, such as including family members in diabetes education sessions.

This research suggests that there is a convergence between the views of patients from different studies and between patients and providers, as evidenced by the similarities between literature findings and the responses of current providers. This research was unique in that literature findings in an understudied area were confirmed using information obtained directly from current practitioners. However, there are differences in how patients versus providers view diabetes education. Further research is necessary to compare and contrast the perspectives of both patients and providers toward key issues. Diabetes education programs need to address the perspectives and practices of both these groups. In addition, future research should address controversial issues such as the perceived value of diet planning versus use of medications.

The proposed program plan must be tested with experimental and control groups to determine if behavioral and clinical outcomes differ significantly. If successful, a culturally appropriate diabetes education program would enable Hispanic patients to conduct better self-care, decrease health care costs, and contribute to improved health and

quality of life for this population.

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## **Introduction**

Type 2 diabetes mellitus, also called non-insulin dependent diabetes mellitus (NIDDM), was recently declared the fifth leading cause of death in the United States (American Association of Diabetes Educators [AADE], 2003). Hispanics, who make up one of the largest minority groups in the United States, are at greater risk for diabetes than are non-Hispanics (Stern & Haffner, 1992). It is essential to understand the scope and impact of Type 2 diabetes in order to determine how best to control it, especially among Hispanics and other high risk groups. The key to diabetes management is patient education, because the patient provides 95% of his or her own care (Anderson et al, 1993).

An in-depth examination of the strengths and weaknesses of diabetes education programs for the Hispanic community is essential, given the impact of diabetes upon this understudied population. To that end, this paper presents a literature-based investigation of the factors that affect diabetes care in the Hispanic community. Additionally, the key issues in diabetes education programs as they relate to Latinos are identified. Based on these findings, guidelines for diabetes education programs for Hispanics are suggested. In a later stage of the thesis, novel interview data collected from diabetes care providers is presented both to verify the proposed guidelines and to determine how they may be carried out.

The possible modifications to diabetes treatment programs that are suggested may render the programs more culturally sensitive, and consequently more effective in reducing the incidence of diabetes in this vulnerable population. The development of

medical care that is accessible to and sensitive towards minority populations is increasingly necessary to preserve the health and quality of life of the progressively more heterogeneous population of the United States.

## **Material and Methods**

### *Literature Based- Research*

A variety of sources provided insight into the major issues associated with diabetes education for Hispanic Americans. The topic of diabetes and diabetes education for minority groups is controversial and under-studied. Due to the rapid growth of knowledge in this field, the majority of the resources used were journal articles, rather than books. The articles consulted included research articles on the impact of diabetes education programs for patient populations including Hispanics, and survey assessments of Hispanics patients and their providers that identify challenges and issues specific to managing diabetes in the Hispanic population. These sources established the parameters of the problem to be studied, and supported the findings.

Journals consulted included *The Diabetes Educator*, *Diabetes Care*, *The Journal of the American Medical Association*, *The Journal of the American Dietetic Association*, and *The Journal of Nutrition Education and Behavior*. The keywords used to find relevant articles included *diabetes*, *Hispanic*, *Hispanics*, *Hispanic Americans*, *obesity*, *heart disease*, *diabetic retinopathy*, *Latinos*, *diabetes legislation*, and *diabetes education*. Some of the articles used qualitative (in-depth, non-numeric) data, rather than quantitative (numeric) data. When qualitative studies were used, methods included focus groups and individual in-depth interviews. Qualitative studies provide rich context for research topics that are under-studied. These studies also give direction to future research.

In addition, articles found in older journals provided a context for current research. For example, articles summarizing compliance studies indicate that patient

compliance to diabetes management routines has been a long-time concern for diabetes educators. These and other studies point to the evolution of diabetes education research that can be applied to the Hispanic population.

Two books on health issues in the Hispanic community contained interpretive information on the health status of Hispanics, particularly with respect to diabetes, and provided insight into the historic characteristics of the Hispanic community that may contribute to the prevalence of diabetes. Both books were edited by Hispanic health care providers. The authors and editors gave an objective overview of the major studies pertaining to diabetes among Hispanics, and integrate cultural and historical information on this pressing issue. The first book, *Health Issues in the Latino Community* (2001), provided a comprehensive review of major health policy changes that affect Hispanics. The book also contained a chapter on diabetes including relatively current findings on the prevalence of Type 2 diabetes in the Hispanic community. The second book, *Health Policy and the Hispanic* (1992), contained a chapter devoted to Type 2 diabetes among Mexican Americans. Although the focus of this chapter was narrow, the author suggested multiple factors that may contribute to the unusually high rate of diabetes in this group.

Although books and articles provided core data for this paper, they were not necessarily current for some information due to the length of time required to publish them. Web sites report the most current data on the incidence and prevalence of Type 2 diabetes from national surveys. Web sites that are maintained by organizations are carefully regulated and their content monitored. Consequently, only web sites authored by organizations were used in the writing of this paper. The web site of the American Diabetes Association (<http://www.diabetes.org>) contains useful data relating to the

prevalence of diabetes, both in the general population and in specific minority groups. The Centers for Disease Control and Prevention web page (<http://www.cdc.gov>) gives an overview of treatment and education programs for Hispanics that are funded or supported by the CDC. The website also contains general information about Type 2 diabetes, its effects, and common treatments.

It was found that factors influencing diabetes education for Hispanics were a good fit with a theoretical framework called Social Cognitive Theory. This theory has been used extensively in diabetes education research with mainstream populations. Background reading on this theory was derived principally from *Health behavior and health education: Theory, research, and practice* (2002). Conclusions were presented in the context of this theory. A survey was then conducted to verify the findings of the literature review, and to further investigate challenges in diabetes education practice with Hispanics.

### *Novel Data Collection Using Survey Research*

After preliminary conclusions were drawn from the literature review, phone interviews were conducted with a sample of diabetes educators in Washington State. These interviews yielded realistic suggestions as to how to refine and implement the guidelines for effective diabetes education for Hispanics. The objectives of this data collection were: 1) to validate the findings of the literature review; 2) to refine the conclusions generated by the literature review, including guidelines for effective diabetes education; 3) to identify issues involved in carrying out these guidelines; 4) to identify the continuing needs associated with diabetes education for Hispanics.

These interviews complied with the Human Subjects Policy of Washington State

University (IRB No. 5912, approved 1/13/04). Jill Shultz, a professor in the Department of Food Science and Human Nutrition, supervised the design and implementation of these interviews.

### *Sample*

Diabetes educators who work with the predominantly Mexican American community in central Washington state were contacted. The providers contacted represented diabetes education programs located in hospitals of various sizes, and with diverse clientele. A sample of four diabetes educators was contacted by phone or by e-mail to schedule a telephone interview. The sample was screened by Jill Shultz, PhD, who has an extensive network of contacts in diabetes education in Washington State. The phone interviews, held during the respondent's work hours, lasted approximately 15 minutes. The qualitative information gleaned from these interviews was integrated into the conclusions.

### *Interview schedule*

Each educator was asked a set of questions that met the stated objectives of the survey (Appendix A). Specifically, educators were asked questions about five factors found in the literature review that may influence effective diabetes education for Hispanics, and therefore would be included in the guidelines for effective care. These issues included gender roles, family support, traditional foods and medicines, and economic constraints. Questions were open-ended, to encourage lengthy responses. This approach yields qualitative, or non-numeric, data.

### *Data analysis*

Responses were analyzed for content using the approach by Krueger (1998) for

focus group data analysis. Responses were sorted by question and themes were identified. In addition, individual suggestions for diabetes education programs were noted.

## **Findings and Discussion**

### **Type 2 diabetes: A public health crisis**

#### *Definition of Type 2 diabetes*

Type 2 diabetes mellitus is a disease in which human cells become insensitive to insulin (Centers for Disease Control and Prevention [CDC], 2004), a hormone that facilitates cellular uptake of glucose (Mahan & Escott-Stump, 2000). Glucose is a simple carbohydrate that provides energy to cells. Because cells no longer efficiently respond to insulin, glucose accumulates in the blood, and serum glucose levels increase. Over time, elevated glucose levels affect various parts of the body, including the eyes, the urinary system, and the nervous system (CDC, 2004). This may lead to the development of related conditions, including blindness and kidney problems, and secondary diseases such as heart disease, stroke, hypertension, and circulatory problems (AADE, 2003). Many risk factors for Type 2 diabetes have been identified, the most notable of which is obesity. Other risk factors include ethnicity, gestational diabetes, and age: Type 2 diabetes is most common among individuals who are over 45 years of age.

Due in part to the multiple effects of Type 2 diabetes, multiple regimens (treatment areas) are used to treat the disease. Core treatments applied by the patient include diet management, physical activity, use of medication(s), and blood glucose-monitoring. Other monitoring is performed by the provider, and includes exams for eye health and clinical indices of long-term glycemic control. All components of patient self-care require education so that the patient can follow an individualized plan. For example,

individuals balance blood glucose levels by learning how to modify their diet and exercise habits, in addition to taking oral medications, insulin, or a combination of these treatments (CDC, 2004). Regardless of the treatment used, it is necessary to educate patients with Type 2 diabetes on how best to manage their disease on a day-to-day basis.

### *Issues relating to Type 2 diabetes*

Type 2 diabetes is a form of diabetes that is partly preventable by an individual's lifestyle as it pertains to body weight status. Obese individuals are at greater risk of developing Type 2 diabetes than are individuals of normal weight (National Task Force on the Prevention and Treatment of Obesity, 2000). In the United States, the percentage of obese men and women from all ethnic backgrounds increased by 7.6% from 1988 (22.9%) to 2000 (30.5%) (Flegal et al, 2002). Concomitant with this increase in obesity, an estimated 17 million people in the United States were diagnosed with the disease in 2002 (AADE, 2003; American Diabetes Association [ADA], a). Approximately 90-95% of these patients -or between 15,300,000 and 16,150,000 people - have Type 2 diabetes (CDC, 2002). This estimate represents a significant increase from the 11 million persons with Type 2 diabetes reported in the U.S. Public Health Service Report in 1991 (Select Committee on Aging, 1992). In a landmark study, the incidence of Type 2 diabetes was reduced to a greater extent by a program of diet and exercise than by use of oral glucose-lowering medications (Diabetes Prevention Program Research Group, 2002).

The cost per year of educating and treating persons with Type 2 diabetes and related diseases has risen to an estimated \$98 billion (Brown et al, 2000). This figure includes the cost of treatment for secondary diseases brought on by diabetes. The direct medical costs of diabetes to individual patients depend on the ethnicity, gender, and

physical characteristics of specific patients: for example, an overweight (BMI $\geq$ 30) white male with Type 2 diabetes and no secondary symptoms pays an average of \$1,684 per year for medical care (Brandle et al, 2003). An African-American male with similar characteristics could expect to pay approximately \$1,380 each year, while a white woman might pay up to \$2,105 annually. The direct costs of diabetes care for Hispanics have not been determined.

### *Type II diabetes in the Hispanic community*

In the United States minority groups are at higher risk for diabetes than are Caucasians (Kumanyika, 1990). Of particular concern is the Hispanic American population, defined as Americans of Puerto Rican, Mexican, Cuban, Central American, and South American descent (Select Committee on Aging, 1992). Recently, the American Diabetes Association has suggested that Hispanics are two times more likely to experience Type 2 diabetes than are Caucasians who are not of Hispanic origin (ADA, 2002, b). This disparity was noted in the findings of the Third National Health and Nutrition Examination Survey (NHANES III), conducted between 1988 and 1994, which found that 23.6% of Mexican Americans had diabetes, compared to 13.4% of whites (Luchsinger, 2001). NHANES II, an earlier survey that spanned 1976-1980, revealed similar results: 17.4% of Mexican Americans had diabetes, compared to 8.1% of whites. The consistency between the results of NHANES II and NHANES III provides evidence for the persistence of diabetes within the Hispanic community.

### *Factors that affect diabetes in the Hispanic community*

As with other minorities affected by Type 2 diabetes, the biological, social, and cultural characteristics of Hispanics suggest that special attention must be paid to

appropriately identifying and addressing Type 2 diabetes issues within this community.

### *Biological factors*

The rate of obesity is high in the Hispanic population. A study using national data revealed that 34.4% of Mexican American adults are obese (Flegal et al, 2002). Of the other ethnic groups studied, only African Americans showed a higher percentage of obese adults (39.9%). In addition, the percent of overweight (BMI  $\geq$  25) is highest for Mexican Americans (73.4%) compared to African Americans (69.6%) or whites (62.3%). The percentage of Hispanic adults with diabetes (8.9%) was also higher than the percentage for any group except African Americans (11.1%) (Mokdad et al, 2001). The percentage of young people with diabetes in the Mexican American community is higher than the percentage of young Caucasians with diabetes (Stern & Haffner, 1992), a statistic which may be related to the high obesity rate.

Secondary diseases related to diabetes appear to affect Hispanics more severely than other ethnic groups (Wu et al, 2003). For example, Hispanics with diabetes are more likely to suffer complications related to kidney function than are non-Hispanics (ADA, b). Additionally, one third or more of Hispanics with diabetes experience vision impairment related to diabetes (ADA, b), while only 21% of the general population of patients with Type 2 diabetes experience vision impairment or vision loss (ADA, c). This disparity may be partly explained by the fact that Hispanics often lack the economic resources necessary to effectively manage their diabetes, and the secondary conditions it may produce (Hunt et al, 1998). Genetic differences may also account for the increased prevalence of secondary conditions in Hispanics, but such research is beyond the scope of this thesis.

### *Socio-economic characteristics*

The unique character of diabetes among Hispanics may in part be attributable to economic and educational factors. The findings of the U.S. Census Bureau indicate that 8 million Hispanics, or 21.4% of the Hispanic community, live below the poverty line ("Poverty," 2004). The rate of poverty is higher among Hispanics than among any other minority group, with the exception of African Americans (22.7%). Individuals who live in poverty are thought to have a higher incidence of diabetes (Stern & Haffner, 1992), possibly because they have limited access to medical insurance, and thus to medical care (Select Committee on Aging, 1992). Low literacy in English may also hinder effective diabetes education, and thus may contribute to the high overall rate of diabetes and secondary symptoms in the Hispanic community (Kordella, 2003).

### *Treatment of diabetes*

To understand how to most effectively treat Hispanics with diabetes, it is necessary to understand the primary components of diabetes care for all populations in the United States. Because treatment of Type 2 diabetes is greatly related to lifestyle, patient care is designed to educate patients about effective diet and exercise habits, as well as the use of medications. These and other actions are collectively described in this paper as self-care behaviors, or self-management (Anderson et al., 1993; Rosenstock, 1985).

### *Diet*

The American Diabetes Association provides general dietary guidelines for patients with diabetes. These guidelines aim to lower diabetes patients' heightened risk for certain chronic diseases. For example, it is recommended that individuals with Type 2

diabetes consult with dietitians to minimize sodium, fat, sugar, and alcohol in the diet (ADA, d). These foods may worsen existing problems related to diabetes, or may induce the development of secondary diseases. The ADA recommends that diabetic diets include a variety of foods from different food groups, including lean meats and dairy products, whole grains, and fruits and vegetables (ADA, d).

Many patients with Type 2 diabetes also follow a special diet specifically designed for them by a dietitian. The most common diet plans require patients to count calories, fat intake, calories and fat intake, or carbohydrate intake (Powers, 1996). Carbohydrate intake in particular must be carefully monitored, because carbohydrates are directly metabolized to glucose. Carbohydrate intake affects the amount of glucose present in the blood, and thus affects blood sugar levels. Recommendations for carbohydrate intake are made based on individual assessments of patients. The total amount of carbohydrate consumed is usually thought to be more important than the type of carbohydrate.

The process of planning a diabetic diet is complex. In order to determine the quantity of carbohydrate to be consumed each day, it is first necessary to determine the caloric needs of the individual (Mahan & Escott-Stump, 2000). This figure can be determined using a variety of equations. The most commonly used is the Harris-Benedict Equation, an equation which incorporates information about the patient's height (in centimeters), weight (in kilograms), and age (in years) (See Appendix B). If weight loss is desired, this figure must then be adjusted accordingly.

Using the percentages established in the Dietary Goals, the dietitian then calculates the number of calories from fat, calories from carbohydrate, and calories from

protein that the patient should consume (Mahan & Escott-Stump, 2000). Typically, 30% of calories should be from fat, 58-60% from carbohydrate, and 10-12% from protein. These estimates may vary slightly depending on the needs of the individual.

Finally, in order to determine the number of grams of fat, carbohydrate, and protein to be consumed, the calorie counts determined in step 2 must be multiplied by a conversion factor that reflects the number of calories yielded per gram of fat, carbohydrate, or protein (Mahan & Escott-Stump, 2000). Each gram of fat consumed yields 9 calories (energy) in the body (9 calories/gram); each gram of carbohydrate consumed yields 4 calories in the body (4 calories/gram); each gram of protein consumed yields 4 calories in the body (4 calories/gram).

When these calculations are completed, the dietitian or diabetes educator knows how many grams of fat, carbohydrate, and protein must be consumed to meet the client's needs. The grams of carbohydrate allotted to the individual are then spread out throughout the meals consumed during the day (Mahan & Escott-Stump, 2000). Often, the diet is arranged so that maximum carbohydrate intake occurs at the time of day at which insulin is highest (Powers, 1996). The dietitian and patient must also modify this diet to accommodate the patient's usual pattern of intake. Diabetes educators consequently face the challenge of instructing patients in eating behaviors that are conducive to diabetes management, but also familiar and easy for clients to adopt and maintain.

#### *Insulin and oral glucose-lowering drugs*

Some individuals with Type 2 diabetes may use insulin to help restore glycemic control (Mahan & Escott-Stump, 2000). Typically, insulin is used with a combination of

oral hypoglycemics. Oral hypoglycemics, also called oral glucose-lowering medications, are classes of medications that are used to stabilize serum glucose levels. These drugs may be used alone, or in combinations.

Two of the most common groups of oral glucose-lowering drugs are *sulfonylureas* and *meglitinides*, which induce or enhance the secretion of insulin (Mahan & Escott-Stump, 2000). *Alpha-glucosidase inhibitors*, another class of oral hypoglycemics, slow the rate at which carbohydrate is absorbed from the small intestine, thus minimizing the increase in serum glucose that commonly occurs after eating. *Biguanides* and *thiazolidinediones* reduce insulin resistance in tissues.

### *Exercise*

In addition to the complex diet, insulin, and/or drug therapy that individuals with Type 2 diabetes often follow, patients are also advised to consult with doctors or diabetes counselors about beginning an exercise program (ADA, e). Regular exercise may help persons with diabetes lose weight, and thus achieve better control over their serum glucose levels (ADA, e). Exercise also promotes the formation of lean muscle mass, which helps individuals with Type 2 diabetes control their blood glucose levels (Braunstein, 2003). Patients with greater lean muscle mass are also believed to benefit more from oral hypoglycemic drugs than do patients with less lean muscle mass (Braunstein, 2003).

### *Issues of compliance*

The benefits of modifications to eating and exercise behavior seem apparent. However, according to research surveys of patients with Type 2 diabetes, it is often difficult for patients to make these changes. The results of one study show that, although

more than 90% of respondents were able to meet the dietary goals of limiting calories and eating at regular intervals, only 63% of respondents consistently avoided sweets, and only 50% of respondents exercised regularly (Polly, 1992). Another study divided participants into those who reported that they adhered to their doctors' advice, and those who did not (Anderson et al, 1993). More than 40% of patients in the "high adherence group" did not exercise regularly. The results of a survey of 83 patients in an outpatient diabetes education program provided further evidence that compliance with exercise programs is low: only 52% of the patients surveyed exercised regularly (Swift et al, 1997). The results of this survey reflect the typical percentage of individuals with Type 2 diabetes who exercise regularly, which ranges from 53-57% of individuals.

Other research suggests that economic status may have an effect upon compliance with diabetes regimes. Jorgensen et al (2002) surveyed patients from a nonprofit agency and patients from diabetes clinics, the latter presumed to serve more affluent patients. Overall, less than 40% of the respondents surveyed exercised regularly, although the percentage of patients from the nonprofit agency who exercised regularly (41.4%) was higher than the percentage of patients from the diabetes clinics who exercised regularly (37.1%). Almost 60% of participants indicated that they were not always able to get the foods they needed to control their diabetes. Notably, fewer patients from the nonprofit agency reported that they were able to procure the necessary foods (33.2%) compared to patients at the diabetes clinic (60.3%). The diabetes clinic may have served patients with more resources to purchase necessary food items. Studies have indicated that there is a perceived high cost of "diabetic" foods (low fat, low sugar) and food plans (Ahlgren et al, 2004), although this perception does not always impact individuals' adherence to these

food plans.

Although many persons with diabetes find it difficult to modify their patterns of diet and exercise, most have little difficulty in using oral hypoglycemic medicines. Oral glucose-lowering medications are increasingly popular: between 1990 and 2001, the number of prescriptions issued for oral glucose-lowering medications increased nearly four-fold (23.4 million prescriptions to 92 million prescriptions) (Wysowski et al, 2003). Current estimates indicate that almost 50% of adults with diabetes use oral hypoglycemics, rather than insulin, to help manage their diabetes (CDC, 2002). More than 10% of adults use a combination of insulin and oral hypoglycemics to manage their diabetes (CDC, 2002). Oral hypoglycemics are used to treat individuals with Type 2 diabetes because these individuals still produce their own insulin (Mahan & Escott-Stump, 2000). The utility of these drugs is reflected in the findings of several compliance studies. For example, almost 100% of patients in the “high-adherence group” in the Anderson et al study (1993) described above complied with directions to take oral hypoglycemics. In addition, a study of 102 adults with Type 2 diabetes indicated that a large percentage of persons with diabetes (91%) comply with their doctor’s instructions to take oral hypoglycemic agents (Polly, 1992).

Most studies of compliance do not address compliance among Hispanic patients: in many studies, Hispanics make up such a small subsample of the studied population that their findings cannot be separated out from the general findings. Most research on this population instead addresses the unique characteristics of Hispanic culture and society that affect diabetes education geared toward Hispanic patients. This paper suggests possible methods by which diabetes care in the United States can be modified to

more effectively meet the needs of Hispanic clients and address the growing incidence of Type 2 diabetes in this population.

## Factors that impact diabetes care for Hispanics

### *Patients' perspective*

Effective diabetes education is dependent upon input from the patients who will be receiving the education. Two important studies assessed Hispanic patients' beliefs about treatment of Type 2 diabetes. These include a study performed by Hunt et al (1998), and another conducted by Anderson et al (1998). Both of these articles presented in-depth, qualitative data, rather than quantitative, numeric data.

#### *Hunt et al (1998): Modifications to treatment programs*

Hunt et al (1998) conducted in-depth interviews with 51 Hispanics with Type 2 diabetes. Respondents were recruited from primarily indigent populations, were largely unemployed (71%), and using pills (57%), insulin (33%) or both (2%) to control their diabetes. Interviewers asked questions about participants' diet, symptoms, and use of medications to determine how participants' lives were impacted by diabetes care regimens. A principal finding was that participants tended to modify the regimens that were prescribed to them by health care professionals. Hunt et al (1998) then identified four areas of modification to prescribed treatment programs: 1) modifications to medication intake; 2) modifications to self-care practices that were intended to make participants feel normal; 3) modifications intended to reduce the incidence of unpleasant physical symptoms; and 4) modifications to reduce the economic impact of diabetes care. Each of these areas is described below.

Participants tended to perceive medications such as insulin or hypoglycemic pills as more powerful and effective than lifestyle changes. Notably, participants often felt that medications alone were sufficient to manage diabetes. As a result, 51% of participants used medications as substitutes for behavioral changes to diet and exercise. This overconfidence in the power of medications is a significant barrier to effective diabetes education.

Patients also expressed a desire to feel and act "normal." Patients wanted to be able to eat, drink, and behave like their relatives and friends who did not have diabetes. Some participants admitted that, in order to avoid feeling as though their lives had changed dramatically, they avoided making substitutions to their favorite dishes, and instead ate "normal" food until they became ill. Substitutions to diet may have been unpopular because the diet was perceived as "boring" or unsatisfying by many patients. This negative perception of the diabetic diet constitutes another barrier to successful diabetes education.

Gender differences were observed in issues relating to feeling normal. Many female participants mentioned that their prescribed health care regime conflicted with their traditional role as caregiver for their families. As a result of the discomfort caused by this conflict, the women often chose to reduce their own self-care in favor of maintaining care for their families. Men also experienced conflict as a result of gender roles: in line with the machismo culture that is found in many Hispanic societies, some Hispanic men opted to ignore diabetes care recommendations in favor of making their own decisions about what, when, and how much they will eat and drink.

Participants observed that they felt healthy and did not experience unpleasant

physical symptoms while their blood glucose levels were high. When their blood glucose levels were lowered through treatment procedures, they experienced symptoms associated with hypoglycemia, including dizziness and sweating<sup>1</sup>. In order to avoid these symptoms and feel good, many participants in this study chose to ignore treatment advice and keep their blood glucose levels elevated.

Economic limitations presented a final barrier to effective diabetes education. Many respondents indicated that they found diabetes treatment expensive. Moreover, participants indicated that their economic resources were further challenged by diabetic symptoms which prevented them from maintaining steady employment and a reliable income. The researchers pointed to the necessity of designing an educational program for Hispanics that respects and accommodates limited incomes and the perception of economic barriers.

*Anderson et al (1998): Barriers to effective diabetes care*

Several of the findings of Hunt et al (1998) were confirmed in focus group data collection by Anderson et al (1998) with 42 Hispanic patients, 81% of whom were female. The majority of the participants were using pills (52%) or insulin (45%) to manage their diabetes. Barriers to care were identified that participants felt should be addressed by an effective diabetes education program for Hispanics. Among these were the traditional role of Hispanic women as care-giver for their families. For example, many female participants reported that they prepared the traditional foods that their families preferred, rather than the items on the physician-recommended diabetic diets.

A second, related barrier to care was lack of family support or understanding.

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<sup>1</sup> The sensation of hypoglycemia can occur over time because the bodies of individuals with diabetes become acclimated to high blood glucose levels. When blood glucose levels fall below these elevated levels in response to treatment, the body perceives the

Many participants reported that they felt that their family members' lack of support was the result of lack of knowledge: in other words, because these family members did not know about diabetes, they could not help the participants effectively monitor their disease. Because family members lacked knowledge about the disease, they were also unable to provide helpful input into the development of successful diabetes education materials and treatment plans. This lack of input was identified as another barrier to successful diabetes education. The authors suggest that family members be included in diabetes education for Hispanic patients.

Participants also cited the use of traditional foods as a factor that complicates compliance. Traditional foods are highly valued by many Hispanics. The researchers indicated that these foods should be incorporated into a successful meal plan designed for Hispanics with diabetes. Respondents also reported that the use of traditional remedies is a psychosocial issue that should be addressed by any successful diabetes education program. The researchers suggested that such remedies should be incorporated into more mainstream medical care to enhance the effectiveness of this care, as long as these traditional practices do not conflict with physician-directed standards of care.

Although the findings of both Hunt et al (1998) and Anderson et al (1998) identify similar issues, each study represented a different focus: the work of Anderson et al highlighted diabetes education, whereas the research of Hunt et al addressed diabetes treatment. To determine cultural differences between the two groups studied, the authors would have had to provide information on the patients' country of origin, generational status, and degree of acculturation. This information is not included in the analysis of

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lowered serum glucose levels as being "too low," although serum glucose levels are actually approaching normal range. Consequently, the body responds as it would if a person without diabetes experienced dangerously low blood glucose levels.

sample characteristics presented. The sample studied by Hunt et al (1998) does include a larger percentage of men (51%) than does the Anderson et al (1998) sample (19% male). Consequently, the findings of Hunt et al may be somewhat more balanced for a gender-based approach.

There are limits to both of these studies. Both rely on qualitative information, from which it is not possible to make inferences about overall trends and projections for the future. Moreover, neither study accounts for patients' prior experiences with diabetes education. The extent of a patient's diabetes education may impact the areas of diabetes self-management that he or she deems important. Negative and positive past experiences with diabetes education may also affect how diabetes is managed. Finally, although both studies list the mean number of years that participants were diagnosed with diabetes, neither extracts information on the differences (if any existed) between the responses of newly diagnosed patients versus patients who had had diabetes for a longer duration. These two groups of individuals may have very different experiences with and responses to diabetes, diabetes education, and diabetes self-care behaviors.

### *Health care providers' perspective*

To obtain an accurate understanding of the factors that affect diabetes education for Hispanics, it is also necessary to take into account the opinions of health care providers who work with members of this population. Lipton et al (1998) assembled three focus groups consisting of mixed groups of medical professionals, including physicians, registered nurses, and others. One focus group each was conducted at three different sites, including urban and suburban clinics serving primarily Mexican Americans, and an urban clinic serving primarily Puerto Ricans. The two urban clinics served patients of a

lower socioeconomic status, while the suburban clinic served lower middle- to middle-class patients. Most (58%) of the subjects were female, and 45% were non-Hispanic. The majority of the Hispanic participants were Mexican American or Puerto Rican.

Physicians made up the largest number of participants (42%), with the remainder of the participants divided evenly between registered nurses and other health professionals. Finally, most (81%) of the participants spoke Spanish with some degree of fluency.

Results were similar to the findings of Anderson et al (1998) and Hunt et al (1998) from patient samples. For example, health care professionals reported that the traditional role in Hispanic culture of women as caretakers of the family was a barrier to effective diabetes treatment for female patients (Lipton et al, 1998). Lack of family support was identified as a related confounding factor. Participants also reported that economic constraints limited Hispanic patients' access to and use of diabetes treatment and education. The influence of traditional remedies and a fatalistic attitude toward illness were also cited as potential impediments to successful diabetes education.

Although health professionals identified many of the same challenges that patients have identified in other studies, some findings differed between the two groups. For example, medical professionals, and physicians in particular, cited the lack of educational materials available in Spanish as a barrier to successful diabetes education for Hispanics. Health professionals also observed that Hispanic patients tend to revere doctors. Consequently, these patients may behave as though they understand the doctor when in reality they do not. This phenomenon, referred to as "doctor worship," was identified as a significant barrier to effective diabetes treatment. A final barrier noted by physicians, but not by patients, was Hispanic patients' reluctance to use insulin for fear of being

perceived as strongly debilitated. However, the research of Hunt et al (1998) indicates that Hispanic patients may rely too heavily upon medications such as insulin and oral hypoglycemics. The disparity between perspectives of health care providers and patients on medications points to the need for further research into the use of medications, as well as better communication about medications between providers and patients.

In areas where their perspectives on diabetes education differ from those of patients, health care professionals can provide potential solutions for diabetes education from a systems point of view. These solutions, in combination with those provided by patients, may be most effective. One of the suggestions proposed by health care providers involved including family members in diabetes education and treatment planning sessions. Health workers also suggested that more bilingual health care professionals would improve the effectiveness of diabetes education for Hispanics. Finally, it was suggested that the development and use of Spanish-language nutrition information and educational materials for low-literacy patients would benefit Hispanics with Type 2 diabetes.

The work of Lipton et al (1998) is limited in providing comprehensive attitudes of health professionals toward Hispanic patients. The sample is relatively small, with qualitative findings that cannot be extrapolated beyond the group studied. Additionally, the providers' reference populations of Hispanic patients may not have been the same as those utilized in patient studies. Moreover, the researchers do not distinguish between the attitudes of Hispanic health care providers and the attitudes of non-Hispanic providers, or the attitudes of bilingual versus monolingual providers. Analysis of these distinctions may be an area of future research. Future studies could also assess interactions between

health care providers and Latino patients, as well as non-Latino patients. These assessments would allow researchers to objectively examine how attitudes toward Hispanic and non-Hispanic patients differ among health care providers from different ethnic backgrounds.

### A model of culturally-competent diabetes education

The Starr County Diabetes Education Study is the most comprehensive and extensive diabetes education study designed for Hispanics, specifically Mexican Americans. The objective of this study was to design and implement a culturally competent diabetes education program that would improve participants' knowledge of diabetes care, as well as physiologic measures of diabetes control (Brown & Hanis, 1999; Brown & Hanis, 1995). The majority (64%) of the 247 participants were female, middle-aged (in their mid-fifties), and had had diabetes for an average of 8 years. One-fourth of the participants used insulin exclusively. One third of the respondents used home remedies, although it is unclear whether these remedies were used supplementary to medical treatments, or in place of medical treatments. All patients were participating in genetic studies in Starr County. Participation in previous diabetes education and treatment was unknown.

In the initial stages of program planning, a number of cultural, educational, and economic challenges that face Mexican Americans with Type 2 diabetes were identified using focus groups consisting of health professionals and diabetes patients from Starr County (Brown & Hanis, 1999). These challenges included economic limitations, a fatalistic attitude about diabetes, and lack of literacy. Cultural food preferences were also

identified as an important issue: patients expressed their desire to continue eating traditional cultural foods as part of a diabetic diet. Many of these patients had been encouraged to abandon traditional foods as part of earlier, unsuccessful diabetes education programs.

A community-based education system was designed to address these challenges (Brown & Hanis, 1999). This program began with three months of weekly educational meetings. These meetings were facilitated by bilingual health care professionals and members of the community, and were structured around videotapes and other educational materials designed on the basis of focus group results and standard care practices. The meetings provided information and demonstrations in a culturally appropriate manner. For example, the dietary preferences of Mexican Americans were taken into consideration in generating meal plans and cooking demonstrations. After the educational sessions ended, participants met for six to seven months of support group meetings. During these meetings, participants discussed their problems and emotions related to diabetes care.

A pilot study of the project indicated that this group-mediated, long-term approach was successful in reducing levels of glycosylated hemoglobin and fasting blood glucose levels (Brown & Hanis, 1995). Additionally, participants' knowledge of diabetes and diabetes care practices increased after participating in the study. One of the components of the program judged to be most successful was the use of culturally-appropriate educational videos made with members of the community (Brown & Hanis, 1999; Brown & Hanis, 1995). These videos focused on diverse self-care topics, including monitoring glucose in the blood and urine; major complications associated with diabetes,

including long-term complications; dietary guidelines and diet management; and general self-care principles, such as foot care (Brown & Hanis, 1995). The focus on diet was also effective: for example, subjects indicated that they found field trips to grocery stores, information on the nutrient content of foods, and healthy recipe exchanges to be particularly helpful and informative.

The results of the Starr County Diabetes Education study were later reevaluated on the basis of participant gender. Findings indicated that Hispanic men felt that diabetes impacted their job to a greater extent than did Hispanic women (Brown et al, 2000). Investigators postulated that this difference may have resulted from the fact that individuals in Starr County tended to have jobs that involve physical labor and outdoor activity. Ill health resulting from lack of diabetes control may make such jobs difficult to perform. Hispanic women felt that they received less social support of their diet than did Hispanic men. The results concerning lack of social support for Hispanic women reflect the findings of other researchers, including Anderson et al (1998) and Hunt et al (1998). Both of these researchers studied Mexican American patients (Anderson et al, 1998; Hunt et al, 1998), as did the Starr County researchers. It is consequently possible that the gender issues observed by these researchers are a facet of Mexican American culture, rather than of all Hispanic cultures.

Although the Starr County Diabetes Education Study took into account many aspects of diabetes education for Hispanics, there are several areas of future research that remain to be examined. For example, a large-scale longitudinal study of the effects of the program is necessary to determine the program's effectiveness as an agent of long-term change. Similarly, a follow-up study of the long-term changes patients make in their self-

care behaviors is needed. Additionally, it may be necessary to perform similar studies on more heterogeneous groups of Hispanics to determine the diabetes education needs of other members of the Hispanic community. In addition, gender issues and social support need to be investigated further to ascertain how diabetes education programs can incorporate solutions to these issues.

### Other issues relative to diabetes care in multi-ethnic settings: Differences between Hispanic and non-Hispanic patients

Because most clinics do not serve exclusively Hispanic populations, it is necessary to identify the commonalities and differences in the needs of Hispanic and non-Hispanic patient groups, and develop diabetes education programs that address the universal issues of all diabetes patients, as well as the specific needs of Hispanics.

#### *Differences within a family context*

Fisher et al (2000) investigated the differences between Hispanic and non-Hispanic patients in terms of their attempts to resolve diabetes management problems in conjunction with their spouses. A pool of potential respondents from 11 different health care facilities was identified and screened via telephone interviews. The sample included 175 participants, 65 Latinos (42 men and 23 women) and 110 European Americans (66 men and 44 women). The mean educational and income levels of the European American participants were significantly higher than those of Latinos. Moreover, the use of diet, exercise, oral medications, and insulin to control diabetes was higher among European Americans.

Each patient brought his or her spouse to the designated testing site, whereupon each member of the couple was asked to list topics relating to diabetes that were a source

of controversy in the marriage. The investigators selected a topic to be discussed based on the couple's ranking of its importance. The couple's taped discussion about the topic was analyzed based on a number of factors, including warm engagement; hostility; avoidance (or the extent to which couples avoided resolving the issue); amount of problem resolution; off-task behavior; patient dominance (of the conversation); and dialogue (sharing of conversation between participants). Significant differences existed between the conflict resolution patterns of Hispanics compared to non-Hispanics. Latino couples received higher ratings for warm engagement and off-task behavior than did European American couples. Latino couples also received lower ratings for hostility, patient dominance, and avoidance in their interactions than non-Latino couples. However, they also achieved less problem resolution than European American couples.

Differences in the gender of the patient affected the quality of interactions within Latino couples. Hispanic couples in which the patient was male displayed less topic avoidance than did couples from any other category (Fisher et al, 2000). However, when the patient in a Hispanic couple was female, the amount of avoidance shown was approximately equal to the avoidance shown by couples from other subcategories. Additionally, the amount of problem solving achieved was lowest among Hispanic couples in which the patient was female. Finally, off-task behavior was significantly higher for Latino couples, regardless of patient gender, but the extent of off-task behavior was greatest when Hispanic patients were female.

The authors suggest that traditional Hispanic modes of communication may account for the differences between how Latinos communicate and how non-Latinos communicate (Fisher et al, 2000). Furthermore, differences in communication between

Hispanic and non-Hispanic cultures are most pronounced when the individual with diabetes is female. The authors proposed that in traditional Hispanic households in which a woman has diabetes, little attention is paid to her disease (measured by off-task behavior), and resolution of issues pertaining to her condition is minimal (measured by avoidance and amount of problem resolution). This lack of support may affect her compliance with prescribed programs of diet and exercise. A number of potential directions for diabetes counseling were proposed. These included placing diabetes counseling in the context of family and home life, and tailoring diabetes education programs to meet the needs of specific families, as well as specific individuals.

Fisher et al (2000) studied only individuals whose ethnic background is similar to that of their partner. Future research in this area could include a more ethnically diverse sample to expand the findings. A second limitation is the lack of attention paid to differences in economic status and educational background in the patient population. In addition, researchers did not determine the extent of diabetes education that each individual or couple had received, and their attitudes toward this education. It is unknown how diabetes education emphasizing empowerment might modify these communication styles.

### *Differences within a personal context*

While the work of Fisher et al (2000) addressed differences in communication about diabetes between couples from different cultures, a study performed by Chesla et al (2000) addressed differences between the individual perceptions of Hispanic and non-Hispanic diabetes patients regarding diabetes. Researchers assembled a sample of 192 participants, including 76 Hispanic patients and 116 European American patients (Chesla

et al, 2000). The participants were selected from 11 health care facilities (both public and private) in an urban area. It may be inferred, given that all participants were in the hospitals' records, that all had pursued some medical care in the recent past. However, the extent of the previous diabetes education was unknown. European American patients had a higher mean educational level and income than did Latino patients. Participants were interviewed using fixed-choice and open-ended questions which addressed different components of a personal model of health care. These components included the perceived cause of diabetes; description of the disease; the perceived severity of the disease; the effects of diabetes upon the patients' families, friends, or jobs; the effectiveness of their treatment; their fears about the future; and the extent of their acculturation to the United States (Hispanic patients only).

Both Hispanic and non-Hispanic patients gave similar responses to questions about what caused diabetes: the majority indicated that genetics, weight, and diet were important contributing factors (Chesla et al, 2000). Most participants also agreed that the disease was a serious health concern. Patients' responses differed primarily in their descriptions of the disease. For example, 51% of Latinos ascribed to an experiential model, and described the disease in terms of its observable symptoms. Only 12% of European Americans used this model to describe diabetes. By contrast, 66% of European Americans and 39% of Latinos ascribed to a biological disease model, which incorporates understanding of the physiological changes that occur within the body of an individual with diabetes. Finally, only 9% of Latinos and 22% of European Americans described a psychosocial model of disease, which includes biological, psychological, and social determinants of the disease.

Participants also differed in their analysis of the effects of diabetes, the methods used to treat their disease, and their concerns about the disease. With respect to the effects of diabetes, Latinos expressed a higher incidence of disturbing physical symptoms related to the disease (Chesla et al, 2000). European Americans made more self-care changes than did Latinos. Perhaps due to the increased incidence of related social changes, European Americans felt that the spontaneity of their lives had decreased after their diagnosis. The percentage of Hispanics who observed a decrease in spontaneity was lower; however, Hispanics noted an impact of the disease upon their social life. European Americans also tended to seek traditional diabetes treatments more frequently than did Hispanics. Hispanics with diabetes were more concerned about the cost of the disease, and about the possibility that their children would inherit diabetes, than were non-Hispanic whites.

The findings of this study demonstrate that significant differences exist between the personal disease models of Hispanics and non-Hispanics. A specific cultural difference is that more Hispanics ascribe to the experiential model of diabetes than to any other model. Moreover, Hispanics experience the disease differently, have different concerns about the disease than non-Hispanics, and may pursue different treatments. The authors provide many possible explanations for these differences, including cultural attitudes toward health care, access to health resources, and education level (Chesla et al, 2000). Some of these differences may also have been confounded by the greater financial constraints experienced by Hispanics, who reported a significantly lower mean income than did European Americans. Like the Fisher et al (2000) study, this study is limited in that it does not address differences in economic background that may exist within each

subgroup. Moreover, the researchers did not ask patients about their previous diabetes education, and did not take into account how this education might have affected their understanding of and experience with diabetes.

## Summary

### Issues related to culturally competent diabetes education for Hispanics

A number of significant issues challenge Hispanics who seek diabetes education.

- Family support: Individuals who lack family support in their pursuit of diabetes education are less likely to comply in the long run with the treatment prescribed. Family support is particularly important to Hispanic women.
- Gender: Due to Hispanic gender roles, Latinas often place a higher value on the needs and wants of their family members than their own. As a result, they may neglect their own physician-mediated diet and exercise plans for diabetes maintenance.
- Economic limitations: This barrier may relate to the higher perceived cost of a diabetes diet.
- The competing influence of traditional remedies
- A fatalistic attitude toward illness in general, and toward diabetes in particular.
- Cultural identity: The desire to consume traditional foods, and the related desire to act and feel "normal" among peers may also affect Hispanic patients' compliance with diabetes education and treatment programs.

The research generating these issues was limited by a number of factors. For example, the majority of the samples of Hispanics studied were low-income. Consequently, while the research addressed an at-risk segment of the Hispanic population, the participants studied were not representative of all Hispanics. Additionally, the samples studied were limited to certain sub-cultural groups, particularly middle-aged or elderly Mexican Americans who were already seeking health care. Ultimately, research must identify a foundation of care practices that effectively serve diverse

Hispanic groups.

Another limitation was the relative scarcity of literature on different perspectives related to care, such as Hispanic patients versus European American patients. The majority of diabetes education and diabetes care environments serve a mixture of both groups of patients. Consequently, further research must identify commonalities and differences between these two cultural groups, particularly with respect to their style of learning and concerns about diabetes. Also, diabetes education evaluations should encompass patient and provider perspectives. These perspectives may differ on important issues such as the use of medicines, interactions between patients and providers, and adherence to self-management plans.

To validate the findings of the literature review, a small survey of a convenience sample of diabetes educators was conducted. The characteristics of these providers are summarized in Table 1. Educators commented on five of the issues that emerged from the literature as special features of diabetes care for Hispanics. Educators were asked how these issues could be incorporated into actual diabetes education practice. Providers' responses to these questions are summarized in Table 2. This survey was conducted in lieu of a patient survey, which was out of the scope of this thesis. Ideally, both patient and provider surveys would be conducted, assessing both groups' views on identical issues and comparing responses.

**Table 1:  
Characteristics of providers surveyed**

<b>Position</b>	<b>Clinic</b>	<b>Number of clients served per month by clinic</b>	<b>Number of Hispanic clients served per month by clinic</b>	<b>Number of years CDE has worked with Hispanic clients</b>
Certified Diabetes Educator	Diabetes Education Services, Yakima Valley Memorial Hospital, Yakima, WA	60	15	11
Certified Diabetes Educator	Central Washington Endocrine Clinic, Yakima, WA	30	8	16
Certified Diabetes Educator	Community Education, Memorial Hospital, Yakima, WA	50	50	6
Certified Diabetes Educator	Columbia Valley Community Health, Wenatchee, WA	40	36	9

**Table 2<sup>2</sup>:**  
**Survey responses to issues related to diabetes education for Hispanics**

<p><b>Gender roles</b></p> <ul style="list-style-type: none"> <li>• Gender roles are a concern for Hispanic patients, particularly Hispanic women, who seek diabetes education. (4)</li> <li>• Patients must learn how to prepare and portion food differently, so that a "diabetic diet" is perceived as a healthier diet for the whole family, not just for one person (4).</li> <li>• Gender roles are a concern for all women seeking diabetes education. (1)</li> <li>• Portion control is an important means of blood glucose control for female Hispanic patients, as they often do not decide what foods are purchased and prepared (1).</li> <li>• Issues relating to gender roles can be addressed by encouraging a spouse or other family member to come to counseling sessions. (1).</li> </ul>
<p><b>Support</b></p> <ul style="list-style-type: none"> <li>• The support of family members is an important determinant of patient compliance with diabetes education. (3)</li> <li>• It is important to include family members in diabetes education sessions, so that they will be better educated about diabetes, and thus better able to help their loved one(s) treat the disease. (3)</li> <li>• The support and advice of a health care professional is the most important determinant of whether or not a patient complies with prescribed diabetes treatment regimens. (1)</li> <li>• Support from other sources (i.e. health care professionals) can be as important as family support. (1)</li> <li>• Hispanic patients model their behavior on the behavior of older, more experienced family members. (1)</li> </ul>
<p><b>Traditional remedies</b></p> <ul style="list-style-type: none"> <li>• Traditional remedies are a high priority for diabetes educators who work with Hispanic patients. (4)</li> <li>• Patients must be educated about the potential risks and benefits of these remedies (4).</li> <li>• Patients are advised to consult their doctor before taking the remedy. (2)</li> <li>• Remedies that are not harmful may be integrated into a diet plan. (2).</li> <li>• "Their faith [in these remedies] is very strong." (2)</li> <li>• A major concern is that patients will use traditional remedies in place of prescribed medications. (1)</li> <li>• Traditional remedies are perceived as a waste of money that could better be spent on other components of a diabetes treatment regimen. (1)</li> <li>•</li> </ul>

<sup>2</sup> Numbers in parenthesis refer to the number of practitioners who mentioned the idea.

**Traditional foods**

- Traditional foods should be incorporated into any diabetic diet designed for Hispanic patients. (4)
- Hispanics with diabetes must learn to "eat with the mind, not only with the mouth." (4)
- Patients are taught how to gauge portion size, which helps control consumption and blood glucose response. (3)
- Patients learn healthier ways to cook favorite dishes by using lower-fat ingredients or the exchange system, for example. (2)
- It is necessary to change the way that patients perceive a "diet." Instead of being exclusive and restrictive, patients should learn to think of a diet as inclusive and manageable. (2)
- Hispanic patients often comply with a prescribed diet for a short period of time, then "slip," and resume their former eating habits. (1)

**Economic limitations**

- Economic limitations are a serious concern for Hispanics with diabetes, because Hispanics are traditionally a low-income population. (4)
- Existing foundations, grants, and sources of federal support make diabetes education more accessible to Hispanics in some areas. (3)
- Patients are taught how to make changes to their eating habits that will help them save money on expensive foods. (2)
- Further advocacy is necessary to ensure that diabetes education is accessible to low-income Hispanic patients. (2)
- A patient's motivation to make the necessary changes is a stronger determinant of the success of diabetes education than any economic limitation. (1)
- Patients learn that the long-term benefits of diabetes education outweigh the expenses associated with this education. (1)

## **Conclusions**

### **Proposed components of an effective diabetes education program for Hispanic patients with Type 2 diabetes**

#### *Theoretical basis*

Based on the findings of the literature and survey interviews, it is apparent that an effective diabetes education program for Hispanics must take many factors into account. Therefore, a behavioral theory appropriate to the findings of this project was used as a framework for presenting proposed components of an effective diabetes education program for Hispanics. Social Cognitive Theory is a theory of behavior that provides a basis for the development of such a program. Social Cognitive Theory posits that an individual and his or her environment are constantly interacting, and consequently changing one another (Baranowski et al, 2002). Individuals choose to perform a given behavior based on a variety of variables. One of these variables is an individual's self-efficacy, or confidence in his or her ability to successfully complete a specific behavior. Outcome expectations, defined as what the individual anticipates to be the outcomes of his or her own behavior, also affect an individual's decision to perform that behavior. Reinforcement is an outcome that enhances the probability that a particular behavior will be repeated.

Social Cognitive Theory has been effective in investigating adherence of mainstream diabetes populations because it targets self-regulated behaviors (Glasgow & Toobert, 1982). Research has shown that Social Cognitive Theory constructs can help explain outcomes of diabetes self care (Funnell & Haas, 1995; Funnell et al, 1991;

Glasgow et al, 1992; Toobert & Glasgow, 1991).

### *Social Cognitive Theory applied to Hispanics with Type 2 diabetes*

Many of the components of Social Cognitive Theory can be applied to understand the behavior of Hispanics with diabetes, and how that behavior might be modified through diabetes education. For example, the findings of Hunt et al (1998) indicate that a major determinant of diabetes self-care behavior for Hispanics is a desire to avoid symptoms of hypoglycemia that occur when a patient's blood glucose level begins to drop from an elevated level in response to treatment. In other words, traditional management is perceived as a punishment. Because the results of traditional management can be unpleasant in the beginning, Hispanic patients are less likely to adhere to treatment. In addition, patients surveyed by Hunt et al (1998) expressed tremendous confidence in (self-efficacy for) using diabetes medications to control their disease. These patients used medications in place of diet and exercise programs, suggesting that they had lower confidence in (self-efficacy for) lifestyle-related diabetes management techniques.

The concept of environment is also important in understanding the health practices of Latinos with diabetes. The findings of Anderson et al (1998) and Hunt et al (1998), among others, indicate that family support is an important determinant of a Hispanic patient's decision to pursue and comply with physician-mediated treatment options. Family members can affect the individual's thought process, emotional state, and belief system. In turn, these aspects of the individual's personality will affect the decisions that he or she makes with regard to diabetes education and treatment.

Social Cognitive Theory provides an excellent framework for applying the findings of this paper, including the provider survey, to a proposed program guide for

Hispanics with Type 2 diabetes. A program that acknowledges these decisions is outlined below.

### *Addressing patient expectations*

Chesla et al (2000) found that Hispanics and European Americans experience diabetes differently: the majority of Latinos described their diabetes in terms of the symptoms that they experienced, while many European Americans described their condition using technical terms that acknowledge the biochemical origins of diabetes. These findings illustrate a fundamental difference in the way that Hispanic patients understand, experience, and explain diabetes. Rather than focus on the physiological processes responsible for the symptoms of diabetes, diabetes educators should explain to Hispanic patients the symptoms that they can expect to experience, and what they should do to alleviate these symptoms.

### *Program structure*

Evidence points to the necessity of developing a diabetes education program that provides Hispanic patients with a sense of community, recognizing the role of environment in the process of patient self-care. The Starr County Diabetes Education Study achieved this by establishing support groups that met on a regular basis (Brown & Hanis, 1999). These group meetings allowed study participants to share experiences and develop solutions to common problems. The support groups created incorporated family members. In an evaluation of the Starr County program, participants reported that they appreciated the support group, and the sense of community it provided (Brown & Hanis, 1995). The success of these support groups underscores the need for family involvement.

The research of Anderson et al (1998) and Hunt et al (1998) indicates that

Hispanic patients are more comfortable making important health care decisions in the presence of family members. Providers surveyed by Lipton et al (1998) also observed that family members had a positive impact on the health care-related decisions of patients with diabetes. They stressed that it is important for providers to foster good relationships with family members as well as with the patients themselves. Family members must be involved in every step of the education process: Anderson et al (1998) found that Hispanic patients of both genders felt that their families did not support or understand their condition because their families had not helped in the design and implementation of their diabetes treatment regimes. All but one of the diabetes educators surveyed felt that family support was the most important determinant of a patient's compliance with a prescribed regimen<sup>3</sup>. Clearly, family involvement throughout the entire diabetes education process will improve Hispanic patients' compliance with and enthusiasm for the long-term modifications to diet and lifestyle that are necessary to successfully treat diabetes. One diabetes educator noted that this could be accomplished by inviting family members, particularly older family members, to participate in counseling sessions (Guzman, 2004). The concept of "modeling," which is central to Social Cognitive Theory (Baranowski et al, 2002), explains the effectiveness of including family members in counseling. According to the educator, Hispanics often model the behavior of members of the older generation (Guzman, 2004). Consequently, if a parent, aunt, uncle, or family friend who is the patient's age or older can be encouraged to actively participate in diabetes education and self-care, the patient will be more motivated to engage in and adhere to these behaviors.

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<sup>3</sup> The educator who disagreed felt that the influence of the doctor was greater than the influence of the family, in keeping with the phenomena of "doctor worship" observed by Hunt et al (1998).

The development of a sense of community is essential to the success of any proposed diabetes education program for Hispanics. Starr County researchers employed Hispanic individuals from within Starr County to help create this sense of community (Brown & Hanis, 1999). The development of a "Hispanic diabetes community" may help keep people in the program. Events within this "community" will allow Hispanics to enjoy gatherings that are solely for Hispanics, without taxing the resources of hospitals and clinics that treat individuals of many ethnic backgrounds.

To enhance the development of a sense of community, Hispanic community centers and churches with largely Hispanic congregations could assume responsibility for hosting all-Hispanic support groups, potlucks for the families of patients with diabetes, and other events designed to foster a sense of community among Hispanic patients. Knowledgeable dietitians, diabetes educators, and other health care workers could help these institutions establish themselves as centers of health support and community for this population. A community-wide recognition of the severity of the diabetes crisis in the Hispanic community is necessary. Increased participation by institutions that are important within the Hispanic community may help build this recognition.

### *Addressing gender roles and expectations*

Gender roles present a significant barrier to successful diabetes education and treatment. The involvement of the family in diabetes education sessions may help family members, and particularly spouses, learn to recognize and respect the importance of proper diabetes care. A series of intensive counseling sessions (similar to the intense education experience provided by diabetes camps for young patients with Type 1 diabetes) could be particularly effective. During these sessions both the patient and the

spouse would learn about diabetes self-care and self-monitoring, put their new knowledge into practice, and work together to find solutions to potential problems. An intensive, coordinated program of diabetes education for couples would demonstrate to patients and their partners the importance of monitoring the symptoms of diabetes. This respect for and understanding of the importance of diabetes education could minimize the friction that a diagnosis of diabetes may create between Hispanic couples, and encourage spouses to support their partner's attempts to change. Additionally, spouses and other family members would learn to appreciate their role in the health care of a family member with diabetes. In turn, this support would improve compliance with the program, and would therefore improve the overall effectiveness of the program in treating diabetes.

### *Program staff*

The responsibility for balancing the needs of Hispanics with the needs of non-Hispanics rests largely with the diabetes educator. It has been suggested that Hispanic health care providers are best equipped to provide diabetes education for Hispanic patients. In Starr County, Mexican American dietitians and nurses were selected to lead support group sessions and lectures because it was believed that they were most sensitive to the needs of the population (Brown & Hanis, 1999).

Although Hispanic health care providers may share an important cultural bond with their Hispanic patients, diabetes education programs cannot rely on an adequate supply of Hispanic health care providers. Instead, non-Hispanic providers should be encouraged to learn about Hispanic culture and traditions. Diabetes educators should become knowledgeable about many aspects of Hispanic culture, and specifically about gender roles in Hispanic families, the importance of family support for Hispanics, the

need for Spanish-language educational materials, and Hispanics' symptom-based experience of diabetes. Educators should also learn about controversial subjects, such as the effective use of educational materials, the phenomena of "doctor worship," and the importance of medicines such as insulin. Patients and health care providers tend to disagree on these subjects, as evidenced by the findings of Hunt et al (1998) and Lipton et al (1998), respectively.

Diversity training, in conjunction with this specific learning, could enhance the providers' overall ability to work with diverse audiences. In other words, non-Hispanic health care providers can be as effective as Hispanic providers in offering sensitive, knowledgeable, and realistic diabetes education and treatment strategies.

### *Educational materials*

Preliminary research in the Starr County Study indicated that videotapes were particularly effective in conveying important information about a variety of diabetes care issues (Brown & Hanis, 1999). Health care providers surveyed by Lipton et al (1998) also identified culturally competent, Spanish-language educational materials as essential components of successful diabetes education and treatments. Spanish-language diabetes education materials must be made available to patients who indicate that their preferred language is Spanish. Since the cost and time required to create the Starr County videos may be prohibitive, lower cost educational materials should be considered for some clinics.

The possibility of patients whose literacy is low in Spanish as well as English must also be considered. A study of Puerto Rican patients with diabetes in Massachusetts revealed that, despite adequate access to diabetes care, most of the patients did not know

anything about diabetes or how to monitor it (Kordella, 2003). Researchers believed that the patients were unable to effectively use the diabetes education materials available to them because of low literacy in English and Spanish. To that end, researchers developed a program designed for individuals with low literacy. Throughout the course of ten education sessions, simple visual aids, including pictures of "good" and "bad" foods, were used to illustrate appropriate dietary and self-care practices. Program attendance remained high throughout, and patients indicated that they appreciated the use of visual aids, as well as the group environment in which the education sessions took place. Components of this program could be integrated into a successful diabetes education program for Hispanics. In particular, the use of simple stories and visual aids to communicate important dietary concepts should be considered as a possible educational tool for individuals whose literacy is low in English, in Spanish, or in both languages.

### *Diet management*

Culturally competent diabetes programs for Hispanics should also take into account the cultural food preferences of the Hispanic population. Given Hispanic patients' unwillingness to sacrifice their favorite foods (Hunt et al, 1998), it is essential that diabetes education programs incorporate traditional recipes. These recipes could be analyzed for their nutritional value, and modified to fit a diabetic diet. Materials and instructional activities are necessary to help Hispanic patients learn how to modify traditional remedies to be consistent with the requirements of a Hispanic diet. These materials could include information on how to reduce fat and carbohydrate in traditional foods.

In the absence of materials specifically designed to facilitate the modification of

traditional remedies, diabetes educators use a variety of methods to help patients incorporate their favorite foods into a physician-prescribed diet. Understanding of portion size is essential. Providers encourage patients to consume smaller quantities of their favorite foods, such as tortillas or rice (Nagle, 2004; Gonzalez, 2004). Portion size presents a unique problem for Hispanic patients because many Hispanics are not in the habit of measuring out their food (Steere, 2004). Consequently, patients must be taught alternative methods of estimating portion size, including the use of visual models (Guzman, 2004; Steere, 2004). Healthier preparation techniques must also be emphasized. Patients are encouraged to use fewer oils in preparing traditional dishes (Nagle, 2004), or to use lean cuts of meat in preparing stews and main dishes (Guzman, 2004).

Although food preparation and serving techniques are important, diabetes educators stress the importance of changing patients' beliefs about diet: patients must learn to "eat with their brains, not only with their mouths" (Gonzalez, 2004). One diabetes educator encourages her patients to think of diets as inclusive, rather than exclusive: in other words, patients are taught that all foods, when eaten in moderation, can be enjoyed as part of a healthy diet (Gonzalez, 2004). Consequently, patients do not become discouraged or upset, because they are not denied any specific foods. Another educator suggests that patients make small changes in their lifestyle, and work towards achievable goals (Nagle, 2004). Modifications to diet can be presented as a series of simple goals for behavior change. The patient is responsible for deciding what changes are initially feasible. Goal setting is a component of Social Cognitive Theory, and is believed to promote self-efficacy among patients (Baronowski et al, 2002). This approach

to "dieting" enhances patient confidence and minimizes non-compliance.

The inclusion of traditional foods in a diabetes education program would improve patients' self-efficacy in following a diet. These foods could be incorporated into patients' diets in a variety of ways. Recognition of traditional foods would remove barriers that relate to negative expectations about diet planning, and would serve as an important recognition of patients' culture and values. Hispanic patients should also be encouraged to adopt a less restrictive, more inclusive understanding of what a diabetic diet entails.

### *Significance*

Type 2 diabetes is a significant health concern in the United States today. In terms of public health, the incidence of this disease relates to obesity and lifestyle factors, including diet. The Hispanic population is at particularly high risk of developing Type 2 diabetes. In recent years, a number of articles have isolated specific challenges faced by Hispanics with Type 2 diabetes seeking diabetes education. In general, it appears that the main challenges are gender roles, lack of family support, educational and economic limitations, reliance on traditional remedies, and a fatalistic attitude toward disease. In light of this comprehensive summary of challenges, it is possible to develop a tentative plan for a model of diabetes education that relies heavily upon the interest and initiative of diabetes educators to become informed about Hispanic culture and customs. If this plan is to be successful, it is necessary that the Hispanic population work to develop a community of Hispanics with diabetes, in order to provide the family support that this community needs.

Culturally competent diabetes education will have many long-term benefits for the Hispanic population and the health care community. A program that is culturally

sensitive to the needs of Hispanic patients would improve patient self-care, reducing health problems among the vulnerable population of Hispanics with Type 2 diabetes and improving the quality of life for these patients. Consequently, the costs that result from health care for this low-income population would be minimized. Additionally, a culturally competent diabetes education program that incorporates family members and friends will help disseminate information about diabetes prevention throughout the Hispanic community. As a result, knowledge of diabetes prevention and care practices in the Hispanic community will increase, and the nation-wide diabetes trend observed in this population may slow. Ultimately, in order to minimize the devastating effects of this epidemic, it is necessary to develop a method of providing effective, culturally competent diabetes education to the vulnerable Hispanic population.

## **APPENDIX A: Interview Questions**

1. I have read in the research literature that Hispanic women with Type 2 diabetes may prioritize their families' food preferences over cooking for diabetes control.
  - How do you perceive this issue?
  - Is there a way that diabetes education programs can address this issue?
  
2. According to the literature, Hispanics' decisions about health care, including diabetes care, are influenced by their families' support for these decisions.
  - What is your opinion about this?
  - How can diabetes education programs most effectively address family support issues?
  
3. Research indicates that diabetes education for Hispanic patients with Type 2 diabetes may be complicated by the patients' desire to use traditional remedies, including herbs, prayers, and curanderos.
  - Have you observed this with any of your patients?
  - To what extent do you think use of traditional remedies occurs among Latino patients?
  - How can conventional diabetes education programs be modified to take this issue into account?
  
4. According to the literature I have read, Hispanics with Type 2 diabetes are often unwilling to sacrifice traditional foods. As a result of this unwillingness, their compliance with physician-prescribed diets may be affected.
  - What role, positive or negative, do you think traditional foods play in diabetes dietary management for Latinos with Type 2 diabetes?
  - How can diabetes education programs for Hispanics address this issue effectively?
  
5. I have read that economic constraints present a challenge to many Hispanics seeking education and treatment for Type 2 diabetes.
  - In your opinion, are financial issues a potential barrier to effective diabetes management? If so, how?
  - How can diabetes education programs for Hispanics be modified to take this challenge into account?

## **Appendix B: Glossary of terms**

**Body Mass Index (BMI):** A measure of weight-for-height. The BMI is often used to determine whether an individual is overweight, given his/her height. A BMI of 19-24.9 is considered normal. A BMI of 25-29.9 is considered to be overweight, and an indicator of potential future health problems. A BMI  $\geq$  30 indicates obesity.

**Culturally competent:** Aware of and sensitive to the needs, traditions, and expectations associated with diverse cultures in a health care setting.

**Glucose:** A simple carbohydrate; Glucose is the most basic source of energy for cells.

**Glycemic index:** A measure of the carbohydrate content of a food item, based on the increase in an individual's blood glucose levels after consuming a particular food.

**Glycosylated hemoglobin:** A measure of long-term blood glucose control. An elevated glycosylated hemoglobin reading ( $>6-7\%$ ) is indicative of poor blood glucose control over the past 2-3 months.

**Harris-Benedict Equation:** A mechanism of calculating appropriate calorie intake. This equation is used to develop diet plans for patients with diabetes.

Energy intake (men) =  $66.5 + (13.75 \times \text{weight in kilograms}) + (5 \times \text{height in centimeters}) - (6.78 \times \text{age in years})$

Energy intake (women) =  $655 + (9.56 \times \text{weight in kilograms}) + (1.85 \times \text{height in centimeters}) - (4.68 \times \text{age in years})$

**Hispanics:** Americans of Mexican, Puerto Rican, Cuban, Central American, or South American descent.

**Self-care behaviors:** Diabetes treatments that are self-administered by the patient. These may include dietary modifications, use of oral medications, and exercise programs.

Diabetes education programs teach patients self-care behaviors.

**Serum glucose:** The concentration of glucose present in a blood sample. "Blood sugar."

**Type 2 diabetes mellitus:** A condition characterized by insulin insensitivity, resulting in high serum glucose. Risk factors include obesity, age, and inactivity. This disease is more prevalent within certain ethnic groups, particularly Hispanics and African Americans.

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