Research Article

Perceptions, awareness, and barriers to care regarding obesity and diabetes among Latinx in Miami and Escambia, Florida: a qualitative geographical comparative study

Maria Pilar Martin¹ , Chinedu U Obioha² , Snehal Gaikwad², Alicia Padron-Monedero³ , Maria J Del Pino⁴ , Denice Curtis⁵ , Karina Villalba⁶

¹ College of Nursing and Public Health, Adelphi University, Garden City, New York, USA; Department of Public Health, University of West Florida, Pensacola, FL, ² College of Nursing and Public Health, Adelphi University, Garden City, New York, USA, ³ National School of Public Health, Carlos III Institute of Health, Monforte de Lemos 5, Madrid, Spain, ⁴ Department of Sociology, University Pablo de Olavide, Seville, Spain, ⁵ Department of Public Health, University of West Florida, Pensacola, FL, ⁶ Department of Population Health Sciences, University of Central Florida, Orlando, Florida, USA

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Background

There are important racial and geographic disparities linked with obesity and diabetes in the USA. Latinx residing in rural areas face a unique combination of factors that can exacerbate existing healthcare disparities, increasing the prevalence of diabetes.

Methods

Qualitative study using focus groups was carried out between November 2014 and February 2015. The six focus groups were evenly split between Miami (Miami-Dade) and Pensacola (Escambia County) both in Florida. A total of 57 Latinx, 40 years and older, were recruited for a 60-minute session. Baseline demographic and clinical information were collected using a questionnaire before starting the focus group. Open-ended questions recorded participants' perceptions about obesity and diabetes and barriers to health care. Theme analysis was conducted for each question and across the groups.

Results

While most Hispanics understood that diabetes is a serious disease, neither those in Miami nor Escambia understood the difference between type 1 and 2 diabetes. Those in Miami had more knowledge about its long-term effects and expressed less language, communication and cultural barriers compared to those in Escambia.

Conclusions

There is a need to promote culture-appropriate health education programs geared towards raising awareness about diabetes in both communities but especially in rural communities.

The National Diabetes Statistics reported in 2020 that close to 10% of Americans (34.2 million people) suffer from diabetes, yet about 21.4% of diabetics do not know that they have this condition.¹ Undiagnosed type 2 diabetes mellitus (Type 2 DM) can lead to a wide range of life-threatening complications and increases the risk of hypertension, atherosclerosis, and stroke.² If left untreated or if improperly managed, it can also damage the blood vessels in the retina and possibly result in blindness—over time.³ Although Latinx make up close to 23% of the population, they have disproportionally higher rates for diabetes (12.5%) compared to non-Hispanic Blacks (11%) and non-Hispanic Whites (7.5%).⁴ Food deserts, inaccessibility to healthy food, and under-developed built environments

increase health disparities in the Latinx community. The disease burden of Type 2 DM (a chronic disease that results in elevated blood glucose levels due to under production or inefficient utilization of insulin) is higher in the Latinx population than in White population.⁵ About 90-95% of all diabetics have Type 2 DM.¹

Obesity is a risk factor for the development of Type 2 DM since it increases the production of proinflammatory markers that promote insulin resistance and the development of Type 2 DM.⁶ According to the Centres for Disease Control and Prevention (CDC), 42.4% of US adults are obese, and 9.2% are severely obese.⁷ The rate of obesity in United States, is projected to increase by 2030 with 48.9% of the adult population classified as obese.^{8,9} The prevalence of

obesity among Latinx (44.8%) has been found to be higher than in non-Hispanic whites (42.2%)⁷ in Southern US States. In Florida, prevalence increased from 25.2% in 2009 to 30.9% in 2019 with 34.2% of these consisting of Latinx adults and 29.9% consisting of White adults.¹⁰ The higher rate of physical inactivity among Latinx (33.7 %) compared to Whites (23.7%), may be a contributing factor to the increased rates of obesity in this population.¹⁰ Several studies find that poverty, time, and transportation issues are structural barriers to physical exercise in Latinx communities.¹¹ While consumption of high-sugar and high-fat foods increases the risk for obesity and Type 2 DM,^{12,13} location can reduce access to diabetes education in rural areas, as well as access to healthcare providers thereby increasing disparities. People living in rural areas were 57% less likely to receive diabetes education¹⁴ and had a higher prevalence of diabetes (8.6%) compared to those living in urban areas.¹⁵ Although diabetes would normally require more ambulatory care than inpatient care, access to healthcare remains a barrier to Type 2 DM management. Health complications and other co-morbidities related to Type 2 DM increase the risk of hospitalization and Hispanics are more likely to have Type 2 DM related hospitalization than Whites.^{16,17} In 2019, Florida's hospitalizations rate (age-adjusted) due to diabetes was 2.89/100,000 people in Escambia county compared to the whole state of Florida (2.3/100,000 people) and with the rate in Miami-Dade (2.3 hospitalizations per 100,000 people¹⁸). Studies have shown however, that reduced self-care is more prominent in people from lower socioeconomic status (SES) because of the financial constraints and inability to purchase healthy food options, a lack of adequate insurance coverage and health literacy inadequacies—possibly due to language barriers¹⁹—which may explain the higher prevalence of diabetes in Hispanic populations relative to white populations.²⁰

This study aims to identify knowledge, perceptions, and barriers to preventative care for Type 2 DM and obesity in Latinx populations in an urban and a rural setting in Florida and will provide specific guidance for health interventions and community initiatives to help manage chronic health conditions and reduce the burden of diabetes and obesity in minority populations.

METHODS

PARTICIPANTS

Six focus groups in total were conducted in two different areas of Florida, on a total of 57 participants recruited by convenience sampling. Three Hispanic focus groups were conducted—by appropriately trained facilitators – in Miami's Miami-Dade County ($n = 26$) and three focus groups in Pensacola's Escambia County ($n = 31$) from November 2014 to January 2015. There were approximately nine participants per focus group. Other studies like Villalba (2020), Fukunaga (2011) and Chang (2018) have used similarly large number of groups in their study.^{21–23} The research protocol was approved by the Institutional Review Board of University of West Florida where the study was initiated.

PROCEDURE

Hispanics adults 40 years and older (male and female) living in Pensacola (Escambia) and Miami counties were recruited from community centers, churches, and community houses. Flyers were used as a mode of information for participant recruitment. Focus groups were conducted in private rooms located in churches and community centers. Properly trained MPH students obtained written consent from the participants before facilitating the focus groups with 60-minute sessions. One of the researchers was also present to assist with notetaking. A semi-structured, focus group discussion guide was developed to assist facilitators. Participants were asked to fill out a brief two-three minutes questionnaire based on their clinical and sociodemographic characteristics. Demographic data on age, sex, educational level, health insurance and diagnosis of Type 2 DM by a physician were collected at baseline.

Focus groups were conducted in Spanish or English and in each focus group, participants were given a chance to talk about their knowledge, perceptions and barriers regarding diabetes and obesity. They were allowed to describe prevention programs and health care suggestions for diabetes and obesity. Focus group interviews were audio-taped, translated into English where necessary, and transcribed for analysis. Participants were provided with incentives (gift cards) as a token of appreciation for participating in the study.

DATA COLLECTION

This qualitative study analyzed data from six focus groups in Florida and provided qualitative insight into obesity and diabetes in urban/rural Hispanic communities. The focus group interviews were open-ended questions framed to record participants' perceptions regarding obesity and diabetes, and record barriers regarding obesity and perceptions among the participants. A total of eight questions, divided into two blocks and requiring unstructured text responses were asked. The first block of four questions ('Do you think obesity is an important issue in your community?', 'Do you think that diabetes is an important health problem?', 'Do you know what Type 2 Diabetes is?' 'Did you check your blood glucose sugar level (glucose) during the last year?') were based on knowledge, awareness and attitudes regarding obesity and diabetes.

The second block—questions five to eight ('Do you think obesity and diabetes are preventable?', 'Are you aware of any prevention activities/campaigns regarding obesity and diabetes in your community?', 'What are some of the ways to improve prevention of obesity and/or diabetes for people in your community?', 'What advice would you give to the healthcare providers about how to help their Hispanic patients with obesity and/or diabetes?')—addressed the prevention and health care aspects of both chronic diseases. Demographic information on age, gender, and the highest level of education (less than high school, high school diploma or GED, some college studies, college degree or graduate studies) were also recorded. Clinical characteristics were self-reported and collected information on health

Table 1. Socio Demographic and clinical characteristics by location (n=57).

Participants	Escambia N (%)	Miami N (%)
Age range	40 - 73	41- 69
Sex (F /M)	24/7 (77.4% F)	18/ 8 (69.2% F)
Educational level		
Less than high school	14 (45.1 %)	11(42.3%)
High school diploma or GED	15 (48.3%)	12 (46.1%)
College degree	2 (6.4 %)	3(11.5%)
Graduate studies	0	0
Overweight/ Obese	3 (9.6%)	4 (15.3%)
Diagnosed with Type 2 DM	4(12.9 %)	5(19.2%)
Insurance (Y/N) %	12 /19 (38.7/ 61.2) %	12/14 (46.1/ 53.8) %
TOTAL	N= 31	N=26

Abbreviations: F= Female, M = Male, GED = General Education Diploma, DM = Diabetes Mellitus, Y = Yes, N = No.

insurance, annual checkup of glucose level and diagnoses with Type 2 DM by a physician. Our data collection approach for demographic data is similar to the approach applied by other studies like Villalba (2020), Bosma et al (2020) and Fukunaga (2011).^{21,22,24}

DATA ANALYSIS

Hispanics' perceptions and barriers regarding diabetes and obesity were examined using an exploratory descriptive qualitative approach. This qualitative approach provided step by step information about the impact(s) of experiences, perceptions and barriers of Type 2 DM and obesity on health. The focus groups helped identify barriers to care and participants' perceptions on obesity and Type 2 DM among Hispanics in two geographical locations.

The analytic qualitative study design used guidelines for focus groups provided by Fern²⁵ and Krueger²⁶ in 2001 and 2002 respectively. Audio-recorded focus group discussions were transcribed by a professional transcriptionist for data analysis and future reference. The researchers verified the accuracy of the transcripts using the audio recordings. Researchers summarized responses to each theme for each location and compare this information within and across the groups for both geographical areas, Miami and Escambia. Comparison and thematic summarization were used for the data analysis and interpretation.

RESULTS

PARTICIPANT CHARACTERISTICS

The age of participants in Escambia ranged from 40 to 73 years, most of them were female (77.4%) vs 69.2 % male, and about 93.4% either completed high school or had less than high school education. Miami presented a higher proportion of overweight/obese participants (15.3%) compared to Escambia (9.6%). About 12.9 % of participants were diagnosed with Type 2 DM in Escambia compared to 19.2% in Miami, and over half lacked health insurance in Escambia (61.2 %) and Miami (53.8 %) as seen in [Table 1](#).

Table 2. Themes identified among Hispanics in Escambia and Miami.

Theme
<ul style="list-style-type: none"> • Importance of diabetes and obesity • Knowledge and awareness about diabetes and obesity • Prevention campaigns in their community • Recommendations to improve prevention in diabetes/obesity • Recommendations to health care providers to improve access to health care

THEMES

The emerging themes identified were 1) Importance of diabetes and obesity; 2) Knowledge and awareness about Type 2 DM; 3) Knowledge of prevention campaigns 4) Recommendations to improve prevention in diabetes/ obesity and 5) Recommendations to health care providers to improve access to health care ([Table 2](#)).

THEME 1: IMPORTANCE OF DIABETES AND OBESITY

Most of the participants in both locations considered diabetes and obesity as important health issues. In general, they identified some risk factors and established the link between obesity and diabetes, and between eating habits and diabetes. However, in both locations, most had difficulties identifying how diabetes affects health and the body in the long term.

THEME 2: KNOWLEDGE AND AWARENESS ABOUT TYPE 2 DM

Most participants were uncertain about the causes and outcomes of diabetes.

They mention that most people lacked awareness about this disease. Almost none of participants could properly describe and distinguish between Type 1 and Type 2 DM but most knew that diabetes is a long-life disease with no cure. One participant linked the type of diabetes with social class and another with genetics.

THEME 3: KNOWLEDGE OF PREVENTION CAMPAIGNS IN THEIR COMMUNITY

Participants in Escambia County mentioned the lack of any campaigns or prevention activities in their area unlike those in Miami who had more options, exposure to health education or prevention initiatives but identified the lack of time or difficulties with information accuracy.

THEME 4: RECOMMENDATIONS TO IMPROVE DIABETES/OBESITY PREVENTION

Most participants identify education and change in diet as the best strategies for prevention of diabetes and obesity. Several participants suggested the idea of "support groups" after the "good" experience with the focus group.

THEME 5: RECOMMENDATIONS TO HEALTH CARE PROVIDERS TO IMPROVE ACCESS TO MEDICAL CARE

Both geographic communities reported feeling that physicians do not help in their understanding of diabetes because of the lack of empathy, cultural understanding, and time. Interestingly, rural respondents did not focus on limitations of their environment (e.g., isolation); yet urban respondents highlighted features of their environment, including hot weather and lack of sidewalks as barriers to exercise, and contributing to obesity.

Almost all participants pinpointed the barriers and difficulties dealing with accessibility to health care services. They identified language as a barrier, the lack of translators, lack of insurance and health care providers that do not have empathy. Most of them suggested a better communication with the doctor, more health education and doctors who care more about the patients. We observed that participants in Pensacola elaborated with more details in comparison to those in Miami.

DISCUSSION

The findings in this study depict the challenges and limitations that Latinx populations face when managing diabetes. Participants in both locations identified the importance and severity of being diabetic and linked unhealthy diet, lack of exercise and obesity. When we explored knowledge, some participants were able to describe the long-term effects of DM such as kidney disease, heart attack, stroke and possibly death. Particularly, Miami participants exhibited higher knowledge in this matter. Participants in both communities were not able to distinguish between Type 1 DM and Type 2 DM.

Several studies highlight how perception and knowledge are vital to self-management and outcome of chronic diseases. One study was found to be the most recurring reasons for non-adherence to treatment in Type 2 DM patients.²⁷

Some challenges experienced by our study participants include lack of culture-sensitive information, language barriers, financial barriers, and barriers to medical care access.

Most of the participants lacked knowledge about the cause of diabetes and many mentioned diet/exercises as the most relevant contributing factor(s). Participants living in the rural area (Escambia) presented a higher proportion of no health insurance, resulting in a barrier to accessing regular annual checkups and higher limitation to resources. Thus, a diabetes diagnosis and visits to a healthcare provider may not be enough to raise a patient's awareness and to improve their knowledge of their disease.¹⁷ Most of the participants in this study mentioned how language barrier, communication and lack of health education were the main areas for improvement in diabetes management. Therefore, culture-appropriate patient education which uses bilingual, low literacy resources may be beneficial in improving Type 2 DM care among the Latinx community. Although a 2011 systematic review found that self-management of diabetes and patient adherence to treatment regimens can be affected by both the patient's beliefs, attitudes and knowledge of the disease as well as the clinician's beliefs and perceptions,²⁸ a more recent study found that an awareness of disease severity and an understanding of critical disease management strategies by study participants was not enough to ensure daily diabetes management.²⁹ This is in line with our findings. Participants in our study identified the need for different information avenues like support groups (similar to Alcoholic Anonymous) or provision of a space to discuss these topics.

There are barriers to Type 2 DM care/management in Hispanics both at patient and health provider levels. In the last question, regarding suggestion to health care providers, (Theme 2), participants requested more empathy and dedication from health care providers. A recent study showed that a diagnosis of diabetes and visits to a healthcare provider are not sufficient cues to action for the diabetic patient, perceptions, beliefs, and other factors need to be considered in the management of their disease.¹⁷ Also, tradition and culture also influence perceptions, so that an absence of cultural sensitivity on the health provider's part may result in miscommunications that then create barriers to care.³⁰

Hispanics have on average, lower household incomes, are more likely to have no health insurance and to be worried about the medical expenses linked to diabetes care than their white counterparts. This study shows that, language barrier (a proportion of the Hispanic population do not speak English), access to healthy food and quality healthcare which are usually linked to residence/location, can be barriers to Type 2 DM care.³⁰ Rural residents face a unique combination of factors that create disparities in health(care) which may not be found in urban residents.¹⁵ This makes the prevalence of Diabetes higher in Hispanics and rural residents compared to non-Hispanic Whites and urban residents.

STRENGTHS AND LIMITATIONS

One of the most important strengths of this study was that participants were recruited from a diverse source of sites (churches, community health center, cultural center etc.), varied ages, and backgrounds or neighborhoods of

Table 3. Knowledge, attitudes and perceptions about Obesity and Type 2 DM by location.

Pensacola (Escambia County)	Miami (Miami- Dade County)
Theme 1: Importance of Obesity and Type 2 DM by location	
<p>"It's also dangerous because obesity doesn't allow your heart to function properly, and your blood doesn't flow properly through your arteries. It gets complicated, right, and it can even cause your blood pressure to rise." "Obesity causes pain in your knees, back, legs, and affects your cholesterol."</p> <p>"Many obese people have diabetes. I think there are few thin people who have diabetes too." "I know many Latin people who have diabetes, but most don't. But it's a bad illness that it limits you. Latin people love sweet food sweet desserts. Sweets and greasy food."</p> <p>"Because obesity cause health disorders like palpitations, diabetes, and other health issues, such as tiredness. Obesity brings forth a whole bunch of illnesses." "Yes, there is problem with obesity because the lack of exercise, exactly. Everything here is drive, drive, drive." "It's because of lack of exercise, yes, and what we eat, the larger portions restaurants serve."</p>	<p>"Obesity is not healthy at all and, like she said, it affects your heart. It does affect your respiratory system." "Diabetes is very, very serious but there is no solution." "Obesity affects you in many ways. It makes you tired. Obesity can you make more prone to diabetes."</p> <p>"Because of the type of food they eat. I don't want to discriminate, but they say that black people have a higher probability of developing diabetes than Hispanics or white people."</p> <p>"There's a whole bunch of things that obesity causes. I think it's extremely bad – it can give you cholesterol, high blood pressure, etc." "Super important. Diabetes affects your kidneys." "People eat what they like most. Yep. What we like most, and that's what hurts more." "Look a young friend of mine has diabetes. She didn't take care of herself and they had to cut off some toes from one of her feet."</p>
Theme 2: Knowledge and awareness about Type 2 DM	
<p>"Nevertheless, people who have it or who know that they have it don't take their health into consideration. They think it's something, let's say, like a cold because of the symptoms and they don't take additional precautions. That's the important part of diabetes that, well, you have to really consider taking care of yourself."</p> <p>"I know there are two. Type 2 is the worst kind. I know that one is of minimal concern and the other one has higher risks."</p> <p>"Diabetes is an illness in which you have to take medication, but it would no cure it. You have to keep a lifetime treatment."</p> <p>"They also say it depends on your class. If you're of middle-class or high-class, you're supposedly more likely to use insulin than someone of low income."</p>	<p>"Well, the first is -- well, Type 1 DM is when you have it at a very young age -- as children and adolescents. Type 2 DM is when you're an adult, which is more serious."</p> <p>"Type 2 is stronger or they're the same. I don't know. I think it's stronger. Type 2 is stronger"</p> <p>"Insulin helps the body work and prevents diabetes. It lowers sugar."</p> <p>"Type 2 is when the body doesn't absorb the insulin."</p>
Theme 3: Knowledge of prevention campaigns in the community	
<p>"There is nothing. There is nothing. Everything is about cancer and asking for money for everything."</p> <p>"No. No. Not here."</p> <p>"Nothing, nothing"</p>	<p>"There are some. What happens is that we live in such a large city that it's not easy for people to go. For example, you have a YMCA where kids can exercise, and they can be active."</p> <p>"Well, I'm sure there are. The problem is we need to look for it. We don't really check to see if there are any or not, because we get home from work, have dinner, and go to bed."</p> <p>"Yes. I have classes with a nutritionist and sometimes they'll take us to the grocery store to learn how to read the products and learn about the carbs and sodium -- all those things that products have. So, in that sense, yes, they do." "Well, I don't know about that, but I live close to the hospital. They haven't really advertised it on the street."</p>
Theme 4. Recommendations to improve diabetes/ obesity prevention.	
<p>"Help them to be preventative and getting annual check-ups I think all this is a matter of education. Education. I'm not taking about bad manners or anything like that, but rather, educate them so that they know that it's an illness that anyone can get but that anyone can get treatment to cure it."</p> <p>"Educating yourself."</p> <p>"Getting on a diet, but that's expensive." It'd be a good idea, for example, for a hospital or even our doctors to have a dedicated office or a special area designated for you to practice what the doctor tells you to do because sometimes the doctor will tell you do this, but we don't know find a place to do it. Then we forget what they said -- some stuff."</p> <p>"Like other illnesses have where they get together, and they do something similar to what we're doing. Or for example people</p>	<p>"It's also the lifestyle we have here in the U.S because in my country we walk everywhere, walk, walk, walk. Here, everything is easy. Drive-thru -- you go through drive-thru -- everything: change these lifestyles!"</p> <p>"Form a group to give a class."</p> <p>"Cubans, for example, we're used to eating rice, bread, cookies, black beans, pork. So sometimes it -- and also the way on how we prepare our food can also affect us, right? So, what can you do to make your culture's food a bit healthier to prevent diabetes? Cook with olive oil"</p> <p>"Good nutrition, and being calm, and get medical check-ups, right?"</p>

who have diabetes can get together and say, well, look, this week I was good, just like Just like Alcoholic Anonymous"

"But it'd be nice to have a campaign to show publications on TV or -- so that parents can -- just the same as they play on the computer with the Gameboy and -- Video games.

"There should be more education for the people who live in this community."

Theme 5. Recommendations to health care providers to improve access to medical care.

"The cost. And some don't have legal residency. It shouldn't matter if you have your papers, where you're from or how you are or if you work or not. The U.S. should cover those fees. They should help people in need."

"More education."

"Language is also very important because many times we don't understand what's happening. Why? Because we don't know English and there aren't any translators where we go. You want to educate yourself. You want to do things, but you can't. You have that language barrier." "Hispanic doctors who speak our language. I think it would help us to get healthier, go to the doctor more often."

"Yes. Doctor involved in patient's life because each patient is different."

"You enter and it's a person who you don't think will understand you and it's a cold, distant person and you close yourself off. If you get a guy like those who aren't very friendly, you'll shut yourself off, but if you get a person who is kind, caring, and can speak to you in Spanish, it is different."

"Be more humane, yes, yes, or more professional too. If that's your profession, well, I mean." "Explain more things to them"

The doctors here don't explain anything. What do they ever explain to patients? Nothing."

"Talk to them more in a way that they'll understand."

"I think doctors owe their patients—whether they think so or not -- but at least demonstrate a bit of interest rather than you being there only to sign their paycheck. And the majority -- I won't say that all doctors are the same because that's not true, but I know that everything here is about money and it's much more important to them to follow the money than saying, well, this person"

"More communication with patients A doctor who inform me better. My doctor has never given me information on diabetes or other diseases."

"It's good and important that there are Spanish-speaking doctors because there are a lot of people who don't speak English. The doctors will go on and on and on, but we don't understand anything. I mean, I say yes, yes. We say yes, yes, yes, but we don't really understand what the doctor said."

"Better communication and especially on how to eat healthy and exercise."

"You need someone (Dr) to converse with, someone to guide you, someone to tell you that you need to do it, right, motivate you, get them excited."

"Provide more education about diet"

residence which provided rigor and enhanced the information obtained in this study. One potential limitation of this study was that most participants were female which may have limited the perspective of the current situation. However, other studies have used similarly higher proportion of participant women in their focus groups.^{31,32} This limitation also allows for the possibility of conducting further studies with a focus on male participants.

CONCLUSIONS

Participants in both communities showed an important lack of knowledge about the causes, risk factors and long-term effects of diabetes. Both communities identified individual and economic factors (e.g., exercise, diet, education & lack of medical insurance, time,) as problems related to obesity and diabetes. Both locations depicted the difficulty to distinguishing between Type 1 and Type 2 DM. They identified the lack of specific programs or campaigns, especially in Escambia (rural area). Escambia participants asked for more education in the health care, more empathy support groups. Miami, in comparison to the rural area, felt grateful

for having some resources and better access to medical care. The findings from this study contributes to extend the insights of lack of information and barriers to preventive medicine and health care. Approaches to improve diabetes rates in Florida's rural Hispanic communities should include community organizations that promote culture sensitive and place-based interventions.

This study establishes the groundwork to develop further studies. Considering that the majority of the participants were female, one priority is to develop studies which include a higher proportion of males, or that consists of only male participants. This stems from the need to develop further studies on health literacy among Hispanics. It also identifies the need for cultural competence among health care providers. Including the perspective of Hispanics' health needs alongside those of the health care providers in further studies, can bring the other side of the equation to the forefront, and result in increased access to health services, and in the long run, to improve health status of Hispanics in the US.

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ETHICS APPROVAL

This study was approved by the IRB of West University (Florida) November 4, 2014.

CONSENT TO PARTICIPATE

We used two consents: Consent to participate and consent to be recorded were collected. Both are in English and Spanish, and a copy of the whole consents are available.

CONSENT FOR PUBLICATION

All data are unidentified. Consent to quote was obtained as part of the general consent (above).

AVAILABILITY OF DATA AND MATERIAL

Focus group recording in Spanish are available and stored by the PI. Transcribes from Spanish to English are also available from the PI.

AUTHORSHIP CONTRIBUTIONS

M. Pilar Martin – PI, study design, collection of data and analysis. C. Obioha – data analysis, writing and editing. S Gaikwad, A. Padron-Monedero, MJ del Pino and K. Villalba - writing and editing.

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COMPETING INTERESTS

The authors completed the Unified Competing Interest form at <http://www.icmje.org/disclosure-of-interest/> (available upon request from the corresponding author) and declare no conflicts of interest.

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REFERENCES

1. Centers for Disease Control and Prevention. National Diabetes Statistics Report; 2020. Accessed August 25, 2020. <https://www.cdc.gov/diabetes/library/features/diabetes-stat-report.html#:~:text=New%20in%202020%2C%20the%20report,1%20in%2010%E2%80%944ha ve%20diabetes>
2. Petrie JR, Guzik TJ, Touyz RM. Diabetes, Hypertension, and Cardiovascular Disease: Clinical Insights and Vascular Mechanisms. *Can J Cardiol*. 2018;34(5):575-584. doi:10.1016/j.cjca.2017.12.005
3. Duh EJ, Sun JK, Stitt AW. Diabetic retinopathy: current understanding, mechanisms, and treatment strategies. *JCI Insight*. 2017;2(14). doi:10.1172/jci.insight.93751
4. McCurley JL, Gutierrez AP, Gallo LC. Diabetes Prevention in U.S. Hispanic Adults: A Systematic Review of Culturally Tailored Interventions. *Am J Prev Med*. 2017;52(4):519-529. doi:10.1016/j.amepre.2016.10.028
5. Flegal KM, Carroll MD, Ogden CL, Curtin LR. Prevalence and trends in obesity among US adults, 1999-2008. *JAMA*. 2010;303(3):235. doi:10.1001/jama.2009.2014
6. Al-Goblan AS, Al-Alfi MA, Khan MZ. Mechanism linking diabetes mellitus and obesity. *Diabetes Metab Syndr Obes*. 2014;7:587-591. doi:10.2147/dms.o.s67400
7. Hales CM, Carroll MD, Fryar CD, Ogden CL. Prevalence of obesity and severe obesity among adults: United States, 2017-2018. 2020;NCHS Data Brief No 360. <https://www.cdc.gov/nchs/products/databriefs/db360.htm>
8. Ward ZJ, Bleich SN, Cradock AL, et al. Projected U.S. State-Level Prevalence of Adult Obesity and Severe Obesity. *N Engl J Med*. 2019;381(25):2440-2450. doi:10.1056/nejmsa1909301
9. Filipp SL, Cardel M, Hall J, et al. Characterization of adult obesity in Florida using the OneFlorida clinical research consortium. *Obes Sci Pract*. 2018;4(4):308-317. doi:10.1002/osp4.274
10. America's Health Rankings. *Trend: Obesity - Hispanic, Florida, United States. Annual Report.*; 2019. Accessed June 21, 2020. <https://www.americashealthrankings.org/explore/annual/measure/Obesity/state/FL>
11. Chang C, Khurana S, Strodel R, Camp A, Magenheimer E, Hawley N. Perceived barriers to physical activity among low-income latina women at risk for Type 2 diabetes. *Diabetes Educ*. 2018;44(5):444-453. doi:10.1177/0145721718787782
12. Skelly AH, Dougherty M, Gesler WM, Soward ACM, Burns D, Arcury TA. African American beliefs about diabetes. *West J Nurs Res*. 2006;28(1):9-29; discussion 30-41. doi:10.1177/0193945905280298
13. Head BJ, Barr KL, Baker SK. Mexican American parents' perceptions of childhood risk factors for type 2 diabetes. *J Sch Nurs*. 2011;27(1):51-60. doi:10.1177/1059840510392050
14. Strom JL, Lynch CP, Egede LE. Rural/urban variations in diabetes self-care and quality of care in a national sample of US adults with diabetes. *Diabetes Educ*. 2011;37(2):254-262. doi:10.1177/0145721710394875
15. O'Connor A, Wellenius G. Rural-urban disparities in the prevalence of diabetes and coronary heart disease. *Public Health*. 2012;126(10):813-820. doi:10.1016/j.puhe.2012.05.029
16. Caballero AE. Diabetes in the Hispanic or Latino population: genes, environment, culture, and more. *Curr Diab Rep*. 2005;5(3):217-225. doi:10.1007/s11892-005-0012-5
17. Ceballos RM, Coronado GD, Thompson B. Having a diagnosis of diabetes is not associated with general diabetes knowledge in rural Hispanics. *J Rural Health*. 2010;26(4):342-351. doi:10.1111/j.1748-0361.2010.00299.x
18. Florida Department of Health. *Hospitalizations From Or With Diabetes*. Florida Department of Health, Division of Public Health Statistics & Performance Management Accessed April 8, 2021. <http://www.flhealthcharts.com/charts/OtherIndicators/NonVitalIndDataViewer.aspx?cid=0334>
19. Rustveld L, Pavlík VN, Jibaja-Weiss ML, Kline KN, Gossey J, Volk RJ. Adherence to diabetes self-care behaviors in English- and Spanish-speaking Hispanic men. *PPA*. 2009;3:123-130. doi:10.2147/ppa.s5383
20. Hu J, Amirehsani K, Wallace DC, Letvak S. Perceptions of barriers in managing diabetes: perspectives of Hispanic immigrant patients and family members. *Diabetes Educ*. 2013;39(4):494-503. doi:10.1177/0145721713486200

21. Villalba K, Cook C, Dévieux JG, et al. Facilitators and barriers to a contingency management alcohol intervention involving a transdermal alcohol sensor. *Heliyon*. 2020;6(3):e03612. [doi:10.1016/j.heliyon.2020.e03612](https://doi.org/10.1016/j.heliyon.2020.e03612)
22. Fukunaga LL, Uehara DL, Tom T. Perceptions of diabetes, barriers to disease management, and service needs: a focus group study of working adults with diabetes in Hawaii. *Prev Chronic Dis*. 2011;8(2):A32-A32.
23. Chang E, Choi S, Kwon I, et al. Characterizing beliefs about stroke and walking for exercise among seniors from four racial/ethnic minority communities. *J Cross Cult Gerontol*. 2018;33(4):387-410. [doi:10.1007/s10823-018-9356-6](https://doi.org/10.1007/s10823-018-9356-6)
24. Bosma AR, Boot CRL, Schaafsma FG, Anema JR. Facilitators, barriers and support needs for staying at work with a chronic condition: a focus group study. *BMC Public Health*. 2020;20(1):201. [doi:10.1186/s12889-020-8320-x](https://doi.org/10.1186/s12889-020-8320-x)
25. Fern EF. Focus group research. In: *Advanced Focus Group Research*. SAGE Publications, Inc.; 2001:264.
26. Krueger RA. *Designing and Conducting Focus Group Interviews*. Vol 18.; 2002.
27. Kugbey N, Oppong Asante K, Adulai K. Illness perception, diabetes knowledge and self-care practices among type-2 diabetes patients: a cross-sectional study. *BMC Res Notes*. 2017;10(1):381-381. [doi:10.1186/s13104-017-2707-5](https://doi.org/10.1186/s13104-017-2707-5)
28. Nam S, Chesla C, Stotts NA, Kroon A, Janson SL. Barriers to diabetes management: patient and provider factors. *Diabetes Research and Clinical Practice*. 2011;93(1):1-9. [doi:10.1016/j.diabres.2011.02.002](https://doi.org/10.1016/j.diabres.2011.02.002)
29. Nabolsi MM. Perception of diabetes management and cardiovascular disease risk among men with type 2 diabetes: A qualitative study. *Nurs Open*. 2020;7(3):832-840. [doi:10.1002/nop2.458](https://doi.org/10.1002/nop2.458)
30. Cersosimo E, Musi N. Improving treatment in Hispanic/Latino patients. *Am J Med*. 2011;124(10 Suppl):S16-S21. [doi:10.1016/j.amjmed.2011.07.019](https://doi.org/10.1016/j.amjmed.2011.07.019)
31. Canedo JR, Wilkins CH, Senft N, Romero A, Bonnet K, Schlundt D. Barriers and facilitators to dissemination and adoption of precision medicine among Hispanics/Latinos. *BMC Public Health*. 2020;20(1):603. [doi:10.1186/s12889-020-08718-1](https://doi.org/10.1186/s12889-020-08718-1)
32. Varela A, Jandorf L, Duhamel K. Understanding factors related to Colorectal Cancer (CRC) screening among urban Hispanics: use of focus group methodology. *J Cancer Educ*. 2010;25(1):70-75. [doi:10.1007/s13187-009-0015-z](https://doi.org/10.1007/s13187-009-0015-z)