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Perceptions of barriers in managing diabetes: perspectives of Hispanic immigrant patients and family members

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Abstract

Hispanics show poorer self-management of type 2 diabetes than non-Hispanic Whites. Although previous studies have reported socioeconomic and cultural barriers to diabetes self-management by Hispanics, little is known about perceived barriers to diabetes self-management from the perspectives of both Hispanics and their family members.

Purpose—The purpose of the study was to explore perceived barriers among Hispanic immigrants with diabetes and their family members.

Methods—A qualitative study using five focus groups was conducted. A total of 73 Hispanic immigrants with type 2 diabetes (n=36) and family members (n=37) were recruited in the southeastern United States for a family-based intervention study of diabetes-self management. Participants were asked to describe their perceptions of barriers to self-management. The five sessions were audiotaped and transcribed, translated from Spanish into English, and analyzed using standard content analysis. Demographics, hemoglobin A1C levels, blood pressure and BMI were obtained both for participants with diabetes and for their family members.

Results—Barriers to diabetes self-management themes identified by participants with diabetes were in three major themes categorize: suffering from diabetes, difficulties in managing the disease, and lack of resources/support. Two key themes emerged pertaining to family members: we can provide support and we lack knowledge.

Conclusions—Perceived barriers to diabetes self-management described by Hispanic immigrants with diabetes and family members indicate a lack of intervention strategies to meet their needs. Interventions should include culturally relevant resources, family support, and diabetes self-management skills education.

Keywords

Barriers; diabetes self-management; Hispanic immigrants; family members

Diabetes is the fifth leading cause of death among Hispanic Americans, who are 66% more likely to develop diabetes than non-Hispanic Whites¹. The prevalence of diabetes is 11.8% among Hispanic Americans in general and 13.3% among Mexican Americans. Hispanics also suffer from disproportionate rates of diabetes-related complications² and are more likely than non-Hispanic Whites to be hospitalized for uncontrolled diabetes³.

Diabetes self-management skills and behaviors are critical for achieving glycemic control, preventing complications, improving health outcomes, and remaining productive members of society. Key components of diabetes self-management include knowledge, glucose monitoring, healthy nutrition, and regular physical activity^{4,5}. However, Hispanics with type 2 diabetes show poorer self-management of the disease than non-Hispanic Whites, and only 36.8% of Mexican Americans with diabetes have their hemoglobin A1C (A1C) under control, compared to 60% of non-Hispanic Whites⁶. Many Hispanics fail to adhere to the diabetes self-management recommendations of the American Diabetes Association^{7,8}. Hispanics are 2.09 times less likely than non-Hispanic Whites to perform adequate physical activity⁹ and 36% less likely than Whites to self-monitor blood glucose^{7,8}. The National Health Interview Survey and the Third National Health and Nutrition Examination Survey¹⁰ found that Hispanics had lower levels of leisure-time activity than non-Hispanics¹¹, and 34.6% of Hispanics and 40% of Mexican Americans reported no leisure time physical activity^{12,13}. Further, many Hispanics consume high amounts of carbohydrates and fat and low levels of vegetables and thus do not meet recommended dietary guidelines^{14,15}. Nearly 77% of Mexican men and 75% of Mexican women are either overweight or obese².

Studies of diabetes self-management in Hispanics have reported low income, low education, low acculturation, spoken language and literacy issues, different cultural beliefs and values, such as fatalism and machismo, limited social support and medical comorbidities as barriers to effective self-management¹⁶⁻²⁰. More Hispanics live in poverty (23.2%) than non-Hispanic Whites (8.6%)²¹ and many more Hispanic Americans with diabetes (60%) than non-Hispanic Whites with diabetes (28%) have an annual income below \$20,000²². Hispanics with diabetes also have poorer access to care and poorer health status⁸. Lack of health insurance²³ and the cost of medications have been identified as barriers to diabetes self-management for Mexican-Americans^{24,25}.

Language barriers for non-English speaking minorities contribute to lack of information, misunderstanding of instructions and miscommunication between patients and physicians⁶. Indeed, language discordance has been identified as the most important factor influencing communication between patients and physicians and quality of care among Spanish-speaking patients²⁶. Hispanics with limited English proficiency are less likely to receive information on physical activity and dietary advice than English-proficient Hispanics, even controlling for health insurance coverage and the number of visits to a physician²⁶.

Low literacy and illiteracy are particularly prevalent among Hispanic immigrant patients with diabetes, contributing to the difficulties Hispanics have with understanding and managing their disease ²⁷. One study found that more than half of Hispanic patients with diabetes (52%) had low health literacy, compared to 15% of non-Hispanics with diabetes. Low literacy was correlated with poorer glycemic control and greater complications related to diabetes ²⁸. Knowledgeable patients with diabetes are more likely to perform more diabetes self-management activities ²⁹. However, many Hispanics with diabetes, particularly those with low levels of education, have a low level of knowledge about diabetes, ^{17,30,31}. Some studies have found that Hispanics with diabetes were not able to identify a normal blood glucose level or complications associated with diabetes and they were unfamiliar with the term A1C ^{32,33}.

Family support plays an important role in diabetes self-management. Cultural beliefs and values may limit effective diabetes self-management. Hispanic culture is characterized by strong values attached to family and cultural beliefs. Family networks are the dominant sources of help and advice for all generations, and the individual's needs are usually placed lower than the needs of the family ^{34,35}. For example, Carbone and colleagues ³⁶ reported that Latino women with diabetes encountered challenges when altering familiar dietary habits and behaviors while still trying to keep their husbands and children happy. Other cultural barriers for Hispanics with diabetes include social pressures to eat traditional foods high in fat and calories ^{20,37}.

Developing and implementing effective interventions to improve diabetes self-management among Hispanics requires a strong scientific and clinical foundation. However, few studies have examined perceived barriers to diabetes self-management from the perspectives of both Hispanic immigrants and their family members. Thus, utilizing a qualitative method, this study explored perceived barriers among Hispanic immigrants with diabetes and their family members.

Methods

Research Design

A qualitative design with focus group interviews was used in the study. Sandelowski ³⁸ states that “a qualitative descriptive study is the method of choice when straight descriptions of phenomena are desired” (p. 339). This methods allowed open discussions and focus on concerns of the participants, which gave them voice and investigators further insight of the perceptions of this population.

Sample and Setting

A total of 73 Hispanic patients and family members/significant others participated in the focus groups. The study was conducted from 2010 to 2012. Five focus group sessions were held with Hispanics with type 2 diabetes and their family members/significant others. Participants with type 2 diabetes were recruited from a free health clinic in central North Carolina which provides health services to a large population of low-income Hispanic persons. Flyers were posted in the clinic, the clinic Spanish coordinator introduced the study

to clients, and research team members recruited participants face to face. Eligibility criteria included self-identity as Hispanic, age 18 years or older, medical diagnosis of type 2 diabetes in the clinic record, a family member/significant other willing to participate, and ability to speak Spanish or English. Inclusion criteria for family members were the same except for the diagnosis of diabetes. The study was approved by the Institutional Review Board of the University and the clinic.

Data Collection

The data were collected through focus group interviews as part of a diabetes self-management family-based intervention for Hispanic adults with type 2 diabetes. Focus groups were chosen because this method offered an efficient and reliable way to gain knowledge about exploratory questions³⁹. Specifically, focus groups allowed the participants to express their beliefs and attitudes towards barriers to diabetes self-management.

Focus groups consisted of both patients and family members, with 7-16 persons per group. Open-ended questions were used to explore patients' and family members' perceptions of barriers to diabetes self-management. Questions included: "*What is the biggest obstacle/barrier that you face in managing this disease? What is the most difficult for you?*" "*How can you help out or be a support to your husband, wife, friend or family member who has diabetes?*"

The focus groups were facilitated in Spanish by the second author, a bilingual family nurse practitioner who worked with Hispanic communities for more than 25 years, and a bicultural and bilingual native Spanish interpreter lay worker. Each session lasted 20-30 minutes. At the completion of the focus groups, participants received a \$10 Wal-Mart gift card to compensate them for their time.

Analysis

The group discussions were audiotaped and transcribed in Spanish by a bicultural, bilingual research team member. The Spanish transcriptions were then translated into English. Transcriptions in Spanish were verified by two bilingual research team members, and each English translation was reviewed and verified by two bilingual research team members for accuracy. The research team analyzed the text to identify barriers to diabetes management using thematic content analysis. Line by line coding of interview text was conducted by members of the team and mutually agreed upon. In content analysis, codes are mutually exclusive meaning every statement is coded with no more than one code. Codes were derived both theoretically, taking into account the research questions, and also from the transcripts directly. Codes were then placed into broad categories and then collapsed into major themes which answered the research questions. The similar process was used to analyze the final question that was specific to family members. Credibility of the data was enhanced by using bilingual and bicultural interviewers⁴⁰. Member checking was used to ensure the accuracy of the interpretation and theme extraction.

Results

The average age of participants with diabetes was 50 (SD=10.77) years, and for family members/significant others it was 41 years (SD=13.12). The majority of participants were female (75.0%). Mean hemoglobin A1C for participants with diabetes was 8.11% (SD=0.44), and for family members/significant others, 5.75% (SD=0.07). More than half of the participants with type 2 diabetes reported taking oral hypoglycemic agents (68.8%), and 21.9% used insulin injections. Most participants were immigrants from Mexico (77.8%). The average length of time in the U.S. was 15.1 years (SD=11.06).

Barriers to diabetes self-management identified by Hispanics with diabetes were categorized in three major themes: suffering from diabetes, difficulties in managing the disease and lack of resources/support. Two key themes emerged pertaining to family members/significant others: we can provide support and we lack knowledge. Samples of participant responses are provided for each theme.

Suffering from Diabetes

Participants discussed their experiences of living with diabetes as suffering. The suffering from diabetes was perceived not only as physical suffering, but also as emotional suffering and the suffering was considered an obstacle/barrier to diabetes self-management. The physical symptoms participants discussed being associated with the disease were primarily pain and vision changes:

“From what I know about diabetes, diabetes it is a disease that hits hard, like a touch of blindness or pain in the bones and you just stay stiff”. (female, 65 years old)

“I get pain in my knees. It is not tingling. It is pain, and since I walk a lot, it's noticeable. I hurt when walking, working”. (male, 66 years old)

“The hardest part for me is the pain in my hip and knees, well it could be something else because I have osteoporosis too. But, it could also be the diabetes since it's hard to control. When I walk a lot my knees hurt severely”. (female, 56 years old)

“I feel weak. I can't walk and the pain in my bones prevents me from standing. I got shots but some of them really hit the bone. Now my arm hurts. Six months ago all of my back began to hurt”. (female, 59 years old)

A few persons identified physical suffering due to food restrictions or feeling weak:

“I've lived and went through my mom's diabetes. She was a diabetic for over 40 years...I saw my mom thin, starving... She takes everything they tell her to take to see if it will heal and it has not been cured. She drank the urine of my niece, but she is still sick”. (female family member, 40 years old)

“...I feel that my sugar is too high, since I have no strength and nothing is helping me. I can barely walk. I feel like I can't walk one block because I might fall down.

Now all I do is sleep and sleep. I am constantly tired. I barely eat because I can't chew. I just drink soups. That is what I eat". (female, 59 years old)

Participants described the emotional suffering resulting from diabetes as depression, feelings of despair, and feeling different or felt isolated from their family members:

"For me it was very hard at first when I had to stop eating specific foods. That is when I became depressed and in 3 months I lost 40 lbs and did not feel like myself. I wasn't myself. I felt bad. All I wanted to do was sleep; I did not want to get up. I didn't feel like doing much. My husband was very worried about my depression. I felt very bad and for a time I stopped eating everything and was very down". (female, 50 years old)

"Before they operated on my eyes (developed diabetic retinopathy), I couldn't go out into the sun or the light. For two months I was alone in the room, just in the room. I got used to it. To make food for example, would make me feel like crying and hopeless and at night I would cry". (female, 52 years old)

"When my son cooks foods such as steak, chicken, beans and such, I always stay locked in my room. I do not leave to be with them. My other son brings me a piece of chicken and a spoonful of rice and all my pills (medicines), and he checks on me. He sees if I want to eat and if the children are eating. Checking on me is for my welfare, but at times I despair for living like this". (female, 58 years old)

Difficulty in Managing diabetes

Participants with diabetes identified difficulties and frustrations in taking medications, difficulty in getting medications and adhering to dietary constraints, and difficulty with exercise.

Difficulty and frustrations taking medications—Participants were frustrated by the need to take medications to help manage diabetes. In addition, taking medications was described as inconvenient, particularly when at work, or timing medications with meals to prevent reactions. These perceived barriers associated with medicines prevented participants from effectively self-managing their disease:

"My medications are annoying me. I'm fed up with so much medicine". (female, 52 years old)

"The most difficult part for me is that at times I forget to take my pills. I would forget to take them to work. So, by the time I get off work at 5:00 pm, I have missed the day dose and only have time to take the evening dose". (female, 43 years old)

"Having to inject myself with insulin all the time would be the most difficult thing for me". (female, 37 years old)

Hard to control diet.—Dietary constraints were viewed as causing difficulties and resulting in a sense of loss and conflict. Participants with diabetes felt that they lacked control over food/eating. They described craving specific foods or sodas. Several

participants stated they were even addicted to foods and/or sodas. Participants with diabetes said that it was very hard to change the way they ate and prepared food.

“You want to eat everything but now you can't eat everything”. (female, 60 years old)

“The whole food problem. I am used to eating tortillas one after the other. They're so good I don't even realize the amount”. (female, 35 years old)

“I was a coca cola addict. I drank a lot of sodas. It was two years ago that they told me I was killing myself by drinking all of the daily sodas. I finally stopped. Now, you can put a cold coca cola in front of me and I would refuse to drink it because I could feel myself dying when I drank sodas. My arms would become numb, my fingers would get swollen, and my cholesterol would rise”. (male, 64 years old)

Specific types of food caused particular difficulties, some foods had a cultural basis.

“For me, the hardest part is sweet bread. I love sweet bread”. (female, 62 years old)

“For me, is to stop eating tacos. Soda, also, even though I have stopped soda. Before I used to drink up to ten”. (male, 41 years old)

“For example, the hardest thing, like my companions have said, is to stop eating the big meals that one is accustomed to eating. Tacos, cakes, and mole are some of the most difficult and even though we have medicine, at times we forget to take the medicine so we can eat well”. (male, 47 years old)

Difficulty with exercise—Participants also described difficulties with exercising:

“Consistently exercising and having a schedule to do it is difficult”. (female, 37 years old)

“Honestly, the hardest thing for me is to exercise. For me, exercise is a battle. I have a machine at home; it is not that I don't have it. I have a television so that I can watch the video. But this week I did not feel up to it. I only exercised on Friday....But I need to be encouraged when I feel bad. For me, exercise is the hardest”. (female 54 years old)

Lack of Resources/Support

Participants with diabetes were frustrated by the lack of resources/support from both the healthcare system/providers and family members. Hispanics with diabetes described their experience as walking blind in a darkness where they could not reach anyone for help. Participants felt that healthcare providers paid little attention to their disease and this perceived lack of support made them feel helpless. Some reported no longer having a primary healthcare provider to obtain medications to control their diabetes:

“I don't have money to buy the medicine nor do I have a doctor to prescribe it. Here (referring to the free community clinic) we (referring to Hispanics) used to get medical attention, but not anymore”. (female, 65 years old)

“I remember when I got gestational diabetes I could not get any kind of help, no doors were open to me. I felt as we say in Mexico: “Walking blind along a road full of thorns, because wherever you touch hurts, everything.” Like the lady said, you become depressed and do not know what to do. You do not know who you should to lean on for support”. (female, 40 years old)

Lack of family support—Many participants experienced a lack of family support, particularly with dietary changes, and a lack of understanding of what diabetes entails. Some persons described being dependent on family members to obtain medications or having responsibilities to the family that interfered with diabetes self-management. Dietary constraints were reported to cause a sense of loss and family conflict over dietary issues, with a negative psychosocial impact, which made adhering to diet restrictions even more difficult. Also, female participants with diabetes described difficulties associated with having to prepare different foods for themselves compared to the foods desired by their family members:

“The food is a problem because my husband is not used to eating what I eat. He eats how I used to eat and it's all junk food. He does not eat healthy foods. He eats other things, and it is difficult to make separate food for him, for my daughter, and me. He eats his own food, and my daughter eats her own food, and I eat healthy food”. (female, 42 years old)

“The other day my teenage daughter started teasing me at the store; she grabbed a chocolate bar and started waving it in my face saying “Look! Look!” to make me feel bad. So, I told her off. It's a lack of understanding...” (tearful female, 35 years old)

“My sons, they don't like vegetables or fruits. All they want is pizza and hot dogs”. (female, 43 years old)

“...it is difficult because we have a restaurant. Everyone eats there, and sodas and juices in the restaurant. The refrigerator is full of sodas. It difficult”. (female, 40 years old)

“People need support. For example, if they don't want to eat, then offer a fruit or vegetable, but don't make fun of them”. (female, 65 years old)

In addition to lack of resources/support, participants noted a lack of financial resources, which kept them from properly managing their disease:

“Right now, my medicine is running out; therefore, it will be more difficult to control the diabetes without medicine”. (female, 65 years old)

“I can't see. I need stronger glasses, but they cost about \$300”. (male, 66 years old)

“We want to eat everything and it's difficult, very difficult, especially, because of money. You can't just go and buy vegetables and fruits”. (female, 40 years old)

Family Members/Significant Others: We can Support and We Lack Knowledge

We asked family members or significant others how could they help or support family members or friends who had diabetes and key themes emerged: we can support, but we lack knowledge. They expressed concerns about their loved one suffering from diabetes and said they could support them by encouraging them to eat a healthy diet. Family members also discussed how they could provide emotional support by being there, encouraging the family member with diabetes to exercise and motivating the person to stay healthy.

“By controlling our diet, our style of eating, we help them. So we take away the tempting foods from all of us. We are not supposed to buy junk food. Supporting the diet and emotional support because it is depressing, especially much emotional support”. (female family member, 34 years old)

“I motivate her to eat vegetables and fruits and encourage her to take walks or by fussing when she eats too late at night”. (female family member, 49 years old)

“Go to the store and buy some vegetables and things like that”. (male family member, 59 years old)

“We eat the same food and I encourage eating more salads, vegetables, fruits, and not eating fatty foods. I tell her, if she makes chicken, fish, filet, we will both eat it and I encourage her to use just a little bit of salt. She likes salt very much, but I make sure she doesn't add too much like she use to”. (male family member, 53 years old)

“Not eating foods that aren't good in front of her. I only eat them when she's not around”! (male family member, 44 years old)

“A serious support for me is to put myself in the place of a sick person, to grab the information, act as a sick person so that I would know how serious and strong this illness is. Then when you are in this position you know exactly how one feels—your friend, your sister, your mother who is sick. So if she stops eating so much, you do the same so that you see how hard it is and you can support them because you know how these things are. Because you have experienced these things”. (female family member, 40 years old)

“To encourage the person who has diabetes to do what is right, to not eat things that can damage them or negatively affect their health. You know my friend, she injects herself with insulin and her sisters are always telling her to take better care of herself but it's like talking to a wall because she ignores her sisters and keeps eating whatever she finds”. (female, 43years old)

Family members expressed a strong desire to help their family member with diabetes. However, they said that they lacked knowledge and felt frustrated and disappointed when they saw that their family member with diabetes continued to suffer and was unable to control the progression of the disease:

“For me, it is very important to be informed, to get basic information about the illness, that way you know what they (referring to doctors/healthcare providers) are talking about when they talk about this or that. You have to have fundamental and

complete information so that you can safely and correctly do what you need to do”. (female family member, 40 years old)

“I saw my mom thin, starving because she never used insulin. When she asks questions about it (insulin) I would tell her “don't take it” “don't take it” because my mom does not drink sodas, does not drink juices, does not eat bread, no chili, nothing, not rice, not tortillas, but the disease continues...Now I think I was wrong (to give her advice not to use insulin)”. (female family member, 40 years old)

“It helps to learn about how much to eat of food, fats, and sweet bread”. (female, 62 years old)

“You do not know how to help. You do not know how it is to live like that (with diabetes)... I guess that is why I have come here (classes) because I need more information”. (female family member, 40 years old)

Discussion

This study revealed several barriers that Hispanic/Latino immigrants with type 2 diabetes face in diabetes self-management. Family members expressed their willingness to help, but said they lacked knowledge. Patients suffered physically, but suffering extended well beyond the physical domain and included the emotional domain. Emotional suffering included depression, feelings of despair and isolation from family members. Not being able to enjoy food with family members was particularly stressful in the management of their diabetes. Cultural beliefs and values that attach to the family in Hispanic/Latino culture may have an important role in the emotional suffering described by study participants³⁶. The cultural values that promote family (familismo), sense of community (colectivismo) and smooth social interactions (simpatía)⁴¹, as well as the perception that family needs are more important than individual needs (Clark et al., 2009), may have influenced the perceived feelings of despair and isolation from family members. Another study⁴² also reported emotional issues, such as being worried, anxious, and depressed and having problems with family among Mexican patients with diabetes. Conflict about family roles and values expressed particularly by women in this study may also significantly affect diabetes self-management by other Hispanic/Latino immigrants with diabetes.

Lack of resources and family support were perceived as major barriers to diabetes self-management. A sense of helplessness, feelings of being neglected by healthcare providers, and the lack of financial resources to visit a physician or buy medicines made participants feel they were “*walking blind along a road full of thorns*”. Previous studies have also reported similar findings that financial difficulties, such as lack of health insurance, were common barriers to seeking care for diabetes among Hispanics⁴³. Low socioeconomic status, poor access to care and the costs of medication are thus significant barriers to diabetes self-management^{25,44}. The significance of family support in Hispanic culture posed another barrier to diabetes self-management, particularly for women, who expressed conflict over family dietary issues. Lack of family support for dietary changes and lack of understanding of diet restrictions by family members were major barriers. Similarly, Carbone (2007)³⁶ also reported that Hispanic/Latino women with diabetes faced challenges

in dietary behaviors because they struggled with keeping their husband and children happy while adhering to diabetes self-management. A lack of family support was an important barrier to diabetes self-management in the study reported here. This finding is consistent with previous findings that Latino clients with diabetes experienced difficulties, frustrations and confusion in modifying the typical Latino diet and difficulties in refusing family and friends who offered them foods that were not appropriate for the diabetes dietary regimen⁴⁵. Difficulties in dietary self-control with traditional foods and dealing with cravings for specific foods and sugared sodas were perceived as important issues in diabetes self-management. Food is a part of cultural and social activities for Hispanics and social pressures to eat traditional foods high in fat and calories are cultural barriers for Hispanics/Latinos with diabetes⁴⁶.

Family members expressed a desire to help their loved one suffering from diabetes by providing emotional support, encouragement and motivation for exercise and healthy diet. However, family members voiced concern about not having enough knowledge of diabetes to provide support to their family member who has diabetes and thus family members often felt frustrated and disappointed. Previous studies have indicated that Hispanics/Latinos have a low level of knowledge about diabetes¹⁷, coupled with low literacy and illiteracy²⁷ and language barriers⁶ which are major barriers to diabetes self-management.

Several limitations to this study should be noted. The sample resided in a rural area of North Carolina and all participants and their family members were recruited from one clinic that serves Hispanic immigrants and thus participants might not represent populations in other regions of the United States. Additionally, most study participants were immigrants from Mexico and may differ from Hispanic/Latino immigrants from other Latin American countries. Furthermore, the small convenience sample in the study might limit the generalizability of the findings. Nevertheless, our study provides insights into how Mexican immigrants perceive barriers to diabetes self-management from both the patients and family members' perspectives.

Conclusions

Hispanics/Latinos with type 2 diabetes and their family members have identified several barriers particularly relevant to the cultural and family values to self-management of diabetes. Barriers perceived by both patients and family members require culturally specific understandings and clinical assessment and attentiveness by health providers, the Hispanic community, and the society at large. Culturally appropriate education and interventions should include patients and family members and provide education and support within the family context. Creative and sustainable efforts to remove barriers are important to assist Hispanics with diabetes and their families to improve their quality of life and health outcomes.

Implications

Identifying barriers to diabetes self-management and developing culturally appropriate diabetes intervention programs are key to improving diabetes outcomes and reducing

diabetes complications among Hispanics/Latinos. Intervention and educational programs targeting Hispanics/Latinos should include immediate family members, extended family members and friends. This may require flexible schedules that accommodate the needs of patients and family/support members, not the traditional 8AM-5PM or 7AM-3PM, Monday-Friday schedules. Also, diabetes education and care may be more effective in community settings. Social groups and churches are good sites for educational and group sessions for Hispanics with diabetes and their family members.

Relevant community resources, family roles and family support should be assessed collaboratively by community members and providers to identify issues associated with diabetes self-management, resources, facilitators and points of access. Cooking classes, grocery store field trips and group sessions may enhance the effects of education. Indeed, a grocery store may be a sustainable teaching place, with flyers, reminders and low-literacy health education posters. Regardless of site or composition, interventions must incorporate cultural and family values and beliefs and deal not only with language issues, but also with low education and health literacy. To overcome barriers to diabetes self-management, health providers and communities must build partnerships to deliver culturally acceptable activities and care for both patients and family members. For example, use of lay workers, such as teachers, nurses, aides, business persons and supervisors in construction companies or factories, may be excellent avenues for linking the community with health information, education and care.

Healthcare providers, such as physicians, nurse practitioners, physician assistants, and certified diabetes educators, also have an important role to play in assisting Hispanics to overcome barriers to diabetes self-management. Adequate assessment and treatment of the physical and emotional suffering experienced by Hispanic patients with diabetes is critical to promote optimal health and quality of life (American Diabetes Association, 2012). Assessing comprehension and active patient participation in treatment plans is important for compliance. Incorporating cultural competent communication skills that build trust and enhance patient disclosure of symptoms and psychosocial concerns are also essential skills for healthcare providers. Additionally, encouraging family/support member involvement in regular office visits and diabetes educational programs provides family/support members with opportunities to become more knowledgeable about the disease process, treatments, and lifestyle changes that are healthy for all family members. Further research is needed to understand more about the barriers to diabetes self-management described by this study's participants and effective interventions to overcome these barriers.

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