Influences on diabetes education participation in a low-income, Spanish-speaking, Latino population

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Abstract

Objective: To investigate influences on participation in diabetes education classes in a low-income, Spanish-speaking, Latino population.

Methods: 15 patients from an Oregon clinic participated in semi-structured interviews to understand influences on their participation in diabetes education, and a thematic analysis was conducted.

Results: Four themes characterized the data: 1) lack of resources; 2) culture; 3) relationship with diabetes; 4) relationship with the clinic. Barriers to class attendance included: work conflicts and lack of childcare and transportation; shame and lack of interest in health in males; and difficulty contacting participants. Motivators of class attendance included: interest in health for the sake of family; interest in nutrition; effects of diabetes on self, friends, and family; and positive experiences with group support and self-efficacy in class.

Conclusion: This study provides important insights into participation in diabetes education in a low-income, Spanish-speaking, Latino population.

Practice implications: To increase diabetes education participation in this population, creative, targeted approaches to DSME classes are needed. These may include: classes that are accessible in terms of finances and time; classes focusing on strong, healthy males, family involvement, celebration of healthy Latino food, group support, and self-efficacy; and the use of trusted, motivated peers to recruit hard-to-reach participants.

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1. Introduction

Diabetes disproportionally affects U.S. Latinos in terms of prevalence and severity; 12.8% of Latinos have diabetes compared to 7.6% of non-Latino whites [1]. Latinos in the U.S. experience a higher rate of hospital admissions for uncontrolled diabetes, and have a higher incidence of diabetes-related complications compared with non-Latinos [2,3].

Diabetes self management education (DSME), offered in the primary care setting, is an important tool that gives people the ability to successfully self-manage their diabetes [4]. DSME is effective at improving glycemic control and diabetes knowledge [5,6,7,8]. Culturally tailored DSME is also effective at improving diabetes outcomes for ethnic/racial minorities with diabetes, including Latinos [9].

The American Diabetes Association (ADA) endorses DSME as a necessary component of diabetes management [10]. However, in the U.S., only 57.4% of all people with diabetes [11], and 45.4% of Latinos with diabetes [12], have ever attended DSME, and attrition rates range from 12 to 50% [13]. Patients who attend DSME in the U.S. tend to be Caucasian and English-speaking [14]. Increasing Latino participation in DSME is an important step toward addressing health disparities, in accordance with the ADA standard of providing access to DSME for all [4,15].

There are three studies that primarily focus on examining factors influencing diabetes self-management for Latinos [16,17,18]. Only one of these studies, by Francis [16], specifically focuses on DSME participation in a Latino population. The study by Francis found that, regarding attendance of community-based DSME for Latinos, motivators were convenient classes (in terms of location, time, and provision of childcare) and enthusiastic Spanish-speaking instructors; barriers were scheduling conflicts and underutilization of culturally tailored marketing strategies. More understanding is still needed of the influences on Latino participation in DSME.

The aim of this study is to investigate the factors influencing clinic-based DSME participation in a low-income, Spanish-speaking, Latino population, in order to add to the body of literature on this topic and contribute toward addressing health disparities.

2. Methods

2.1. Design

This is descriptive qualitative study, which is designed to observe phenomena in order to understand why they occur [19].

This research project was approved by the Oregon Health & Science University (OHSU) Institutional Review Board (IRB).

2.2. Setting and study participants

The setting for this study was Volunteers in Medicine (VIM) Clinic of the Cascades in Bend, OR, a safety net clinic that serves patients who have an income that is greater than zero but less than 200% of the Federal Poverty Line (FPL), and lack health insurance. Over 75% of VIM's patients are Latino immigrants who do not qualify for subsidized health insurance through the Affordable Care Act because they lack documentation of citizenship, and who cannot afford to buy unsubsidized health insurance [20].

Approximately 25% of the patient population at VIM has a diagnosis of diabetes. VIM offers a group-based DSME class session once or twice a year for its Spanish-speaking patients with diabetes, comprised of 8 weekly classes held from 5 to 7 pm. Childcare is not provided. Classes are taught by an English-speaking volunteer diabetes educator, with simultaneous Spanish interpretation. The classes focus on the physiology of diabetes, nutrition, healthy eating, exercise, use of glucose meters, preventive care, stress management, and mental health. Each participant receives a free glucose meter, and healthy snacks are provided at each class session.

To advertise the classes, bilingual flyers are posted at VIM, and eligible patients are sent invitation letters. On average, half of the patients invited to each 8-week session attend at least some classes. However, an average of only 2-3 patients attend all 8 classes in each session.

Study participants were recruited from Latino patients at VIM who had been previously invited to attend DSME classes for Spanish-speaking patients. Potential participants were contacted by telephone (JT) in Spanish, and invited to participate in one interview.

2.3. Data collection

Semi-structured interviews were conducted with participants at a private location within the clinic, in January and February, 2015 (JT). Simultaneous interpretation was provided by 5 different volunteer Spanish-language interpreters. The interviews, lasting from 20 to 60 minutes, followed an open-ended guide designed to explore participants' experiences with diabetes, attitudes towards the DSME classes at VIM, and influences on attendance of these classes. The interview guide was reviewed for cultural appropriateness by a bilingual, bicultural clinic employee. Age and gender information for each participant was recorded on a written data collection form. All participants who completed an interview received a $10 gift card for a local grocery store. Each participant provided written informed consent.

2.4. Data analysis

Audio-recorded interviews were transcribed into English (JT). The transcripts were reviewed and corrected by a Spanish-language interpreter, who compared them directly to the audio-recordings. The transcripts were coded independently by two researchers (JT, DC), and a consensus on codes was reached. The relationships between codes were analyzed in order to develop themes that characterized the findings from the interview data. These themes were reviewed with a focus group of current VIM DSME class participants (some of which had participated in this study, and some of which hadn't), in

order to gain feedback about their relevance. This focus group session was also audio-recorded, transcribed, and coded to assist with final theme development.

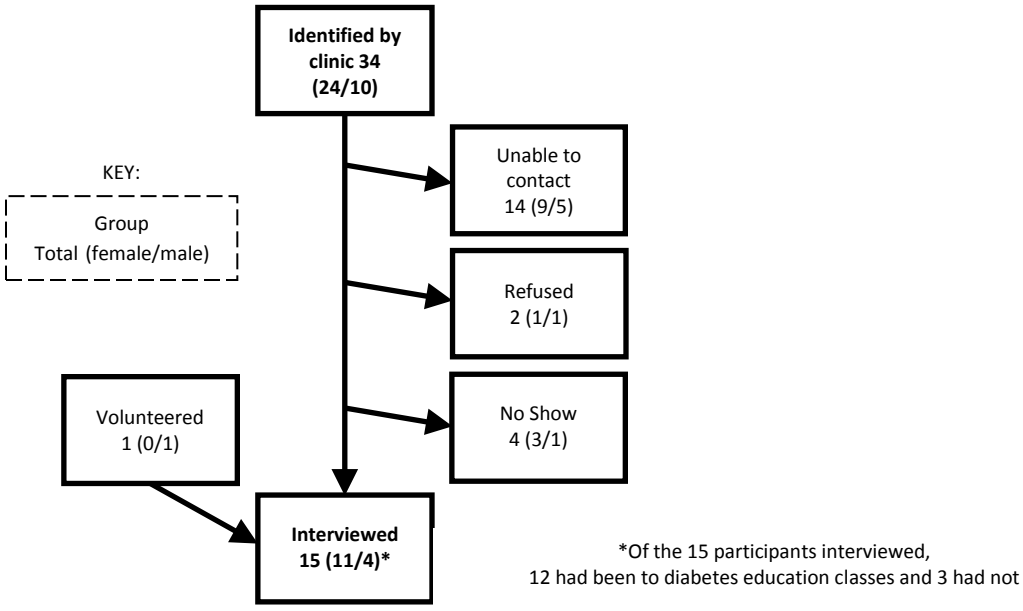
I confirm that all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the story.

3. Results

3.1. Participant characteristics

Fifteen participants were recruited and interviewed (see Figure 1).

Figure 1: Recruitment of participants flowsheet



Out of 34 potential participants identified by VIM, 14 (about 40%) were unable to be contacted by telephone. Out of the 20 participants that were able to be contacted by telephone, 2 refused to participate in an interview. Out of the 18 participants who agreed to be interviewed, 4 did not show up to their interview session. Fifteen participants, one of whom was not a clinic patient but volunteered to

take part in the study, were interviewed. There were 12 interview sessions, 9 involving one participant, and 3 involving two participants. Table 1 illustrates the participant characteristics.

Table 1. Participant characteristics

Characteristic	*N (%)*
Gender	
Male	4 (27)
Female	11 (73)
Age (years)	
36-40	5 (33)
41-45	2 (13)
46-50	3 (20)
51-55	3 (20)
56-60	0 (0)
61-65	1 (7)
Unknown	1 (7)
Diabetes type	
Type 2 diabetes	13 (87)
Pre-diabetes	1 (7)
Not diabetic (spouse of patient with diabetes)	1 (7)
Years with diabetes	
0 (non-diabetic or pre-diabetic)	2 (13)
1-5	3 (20)
6-10	2 (20)
11-15	4 (27)
16-20	1 (7)
>20	1 (7)
Unknown	2 (13)
# of classes attended (out of 8)	
0	2 (13)
1-4	3 (20)
5-8	9 (60)
n/a (not a patient at VIM)	1 (7)

All of the participants were Spanish-speaking, with little or no English-speaking ability, and most of them had immigrated to the U.S. from Mexico or Central America. Four out of 15 participants were male. The average age was 46, and the average length of time with diabetes was 8.5 years. Participants reported a range of diabetes symptoms, from being asymptomatic to experiencing pain, eye problems, fatigue, dental problems, headache, thirst, shakiness, eating too much, having no appetite, moodiness,

heart palpitations, chest pain, and kidney problems. Diabetes type, length of time with diabetes, and diabetes symptoms were reported during the semi-structured interviews.

3.2. Themes influencing DSME attendance at VIM

Four main themes emerged from the interview data regarding influences on DSME attendance among study participants. They were: limited resources, culture, relationship with diabetes, and relationship with clinic.

3.2.1. Limited resources

Resources that influenced DSME participation in this population were time, childcare, transportation, and money (see Table 2).

Table 2: Participant quotes illustrating the influence of limited resources on participation in diabetes education

Theme	**Quotes**
<u>Limited resources</u> Time conflict with work	*"…some people get out of work at 5, and come to the class late…"* *"When I get out of work late…I'm tired, I'm sleepy, or I'm hungry, and sometimes I can't come…I work…in housekeeping…I'm almost always leaving work at 6 in the evening."*
Childcare	*"…I couldn't come…because I didn't have childcare…with the two of them, [the class] was more like playing for them, and I couldn't listen. And…I'm not the only one listening, but also my fellow students."*
Transportation	*"…I live [15 miles away]…I don't drive, and my husband brings me. So this was something that was hard…And…when there's lots of snow, it's dangerous."* *"…sometimes I don't have the money…it's $12 for the taxi…It takes about 45 minutes to walk…The little one can walk now…Before I would have to carry her…"*
Advantage of free, evening classes	*"I think that in another clinic, maybe they would*

	offer this, but for some people it's economically out of reach…if I didn't live here, I wouldn't go somewhere else because…we don't have the resources." *"…there's no other place that offers free classes and we have to take advantage of it."* *"…it was an advantage that the classes were later."*

Many participants stated that, due to their work hours, they were late to classes or not able to attend classes, which started at 5 pm. Several participants explained that, because they didn't have childcare during class time, it was difficult for them to attend. One participant stated that, while children were allowed to attend class, this could be disruptive to other class members. Lack of transportation was described as a barrier to class attendance, either because participants didn't drive, lived far from the clinic, didn't have money for public transportation, or were not able to navigate the roads during wintry weather. Some participants acknowledged that the fact that the classes were free, and in the evenings, encouraged their attendance.

3.2.2. Culture: family, gender, food

The cultural factors of family, gender, and food, were brought up frequently during participant interviews (see Table 3).

Table 3. Participant quotes illustrating the influence of culture on participation in diabetes education

Theme	**Quotes**
<u>Culture</u> Family	
Busy with family	*"I am very busy, and I haven't been able to [come to class]. Because my kids are doing sports…Mondays to Thursdays, and Saturday…and Friday night is family time."*
Motivated to be healthy for family	*"…they diagnosed me with diabetes…I try to eat less of the bad things that I eat…I want to continue in this world so that I can see my kids grow up."*

Family support	*"…the reason I am in treatment is because of my wife, and my daughters…my wife really supports me with these classes…now I'm really more motivated for it, because of the baby."*
Gender	
Men: Shame	*"…it's embarrassing for men to say [they are] diabetic. They make fun of you…my siblings and my parents, they don't know…I don't want them to feel sorry for me…as a Mexican, maybe it's from being machista…it's from the culture we're coming from, it's very hard." (Male)*
Men: Not interested in health	*"…the men, they aren't as interested as we are. Because my husband also has diabetes, and sometimes I tell him, come to the class with me, and he's like, 'No you go…I can take you, and then I can pick you up.'" (Female)* *"…lots of men just ignore this…I heard men say, 'one day we're all going to die. I'm going to give my body what it wants.'…when you tell them to go to the doctor [for] colon cancer [screening] at fifty…they're like, oh, no, I'm going to be fine…I think that's why they don't go to the classes…" (Female)* *"Because I don't think [men] are concerned about their health…they just want to relax and watch TV, and eat Doritos…A little beer!" (Female)* *"I have an idea, but it's crazy. Tell them that there will be beer!...[going to class is] not that important to men, you just want to feel good, and sometimes drink a beer…" (Male)*
Food	
Dietary changes difficult	*"Yeah, it's very hard…especially the food. If we're going to go out to eat, [I] eat a salad, but they're eating really good things, and it looks delicious, so it's better if I don't go…"* *"...it's very hard, this illness, because we have very delicious food, but we're killing ourselves with it…tortillas are…the worst, so they asked, how many do you eat? I said like 12 with a meal? They're like, no, about 2!"*
Motivated to learn more about nutrition	*"I like the part about diet the best. This is very*

	important…I know that we Latinos tend to eat too much." *"I would like to know what I should eat and what I shouldn't eat…because what I want is for my blood sugar level to always be normal. When it's 180, I'm scared!...If I have a goal to eat what I should eat, with this disease, I will do it."*

Family emerged as an important influence on class attendance (see Table 3). Participants sometimes did not have time to attend class because of family commitments. However, many participants, both male and female, also indicated that they wanted to be healthy for the sake of their family. This was described as a motivator of class attendance. In addition, several participants mentioned that support from their family members encouraged them to attend class.

Male gender emerged as a significant barrier to class attendance in this study population. Males were under represented both in the VIM DSME classes and in the study participants. Both male and female participants had ideas about why this was the case (see Table 3). Male participants shared that Latino men are ashamed by having diabetes and do not want to admit to others, even family members, that they are sick. Both women and men stated that men are not as concerned about their health as women, and that they just want to enjoy life. A male participant thought offering beer in class would be a motivator for males to attend. However, as was described above, males also expressed motivation to attend class because they wanted to be healthy for the sake of their families.

Many participants spoke about their important relationship with food (see Table 3). Several people indicated that they knew typical Latino diets were not healthy for someone with diabetes, and that it was very difficult to change their dietary habits. However, most participants said that they were interested in learning about healthy eating, and most participants who attended classes reported that they enjoyed the parts about food, and requested more nutrition curriculum.

3.2.3. Relationship with diabetes

Participants spoke about a range of experiences they had with diabetes, and consistencies emerged regarding the impact their experiences had on whether they attended classes (see Table 4).

Table 4. Participant quotes illustrating the influence of relationship with diabetes on participation in diabetes education

Theme	**Quotes**
Relationship with diabetes	
Do not understand chronic nature of diabetes	*"I ignored many things, when I got this illness…I didn't pay a lot of attention to it…I thought of it like a cold. Because I didn't know what it was."*
Motivated to take care of self when symptomatic	*"And [the doctor] prescribed me some pills, and I didn't take them…when I felt like I had diabetes, that's when I started taking the medication."*
	"I felt that I was in good health. But…my bone pain brought me here to learn more…I think that all human beings don't look for help until we are going through something difficult."
Co-morbid depression	*"…when people first get the news it hits them so hard, that they get depressed…this happened to me, I said, 'well, now I'm sick, I'm not interested in anything else.'"*
Effect of diabetes on family and friends	*"When I was told that I had diabetes, I almost had a heart attack…my mother, when she had diabetes…she lost was her sight. Later, my [aunt got] diabetes, and she said, 'Oh, I'm going to die anyhow.' She didn't do anything, she didn't diet…and she died…So, when I was told I had diabetes…I thought, well this is as far as I am going to make it. But thanks to God, they started to tell me how it was possible to live with diabetes, as long as it is well regulated."*
	"I've seen friends…that sadly have lost their lives because they didn't take care of…their diabetes…the disease kept growing until they had to start to amputate a finger, a foot, up to the knee, and later these people died…This was something I saw in my country…But I also knew a woman who had diabetes who took care of herself, and she lived a long time."

Participants who did not understand the chronic nature of diabetes, or who were asymptomatic, were less likely to engage in diabetes self-management behaviors. Participants reported that they were motivated to learn more about diabetes and attend class when they became symptomatic. One participant shared that their co-morbid depression made it difficult to do anything. Many participants described the effects of diabetes on their family and friends. Consistently, participants observed that people with diabetes who didn't take care of themselves died or suffered from complications of diabetes, while people who took care of themselves lived longer and healthier lives.

3.2.4. Relationship with the clinic

The majority of participants spoke highly of VIM and the diabetes classes there, and only two participants endorsed having negative experiences at VIM or the classes (see Table 5).

Table 5. Participant quotes illustrating the influence of relationship with clinic on participation in diabetes education

Theme	**Quotes**
<u>Relationship with clinic</u> Clinic care is valued	*"…in my town [in Mexico], a lot of people have this disease, and they die very young…they don't last a long time like we do…thank God, they are taking care of us very well here…each appointment that we come to, they ask us everything, and they make us another appointment again…"* *"I have gone to all of the classes and enjoyed them… We learned so many things…that in my country, nobody has leaned about. Because of this, my aunts didn't take care of themselves. For me, this information is very valuable."*
Clinic care is inconsistent	*"I see one doctor who says one thing, and another says something else, and I realize that they're volunteers…and I don't want to complain, because…What am I going to do if they send me away from here?"*
Translation issue in classes	*"I feel like I didn't learn a lot, and the reason was the language. They changed the people who were translating…It was confusing… with diabetes…even the smallest word can be confusing…"*

Positive experiences in classes	*"And yes, as I told you, I'll come back again. I have learned a lot from the classes… Last year, I weighed 178 pounds. And with the lessons that we had here…I lost 10 pounds."* *"…it's better if there's…a big group…that way we can talk about what's going well, what's not going so well…all together…"* *"And classes like this help to realize that it's not just me that has this problem… and listening to stories helps you to understand that you have to move forward, that you have to take care of yourself, because there are people here, who love you and support you."* *"Here they taught me to value myself, and follow my goals, and I have reached them."* *"I have learned more, and I know I can keep feeling better following the advice. The world can change. And I can too."*

Several participants described the clinic as offering valuable medical services that were not available in their home countries, and thought that the staff members were caring. The classes themselves were generally received positively by the participants that attended them, who stated that they especially enjoyed the tangible results they got from classes, the group support they received during class, and the increased self-efficacy they felt. The two participants that had negative experiences with the clinic described being confused by translation issues in the classes, and feeling like they did not have good continuity of care because of the all-volunteer clinic staff.

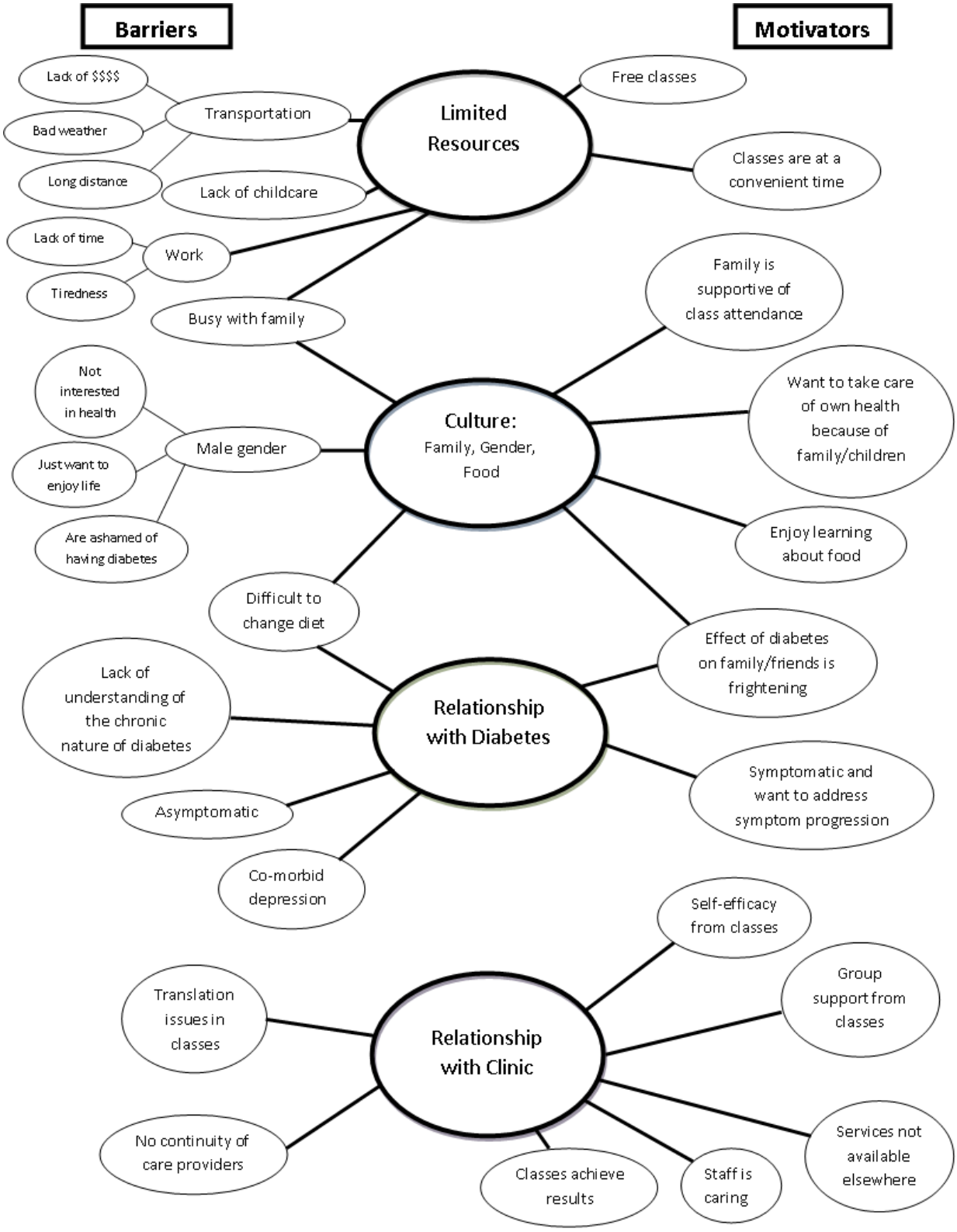
4. Discussion and conclusion

4.1 Discussion

Many insights regarding influences on DSME attendance in a low-income, Spanish-speaking, Latino population emerged from this qualitative research. These influences were organized into the

interconnected themes of limited resources, culture, relationship with diabetes, and relationship with clinic (see Figure 2). During the data analysis process, it became apparent that each of these themes could function as a motivator of or a barrier to DSME attendance. Each participant was impacted uniquely by these themes; however, consistent findings related to DSME participation in this study population did emerge. The most significant influences on DSME class attendance were lack of resources, male gender, family, food, diabetes symptoms (of self, family, and friends), and a positive relationship with the DSME classes and the clinic. Also, the difficulty in contacting patients during the participant recruitment process indicated that inability to easily reach patients was also a barrier to class attendance.

Figure 2: Interconnecting themes describing influences on participation in diabetes education



Some of the influences on DSME participation that emerged from this study have been documented in previous research, and some are new findings. Table 6 illustrates how findings from this study compare to existing literature on the same topic, both in the general population and the Latino population. The important findings from this study, along with practice improvement ideas to increase DSME attendance in this study population, will be discussed in the context of current literature.

Table 6. Findings regarding influences on DSME attendance from existing literature and from this study

Influences	**General population**	**Latino population**	**This study population**
Barriers to DSME attendance			
Lack of finances	X [13,21,22]	X [17,18]	X
Lack of time	X [13,22,23,24]	X [16,25]	X
Work conflicts	X [13,24,26]	X [16,18,25]	X
Lack of transportation	X [13,21,22,24]	X [16,25]	X
Long travel distance to class	X [26]		X
Lack of childcare	X [24]		X
Family conflicts	X [13]	X [16,25]	X
Lack of family support	X [23]	X [17,18,25]	
Dietary changes difficult	X [24,27]	X [17]	X
Men: social stigma of diabetes			X
Men: lack of interest in health			X
Asymptomatic/diabetes not perceived as serious	X [13,22,26,28,29,30]		X
Depression	X [22,28]		X
Co-morbidites	X [21]	X [18]	
Current illness	X [13,23]	X [25]	
Emotional toll of having diabetes	X [28]		
Denial	X [28,30]		
Classes not perceived as necessary	X [22,23,26]	X [16]	
Lack of interest in classes	X [23,24,26]	X [25]	
Clinic perceived as unhelpful	X [13,30]		X
Lack of knowledge about classes	X [13,22,26]		
Lack of targeted class marketing		X [16]	
Language barrier		X [21]	X
Difficult to contact participants			X
Motivators of DSME attendance			
Financial/gift incentives	X [24]		X
Convenient class time	X [28]	X [16]	X
Convenient class location		X [16]	
Childcare provided		X [16]	
Family support	X [30]	X [18]	X
Want to be healthy for sake of family			X

Want to learn more about nutrition			X
Presence of diabetes symptoms			X
Diabetes symptoms present in family/friends			X
Instruction in participants' language	X [24]	X [16]	
Enthusiastic instructor		X [16]	
Culturally tailored classes	X [24]		
Group classes	X [28]	X [16,18]	X
Self efficacy gained from classes			X
Support from healthcare practitioners/clinic		X [18]	X
Religious faith		X [18]	

4.1.1 Lack of resources

Lack of finances, work conflicts, and lack of transportation were barriers to DSME attendance in this study population. This is consistent with previous research in Latino populations [16,17,25], and is likely due to the low socioeconomic status of the participants in this study, who were not necessarily able to take time off of work, or pay for childcare or transportation. These resource barriers could be addressed with healthcare system changes. VIM does offer free, evening DSME classes, which study participants indicated was helpful. However, participants specifically suggested that starting the classes later in the evening than 5 pm, and providing childcare, would make attendance easier, which is consistent with a study that identified starting classes at 6 pm and offering childcare as facilitators of DSME attendance in a Latino population [16]. Additionally, partnerships could be created with local public transportation and taxi services to facilitate rides to classes.

4.1.2 Male gender

For the Latino males in this study, diabetes-related shame and lack of interest in health were significant barriers to DSME attendance. These are new research findings. While it has been documented that Latino males are less likely to attend DSME [25], no research has been done on why this is so. Males typically made up less than half of the attendees at VIM DSME classes, consistent with Latino populations in DSME research studies, which are often more than 60% female [25]. The attitudes revealed in this study may be the result of *machismo* culture, as one participant mentioned, in which

males are expected to be masculine, strong, and proud [31]. These attributes are not consistent with having a chronic illness, and may engender shame and lack of interest in health in relation to diabetes. However, *machismo* culture also designates males as strong protectors of and providers for family [31]. Wanting to go to classes in order to be healthy for the sake of family was the strongest motivator for male participants to attend DSME.

4.1.3 Family

The importance of being healthy for the sake of family was a motivator for many study participants to attend DSME. This is a new finding, which has not been documented in a Latino population. However, it is not unexpected, as research indicates that family is very influential to Latinos, who tend to consider family needs as more important than individual needs [18,21]. Several participants cited family support as important encouragement to engage in diabetes self-management. This is consistent with research in which Latinos cite the strength they derive from family as motivation to participate in DSME [18]. Interestingly, several studies have found that lack of family support with diabetes self-management was a barrier to DSME attendance in Latino populations [17,25], which was not a finding in this study. For some participants, however, being busy with family commitments precluded them from being able to attend classes. Inviting Latino DSME participants to bring their family members to class could strategically build upon the importance of family in Latino culture. Fostering social support has been shown to improve acceptance of diabetes and glycemic control among minority patients [27]. If classes were structured as family activities, this could also reduce the family time conflicts that prevented several participants from attending class.

4.1.4 Food

Most participants described food as an important part of their lives. Difficulty with dietary changes was a prevalent sentiment among participants, especially males. Latinos with diabetes tend to feel more restricted by dietary changes than other minority groups [27], perhaps because their

traditional food preferences are not in line with a healthy diabetic diet [21], or because Latinos find it difficult to adopt dietary changes in the context of family life [17,25]. However, many participants in this study expressed interest in learning more about nutrition, which is a newly documented motivator of DSME attendance in a Latino population. Thus, incorporating more class content on culturally appropriate, financially affordable, healthy food choices, which has the potential to increase DSME attendance in minority populations [24], may be successful at motivating attendance in this study population as well.

4.1.5 Diabetes symptoms

Participants' relationship with diabetes functioned as both a barrier to and a motivator of DSME participation. Several participants indicated that they were not motivated to care for their diabetes when they did not realize diabetes was a chronic illness, or they were asymptomatic. This is consistent with research in the general population [13,22,26,28,29,30], but has not been documented in the Latino population. Many participants stated that they became motivated to attend class or engage in self-care behaviors once they became symptomatic, or because of the diabetes symptoms they observed in family and friends. These motivators of DSME class attendance in a Latino population have not been previously documented, and represent an important insight into potential attendance-increasing strategies. Another diabetes-related symptom, depression, emerged as a potential barrier to DSME participation in this study population. Many participants endorsed depression symptoms. Because co-morbid depression can hinder diabetes self-management [32], and is associated with lower rates of DSME attendance [33], instituting depression screening and treatment programs for patients with diabetes may be an important step towards increasing DSME attendance.

4.1.6 Positive relationship with clinic and classes

The majority of participants perceived that clinic staff members were caring, and that the clinic provided a valuable service that was not available in their home countries. This good relationship

appeared to be reinforcing of DSME attendance, which is consistent with a study that found that support from healthcare practitioners motivates diabetes self-management in Latinos [18]. Most of the participants who attended classes had a positive experience and were inspired to keep going to class, mainly due to the group support they received and the self-efficacy they gained. Group class format has been documented as a DSME attendance motivator [16,18,28]; however, the motivating effect, in a Latino population, of self-efficacy received from classes is a new finding from this study. One participant did have a negative experience with confusing translation in the VIM DSME classes, which is an important issue to address. Many studies have shown the benefit of conducting DSME classes in the attendees' first language [34], in order to decrease confusion and make the classes more culturally accessible. DSME for Latinos led by Spanish-speaking, peer *promotoras*, or community health workers, is another effective approach [35,36].

4.1.7 Difficulty in contacting participants

The difficulty in reaching patients by telephone may also be a barrier to DSME participation in this study population. No prior studies were identified that focused on the difficulty of contacting hard to reach Latino patients with diabetes. Many participants did not answer their telephone and did not have working voicemail. Several had telephone numbers that had changed or disconnected. The patients who were able to be reached by telephone were primarily female and prior class attendees. This indicates that finding new ways to invite hard to reach patients to DSME in this population, by advertising in community or work venues or using peer recruitment, may significantly improve attendance.

This study is an important step towards understanding the influences on participation in DSME in a low-income, Spanish-speaking, Latino population. However, limitations of this study include the small sample size, which was mostly comprised of females and class attendees from one clinic in Central Oregon. This makes it difficult to generalize the results to other Latino patient populations, or to the

general population. In addition, interviews were conducted by the researcher in English with a Spanish-language translator, and the cultural mismatch between the researcher and the participants could have influenced the responses. However, the consistency of themes across interviews is promising for the validity of these results.

4.2 Conclusion

This qualitative study revealed several themes regarding DSME class attendance in a low-income, Spanish-speaking, Latino population. Major barriers to class participation included lack of resources, shame and lack of interest in health in male participants, and difficulty contacting patients. Major motivators of class participation included a desire to be healthy for the sake of family, desire to learn more about nutrition, motivation to address existing diabetes symptoms and avoid the observed effects of diabetes in friends and family, and the reinforcing effects of group support and self-efficacy received from classes.

Important new findings from this study include insights in this population about barriers to DSME attendance for Latino males, the desire of Latino patients with diabetes to be healthy for the sake of their families, the impetus to attend DSME to learn more about nutrition, the motivating effect of diabetes symptoms on DSME attendance, and difficulties with recruiting hard to reach participants.

4.3 Practice implications

DSME has the potential to improve diabetes outcomes in a low-income, Spanish-speaking, Latino population, but it cannot be effective if patients do not attend classes. Creative changes to existing class formats are necessary in order to recruit and retain class participants in this population. Based on this study's results, these changes could include: making classes accessible in terms of time, place, and finances; recruiting male patients with a "strong men supporting families" theme, and utilizing male instructors and male *promotoras* to encourage more males to attend classes; celebrating family by encouraging family participation in classes; celebrating culturally appropriate nutrition content

and cooking instruction in class; emphasizing group and self-efficacy activities in class; motivating DSME attendance by exploring patients' specific relationship with diabetes symptoms, in their own lives and in the lives of their family and friends; and employing motivated patients as advocates to recruit and inspire difficult to reach patients.

This study provides guidance for increasing DSME participation in a low-income, Spanish-speaking Latino population. It demonstrates the value of learning from patients themselves, in order to identify and address influences on DSME participation in each unique population.

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