


Making It All Work: Qualitative Descriptions of Hispanic Adults Managing Type 2 Diabetes With Limited Resources

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Abstract

The greater prevalence of type 2 diabetes is a critical issue among the U.S. Hispanic population. This study examined the struggles of Hispanic adults managing type 2 diabetes with limited resources. Ten Hispanic adults (enrolled in a larger study to determine the effects of diabetes self-management intervention), 25 to 80 years of age and living in a rural West Texas county in the United States, were selected. Three categories of challenges emerged: (a) diabetes self-care behaviors and challenges, (b) challenges with limited resources, and (c) challenges with support mechanisms. “Making it all work” was the overarching theme that tied all the categories together. This study offers lessons for health care providers and policymakers on how to maximize the availability of resources for Hispanic individuals with type 2 diabetes living within the constraints of limited resources.

Keywords

type 2 diabetes, financial constraints, Hispanic adults, qualitative

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Introduction

Type 2 diabetes is a global public health crisis that influences the economies of all nations. Fueled by rapid urbanization, nutrition transition, and increasingly sedentary lifestyles, the epidemic has grown in parallel with the worldwide rise in obesity (Hu, 2011). According to the International Diabetes Federation (2011), diabetes affects at least 285 million people worldwide, and that number is expected to reach 438 million by the year 2030 (International Diabetes Federation, 2011). An estimated 25.6 million Americans (11.3% of the population) have type 2 diabetes, and 1.9 million more adults are diagnosed with the disorder each year. Data from the Centers for Disease Control and Prevention (CDC) from 2007 to 2009 suggest that the prevalence of type 2 diabetes is almost twice as high in Hispanics/Latinos as in non-Hispanic Whites (11.8% vs. 7.1%, respectively; Cusi & Ocampo, 2011). In 2010, 13.2% of the 3.2 million Hispanics living in the United States had diabetes (National Diabetes Information Clearinghouse, 2011).

Latinos or Hispanics have become the largest minority in the United States, representing 17.3% of the total population who trace their roots to Spain, Mexico, and the Spanish-speaking nations of Central America, South America, and the Caribbean. In the United States, the number of states with a population of 1 million or more Hispanic residents in 2014

lived in Texas, Arizona, California, Colorado, Florida, Illinois, New Jersey, and New York (U.S. Census Bureau, 2015). Hispanics comprised nearly two fifths (37.6%) of the Texas population compared with 16.3% of the U.S. population (Texas Department of State Health Services, 2013). Between 2000 and 2010, Texas had 254 counties; in 51 counties, Hispanics were the majority, primarily along the southern borders and Midwest region of the state.

The prevalence of diabetes, both type 1 and type 2 in 2010, was 11.0% among Hispanics in Texas (Texas Department of State Health Services, 2013). They suffered from very high rates of type 2 diabetes, obesity, metabolic syndrome, and multiple vascular complications. A genetic tendency to develop insulin resistance and abdominal obesity along with multiple nutritional, socioeconomic, cultural, and lifestyle factors influenced the development and course of type 2 diabetes among Hispanics (Caballero, 2007).

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High cost is associated with diabetes management leading to poorly controlled diabetes. The CDC estimates that patients with diabetes pay twice as much for health care as those without the illness (Konrad, 2010). In 2010, the total charges for hospital stays with any mention of diabetes as either a principal or coexisting condition were US\$29.05 billion, comprising more than 27% of aggregate charges for overall stays (US\$105 billion; Texas Department of State Health Services, 2013, November 16). According to a survey conducted by Consumer Reports Health (Konrad, 2010), diabetes treatment costs an average of US\$6,000 annually. This total, however, does not include the costs of complications (i.e., heart disease, stroke, kidney damage) that often result from type 2 diabetes.

Diabetes affects quality of life. The chronic nature of the disease and its severe complications necessitate physiological and psychosocial adjustments and lead to increased morbidity and mortality (National Diabetes Information Clearinghouse, 2011). According to 2010 Behavioral Risk Factor Surveillance System (BRFSS) data, persons with diabetes had a poorer quality of life than persons without diabetes. Persons with diabetes reported poor mental health (26.4%), poor physical health (42.4%) more than 4 to 5 days in the last month, and limited physical activity (38.4%) because of emotional, physical, and mental problems (Texas Department of State Health Services, November 16, 2013).

Diabetes self-management involves incorporating behavioral and lifestyle strategies to treat diabetes and prevent diabetes-related complications (American Diabetes Association [ADA], 2013). These coping strategies entail more than deciding to follow clinically prescribed guidelines; they include complex interactions among individuals, their social networks, and their resources. Access to social capital and health care resources allows individuals to increase their self-efficacy in diabetes management (Kahn et al., 2013; Ngo-Metzger, Sorkin, Billimek, Greenfield, & Kaplan, 2012). Hispanics have lagged behind in their diabetes self-management when compared with the predominant non-Hispanic White population (Caballero, 2007). Although increasing knowledge and skills through diabetes education and compliance with certain guidelines are essential aspects of diabetes self-management, there might be other factors that affect persons from a low-income background for poor glycemic control and nonadherence to the treatment regimen.

The Hispanic Community Health Study/Study of Latinos (HCHS/SOL) that was launched by the National Heart, Lung and Blood Institute reported that prevalence of type 2 diabetes varied from a high of 18.3% for those of Mexican descent to a low of 10.2% for people of South American descent. The study showed that 18.1% of people of Dominican and Puerto Rican descent, 17.7% of Central American descent, and 13.4% of Cuban descent living in the United States had type 2 diabetes. The prevalence of type 2 diabetes also rose dramatically with age, reaching more than 50% for Hispanic/

Latino women (overall) by the time they reached age 70 and 44.3% for men aged 70 to 74 (Virginia, 2014). A majority of the research studies have involved Hispanics as a whole, rather than as part of Hispanic subgroups living in a rural or semirural or urban settings (Adams, 2003; Aponte, Campos-Dominguez, & Jaramillo, 2015; Vincent, 2009). In this study, we attempted to address this gap by studying the issues of mainly low-income Hispanic individuals of Mexican descent and individuals of Puerto Rican descent.

Type 2 diabetes is associated with lower socioeconomic status and membership in certain racial and/or ethnic groups (Chaufan, Davis, & Constantino, 2011). Income level affects how Hispanics understand and manage their chronic illnesses, diabetes in particular, as well as how they access and navigate local, state, and national health resources (Chaufan et al., 2011). Approximately three of 10 Texas adults (29.1%) had incomes less than US\$25,000 per year (Texas Department of State Health Services, 2013, November 16). No studies have included the challenges of low-income Hispanic individuals living in a rural setting.

Although researchers have long known that people of Hispanic/Latino background are at higher risk of type 2 diabetes, little is known about the choices of Hispanic clients with limited means in managing diabetes. The focus of a large body of literature has been on various approaches to diabetes self-management. The examination of the challenges to healthy eating and the effects of financial pressures on adherence and glucose control among racial/ethnically diverse patients with diabetes has been a significant part of some studies (Bains & Egede, 2011; Breland, McAndrew, Gross, Leventhal, & Horowitz, 2013; Levine et al., 2009; Ngo-Metzger et al., 2012).

The qualitative research studies focusing on the challenges of low-income Hispanic individuals are limited. One qualitative study described the self-management behaviors of the Caribbean Hispanic subpopulation of New York City (Aponte et al., 2015). An examination of the diabetes self-management behaviors in the context of limited health literacy and its influences on the nutritional practices and physical activity among Spanish-speaking Hispanic individuals of limited English proficiency was the subject of another study, with a mixed-methods design (Smith-Miller, 2012).

Given the greater prevalence of type 2 diabetes and associated complications in this population, a further study of the challenges faced in managing their type 2 diabetes within their financial constraints and resources is required. Although there is much information in the literature on different approaches to diabetes self-management, details are limited pertaining to day-to-day difficulties of the Hispanic population living in a low-income rural setting with inadequately controlled type 2 diabetes. The purpose of this qualitative study was to explore how having diabetes affected the lives of low-income Hispanic individuals living in a rural West Texas county of the United States.

This study is significant to nursing and health care professions because knowledge of the challenges of low-income Hispanic individuals with type 2 diabetes is necessary for nurses and other health care professionals to develop and implement the type 2 diabetes care mechanisms or interventions that are sustainable, cost-effective, and culturally sensitive. This will further help in reducing the burden on the nation's social and financial capital. This study is an important first step in understanding the impact of living with type 2 diabetes within the financial constraints and limited resources of low-income individuals in U.S. rural settings and communities worldwide.

Method

This qualitative study was nested within a larger study evaluating the effectiveness of a diabetes education program for chronic disease management among 200 Hispanic adults with type 2 diabetes at three rural West Texas Community Health and Wellness Centers serving low-income residents. In the larger study, the researchers examined the illness trajectory of Hispanic adults diagnosed with type 2 diabetes over a number of years and investigated the biological pathways and behavioral variables that might exert mediating and moderating effects on trajectories of the illness (Gao, Feng, & Esperat, 2016). The larger study was driven by the medical model. No theoretical framework was identified *a priori* to guide the qualitative methodology. No codes or keywords were identified before data collection and analysis. The intent was to develop codes from the open-ended interviews during data analysis using conventional content analysis approach (Hsieh & Shannon, 2005).

Ethical Considerations

Prior to recruitment and data collection, approval was obtained from the University's Institutional Review Board. All participants were provided verbal and written explanations about the purpose of the research prior to signing a written consent form. All participants enrolled in the study read and spoke English.

Participants

As noted above, participants in the larger study were eligible for inclusion in this study and had given prior consent to be contacted to participate in an interview. To gain a better understanding of how participants with limited incomes experienced type 2 diabetes within the context of their day-to-day life, subjects in the larger study were independently approached. Purposive sampling technique was used to guide participant recruitment and sample selection. The criteria for participant selection included time since diagnosis, HbA1C level, and income. Ten Hispanic participants who had been diagnosed with type 2 diabetes met the criteria; out of which

eight (80%) were of Mexican descent and two (20%) were of Puerto Rican origin. Three had HbA1C ≥ 7 for less than 5 years, four had HbA1C ≥ 7 for 5 to 10 years, and three had HbA1C ≥ 7 for more than 10 years. The participants—nine women and one man—ranged in age from 25 to 80 ($M = 53.8$) and reported varying degrees of education (junior high or less $n = 5$; and the General Education Development [GED] test, which in the United States is an alternative way to obtain a high school diploma [GED Testing Service, 2002] $n = 2$; some college $n = 3$).

When asked about their work, participants stated that they were housewives ($n = 4$), family caretakers ($n = 1$), customer service representatives ($n = 1$), secretaries ($n = 1$), janitors ($n = 1$), retired ($n = 1$), or disabled ($n = 1$). Self-reported income per year varied, with four participants making less than US\$15,000, four making between US\$15,001 and US\$30,000, and two participants making between US\$30,001 and US\$45,000.

Data Collection

Data were collected from participants through one-time, in-depth individual interviews in English with all participants agreeing to tape recording. The interview protocol consisted of semistructured, open-ended questions designed to elicit information regarding the effect of diabetes on their life. The initial guiding probes for the interview included the following questions: "When were you diagnosed with type 2 diabetes?" and "Tell me, how do you take care of yourself since you found out you had diabetes?" To elicit responses regarding the struggles of living with type 2 diabetes, we asked the participants an open-ended question: "So, how does having diabetes affect your life?" They were prompted with follow-up questions to speak regarding daily routine, finances, family, work, and social life. The interview questions are shown in Table 1. Each interview took approximately 1 hour. The same researcher conducted all interviews. Confidentiality was maintained by conducting the interviews behind closed doors in a private area of the clinic or at the participant's home.

Analysis

Data analysis in this study consisted of data reduction, data display, and content analysis. Qualitative content analysis involves a dynamic form of analysis of verbal and visual data that is oriented toward summarizing the informational contents of the data (Hsieh & Shannon, 2005). The words of the participants are used as text, which supplies unfiltered data directly from the participants. These data are then analyzed systematically and coded, and themes or patterns and categories are identified (Aponte et al., 2015; Hsieh & Shannon, 2005). In analyzing the data from this study, we used a conventional approach to content analysis (Beck, 2009; Hsieh & Shannon, 2005; Sandelowski, 2010).

Table 1. Interview Questions for Hispanic Adults With Limited Resources Managing Type 2 Diabetes.

| Questions |
|--|
| 1. When were you diagnosed with type 2 diabetes? |
| 2. Tell me, how do you take care of yourself since you found out you had diabetes? |
| 3. So, how does having diabetes affect your life? |
| Follow-Up Questions (If Subject Mentions Any of the Topics Below) |
| <ul style="list-style-type: none"> • Tell me more about how it has affected your daily routine. • Tell me more about how it has affected your family. • Tell me more about how it has affected your work. • Tell me more about how it has affected your ability to find work. • Tell me more about how it has affected you financially. • Tell me more about how it has affected your social life. • Tell me more about how it has affected your blood sugar. • Tell me more about how it has affected what you eat. |
| Closing Question |
| 4. Is there anything else you think we should know about living with diabetes that you would like to share with us? |

The recorded interviews were transcribed word by word by a transcriptionist. Three researchers listened to the audio recordings and compared the written transcripts to validate accuracy. After validating the accuracy, the data were entered into NVivo 7 (QSR, 2007) for data management. During the study, we consulted two researchers with qualitative research experience for peer review of the method and initial examination of data. We analyzed data from transcripts concurrently with data collection (Mason, 2002; Miles, Huberman, & Saldana, 2014). We read each transcript repeatedly to immerse in the data and to obtain new insights and a sense of the whole (Hsieh & Shannon, 2005). After coding six transcripts, we decided on preliminary categories. We coded the remaining transcripts and recoded the original transcripts using these categories. In addition, when the data did not fit into an existing category, we added new categories.

When no new information emerged (theoretical saturation; Mason, 2002), we stopped interviewing additional participants. This occurred after collecting data from 10 participants. We then examined coded data to develop a more thorough understanding of the recurring categories that emerged reflecting the struggles of study participants living with limited resources. Once all references to key categories were identified in the transcripts, we created indexing categories to address discussion of a key theme. We then sorted categorized data sorted thematically and examined relationships among categories and subcategories (Morse, 2008; Rubin & Rubin, 2012). An iterative approach was used to ensure that the theme and the categories were interactive with the data.

Trustworthiness

In conducting the study, we addressed rigor through the design, selection of participants, depth of interviewing, and data analytic approaches taken (Rubin & Rubin, 2012). We approached credibility of study findings through the design of the study, inclusion of investigators with experience in conducting qualitative research, and the use of peer debriefing during data collection and analysis. Attaining consensus through independent coding of the transcripts and comparison and contrasting of findings throughout the analysis enhanced the credibility. We addressed confirmability through consideration of competing explanations of data on the theme and categories, and through our repeated discussions throughout the data analysis. Data categories and interpretative statements were tracked sequentially creating an audit trail, thus enhancing the dependability of study findings (Beck, 2009; Strauss & Corbin, 2015). Transferability of findings from this study was enhanced by describing participants' backgrounds. Highly descriptive data supported the interpretation of study findings (Beck, 2009).

Findings

The three major categories that emerged from the data analysis were as follows: (a) diabetes self-care behaviors and challenges, (b) challenges with limited resources, and (c) challenges with support mechanisms. "Making it all work" was the overarching theme that connected the categories and subcategories in this study.

Diabetes Self-Care Behaviors and Challenges

Diabetes self-care behaviors and challenges was one of the main categories described by the participants. The subcategories forming the category on diabetes self-care behaviors and challenges included diet and cultural influences, exercise and daily routine, medication adherence, and blood glucose monitoring.

Diet and cultural influences. These are important components of self-management of type 2 diabetes. It was evident from participants' responses that dietary modifications were needed to accommodate the changing needs the disease imposed while maintaining the embedded cultural practices in food preparation and choices. Two participants said, "I used to eat two or three tortillas at a sitting, but now I try to eat only one tortilla at a sitting" and "I don't go too much to any Mexican restaurants. I'm learning how to cook better and eat healthier." Participants and their families had to make adaptations in their diet on how they prepared foods and the food portions they allowed themselves. One participant said, "I have to kind of limit what I eat." Another participant with more than 5 years of type 2 diabetes mentioned, "When I go to see my relatives back home, they'll make an extra jug of

tea without sugar, or Sweet’N Low. They try to accommodate me.” These responses show that subjects had to make adaptations in terms of how they prepare foods and the food portions they allow themselves.

Exercise and daily routine. Exercise appeared to be a major challenge to integrate in the diabetes self-management. They explained, “I tried walking. I get too lazy and tired” and “I get tired of driving and then I come home . . . I have to clean the house, that’s too much work to go to the park.” Physical effects of the chronic disease presented challenges to some participants in performing exercise and their day-to-day existence. Participants said, “I get very tired and exhausted” and “It’s rare that I feel good.” The major physical challenge voiced by these participants was fatigue, which interfered with their ability to complete daily activities and routines. Participants would remember how they changed their routine when other family or friends who were diagnosed with diabetes along with the negative outcomes they experienced:

I have seen the bad part of diabetes. I need to manage it well. I don’t want to lose my toes and lose my feet. My grandma had gangrene in her toes. I saw what it did to my mom’s vision, she couldn’t focus right.

Medication adherence. Adhering to medication regimen was another independent self-care behavior described by many participants as a major challenge. One person with a very low income expressed,

When I first got diagnosed . . . didn’t realize how we were going to be able to afford for insulin. I found some help. Finally . . . were put on the pill, the ones you get from Walmart for \$4.00.

The personal and financial circumstances that surround the lives of the subjects influenced the level of adherence to the medication regime:

Even when I do forget, I know it will have an effect, and then I take my medicine—there are mornings when I’m running late. I don’t get to eat. I try to eat and then take my medicine.

Participants felt confident in their ability to regulate their blood sugar by adhering to a medication regimen. For some of them, the “resources needed to procure medications” were a significant factor in medication adherence. People with diabetes frequently have comorbidities, and the medication regime for many subjects included medications to control the effects of these comorbidities. One participant said, “I am taking medications for my depression and I have to take it for a while; I also have medications for my high blood pressure.” Most of them learned to accommodate the multiple medication requirements and learned to deal with the prospect of long-term adherence.

Blood glucose monitoring. Participants with long-standing diabetes typically adapt and integrate the act of blood sugar monitoring into a routine, and have learned what causes it to fluctuate. One participant with more than 8 years of type 2 diabetes said, “I test my blood sugar every day. It goes like a rollercoaster, depending on what I eat and when I worry about things.” Most of the participants (70%) in this study exhibited the self-care behavior of monitoring their blood sugar. Some encountered issues with “no strips to routinely check blood sugar” and “depleted Glucometer batteries and no money to buy new batteries.”

Challenges With Limited Resources

The self-care needs of the participants were frequently in opposition to the resources available to them. They explained challenges with limited resources in the subcategories of income, employment, finding health care resources, and inadequate knowledge about managing type 2 diabetes and the mechanics of health care services.

Income. Income and money issues played a prominent role in participants’ lives and served as a major constraint to buying medicines, groceries, and supplies for managing diabetes. The participants expressed many aspects of financial struggles that they encountered: “I am not taking pills as medicines are so expensive to buy,” “Not buying glasses for vision problems,” “Batteries of the Glucometer depleted and no money to buy,” “Cannot afford to buy strips. I check blood glucose once in a while,” and “Can’t afford a lot of meat . . . eat beans a lot.” One participant expressed, “It is very hard for me now because of my diabetes. We both work financially for the home and that hasn’t been possible since my getting diabetes.” Money was always in the forefront of participants’ thoughts as they tried to prioritize their self-care needs.

Employment. The participants faced difficulties in finding, retaining, negotiating for jobs, and reporting for work. Some of them made choices to stop working, or looked for work that was better suited to their physical limitations. One participant with the history of amputation explained that her health interfered with not being able to find a job:

I got my associate degree. However, everywhere that I would go they wouldn’t hire me. So a friend of mine, he worked with a bricklayer, told me that they were looking for a secretary. They were still hesitant to hire me; but he told them, “Well why you don’t give her a chance?” But his boss said that I was high risk because I only had one leg. Well, I found another job.

One of the most perplexing discussions was when one participant who lost her job and the health care benefits after being diagnosed with type 2 diabetes said the following: “Well, when they told me that I had diabetes, that gave me a very bad depression. I lost my job and benefits.”

Participants encountered frequent job loss followed by looking for work and finding temporary part-time or lower paying jobs. They found it difficult managing both home and job, and diabetes care under financial constraints.

Finding health care resources. Participants described a wide array of approaches to figuring out what health care resources would be available to them. Some strategies included the following: “talking with friends and family,” “looking for free or low-cost services,” “compromising on buying medications for the food,” “visiting clinics or health care agencies,” and “approaching Catholic services.” The predominant response from two participants was that if certain needed health care resources were being provided to them at low or no cost, then they would go to that practice facility or agency to obtain the resources:

We got some help from the government, from Catholic Family Services, and they filled the prescription for me. After that I could come to the Center [Name]. We were able to stop the insulin. They put me on the pills that cost \$4/one at Walmart—so, that was good.

A friend of mine told me about this clinic [clinic name] . . . and so they asked [about not visiting the clinic] and I said, well I didn't think of coming because everywhere I've gone before helped, but wouldn't help me get medicine.

Participants described their attempts to find particular components of care, such as “free or low-cost medications and supplies,” rather than looking for comprehensive health care. They did not describe primary care as a first line of health resource access. Participants described the “constant search for resources to meet their basic health care needs” in a matter-of-fact manner, even when expressing their concerns associated with a high cost of diabetes supplies and medications.

Knowledge about diabetes self-management and the mechanics of health care services. Participants were aware that being diagnosed with type 2 diabetes meant that they needed to modify eating and exercise; but they did not have adequate knowledge about diabetes self-management. One elderly person with more than 10 years of type 2 diabetes history said the following:

I eat everything like any normal person. I love candy, I love chocolate. I work at Rosa's in the night, I'll go get a Coke and drink it. I smoke; that is wrong. The doctor said for the rest of my life it did a lot of damage inside. I still smoke; I'm an ex drug addict; I'm an ex alcoholic.

Participants identified the impact of having or not having private insurance, Medicaid or Medicare, but they also did not have an understanding of the regulations for accessing these resources or what specific health care could be obtained

through these resources. Because of lack of understanding of the regulatory mechanisms and the cost involvement, some of them knowingly delayed getting the supplies for their self-care:

I'm not doing it [blood sugar monitoring] because I think that thing [Glucometer] doesn't work. I don't know the name of the place, but you know, they test me; but I have to pay for the needles and the strips. I need to get some more [supplies]; I'll probably do it next week.

Limited health literacy was evident from their responses. A lack of coordination of the care and resources available through multiple local agencies contributed to their difficulties in obtaining appropriate resources. The participants wanted to obtain disability benefits based on their legal status because this would ensure access to governmental payment for medications.

Challenges With Support Mechanisms

The participants described challenges with support mechanisms received. The subcategories of challenges described were in areas of family support, and spiritual connections and support from faith communities.

Family support. Individuals who had type 2 diabetes longer had more financial strain than those newly diagnosed in terms of struggling between getting the necessary medications and having food and other necessities to survive. Most of the participants (70%) said that they “did not get much financial help from family members,” and that they “needed to work to make ends meet.” One participant expressed, “I am unable to work or support the family financially because of the effects of diabetes.” A female participant who was unmarried explained, “When I got sick and really sick, I thought about how we were going to do it. I'm not married and it's just me and my daughter. Are we going to have enough money?” Participants described how their diabetes affected them and their family members financially and in managing household activities, such as buying groceries and supplies, making meals, or cleaning the house. They sought financial support from family members in managing their diabetes.

Participants also sought support from spouses, children, and parents for shopping, housecleaning, and transportation. For some, paying bills in cash was the preferred method because of low income and illegal status. This method of paying bills, however, was restricted because of “issues with transportation.” Physical fatigue made them unable to work full-time, and therefore they sought support for paying bills. One person with poorly controlled diabetes put it this way:

It has just not been real easy for me and my family. I am always tired all the time and you know it's rarely that I feel good. I know I have to work to pay bills. I cannot afford to be off work.

From the viewpoint of participants, family members acknowledged that the participants had diabetes, and this acknowledgment had little impact on how the family used income. It was striking that the family members made few accommodations on how the family income was directed, how food choices were made, or whether they engaged in physical activities. Participants expressed the following: “It is not like if I stop working they are going to help me”; “my daughter helps us a lot—she helps us with some of the bills”; and “I have five girls, they all live in their own world.” For some, the families had limited concerns about the effect of diabetes on the participants. For some, family members made accommodations; but for other participants, a sense of helplessness and despair prevailed because of dependence on family members.

Spiritual connections and support from faith communities. For some participants, faith in God gave spiritual strength to face the difficulties of life. Some of their explanations were spiritually connecting, as this participant with a family history of type 2 diabetes described:

I’m healthy and I’m good. God has strengthened me and he is the only doctor that I need. I’m too tired sometimes but the Lord helps me and gives me strength when I’m scared of becoming more like my dad (who became blind because of having type 2 diabetes).

God’s presence was valued when they were afflicted with type 2 diabetes.

One other support mechanism mentioned by two participants with more than 8 years of type 2 diabetes was the church. One participant shared that she received support from church and found peace by making connections with religious organizations and by sharing her worries with the church leaders: “I have sisters in the church. They support me at times. We talk and we pray together about our worries and our problems.” This indicates that church support had a direct effect on the participants’ ability to cope with the disease. Church support helped some of them financially and emotionally, but they did receive this support in a consistent manner.

Making It All Work

“Making it all work” was the overarching theme that tied all the categories and subcategories in this study. Participants described how they marshaled the limited resources in managing their type 2 diabetes when faced with financial and physical difficulties. Some participants described how everything was getting out of balance or how it was kind of a battle to juggle the resources. They did not have the resources they needed at any given time but tried to put together as many resources as they could to help them manage their type 2 diabetes. They tried to figure out aspects of their type 2 diabetes needing the most attention such as buying pills, eating at home, and getting the blood sugar level low.

One person with very limited income and more than 10 years of type 2 diabetes described his situation as follows:

I was very imbalanced . . . I wasn’t working. So buying the pills was hard. That’s why I came to the clinic. It’s gotten better, still working on it; but my numbers are still kind of high—I can get it down to the low numbers.

A majority (80%) stated that taking their prescribed diabetes medications was their number 1 self-management strategy. However, all participants talked about their inability to obtain medications on a regular basis. If there were other family needs for the limited money available, medications became a lower priority.

Participants described how difficult they found it to be “caring for their family,” “continuing their work,” and “managing food and maintaining health.” They even talked about the prospect of giving up work after claiming the disability status as a solution to competing demands. “Hopefully,” one participant mentioned, “my disability status may happen in May . . . I will be able to quit working. I feel like I could probably do exercise and eat better then.” Some of them tried hard to “make everything work” but fell short of what they believed they had been asked to do by their health care providers to manage their diabetes. Overall, they affirmed that making it all work is a “juggling act” under financial constraints and limited resources.

Discussion

Diabetes self-management is described as an uncertain and episodic trajectory that requires continuous adjustment and differing response patterns over time. The self-management behaviors are influenced by individual differences, individual perceptions, and health status (Whittemore & Roy, 2002). Diabetes self-management is difficult because it requires a daily consideration of diet, blood glucose, medication, and exercise. Dietary modification requires self-control and can conflict with cultural food preferences (Weiler & Crist, 2009). Findings based on our study indicate that major obstacles to self-care included fatigue that interfered with current and previous lifestyle activities, and financial obligations that neglected self-care activities related to controlling diabetes and maintaining a healthy mind and body.

Exercise was a big challenge for most of the participants in the study, as it is with most people who deal with chronic health conditions, many of which have components of pain and fatigue (Sigal, Kenny, Wasserman, & Castaneda-Sceppa, 2004). Participants in our study tried to be conscientious about exercise, but it was a difficult challenge requiring resources, both internal and external, to accomplish exercise goals appropriate for self-management.

Participants in the Racial and Ethnic Approaches to Community Health (REACH) study reported difficulty in saying “no” to family and friends who wanted them to eat

foods that were not appropriate for diabetes control, especially during social events (Garvin, Cheadle, Chrisman, Chen, & Brunson, 2004). Other studies support this finding, with participants stating that it is difficult to modify the typical Hispanic dietary pattern (Adams, 2003; Vincent, 2009). The findings from our study revealed that the majority of the study participants modified their dietary patterns based on their current health status and their individual perception of illness.

Adherence in diabetes self-management is regarded as challenging because of the complexities of regimens, conflicts with existing lifestyles, and the fact that it is a lifetime regimen (Whittemore & Roy, 2002). Participants in this study understood potential consequences of noncompliance but did not consistently have the financial means to obtain needed resources without governmental or private agencies support. Lack of financial support to pay for “good” food, medicine, and blood glucose monitoring supplies was not only a challenge for participants but also occasioned the fear that it will cause a downward spiral of the disease trajectory.

Furthermore, families living on a limited income have a harder time acquiring the necessities of food, clothing, shelter, and transportation and often have to choose between medical care and basic needs (The Henry J. Kaiser Family Foundation, 2013). Less income means less likelihood of having health insurance, even if employed, and might discourage visits to providers because of immediate payment requests prior to provider visits (Maurer & Smith, 2013). The HCHS/SOL reported that many people in the study had poor glycemic control (52%) and/or lacked health insurance (47.9%; Virginia, 2014). Even in the absence of barriers to obtaining care, having diabetes might bring additional perceived financial burdens to patients and their families who have to balance the cost of obtaining health care against competing daily financial demands (Heisler et al., 2007; Robbins, Thatcher, Webb, & Valdmanis, 2008; Soumerai et al., 2006).

Older adults are the heaviest users of health services because of type 2 diabetes and typically depend solely on their social security income, with Medicare covering only a very small portion of the services they need (“Affordable Care Act,” 2013; Maurer & Smith, 2013). Older adults with low income also lack available and affordable health care services for managing type 2 diabetes such as transportation needed to reach services, and even lack the knowledge of where to look for services (Maurer & Smith, 2013). Piette, Heisler, and Wagner (2004) examined the problems faced by older adults with diabetes as a result of out-of-pocket medication costs. They found that low-income and out-of-pocket medication costs were associated with poor medication adherence and glycemic control. Whereas those in this demographic managed their disease within financial limits, 19% cut back on use of their medications, 20% went without recommended food and other essentials, 14% increased

credit card debt, and 10% borrowed money from their family or friends to pay for medications (Piette, Heisler, & Wagner, 2004).

Many individuals with low incomes take fewer medications than those prescribed because of the cost (Ngo-Metzger et al., 2012). These findings are supported in our study, with elderly participants stating that they chose not to take their medications or decreased the amount of the medications because of cost. It is important to develop effective and sustainable strategies to deal with the cost of medications and supplies for this population. In our study, participants gave high priority to searching out health care practices that could offer free or reduced cost medications.

One trend that might reduce the need for a constant search for affordable medications is the current drive to transform primary care practices into medical homes. This team-based model of primary care practice is intended to improve quality, efficiency, and patients’ experience of care (Friedberg, Schneider, Rosenthal, Volpp, & Werner, 2014). The idea of medical neighborhoods that integrate primary and specialty care for persons with diabetes is also being explored as a means of optimizing ambulatory care for chronic illnesses (Greenberg, Barnett, Spinks, Dudley, & Frolkis, 2014). For people facing financial constraints like our participants, primary care practices need to be able to provide low- to no-cost medications. Although payment for medications might require government subsidies or charity, alternative strategies are also needed to keep people with chronic disease like type 2 diabetes employed and with adequate health insurance.

Jobs seemed to come and go for our study participants. They described changing jobs, changing from full-time to part-time work, or quitting work after being diagnosed with type 2 diabetes. This is similar to the findings from a systematic review by Breton et al. (2013), who reported that employees with diabetes might stop working prematurely and might experience unemployment, causing reduction in income and loss of self-esteem. Breton et al. (2013) also noted that individuals with type 2 diabetes had between 2 and 2½ times more absenteeism than do people without diabetes (Breton et al., 2013). Our findings provide some insight into why persons with diabetes are likely to limit their employment.

In a qualitative study of immigrant population in Northern California, seasonal work patterns and the need to work several jobs to meet subsistence levels were reported to present barriers to managing diabetes (Chaufan, Constantino, & Davis, 2012). In our study, we found that participants met such barriers to finding and sustaining employment; however, they sometimes made the choice to stop working or to look for work that was better suited to their self-described physical limitations. The ADA’s (2012) position statement explains that for people who are effectively engaged in self-care in conjunction with primary care, diabetes should not be a deterrent to employment. Workplace accommodations are

available under federal law if they are needed. However, more research is needed to explore the internal and external forces that are driving these individuals to stay unemployed after being diagnosed with type 2 diabetes (ADA, 2012). Participants in this study searched for components of care to manage their diabetes, such as free or low-cost medications, rather than looking for comprehensive health care.

The participants' responses to challenges varied in this study based on HbA1C status, age, history of diagnosis, income, and health literacy. Participants with complications secondary to uncontrolled type 2 diabetes such as amputation and physical disability experienced difficulty in managing their diabetes because of physical fatigue, difficulty finding a job, and insufficient income. Elderly participants with a history of type 2 diabetes for more than 10 years experienced reluctance to adhere to the dietary restrictions and to medication management. Some participants with less than 3 years of type 2 diabetes experienced "discomfort and depression" with the diagnosis. Participants who had extremely low income found it very challenging to manage their diabetes with limited resources.

Limited health literacy was an issue in finding resources and managing type 2 diabetes in this study. These findings are consistent with a few research studies reported in the literature (Aponte et al., 2015; Bains & Egede, 2011; Levine et al., 2009; Ngo-Metzger et al., 2012; Smith-Miller, 2012). The participants in this study did not report substantive differences in challenges to manage type 2 diabetes based on gender, Mexican versus Puerto Rican descent status, and level of education. This might be because of the inclusion of only one man and two Hispanic women of Puerto Rican descent, failing to capture their challenges in diabetes self-management. In addition, the responses did not indicate considerable differences in challenges based on their level of education. Studies must be conducted to understand the challenges in managing type 2 diabetes based on gender differences, Hispanic subgroups, and education levels.

Access to health care is associated with increased use of health care services and better type 2 diabetes outcomes (Zhang et al., 2012). A research study conducted by Bains and Egede (2011) reports that many individuals with limited economic means are not aware of how to access health care resources as a result of low health literacy, a complex and multilayered health care system, age, illegal immigrant status, and technology explosion (Bains & Egede, 2011). Participants in this study, however, had limited access to health care and low frequency of use of health care services. If a no-cost option existed, individuals would go to that practice or agency to obtain the resources. This approach has been linked to low-income status, lack of resources and support, and poor glycemic control (Vest et al., 2013).

The importance of access to one-stop diabetes care and availability of reduced or low-cost medication in the primary clinic of low-income residents is highlighted in the Health Affairs Report by Health Resources & Services Administration

(HRSA; 2011). The cost of managing diabetes reported by the ADA (2013) includes costs related to hospital and nursing home stays, doctor visits, and prescription medications for treating diabetes and diabetes complications and diabetic supplies. Going from place to place to access free or low-cost resources is difficult; a single location or locations within a defined area are better options to increase access and adherence in managing diabetes.

Federally Qualified Health Centers (FQHCs) are important and reliable resources for low-income residents to obtain reduced or low-cost care if they are easily accessed. However, reduced or low-cost medication access is not federally mandated in the United States, and is subject to contract negotiation between state Medicaid programs and FQHCs (HRSA, n.d.). Nevertheless, a FQHC is required to employ a sliding scale system to offer services to people based on their income (HRSA, n.d.). In addition, the integration of clinical pharmacy services for the uninsured or underinsured patients with type 2 diabetes who receive care from local "safety net" community clinics has reported positive clinical outcomes. These clinical pharmacies serve as a single-access point for primary care. Patients achieve glycemic control through quicker access to necessary laboratory tests and filling of prescriptions in the same clinic building (HRSA, 2011; Johnson et al., 2010). Unfortunately, there are a limited number of these types of one-stop diabetes care clinics and even fewer that incorporate clinical pharmacies.

Participants in our study understood the big picture of type 2 diabetes but did not possess adequate knowledge of managing diabetes and the mechanics of health care services to manage their disease. They depended primarily on family members or friends to gather information on health care services. Some participants knew the dietary recommendations and the importance of changing their health behaviors. They did not follow these recommendations because of difficult work schedules or dependence on family members for food and finances. Some participants simply ignored the importance of adhering to lifestyle modifications. Their financial constraints and limited resources moved them to look for services that were free or at low cost rather than to take the effort to understand the information needed to manage their diabetes.

It has been shown that limited health literacy is a barrier to disease management and is associated with poor glycemic control (Osborn, Bains, & Egede, 2010). For patients with limited health literacy, enhancing social support would facilitate diabetes self-care and improve glycemic control (Fransen, von Wagner, & Essink-Bot, 2012). Therefore, effective strategies must be implemented to make information about health behavior changes easily available, using readily accessible measures for patients in their community setting. These might include walking paths or walking clubs to encourage group exercise.

In addition, culturally appropriate measures and interventions must be tried to improve health outcomes among

Hispanics with type 2 diabetes. It is particularly important to improve knowledge and health literacy related to diabetes self-management and complications that can arise from inadequate glucose control (Aponte et al., 2015; Smith-Miller, 2012). Nurses must develop and evaluate educational programs based on the health literacy status of these individuals, their knowledge about diabetes self-management, and cultural backgrounds that might foster their active participation in managing their diabetes.

Lustman, Penckofer, and Clouse (2007) reported participants who were angry and depressed with their inability to be successful with managing their diabetes and distressed by the lack of understanding from others regarding how difficult it is to live with the disorder. Their lack of success in self-management was attributed, in part, to health care providers not listening to their needs (Lustman et al., 2007). Our study reinforces the need for providers to assess the physical and psychological symptoms the patients with diabetes are experiencing at the moment as well as their ability to pay for what is recommended. It might be that the patient has to choose between groceries, medicine, and the strips to check blood sugar.

Mohebi, Azadbakht, Feizi, Sharifirad, and Kargar (2013) have reported lack of family support as a significant structural barrier to diabetes self-management. In our study, what we learned about family members was mainly from the viewpoint of the participants. Although the family was seen as not fully comprehending the impact of type 2 diabetes, they were also described as providing physical, emotional, and financial support. Family members had limited resources themselves but helped contribute to the care needs of the participants. The participants understood the health behaviors that were critical to their successful type 2 diabetes management. However, they indicated that family members did not understand how deeply these behaviors affected their life. Nurses working in the community settings must make an attempt to know more about family members' views, which would provide more insight into how to construct better strategies to educate not only persons with diabetes but also family members (Mohebi et al., 2013).

The Hispanic culture values God's presence when afflicted with chronic disease conditions such as diabetes (Hunt, Arar, & Akana, 2000). Findings from our study suggest that spiritual strength and support from various sources maximized participants' ability to live with confidence. It made the difference in moving forward in life, and helped the participants to cope with the diagnosis and to make lifestyle changes regardless of the duration of their condition (Coronado, Thompson, Tejeda, & Godina, 2004; Hunt et al., 2000). The responses of the participants of this study suggest that a strong belief in a source of strength and power through spiritual connections and support from faith communities guided their ways of coping with the challenges and demands that their illness imposed, regardless of the duration of their condition.

Results of studies conducted among various cultures suggest that the health locus of control has an impact on the perceptions of individuals regarding their abilities to manage chronic health problems (Mani, Caiola, & Fortuna, 2011; Valentine, Godkin, & Doughty, 2008; Valdovinos, 2006). A holistic approach to care will enable nurses in the community practice setting to help patients with type 2 diabetes in developing self-management strategies and integrating these into their daily routine.

It was evident that when faced with financial hardships, these participants altered their behaviors in an attempt to save money. Participants singled out medication and food as the primary way to manage their diabetes. They often mentioned doing without medication to have enough food for the family or to meet the needs of children in the family. This is similar to the findings of Piette et al. (2004), who noted that participants cut back on basic needs to pay for medications. The issue of not having enough money to go around interrupted participants' ability to learn about diabetes, access to care, and incorporate advice and prescriptions from health care providers. The individuals in our study expressed their attempts to put into practice what they understood about their type 2 diabetes and how they should be caring for themselves. However, their limited income meant that they were constantly juggling competing priorities for their personal health and family needs.

Limitations

This qualitative descriptive study allowed us to examine the content and meanings of the participants' words and phrasing of ideas. Our use of an existing sample from a larger quantitative study, however, might have limited the choice and recruitment of study participants and influenced the interest of subjects in participating. Furthermore, 10 single, one-time interviews might have limited the full range of possible responses. Finances became apparent as an important issue in this study, although the interview questions focused on more general issues and concerns of low-income Hispanic adults living with type 2 diabetes. This limited our ability to use follow-up questions to better explore how participants were handling their financial issues.

Another limitation is that only one man agreed to be interviewed, thereby limiting our ability to capture issues and concerns from male perspectives. The study participants in this study could read and speak English. Non-English-speaking participants might have different experiences of living with type 2 diabetes. The present study explored the struggles of the Hispanics of Mexican and Puerto Rican descent, limiting its generalization to Hispanics of other descents. Therefore, any possible differences in their struggles must be explored in future studies. Finally, we were limited in our ability to fully understand the meaning of participants' references to views and actions of family members because we did not include family members and their views in the study.

Conclusion

This study provides insight into how Hispanic adults with type 2 diabetes deal with the constraints of limited resources and how they marshal resources to manage their type 2 diabetes. This study also reveals the cost of having type 2 diabetes and the choices of clients with limited means. Participants juggled aspects of family life with learning about type 2 diabetes, the health care system, finding and sustaining employment, making their money go farther, and trying to make it all work despite their limited income. Nurse practitioners and other health care providers need to address the circumstances that have the greatest influence on self-care behaviors.

Efforts need to be made to improve health care providers' understanding of culture for integration in care delivery; to improve coordination of culturally appropriate services; and to develop public health programs that target reduction of disparity in access to health care services. Nursing education and practice must focus on understanding the social and psychological factors that influence the diabetes self-management behaviors of people from various socioeconomic and cultural backgrounds.

The overriding message from this study is that health care providers caring for low-income patients must look beyond their own practices to consider the availability of services across their community. The need for the implementation of medical homes for low-income persons with type 2 diabetes is highlighted by this study, because medical homes can address the critical need of patients with type 2 diabetes for free or low-cost access to medications. In the coming years, there will be a changing landscape of providers with the resources to provide health care to this population. It is unlikely that all providers will be able to create a practice arena suitable for all. However, low-income residents will benefit most from a single point of care to address their unique health care needs within their financial constraints and resources.

New research opportunities exploring new models of nursing practice in managing patients diagnosed with diabetes in outpatient settings have been documented (Micklethwaite, Brownson, O'Toole, & Kilpatrick, 2012). Increased nursing involvement in rural community settings using a targeted step-by-step approach or exploring new models of nursing care in managing patients with type 2 diabetes living in low-income neighborhoods would be other options to facilitate better health outcomes for patients which, in turn, would benefit the national economy.

Part-time employment, loss of employment, and decisions to opt out of work also play a role in the ability or choice of persons with type 2 diabetes to access resources. Regulations that provide financial support and health care benefits are heavily focused on individuals who are unable to work but do not address the need for financial support to the underemployed. Although we have made a start as a society to address the needs of the uninsured, we are still far from addressing the issues of individuals living on a limited

income ("Affordable Care Act," 2013). To address this gap, nurses, health care providers, and patients must work as partners in diabetes self-management. In this partnership pursuing a consistent approach, through small steps and improved outcomes, success in diabetes self-management might become a realistic goal.

The role of poverty and social inequality in disease causation and management has been widely reported (Chaufan & Weitz, 2009). The study results provide a description of this dimension of social inequality in managing type 2 diabetes. It is important for providers to think about what their recommendations mean to patients and their families. If insurance or other community efforts fail to pay for a prescription, it might not be filled, affecting the adherence and glycemic control. Patients diagnosed with type 2 diabetes are aware that they need to follow dietary recommendations. However, what is available to eat or what their family members provide will be what is on the table for these individuals. Therefore, nurses and other health care professionals must look closely into patients' financial circumstances, family dynamics, and community resources and find ways to support these patients for long-term type 2 diabetes management.

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