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The Starr County Border Health Initiative: Focus Groups on Diabetes Prevention in Mexican Americans

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Abstract

Purpose—The purpose of the study was to conduct focus groups with Mexican Americans in an impoverished rural community on the Texas-Mexico border to identify current barriers to adopting healthier lifestyles and to obtain recommendations for diabetes prevention.

Methods—Three separate two-hour focus groups were led by an experienced bilingual Mexican-American moderator. Interviews included questions about cultural factors and barriers that influence lifestyle behaviors, aspects of previous DSME interventions that were helpful for motivating behavioral change, and recommendations for diabetes prevention.

Results—Twenty-seven participants attended a focus group session; each session involved 7 to 12 informants. Individuals were diagnosed with pre-diabetes or T2DM; the majority were female, foreign born, and Spanish speaking. Interviews documented the cultural importance of food. Informants raised priority issues for diabetes prevention, including the need to learn *how* to

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prepare healthier foods and track caloric intake. Major barriers to healthier lifestyles included high costs of healthy foods, fatigue from busy schedules and working multiple jobs, a cultural view that exercise is a waste of valuable time, and fear of deportation.

Conclusions—Cultural influences and barriers to implementing healthy lifestyles should be assessed regularly and strategies implemented to overcome them. Such factors may change as environmental, sociocultural, and political environments change.

Forty-eight U.S. counties in four states border Mexico and many of these communities are similar with respect to high rates of poverty, pollution, and type 2 diabetes (T2DM).[1] For almost 30 years, these researchers have been conducting diabetes self-management (DSME) research on the Texas-Mexico border in Starr County, one of the poorest counties in Texas with 40% of the population living in poverty.[2] The diabetes prevalence in Hispanics, as well as diabetes-related death rates, is significantly higher when compared to non-Hispanic Whites.[3,4] While the culturally tailored, community-based DSME program developed and tested in Starr County was associated with clinically and statistically significant A1C reductions ranging from 1.4% to 1.7%,[5,6] major challenges in achieving these A1C improvements were primarily due to the lack of personal resources and cultural influences among these border residents. Clearly, a superior approach, particularly for individuals residing in impoverished communities, would be to prevent, or at least delay, diabetes onset when possible.

The lifestyle arm of the national Diabetes Prevention Program (DPP)[7] involved a healthy diet and increased physical activity, which resulted in a 58% reduction in diabetes prevalence in individuals already diagnosed with impaired glucose tolerance (IGT). Findings were consistent across ethnic groups and the benefits were sustained 10 years after study completion.[8] A substantial subsample of Hispanic participants was included in the DPP but these individuals mostly resided in large, ethnically diverse urban areas,[9,10] in contrast to Starr County, an impoverished rural, predominantly Hispanic community. In previous Starr County studies, non-diabetic family members of the diabetic participants also benefited from the DSME program, with fewer in the experimental group, compared to the control group, converting to diabetes over a three-year period.[11] Thus, the successful culturally tailored DSME strategy is being adapted into a primary prevention intervention, with plans to test its impact on Mexican Americans with prediabetes.

The purpose here is to describe the results of Starr County focus groups that were held in September 2017 to refine intervention aspects in the context of diabetes prevention prior to conducting a clinical trial of the program. The main goals of the focus groups were to: 1) confirm the planned diabetes prevention strategies; 2) obtain input into any new barriers to adopting healthier lifestyles and recommendations for the intervention from residents of the community; and 3) identify new community resources that could be accessed to enhance project goals, e.g., sites where people can engage in physical activity.

Methods

Research Design

Focus groups, a form of qualitative research, were arranged for the purposes of generating community input into the development of a culturally tailored diabetes prevention strategy. Focus groups increase community "buy in" and have been a key factor in the success of past projects conducted in Starr County.[12] Additionally, from a cultural standpoint, focus groups are preferred to individual interviews and allow participants to react to and build upon others' responses in a social, supportive environment.

Recruitment

Participants included individuals recruited from previous DSME studies who were already diagnosed with T2DM as well as other local residents known to have prediabetes. Participants were required to be willing to participate in a two-hour focus group session. Members of the research team had long established relationships with groups targeted for interviews, so no recruitment problems were experienced. Twelve individuals were recruited for each of the three scheduled focus group sessions, keeping the groups rather small so that each person would have an opportunity to express his/her opinions. Participants received a $25 gift card for focus group participation.

Interview Procedures

Procedures for constituting and conducting focus groups followed established guidelines that have been used in the past.[13,14] Individuals were invited to a focus group session held at the Research Field Office located in Rio Grande City, Texas. At the beginning of each session, individuals were reminded of the purpose: to obtain input into the redesign of the former Starr County DSME program to focus on health behaviors — particularly diet and exercise — used to *prevent* diabetes and specifically designed for the Mexican-American culture. The IRB-approved information sheet was reviewed with the group at the beginning of each session. Attendees completed a brief demographic form, which did not involve the collection of any identifying information.

The moderator explained the primary reasons for the focus on Mexican Americans for the planned program: 1) T2DM currently is at epidemic levels in Hispanic and other minority populations, particularly among Mexican Americans; 2) persons with risk factors for diabetes (obesity, family history, history of gestational diabetes, prediabetes) have high rates of conversion to diabetes over time (within 10 years); 3) the nationwide Diabetes Prevention Program (DPP) conducted in persons with prediabetes showed that a healthy lifestyle — healthy eating, losing ~7% of body weight, and increasing physical activity — decreased conversion to diabetes by 58% and these positive benefits were sustained over time; and 4) a DPP-style program has not been evaluated in rural border communities, such as Starr County.

Structured interview questions, with specific probes, are shown in Table 1 and included questions about cultural factors and barriers — environmental, financial — to adopting healthier lifestyles, aspects of previous DSME interventions that were helpful for motivating

behavioral change, and specific recommendations of strategies that would be useful in preventing diabetes in individuals at high risk. A set of separate questions were identified for those informants who had participated in previous DSME studies to obtain their insight based on past personal experiences in a similar program. No more than 12 to 15 questions were asked during each 2-hour session.[15] To eliminate cultural barriers, the moderator was a bilingual, Mexican-American interviewer who had extensive experience conducting focus groups, including previous focus groups conducted by the authors. The moderator met twice with the investigators to develop and refine the interview guide and to be oriented to the targeted population. The moderator was requested to be directive in the questioning, guiding the discussion back to the question and probing for in-depth, comprehensive information. Participants were given opportunities to raise other related topics, if desired. Interview sessions were audiotaped. Focus group participants gave verbal consent for participating and were given a written information sheet to inform their decision to participate. The procedures were approved by the Institutional Review Boards of the collaborating institutions, The University of Texas at Austin and the University of Texas Health Science Center at Houston (UTHealth).

Data Analysis

Data analyses followed established procedures.[16] The transcripts were translated by the moderator into English and then were analyzed, supplemented with the audiotapes. After the focus group sessions were conducted and the English transcripts of the interviews were completed and submitted to the researchers, the moderator was debriefed in a meeting with members of the research team. Data were highly structured and easily coded and summarized. The coding plan involved focused coding to combine or subdivide coding categories, and identified repeating ideas and larger themes that connected codes. A minimum of two separate research team members reviewed transcript data independently to determine coding reliability.

Results

Characteristics of the Sample

Table 2 shows the characteristics of the sample of participants who attended one of the three scheduled focus group sessions. Each group involved from 7 to 12 informants, the majority of which were female (77.8%), born outside of the U.S. (70.4%), and diagnosed with pre-diabetes (70.4%) or T2DM. Sixty-three percent had attended previous DSME programs and 67% spoke Spanish only. The remaining information below is presented according to the sequence of interview questions that were employed in the interviews, as summarized in Table 3. De-identified quotes are inserted to clarify and/or support the perspectives of the interviewees.

Cultural Influences

Food—Individuals strongly emphasized the importance of food in the Mexican-American culture. Food is the basis of most social activities and the preparation of cultural food preferences — rice, beans, tacos, tamales — has been passed down from generation to generation. Individuals stated that they were raised to eat unhealthy foods and to eat until

they felt very full. Previous experiences with health care providers who tended to recommend major changes in eating, particularly those who told them to avoid Mexican-American foods, are viewed as "trying to take our culture away from us." And further, they identified what they perceived to be a common cultural characteristic — "something bad" has to happen (e.g., amputations or other severe health consequences of diabetes) before positive changes in health behaviors are made.

> Our culture. As Mexicans, we eat a lot of meat, tortillas, rice, beans…my mother never gave us any salads. I don't know how to eat salads or vegetables. Our food, the way we were brought-up, we were brought eating barbacoa (Mexican BBQ), chicharron (pork rinds), very tasty. But the doctor says that you need to cut these.

A major influence on food selection in this culture is the cost; foods must be economical due to the limited personal resources common in this community.

> Well-balanced food, a well-balanced meal, does not exist in our culture. Here the tortilla of tacos, and rice and beans and potatoes…we can't have fancy salads, fancy vegetables, extensive fruit selection because fruit is very expensive. So, we stick to what our culture has taught us…and it's economical.
>
> …everything is based in the culture…that's how we were raised. So, trying to not eat a taco is very difficult because that's how we were raised…with a flour tortilla taco…there aren't enough resources. So, the least expensive….

Exercise—From a cultural perspective, it was interesting to hear the perspectives on exercise of the focus group participants. Exercise was not valued in this culture. In fact, exercise was viewed as a "luxury" of the more affluent communities or a waste of valuable time, an activity in which no one should participate since there are more important things to do, such as work. This negative view of exercise was emphasized particularly in discussions about women and exercise.

> …can you imagine my father letting my mother go out to walk…? For exercise? When there is still clothes to wash, something to iron, something to sweep. No, there's no time. So, us women, we were raised with that mentality, there you don't need to go walking… exercise…that's crazy. You can't go and walk around the block…You are a woman. They will see you.

Barriers to Healthier Lifestyles

Healthy Eating—During the focus group sessions, considerable discussion occurred around the topic of food and the numerous barriers, in addition to the cultural barriers mentioned above, that prevented individuals from preparing and eating healthier foods. The issue of cost was raised again here in terms of being a major barrier to eating healthy foods, e.g., vegetables, fruits, and salads, which were perceived as being too expensive compared to fast food options.

> …healthy food?...it's very expensive. A hamburger is cheaper…A junk meal is a lot cheaper than a healthy meal…You can buy yourself a hamburger for a dollar.

> Salads are very expensive, they cost more than $4.00…I bought one for $7.00 with chicken.

In addition to cost, it was also easier to pick up take-out ("junk") food, particularly when considering repeated statements that there is no time to cook.

> …you spend the day working and all you want to do is get home and take a bath, homework, homework with the kids and go to sleep. That's the routine, that's where the bad is because there are no physical activities, there is no time to cook…I want to change my routine…but it's all takeout food…I work three jobs to get ahead...

Several individuals indicated that family members sometimes posed a serious barrier to eating or preparing healthy foods.

> If my husband would eat the same as me, but he wants to eat something I don't want to eat. If I want to eat a salad he doesn't want it…If the family would get adapted a bit…not only with diabetes but those who have obesity, the use of too much fat.

Exercise—The discussions around barriers to physical activity primarily centered around the lack of safe places to walk and the physical labor involved in the jobs that most of the people in this community held. Indoor walking sites are not available and the weather, as well as safety concerns, serve as constant barriers to physical activity. Further, most of the residents work at labor intensive jobs — construction, landscaping, house cleaning — and some work two or even three jobs in order to support their families. So, recommendations for increasing physical activity in this population are not considered seriously and in fact, may not be necessary for some individuals.

> Only walking trail is [directly] on the border; not safe

> But I do a lot of physical work…So, I have maintained my health, or the level of my health with diabetes, with the physical work I do…For me, I end up too tired after work. I work in landscaping. I think I burn my calories at work…And it is harder for women because after work there is the housework that needs to be done. One wants to exercise but one gets tired.

Technology Use—Discussions regarding the use of technology — computers, pedometers, smartphones — were of particular interest as researchers were interested in incorporating technology in the refined diabetes prevention intervention. Focus group participants held conflicting opinions about their interest in learning how to use technology, particularly since few of them had access to technologies, such as computers or smartphones. Also, individuals expressed concerns about lack of time to learn new technology skills and they voiced a strong preference for more personal group intervention sessions, stating, "Face-to-face learning is more effective than use of technology."

Health Care Access—Focus group participants frequently made comments regarding perceived barriers to health care access, comparing health care in the U.S. to health services that could be obtained across the border in Mexico.

> Here, if you make a lot or you make less, you don't qualify for insurance. So, in order...to go see the doctor, it's a hundred and ninety something dollars...You work to pay taxes, to do this and that, but I don't qualify for nothing. And you have all these people coming from Mexico and yet they give them everything: healthcare, food stamps, everything. And us as citizens, we don't qualify for nothing.

> They [we] go there [Mexico] and buy medicines…it is much less expensive over there...[for example] dermatitis [treatment]…a small tube…the insurance does not cover…one tube cost $200 [in the U.S.] and in Mexico costs $27.

> They [in Mexico] will give you the same type of treatment that you get here. They give you recommendations on what you should or should not eat…you can see the doctor, they do the tests and within an hour they give you the results. And it is less expensive. The medicines here [in the U.S.] are of lower potency. It can be on purpose; they can get more money because the people have insurance.

Further, some individuals addressed the denial that they and some of their relatives and friends expressed in dealing with health issues.

> And many people don't want to know. If they are sick, leave them alone…The more I know the more I'll worry and the more I will get sick.

Healthier Lifestyles in General—The moderator asked focus group participants to summarize in general any additional barriers that would interfere with individuals in the community adopting healthier lifestyles. These would be the issues that would need to be addressed, if possible, in the planned diabetes prevention program. The group participants cited, or in some cases reiterated, a lack of support in the community for healthier lifestyles, high levels of poverty that interfered particularly with purchasing healthier foods, and the stress of having to work multiple jobs complicated with multiple family responsibilities. In addition, some discussion centered around a fear of deportation that some individuals felt, which interfered with normal daily activities such as grocery shopping.

> In the news last night, I heard of a case of a woman who has lived here for over 30 years. She is in her 60's and they are going to deport her.

Recommendations for Interventions

One of the primary purposes of the focus group interviews was to obtain participant recommendations for refining the planned intervention. Participants' were specifically requested for guidance on how the intervention should address food issues, exercise, use of technology, motivation, and the issue of diabetes in this high-risk community.

Food—The comments related to food were consistently focused on the need to learn how to cook healthier meals and also provide educational resources that were simple and easy to follow.

> Color pages and images. Something that shows a simple recipe that is affordable. A menu of what one can eat each day of the week Monday through Sunday. Some of the older people, they don't know how to read, they go by colors. Simple recipes

> that can be put mainly with images that teach you how to eat…show you the portions…what you are supposed to eat and the quantities too…shows you how to make a small amount of food.
>
> …meet with a nutritionist and she will teach you how to make your meals. Someone that can teach me…a nutritionist or a chef.
>
> It's like chips. People think chips are good…but how many chips are you supposed to eat from there. Me? I would eat the whole bag. But you can't. One doesn't know how much is a portion.
>
> A lot of education is needed…A lot of people don't know about calories. If in a day, you are supposed to eat 240 calories, but if you eat more than a thousand than that is way over. With one donut that is all the calories for the day.

Individuals also emphasized the desire to have dietary instructions personalized to account for their specific daily schedules and accommodate their work schedules.

> …we need a routine to establish consistency on our schedule to get the best results from the effort we were doing with medicine and consuming food. And naturally, exercising…
>
> The timing of the food. When I work all day. It is at 10pm when I eat and after I finish watching my soap operas I eat again before going to bed.

Consistent with previous focus group interviews, participants clearly desired to continue eating their culturally preferred foods but wanted to learn how to prepare them in a healthier manner. Learning how to make more healthy food choices seemed to resonate with these individuals, particularly when eating out, because eating out was more likely the daily routine rather than cooking at home.

> …culturally traditional foods…to make them more healthy…I don't cook. I don't turn on the stove. So, how do I change that routine?
>
> There is no place in particular [in the community] that offers diet food consistently.

And they mentioned a desire to learn how natural remedies could be used to augment their eating habits in order to improve their health and obtain nutrients that they ordinarily don't get in their daily meals.

Exercise—Interestingly, despite earlier negative comments related to exercise, focus group participants had several recommendations related to incorporating physical activity. They suggested that the program involve opportunities for group walking, either at the end of the weekly intervention sessions and/or arranging scheduled group walking opportunities in between sessions. They suggested that the program individualize exercises for participants, based on their age and physical condition, as well as their living environment and work schedule. Given the limiting factors of climate and safety concerns, of particular interest among many of the informants was to learn exercises that could be done at home. Some of the individuals expressed an interest in dancing as an exercise.

> I liked to bike and do TiVo but I injured by knee. Exercises that one can do tailored for age and one's physical condition…There are parks, and gyms that one needs to pay. If there was a place where people with few resources could go.

Technology—Individuals expressed a willingness to learn how to use technology despite earlier indicating little interest in or time for obtaining new technology skills.

> It's never late to learn. We need to learn technology…I used to know, but I forgot it.

Informants stated they were most familiar with text messaging and emphasized the importance of including family members in learning new technology.

> Training family members would be a big help, e.g., Fitbits (or pedometers); give one to family member also.

> I would like to have an application of how many calories that you are taking, or if you are going to a restaurant what you are eating…and counting the calories.

Motivation—These researchers were particularly interested in individuals' recommendations for how study participants' motivation for adopting improved health behaviors could be enhanced. Focus group informants had numerous recommendations, which overall addressed issues such as involving the family (e.g., "family night," family/group counseling); importance of competition between groups ("gaming") with small financial incentives (small prizes, e.g., a useful cooking utensil); setting individualized goals, monitoring progress (especially weight), and recognizing accomplishments; and encouraging healthier behaviors as a means of living longer particularly for their children.

> …put goals so that each person can reach their goals…show how people motivate to eat healthy. Show other people who had something and show them how they are doing now.

> Once someone starts making the changes…they need to be recognized. People like to be told when they look good…yes, recognition.

> Just a small incentive. Something that motivates you. Maybe some pots that can be used. These are not expensive, maybe $15…little gadgets that can also be used to cook the healthy recipes…or a slow cooker.

> So, it could be a contest within a group…The person who lowers their sugar levels, lowering their weight, the one that eats and is healthy with high blood pressure, cholesterol…

Conversations similar to those held during the focus groups were perceived to be an optimal strategy and very helpful, particularly hearing testimonials from persons who have been successful in dealing with or preventing diabetes.

> The way we are talking here about food, this would help to make a change in our food.

Further, individuals recommended that the program staff call participants weekly between classes with reminders, check on progress, provide advice, etc. As in past Starr County

projects, it was recommended that the program be offered in community settings throughout the area near where participants live.

Diabetes—Individuals agreed that they need more knowledge of diabetes – causes, dangers, complications, heredity. Their desire to learn more about diabetes was linked to what and how to teach their children about healthy lifestyles and how to avoid diabetes.

> So, what can we do with our children to tell them it is going to be inherited? You have a great possibility that you will get it, so know what to tell them so they won't eat so much, because diabetes is already in our family.

They also desired to learn how to talk to family members to obtain their support, a key component of any future success in adopting healthier lifestyles.

And finally, during the debriefing session with the focus group moderators, they emphasized two points that reinforced previously identified challenges related to designing culturally tailored programs for this population. They recommended that, although there seems to be an increased proportion of the population who speaks English, classes should continue to be offered primarily in Spanish. During the focus group interviews, the moderators noticed that individuals would switch between Spanish and English languages; it was observed that individuals who spoke English tended to have a good understanding of Spanish as well but individuals who spoke Spanish only did not understand any English. Focus group participants actually recommended that individuals not be separated based on language. They enjoyed helping one another understand what was being said. Lastly, the moderators supported previous research findings in Starr County that *promotoras* would be important members of the program staff, providing logistical support and serving as valuable supporters for general reinforcement. However, they would not be acceptable intervention instructors; nutrition experts were preferred.

Discussion

The intent of the focus groups described here was to obtain information from community residents that would inform the refinement of a previously successful DSME intervention for diabetes prevention. Prior work conducted by these researchers, showing that nondiabetic support individuals attending a DSME program actually reduced their risk for diabetes, suggested that, with some modifications, the intervention could make an even greater impact. The researchers were particularly interested in updating the understanding of the cultural influences that impact healthier lifestyles; environmental, socioeconomic, and any other potential barriers that could prevent individuals from adopting recommended health behaviors; and suggestions for how to motivate individuals, who don't yet have diabetes, adopt preventive health behaviors. To obtain this information, two types of individuals were recruited: 1) persons who were already diagnosed with T2DM (n=8), some of whom had participated in previous intervention studies, and 2) individuals who had been diagnosed with prediabetes (n=19). Informants diagnosed with T2DM would respond to the questions in the context of what they could have done earlier in life to perhaps prevent, or at least delay, diabetes onset. Those with T2DM who had participated in previous intervention studies could draw from that experience and highlight key components of the DSME

intervention that they perceived would be helpful for persons with prediabetes. And finally, individuals with prediabetes could provide guidance within the context of the population that was going to be the target of the refined diabetes prevention intervention.

As expected, focus group participants continuously emphasized the importance of food, both within the discussions centered around culture as well as the other conversations centered around barriers to adopting healthier lifestyles. All events, social and otherwise, entail the expectation that food will be provided. For example, early in the research conducted in Starr County, the plan was to hold intervention sessions in peoples' homes, rotating around the community. However, focus group interviews indicated that this would not be acceptable; the homeowner would be expected to provide food for all their guests, a significant financial burden given the poverty levels in this community. Clearly, any diabetes prevention intervention would need to be focused on healthy eating in all settings — at social gatherings, when eating at home with the family, and when eating out. The Mexican-American culture is somewhat traditional in their views of the woman's role in the home, particularly among the older generations, an important component of which is food selection and preparation for the family. The challenge, then, is to design an intervention that takes this factor into account. The positive side of this cultural characteristic is that a diabetes prevention intervention that is targeted at women can very often have an impact on the health of the entire family, in particular the children as the next generation of individuals who are at high risk for diabetes.

The focus group interviews uncovered some interesting new discoveries regarding culture, barriers, and recommendations for diabetes prevention in this impoverished community, which is similar to many other U.S.-Mexico border communities. Some of these factors are not amenable to intervention — continuing high levels of poverty, busy schedules due to working multiple jobs and family responsibilities — but must be taken into account when working in this community. Other factors — lack of knowledge regarding healthy food preparation and eating, desire for tools to monitor caloric intake — are amenable to intervention and can be addressed. Clearly, culture plays a significant role in the perspectives on lifestyle behaviors.

Similar information has been obtained during previous focus group interviews held in Starr County; however, in the focus groups reported here, more negative views regarding recommendations for healthy eating and exercise were heard. Major barriers that were consistently mentioned included perceptions of higher costs of healthy foods, the busy work schedules, and the constant fatigue resulting from work and family responsibilities. These issues have been raised in the past, such as a lack of interest in learning how to use technology and the desire to keep their cultural food preferences but learn to prepare them in a healthier manner; but this time there was a much greater emphasis on the degree to which these factors pose serious barriers. New barriers that were encountered this time included the perception that exercise was viewed as a "luxury" and was also viewed as a waste of valuable time. New concerns were raised about fear of deportation that kept people in their homes rather than risking being seen in the community, for example grocery shopping.

Focus group participants also voiced strong negative perceptions that traditional cultural foods and learned patterns of eating continue to be major barriers to adopting healthier lifestyles. While eating until feeling “very full” is clearly an unhealthy choice, it is interesting that the notion of being raised “to eat unhealthy foods” has become so prevalent. Clearly there is a messaging that has produced this perception even though the traditional diet referred to need not be unhealthy. Indeed, this traditional diet has likely been common for more than a century, but it has only been in the last few decades that such a rise in diabetes has occurred.

The focus group interview approach is a valuable strategy for obtaining community input into the development of any health program. The information obtained in these focus groups will guide modifications of a DSME intervention into one that continues to be culturally tailored and acceptable to the targeted individuals, Mexican Americans with prediabetes. However, there are several limitations that must be acknowledged. The informants in these interviews were predominantly female, although researchers had made a concerted effort to recruit males as well. And, during the focus group sessions the moderator specifically engaged the men in the conversations to be sure to obtain their perspectives. But given the larger number of women in the groups, the majority of the perspectives reported here were obtained from women. In addition, the individuals recruited for these focus group interviews were residents of one rural community, Starr County, located on the Texas-Mexico border. While Starr County is similar to other U.S.-Mexico border communities, there are fewer similarities between Starr County residents and the residents of more urban locations to which Mexican Americans have migrated. And lastly, the perspectives reported here were solely obtained from Mexican Americans and are not intended to reflect the perspectives of other Hispanic subgroups, such as Americans from Cuba or Puerto Rico.

Implications

The information gleaned in this focus group study has important implications for diabetes prevention and is summarized in Table 4. Overall, the primary suggestions for intervention that were conveyed during these focus group interviews centered around a desire for specific, practical recommendations for eating healthier and incorporating physical activity into their daily routines. Individuals wanted to be taught *how* to eat healthier within their busy schedules that may involve working multiple jobs and assuming considerable responsibility for family members and other relatives. General recommendations, such as “cut down on your calories,” are not sufficient nor effective. Further, the importance of family and the influence of the family unit needs to be taken into account when making recommendations for lifestyle changes, such as healthier food intake or exercise. Including family members in many of the aspects of the intervention is warranted, because without family support, efforts at promoting healthier lifestyles will be futile. Furthermore, family members share the risk for diabetes. Environmental challenges, such as weather and safety concerns, are real issues rather than mere excuses. These factors prevent individuals from increasing physical activity and require creative strategies. For example, local businesses might be willing to provide an indoor environment for walking. Malls currently provide that opportunity but not all communities, such as Starr County and other rural counties, have malls; so, other potential sites need to be explored.

New information that was obtained in these focus groups and that was emphasized by the informants was the impact of their busy schedules. Previous focus group interviews had raised the issue of family responsibilities, particularly involving the women, but this time individuals emphasized the challenges posed by working multiple jobs to support their families. Working all day, usually at jobs involving considerable physical labor, and coping with the fatigue of these daily activities are legitimate impediments to healthier lifestyles. Busy schedules and fatigue are compounded by a lack of specific information on how to eat healthier, as stated repeatedly by these informants. Individuals do not know how to prepare healthy meals and are not informed on how to make healthier food choices. This fact was very evident when focus group participants voiced an expectation that to be on a weight loss "diet," one could only eat 200 calories, no more! Specific guidelines are required regarding how to prepare, or select if eating out, a balanced, portion-controlled daily intake of culturally preferred foods.

The lack of these types of culturally tailored programs may be a key contributor to the failure to stem the diabetes epidemic in these populations. Obviously, rather than waiting until individuals are diagnosed with diabetes, it is more cost effective to intervene in those with prediabetes. Reimbursement for these programs as a Medicare/Medicaid benefit,[17] effective January 1, 2018, is an excellent step forward in slowing the diabetes epidemic. Perhaps most significant is the fact that in spite of considerable barriers, two things the researchers *did not hear* was a lack of desire to adopt healthier lifestyles or a fatalism that change would be impossible.

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Table 1.

Interview Questions

***DISCUSS THE FOLLOWING QUESTIONS AND PROBES WITH ALL PARTICIPANTS*:**

1) What barriers prevent individuals from adopting the following activities?
Probes:

- Healthy eating
- Increased physical activity/exercise
- Accessing health resources in the community, including health care providers (physicians, nurses, dietitians, etc.)
- Attending weekly/biweekly intervention sessions that will be offered as part of the planned program

2) What would motivate you (inspire you or keep you going) the most to adopt the recommendations we will be making in terms of healthier eating and increasingphysical activity (regular brisk walking)?

Probes:

- Knowledge about the effects of diabetes
- Knowledge about the benefits of nutrition and exercise
- Knowledge about the increasing rates of diabetes in Starr County/Texas/ U.S./ World
- Reminders – what type (e.g., text messages, post cards), when (e.g., time of day), and how often (e.g., daily, weekly, other)
- Any specific activities during the group sessions (e.g., guest lectures by local physicians, persons with diabetes, individuals who have successfully lost weight, etc.)
- Financial incentives — cash or other prizes, contests, awards for achievement(s)

3) What would be the most important things you'd like to learn from this program that would be useful in preventing diabetes?

Probes:

- Healthier eating
- Increasing physical activity/exercise
- Accessing health resources in the community
- Obtaining family involvement/support
- Communicating with physician or other health care provider(s) [in U.S. and/or Mexico]
- Coping with daily stressors
- Learning more about the effects of diabetes
- Educational support groups or how to establish your own
- Available outdoor settings/parks/natural areas in which to exercise

4) What are key local community resources for individuals trying to prevent diabetes?

Probes:

- Grocery stores or local restaurants that offer healthier foods choices
- Exercise facilities
- Free/low-cost health care providers/facilities
- Support from businesses, workplace, schools for healthy behaviors

5) What are your thoughts on using some type of technology as part of the diabetes prevention program? Do you have access to any of these?

Probes:

- Use of Fitbits to track steps vs. other types of pedometers (may not know if haven't used one)
- Using a computer or tablet in order to track the Fitbit data (access at home? work? other?)
- Using a smartphone (current access?)
- Motivating text messages

DISCUSS THE FOLLOWING QUESTIONS AND PROBES WITH ALL PARTICIPANTS:

- YouTube videos on computer or smartphone

6) What other information or recommendations would help us design a prevention program? Any suggestions for how to motivate people to make changes in diet and exercise?

Probes:

- Have local physicians or others from the community give talks about preventing diabetes?
- Have persons with diabetes speak to the groups about what they wish they had done to prevent diabetes?
- Games or contests for individuals or groups to eat healthy or increase physical activity
- What would be best times to offer weekly classes?
- Community-wide gatherings or gatherings for the whole family?
- Any other thoughts or suggestions?

DISCUSS THE FOLLOWING WITH FORMER PARTICIPANTS OF OUR DSME PROGRAM:

1) What aspects of diabetes self-management programs (DSME), including our previous DSME interventions, might be helpful in preventing diabetes?

Probes: Guidance on, assistance with, or suggestions for –

- Healthier eating with a focus on healthier preparation and selection of preferred Mexican American or other types of foods
- Safely increasing physical activity/exercise, including 15 minutes of group exercise during the intervention sessions and planning for physical activity at home
- Attending weekly/biweekly intervention sessions that will be offered
- Location of program in the community (e.g., schools, churches)/transportation needs
- Obtaining family support and involvement in healthier eating and increased physical activity
- Communicating with physician(s) or other health care provider(s) [in U.S. and/or Mexico]
- Frequency of sessions and/or length of the program
- Providing the program in Spanish
- Educational materials: written (length), videos
- Locating and accessing health resources in the community
- Educational resources in the community, in addition to family, television, and the internet, that have been particularly helpful for you or gave you new insight to make sustainable changes
- How you seek reinforcement to have a healthy lifestyle when you get frustrated or down
- Effective ways you have found to communicate diabetes prevention to others
- Other aspects of the diabetes educational program particularly helpful for you or gave you new insight to make sustainable changes (e.g., data collection schedule/process, communication with program staff, other)

2) Knowing what you know now and the fact that you have diabetes, what do you wish you had done before you had diabetes in order to prevent it in the first place?

Probes:

- Healthier eating (eating out for meals or at parties, cooking at home)
- Increasing physical activity/exercise
- Accessing health resources in the community
- Obtaining family involvement/support
- Communicating with physician or other health care provider(s) [in U.S. and/or Mexico]
- Coping with daily stressors
- Not giving up
- Other

Table 2.

Characteristics of Focus Group Participants (N=27)

Participant Characteristic	MEAN	RANGE	FREQUENCY	PERCENT
Age (in years)	56.5	43–77		
Gender:				
male			6	22.2
female			21	77.8
Born in the U.S.?				
no			19	70.4
yes			8	29.6
At least one parent born in the U.S.?				
no			16	59.3
yes			11	40.7
Diagnosed w/ diabetes? no yes				
no			19	70.4
yes			8	29.6
Attended DSME in past?				
no			17	63.0
yes			9	33.3
no answer			1	3.7
Preferred language:				
Spanish			18	66.7
English			9	33.3

Table 3.

Focus Group Findings: Overview

CATEGORY	THEMES
Cultural considerations related to:	
Food	• Food is central to life's daily activities • Raised to eat unhealthy foods • Used to eating until very full • Something bad must happen before we make changes • Programs/health care provider recommendations "take away culture"
Exercise	• Viewed as a "white person's luxury" • Women should not exercise; should be at home doing housework
Barriers to:	
Healthy eating	• Healthy foods too costly • No time to cook; cheap take-out ("junk") food more convenient • Family prefers unhealthy foods
Exercise	• No free places to walk (no malls or gyms) • Environment – heat, wild dogs in the neighborhoods, unsafe to walk alone • Daily physical labor associated with job; too tired
Technology use	• Lack "tech savvy"; favor *YouTube* videos; conflicting opinions re smart phones, computer • No time to learn something new
Health care access	• Inefficient, expensive U.S. health care system (Mexico health care equivalent to U.S. but less expensive, more responsive) • Lack of health insurance; physician visits, medications, and lab tests too expensive • Seeing the doctor takes a whole day out of work (loss of pay) • Lack of transportation • Denial
Healthier lifestyles	• No community support • Poverty levels • Work schedules (multiple jobs) • Child care or other family responsibilities • Fear of deportation
Recommendations for intervention:	
Food	• Simple, cheap recipes that require little reading • Live cooking demonstrations; learn "how to cook" • Reading/interpreting labels • Learn portion control and calories • Developing a daily routine, timing of when it is best to eat • Access to a nutritionist • Learn how to make cultural foods healthier • Information about natural remedies, e.g., teas, vitamins • How to eat healthy at restaurants
Exercise	• Group walking • Individually-tailored exercises • Exercises that can be done at home • Interest in dancing as an exercise
Technology	• Willing to learn some technology; most familiar with text messaging • Training family members would be a big help, e.g., Fitbits (or pedometers); give one to family member also
Motivation	• Focus on the family (e.g., family night), family/group counseling • Incorporate competition within/between groups; "gaming" • Desire to live longer, be stronger (men) • Desire to be healthier for the children • Set individualized goals • Invite testimonials from persons who have been successful in dealing with or preventing diabetes • Incorporate accountability, recognition for accomplishments • Financial incentives, small prizes • Calls weekly between classes – reminders, check on progress, provide advice, etc. • Conversations similar to the focus groups about how to eat and exercise helpful • Offer program in community settings throughout the area near where participants live • Monitor weight/weight loss
Diabetes	• Need more knowledge of diabetes – causes, dangers, complications, heredity

CATEGORY	THEMES
	• Learn what to teach the children about healthy lifestyles and diabetes • Learn how to talk to family members to get their support
General observations	• Offer classes in Spanish; individuals go back-and-forth between Spanish and English but most speak Spanish only • *Promotoras* can provide logistical support and serve as valuable supporters for general reinforcement

Table 4.

Implications for Diabetes Prevention

Issue/Perception Identified	Intervention Action Required
Healthy eating is expensive and often means salads	• Teach what healthy eating actually is with specific demonstrations and examples. • Emphasize portion measurement skills and use motivational interviewing for portion control, which is cost saving.
Fast food is more available and convenient	• Teach skills for making good food choices when eating out or buying fast foods, e.g., healthier options, portion control. • Use motivational interviewing to change frequency of eating fast foods, reduce portions, or make different, but cost neutral food choices.
Incongruity of traditional food preferences and readily available fast foods	• Teach skills for healthier preparation of traditional foods as opposed to replacing traditional foods, e.g., substituting lard with healthier alternatives (cost neutral).
Exercise has negative connotations; exercise recommendations not taken seriously	• Focus on incorporating an increase of “physical activity” within usual daily activities. • Reinforce that physical work is good for your health; monitor baseline physical activity levels to determine and give credit for physical activity that people are already getting at worksite or during work in the home. • Support the desire for exercises that can be done at home by engaging in simple exercises during the group classes. • Teach ways to increase physical activity at home and at work. • Invite a family member to group sessions and involve the family member in recommended exercise strategies.
Desire for personalized dietary instructions	• Teach menu planning skills using food models and giving specific examples of food plans. • Review and offer feedback on planned vs. implemented menus.
Promotoras as support, but not as program instructors	• Health workers (*promotoras*) should be hired for program support activities, e.g., keeping attendance, preparations for and assisting with food demonstrations, distributing program materials, providing transportation when necessary, making weekly reminder telephone calls, etc.
Support from men tend to be limited	• Invite spouses to project meetings. • Teach healthier preparation of favorite recipes that will satisfy family members. • Teach physical activities/exercises that can be done in the home.
Family involvement	• Invite family members to project meetings. • Hold food taster session(s) where all family members are invited to test traditional foods prepared the conventional way versus a healthier way.