Published in final edited form as:

Diabetes Educ. 2014 July ; 40(4): 488–495. doi:10.1177/0145721714528996.

Partnering With Families to Refine and Expand a Diabetes Intervention for Mexican Americans

Marylyn Morris McEwen, PhD, PHCNS-BC, FAAN and **Carolyn Murdaugh, PhD, RN, FAAN**
Community and Health Systems Sciences Division, The University of Arizona, College of Nursing,
Tucson, AZ (Dr McEwen, Dr Murdaugh)

Abstract

Purpose—The purpose of this study was to refine and expand a culturally tailored individual-level diabetes self-management intervention to a family-level intervention.

Methods—Using community-based participatory research principles, Mexican American adults ($n = 12$) with type 2 diabetes mellitus (T2DM) and family members ($n = 12$) in the United States–Mexico border region participated in 6 focus group interviews, conducted by bilingual, bicultural facilitators. Facilitators and barriers to T2DM management were identified. Transcripts were analyzed using qualitative content analysis.

Results—Through an iterative analysis process, 5 categories represented participants with T2DM: (1) strategies my family can use to support our managing T2DM, (2) be sensitive to my challenges, (3) stop telling me what to eat or do, (4) how can we peacefully coexist, and (5) I feel supported. Categories identified by family members were (1) changing behaviors together, (2) sharing not controlling, (3) supporting positive behaviors, and (4) your behaviors frustrate me.

Conclusions—The family was reinforced as a major influence for successful T2DM management. Family support requires that families value and develop knowledge and skills for T2DM management. This family intervention builds on family assets and relationships, shifting from traditional externally motivated individual models to create a shared commitment to manage T2DM among Mexican American adults.

The prevalence of diabetes in the United States–Mexico border region, 62.5 miles north of the international boundary,¹ exceeds the US prevalence (8.3%)² and that in Mexico (14.2%).³ The United States–Mexico border is home to 7.5 million people, including 1.2 million adults (16.2%) with type 2 diabetes mellitus (T2DM).⁴ Eighty percent of the US border population is of Hispanic (primarily Mexican) origin: 27% in San Diego, California; 95% in Presidio and Webb counties, Texas⁵; and 50.2% in the 4 Arizona border counties.⁶ The sequelae of poorly controlled T2DM disproportionately affect Mexican Americans, who are twice as likely to have diabetes and higher rates of diabetic nephropathy, retinopathy, and

For reprints and permission queries, please visit SAGE's Web site at <http://www.sagepub.com/journalsPermissions.nav>.

Correspondence to Marylyn Morris McEwen, PhD, PHCNS-BC, FAAN, The University of Arizona, College of Nursing, 1305 N Martin Avenue, PO Box 210203, Tucson, AZ 85721-0203, USA (marylynm@email.arizona.edu).

No potential conflicts of interest relevant to this article were reported.

Any underlying research materials related to this paper can be accessed by contacting the first author.

peripheral vascular disease and are 50% more likely to die from diabetes compared with non-Hispanic whites.⁷

Reducing risks for developing diabetes complications requires maintaining a glycated hemoglobin level of <7% (53 mmol/mol),⁸ a goal achieved by only 56.8% of the overall population.⁹ Diabetes self-management is critical for achieving glycemic control and preventing serious diabetes-related complications. Successful diabetes self-management is complex and requires engagement in a lifelong regimen of lifestyle modification, pharmacotherapy, self-management skills, and routine appointments with health care providers. Diabetes self-management requires daily commitment to healthy eating, regular physical activity, blood glucose monitoring, daily medications, problem solving, healthy coping, and reducing risks.¹⁰

Diabetes management behaviors occur within a variety of social contexts. In a hallmark publication, Fisher et al¹¹ asserted that the family context is the most pervasive, with the greatest, most long lasting effect and the most influence on the management of T2DM. Family relationships differ from other social relationships that provide support in that they persist over time, are emotionally intense, and involve high levels of intimacy. Relationships within the family system assume levels of complexity and organization that are greater than the individual members. Within this system, family members participate implicitly or explicitly in T2DM disease management. Therefore, interventions that target one family member automatically affect and are affected by others, even though other family members may not participate directly in the interventions.¹¹

Family members play an important role in T2DM management by providing support and assistance.¹²⁻¹⁶ Earlier studies reported that partner or family support significantly correlates with treatment adherence and metabolic control.¹⁷⁻²⁰ Despite evidence supporting the importance of family, interventions rarely target family support to promote T2DM management among adults.¹² Intervention trials have commonly tested the effects of individual-level education on glycemic control without accounting for family member support.²⁰ The traditional approach of defining illness in relation to individual behavior is inadequate for the Hispanic population.²¹ Interventions that incorporate the cultural value of family, or *familismo*,^{22,23} and are tailored to one's culture and literacy level are more effective than traditional ways of addressing diabetes in Mexican Americans in the border region.²⁴ However, few studies have incorporated *familismo*, cultural tailoring, and health literacy at the family level among this Hispanic subgroup.

The purpose of this study was to refine and expand a culturally tailored individual-level diabetes self-management intervention²⁵ to a family-level intervention.

Methods

Research Design and Sampling

Community-based participatory research (CBPR) strategies²⁶ were used to promote a colearning process to understand social environmental factors associated with T2DM management.²⁷ CBPR is a collaborative partnership approach that equitably involves

community members in all aspects of the research process.²⁶ CBPR principles, which focus primarily on the community context, were extended to the family context. The emphasis on the family unit enabled us to (1) build a shared commitment to decrease T2DM health disparities, (2) engage family members to contribute their expertise to intervention refinement, (3) build on the assets and relationships within the family, and (4) integrate a balance between researchers and participants.²⁶ A series of focus group interviews were conducted in which participants were the experts about T2DM management within the family context. Consistent with CBPR principles, this role reversal empowers the participant, distributing authority equally between the researcher and the participant.^{26,28}

Subjects

A total of 12 adults with T2DM and 12 family partners (n = 24) were recruited and provided informed consent. The study protocol was approved by The University of Arizona Institutional Review Board. Participants with T2DM were (1) 35 to 74 years of age, (2) of Mexican origin (self-report), (3) spoke and read Spanish or English, (4) had been diagnosed with T2DM for 1 year, (5) had not participated in a diabetes education program within the prior year, (6) were willing to share challenges of managing T2DM, and (7) had 1 adult family member willing to participate. Family members were (1) 18 years of age, (2) of Mexican origin (self-report), (3) spoke and read Spanish or English, and (4) occupied the same households as the participants with T2DM or shared weekly meals, visits, or shopping with the participants with T2DM.

Setting

The study was conducted in a private room at a neighborhood community center. A bilingual, bicultural *promotora* used purposive sampling to recruit Mexican American adults with T2DM and their designated family members. Recruitment flyers were posted at schools, churches, libraries, and clinics, and presentations were held at neighborhood association meetings. Each family dyad received a \$40 gift certificate after the final focus group interview.

Data Collection Methods

Bilingual, native Spanish speakers, trained by the principal investigator, conducted 6 audio-recorded 1-hour focus group interviews. The group interviews were conducted every 2 weeks for 3 months, and sessions were conducted in the participants' language of choice, Spanish or English. Before the first focus group interview, demographic information was collected from all participants. Glycated hemoglobin was measured in participants with T2DM.

Questions addressed factors that facilitated or hindered diabetes self-management behaviors (eg, physical activity and glucose self-monitoring) and family challenges to diabetes self-management. Components from the previously developed individual-level diabetes self-management program were presented to discuss experiences managing T2DM in the family environment. For example, questions asked about physical activity included the following: (1) What are the things you do to support your family member to be physically active? and (2) What challenges do you experience to being physically active? Similar questions specific

to each self-management behavior were used to facilitate each focus group interview. Discussions continued until information redundancy was achieved related to potential strategies and challenges for managing T2DM within the family.²⁹ Group members shared their experiences through the process of discovering their individual and collective abilities to master T2DM management.³⁰ The knowledge and expertise of each individual to manage T2DM within a family context were consistently emphasized. At the conclusion of each session, the facilitator summarized major points and asked if these were accurate, if anything was missed, and if there were additional contributions.

Data Analysis

Data were analyzed using qualitative content analysis.³¹ Audiotapes were transcribed verbatim in Spanish and translated into English. The English transcripts were read multiple times by investigators to identify thematic units of text. Using an interactive and reflexive process, the investigators extracted themes that were straight descriptions of the participants' T2DM management experiences. The themes were grouped into subcategories and then coded into categories on the basis of shared meanings. An audit trail was maintained to monitor decision making and to verify the consistency of the analysis process.

Results

The 12 participants with T2DM included 6 men and 6 women. Their average age was 58 ± 11 years; 8 (67%) were married, 3 were single, and 1 was separated. They had lived in the United States an average of 34.7 ± 15.8 years, and 7 (58.3%) spoke Spanish in the home. They had had T2DM for an average of 11 ± 7 years, with an average glycated hemoglobin level of $7.9 \pm 1.8\%$ (63 ± 19 mmol/mol) (range, 6.3%-12.7% [45-115 mmol/mol]). Three participants with T2DM (25%) had never attended a diabetes class, and 4 (33%) had attended >6 classes. The majority ($n = 9$) did not have difficulty traveling to their health care providers' offices, which were on average 5 ± 5.4 miles from their homes. The 12 family members include 4 men and 8 women. Their average age was 52 ± 14 years, and they had lived in the United States an average of 34.25 ± 17.0 years. Five (41.7%) spoke both Spanish and English in the home. They included 7 spouses (58%), 2 sons, 1 daughter, 1 aunt, and 1 mother. The average length of time living with their family members who had T2DM was 17.28 ± 14.2 years. Nine family members (75%) had never attended a diabetes class. At least half of both the participants with T2DM and their family members reported earning high school degrees or higher, and the annual income was <\$25,000 for 50% of the participants. Nine participants (75%) with T2DM and 11 family members (91.7%) had their own sources of transportation. Both participants with T2DM and their family members reported using the public bus system, and they lived within 2 miles of a grocery store.

The experiences shared by the participants emphasized the family members' influence on diabetes self-management and the ways in which a family member's attitudes toward T2DM self-management behaviors affect the daily life of all family members. Five categories were identified for participants with T2DM: (1) strategies my family can use to support our managing T2DM, (2) be sensitive to my challenges, (3) stop telling me what to eat or do, (4) how can we peacefully coexist, and (5) I feel supported. The 4 categories representing the

family members were (1) changing behaviors together, (2) sharing not controlling, (3) supporting positive behaviors, and (4) your behaviors frustrate me.

Participants With T2DM

The first category, strategies my family can use to support our managing T2DM, focused primarily on physical activity and healthy eating behaviors. One participant recalled,

My husband tells me, have you walked today? Maybe we should go for a walk tonight. ... My children will say Mom, why don't you come with us to the gym. They know that I'm a chocaholic and they're like mom we know you can't have that we're not going to buy that.

Another participant shared strategies her family used when celebrating Dia de los Muertos:

I know I can have a little piece of the bread not the whole thing, we ask family to bring the veggies, it takes a while for them to get it ... but some families are getting it they bring yogurt dips and veggies. That's the hard part that we're not all on the same page.

The second category, be sensitive to my challenges, captured the daily struggles that challenge successful management of T2DM in a family environment. One participant stated, "In the morning I want to eat my oatmeal, he makes chorizo with potatoes, eggs with a whole bunch of salsa and so I want some too." Another participant revealed the frustration of his wife's eating food he was trying not to eat:

Just like last night when I was watching television she [wife] comes with this huge piece of warm bread and I tell her you are 7 pounds overweight and I am 80 pounds overweight. You are not diabetic but I am.

Participants also recalled the insensitivity of food purchases made by family members, derailing their ability to make healthy food choices:

Well yea, there are some times when they say "you can't eat that mom" you can't have that but then why did they bring the candy, why did you bring the ice cream in the house, the empanadas; so sometimes they forget.

This past week I drank a liter of soda that was hers [wife], I don't buy soda but she does. She can have soda sitting there for a month and not drink it but I drank this whole bottle.

Stop telling me what to eat or do, the third participant category, captured the frustration and anger of participants when they felt that family members were being judgmental or did not understand the challenges for T2DM management:

Family members are like the diabetes police and they are always scolding and without the education they don't really know what they are talking about. It's like my wife, she had the opportunity to go to the diabetes classes with me when I was first diagnosed with diabetes but she didn't go for whatever reason so when she gives me advice it turns me off. She doesn't know what she's talking about and that's the way the whole family speaks to me in a condescending way and it makes

me want to eat what's in front of me even more. I react poorly to their advice because it just makes me angry.

Another participant was a little more forgiving of family: "Well let's just say that everything they do is intended to help but for the most part they don't understand that being judgmental and saying 'you can't do that dad' 'dad you can't eat that' doesn't really help."

The fourth category, how can we peacefully coexist, represented the ever present tension and reconciliation (or not) with persons who are not burdened by T2DM management. One participant explained there should not have to be compromise: "And that's what I'm saying about alcoholics if they live in the same house with me they have to live how I have to live. I can't live with someone who is drinking or eating what I can't have."

This perspective is juxtaposed with another participant's statement, which reflects compromise with expectations of understanding T2DM management:

If they all understood it [T2DM] better and the issues that you have as a human being eating. If your father is an alcoholic you can't just say don't hang around with alcoholics, but you have to eat to survive and you have to live with your family to eat. You can't banish them. They really have to understand how it works.

The final participant category, I feel supported, was articulated by the experiences of some of the participants: "I am completely supported by my children and husband. In all activities we are together, I can't ask for more than what they already give me." A second participant explained how his wife's calmness and patience helped him deal with many losses in the context of T2DM:

I would tell her one of the things I want to learn from you is how you stay so calm. I got sick [T2DM] in a year. It all got very complicated but she was always calm and kept telling me everything was going to be alright. I would get upset and tell her to leave me alone, and I would think and think and then fall asleep and when I would wake up she would say, Hi love how are you? And her calmness would help me out a lot.

Family Members

The first category, changing behaviors together, focused primarily on healthy eating and physical activity. Family members talked about how behavioral changes could benefit the entire family. One person said, "[We need to] learn how to eat healthy and exercise to benefit the whole family." Another participant explained,

Doing it together and measuring your success and even if you didn't lose doing it together helps. [My husband] has been very motivated I can hear him when he's weighing I can hear it and it's been a good motivator for him.

Several participants spoke about the benefits of engaging in healthy behaviors with their family members: "Well for me it's adapting your meals and how is it going to help me? Not just him [family member with T2DM], in reality it's not just for him ... we work together." Another participant focused on being physically active: "You have to also start your exercise

program, I don't even want to call it exercise program. Call it activity and start your exercises together.”

A family member suggested sharing one plate when eating out:

We share and we're satisfied we're not hungry, we're very satisfied, so just a little like that doesn't take much but is so helpful. And we're trying to do it together because health wise, mine is a weight issue, I don't have diabetes but it also affects my health.

Finally, a participant concluded with, “The important thing now is that whatever we did or didn't do, we can no longer fix. We are here now to look for solutions.”

The category of sharing not controlling describes how family members shift their responses to their family member with T2DM. Family members recognized that they did not have control over their family members' diabetes: “The more I tried to control what he ate the angrier he got, I would tell him you have to eat what we eat, it's healthier and you need to eat with the family.” Another family member offered, “Don't try to control your family member with T2DM, support them instead.” Another explained, “We can only help them but we don't want to be enablers (for them to NOT manage their diabetes) and you don't always have control over them.” Instead, they talked about supporting them in engaging in their self-management behavior changes. Letting go of control was difficult, because family members felt that they still needed to “remind your family member with T2DM how serious the complications can be if their diabetes is not properly managed.”

Family members shared diverse approaches when supporting positive behaviors, the third category, for their family members with T2DM. One family member talked about being a role model: “You have the knowledge so now you can role model healthy eating, decision making about food and exercise AND manage stress.” Others supported healthy eating behaviors: “We have tried to do things differently like using less oil and grease and we buy turkey for sandwiches.” Eliminating triggers, primarily sweets in the home, was a recurrent theme: “I don't eat any sweets, every once in a while at a party I'll have a piece of cake but in my home I never keep cookies, or candy, nothing sweet.” Another stated, “The kids call him the ‘cookie man’ so we don't buy cookies anymore because he would eat all the cookies and there would be none left for the kids.”

Another family member spoke about portion control: “I know when we used to write it [our food intake] down, almost like a chart and it's looking at him in the face and he can see how much he has eaten. It works for a while.” Walking together was another way to support positive behavior change: “We take 20-40 minute walks. ... although it's hard on him because of his knees ... and he's lost quite a bit of weight.”

The recognition that family members also need support was described in the final and most robust category, your behaviors frustrate me. Issues with food and healthy eating were the major sources of frustration for most family members:

I would say send them to scare tactic boot camp. That's the only way my mom is going to get the hang of it. This is my personal opinion and I apologize if I'm

saying it negatively. ... She's always baking, cookies, empanadas, and she says she only eats a little bit but if you are eating a little bit every day it adds up. I don't know how to get it through her head if you're baking every other day it adds up. I just can't seem to get it into her head.

A wife reflected on her husband's past eating behaviors:

Every night he would come home and sit in front of the television with a bottle of soda, a box of chocolates and a bag of potato chips. I would get very sad because I would say to myself, he is killing himself.

My husband tells me, leave me alone, I'm the one that is ill and it's my life and if I die what's it to you. He is very hard on me and he stresses me very much.

I used to feel bad with our son because he would ask me, how can we help my father and I would say I don't know. I don't know how to help him. We used to help him in many ways but he would get angry.

Discussion

The relationships between family members and individuals with T2DM have been investigated, but research has been focused primarily on dyads of children and/or adolescents and their parents.¹² The few studies that have included family members of adults with T2DM have found that family members have been supportive of daily self-management behaviors with food-related issues³²⁻³⁴ and exercise.³⁵ However, Kang et al³⁶ found that family support did not significantly affect self-care behaviors. For Mexican American adults, the family is a critical social context in which T2DM disease management occurs.^{24,37} The primary importance of the extended family or *familismo* has been well documented in the Hispanic culture.³⁸⁻⁴² *Familismo* includes perceived obligations for helping family members, living near immediate and extended family members, reliance on support from family, and the use of family as behavioral and attitudinal referents.^{41,42} *Familismo* taps into the importance of having social supports, both personal and material (ie, *personalismo*).⁴⁰ Family members play a central role in the health of individual members, because the family is a primary source of care and support.⁴³ Health care decisions for most Mexican Americans are made largely in the context of family,²⁷ in which loyalty and nurturance contribute to social and individual change.⁴⁴

Extending CBPR principles to the family context enabled us to build on family assets and relationships to identify strategies to build a shared family commitment to improve T2DM management. The results contribute to the paucity of family-based studies that have been conducted with Mexican American adults with T2DM in the border region.^{24,27}

T2DM, like other chronic diseases, affects the health and well-being of family members.^{11,12,45} Diet is the most visible aspect of the diabetes self-management regimen, so challenges related to healthy eating rarely went unnoticed by family members. Consistent with the findings of Franks et al,⁴⁵ in this study, difficulties experienced by participants with T2DM managing their diets were a source of concern and distress among family members. Mexican American adults with T2DM have repeatedly identified the family as a source of

support as well as a barrier to T2DM management and glycemic control.^{21,27,46} Our findings describe how families can either facilitate or hinder healthy eating and physical activity behaviors. Family members may, either consciously or unconsciously, undermine healthy food choices by not understanding and/or being insensitive to the daily challenges associated with successful T2DM management.

Research with families should be contextually grounded, culturally informed, and responsive to the unique conditions of the population.^{12,20,37} Our culturally tailored, family approach shifts diabetes management from the common individual-focused approach to T2DM within a family context. The relationship established with the participants and their family members using CBPR principles afforded valuable information on which to build an effective, culturally tailored intervention for Mexican American adults with T2DM and their families.

Implications and Limitations

These findings underscore the need to target family education and support to promote T2DM management. Integrating family members provides an opportunity to reinforce healthy eating and physical activity behaviors required for successful T2DM management and improve the health of the entire family. Family members are eager to learn strategies for being supportive of their family members' T2DM management behaviors. Educating and supporting family members has the potential to increase individual and family capacity for sustaining self-care behaviors to improve T2DM outcomes.

The findings of this study cannot be generalized to other adults with T2DM and their family members, because of the study's exploratory nature and volunteer sample. Mexican American adults in the southwestern US border region may differ in their perceptions of diabetes self-management. Therefore, these findings should be replicated in other cultural groups.

Acknowledgments

The authors thank Alice Pasvogel, PhD, RN, Gwen Gallegos, FNP, CDE, RN, and focus group facilitators Leticia Martinez, Maria Figueroa, Karina Othon-Tapia, and Carlitta Burrell.

Funding: This study was supported by grant R01MD005837 from the National Institutes of Health (Minority Health and Health Disparities).

References

1. Pan American Health Organization. [Accessed March 13, 2014] New study shows diabetes higher on U.S.-Mexico border. Available at: <http://www.paho.org/English/DD/PIN/pr041118a.htm>
2. American Diabetes Association (ADA). Diabetes statistics. Available at: <http://www.diabetes.org/diabetes-basics/statistics/>
3. Villalpando S, Rojas R, Shamah-Levy T, et al. Prevalence and distribution of type 2 Diabetes mellitus in Mexican adult population. A probabilistic survey. *Salud Publica Mex.* 2010; 52(suppl):S19–S26. [PubMed: 20585724]
4. Diaz-Apodaca BA, Ebrahim S, McCormack V, de Cosio FG, Ruiz-Holguin R. Prevalence of type 2 diabetes and impaired fasting glucose: cross-sectional study of multiethnic adult population at the United States-Mexico border. *Rev Panam Salud Pùbl/Pan Am J Public Health.* 2010; 28:174–181.
5. Pan American Health Organization. US-Mexico border diabetes prevention and control project: first report of results. Available at http://www.borderhealth.org/files/res_719.pdf

6. Mwaniki-Lyman, L., Pavlakovich-Kochi, V., Christopherson, R. [Accessed March 13, 2014] Border economy program: Arizona-Sonora region—population. Available at: http://ebr.eller.arizona.edu/arizona_border_region/AZ_demographic.asp
7. US Department of Health and Human Services, Office of Minority Health. [Accessed March 13, 2014] Diabetes and Hispanic Americans. Available at: <http://minorityhealth.hhs.gov/templates/content.aspx?ID=3324>
8. American Diabetes Association. Standards of medical care in diabetes—2012. *Diabetes Care*. 2012; 35(suppl):S11–S63. [PubMed: 22187469]
9. Hoerger TJ, Segel JE, Gregg EW, Saddine JB. Is glycemic control improving in U.S. adults? *Diabetes Care*. 2008; 31:81–86. [PubMed: 17934153]
10. American Association of Diabetes Educators. [Accessed March 13, 2014] AADE7 health care behaviors. Available at: <http://www.diabeteseducator.org/ProfessionalResources/AADE7/>
11. Fisher L, Chesla CA, Bartz RJ, et al. The family and type 2 diabetes: a framework for intervention. *Diabetes Educ*. 1998; 24:599–607. [PubMed: 9830956]
12. Rintala TM, Jaatinen P, Paavilainen E, Astedt-Kurki P. Interrelation between adult persons and their family: a systematic review of the literature. *J Fam Nurs*. 2013; 19:3–28. [PubMed: 23288886]
13. Albright T, Parchman M, Burge SK. Predictors of self-care behavior in adults with type 2 diabetes: an RRnesST study. *Fam Med*. 2001; 33:354–360. [PubMed: 11355645]
14. Chlebowy DO, Hood S, LaJoie AS. Facilitators and barriers to self-management of type 2 diabetes among urban African American adults: focus group findings. *Diabetes Educ*. 2010; 36:897–905. [PubMed: 20974906]
15. Paddison C. Family support and conflict among adults with type 2 diabetes. *Eur Diabetes Nurs*. 2010; 7:29–33.
16. Weiler DM, Crist JD. Diabetes self-management in a Latino social environment. *Diabetes Educ*. 2009; 35:285–292. [PubMed: 19204101]
17. Tang TS, Brown MB, Funnell MM, Anderson RM. Social support, quality of life, and self-care behaviors among African Americans with type 2 diabetes. *Diabetes Educ*. 2008; 34:266–276. [PubMed: 18375776]
18. Toljamo M, Hentinen M. Adherence to self-care and social support. *J Clin Nurs*. 2001; 10:618–627. [PubMed: 11822512]
19. van Dam HA, van der Horst FG, Knoops L, Ryckman RM, Crebolder HFJM, van den Borne BHW. Social support in diabetes: a systematic review of controlled intervention studies. *Patient Educ Couns*. 2005; 59:1–12. [PubMed: 16198213]
20. Mayberry LS, Osborn CY. Family support, medication adherence, and glycemic control among adults with type 2 diabetes. *Diabetes Care*. 2012; 35:1239–1245. [PubMed: 22538012]
21. Carbone ET, Rosal I, Torres M, Goins KV, Bermudez OI. Diabetes self-management: perspectives of Latino patients and their health care providers. *Patient Educ Couns*. 2007; 66:202–210. [PubMed: 17329060]
22. Lujan J, Sixta S. Texas-Mexico border interventions by promotores for patients with type 2 diabetes. *Diabetes Educ*. 2008; 34:299–309. [PubMed: 18375779]
23. Ingram M, Torres E, Redondo F, Bradford G, Wang C, O'Toole M. The impact of promotoras on social support and glycemic control among members of a farmworker community in the U.S. Mexico border. *Diabetes Educ*. 2007; 33(suppl):172S–178S. [PubMed: 17620398]
24. Teufel-Shone N, Drummond R, Ulrike R. Developing and adapting a family-based diabetes program at the U.S.-Mexico border. *Prev Chronic Dis*. 2005; 2:1–9.
25. McEwen MM, Pasvogel A, Gallegos G, Barrera L. Type 2 diabetes self-management social support intervention in the U.S. Mexico border. *Public Health Nurs*. 2010; 27:308–319.
26. Minkler, M., Wallerstein, N. *Community-Based Participatory Research for Health: From Process to Outcomes*. San Francisco, CA: Jossey-Bass; 2008.
27. Wen L, Shepherd MD, Parchman ML. Family support, diet, and exercise among older Mexican Americans with type 2 diabetes. *Diabetes Educ*. 2004; 30:980–993. [PubMed: 15641619]

28. Benevides-Vaello S, Garcia AA, Brown SA, Winchell M. Using focus groups to plan and evaluate diabetes self-management interventions for Mexican Americans. *Diabetes Educ.* 2004; 30:238–256. [PubMed: 15095514]
29. Cote-Arsenault D, Morrison-Beedy D. Practical advice for planning and conducting focus groups. *Nurs Res.* 1999; 48:280–283. [PubMed: 10494913]
30. Funnell MM, Weiss MA. Empowering patients with diabetes. *Nursing.* 2009; 39:35–37. [PubMed: 19158642]
31. Morgan D. Qualitative content analysis: a guide to paths not taken. *Qual Health Res.* 1993; 3:112–121. [PubMed: 8457790]
32. Choi SE. Diet-specific family support and glucose control among Korean immigrants with type 2 diabetes. *Diabetes Educ.* 2009; 35:978–985. [PubMed: 19934457]
33. Denham SA, Mangoonian MM, Shuster L. Managing family support and dietary routines: type 2 diabetes in rural Appalachian families. *Fam Syst Health.* 2007; 25:36–52.
34. Stephens MA, Rook KS, Franks MM, Khan C, Iida M. Spouses use of social support to improve diabetic patient's dietary adherence. *Fam Syst Health.* 2010; 28:199–208. [PubMed: 20939625]
35. Beverly EA, Wray LA. The role of collective efficacy in exercise adherence: a quality study of spousal and type 2 diabetes management. *Health Educ Res.* 2010; 25:211–223. [PubMed: 18559399]
36. Kang CM, Chang SC, Chen PL, et al. Comparison of family partnership intervention care vs. conventional care in adults with poorly controlled type 2 diabetes in a community hospital: a randomized controlled trial. *Int J Nurs Stud.* 2010; 47:1363–1373. [PubMed: 20371056]
37. 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; 39:494–503. [PubMed: 23640301]
38. Padilla YC, Villalobos G. Cultural responses to health among Mexican American women and their families. *Fam Community Health.* 2007; 30:S24–S33. [PubMed: 17159629]
39. De La Torre, A., Estrada, A. *Mexican Americans and Health: ¡Sana! ¡Sana!.* Tucson: The University of Arizona Press; 2001.
40. Bernal G, Rodriguez MMD. Advances in Latino family research: cultural adaptations of evidenced-based interventions. *Fam Proc.* 2009; 48:169–178.
41. Santiago-Rivera AL. Latinos values and family traditions: Practical considerations for counseling. *Counsel Human Dev.* 2003; 35:1–12.
42. Marin, G., Marin, BV. *Research With Hispanic Populations.* Beverly Hills, CA: Sage; 1991.
43. Almeida J, Molnar BE, Kawachi I, Subramanian SV. Ethnicity and nativity status as determinants of perceived social support: testing the concept of familism. *Soc Sci Med.* 2009; 68:1852–1858. [PubMed: 19303184]
44. Gaines, SOJB., Liu, JH., Buriel, R. Familism and personal relationship processes among Latina/Latino couples. In: Gaines, SOJB., Liu, JH., Rios, DI., editors. *Culture, Ethnicity, and Personal Relationship Processes.* New York: Routledge; 1997. p. 41-66.
45. Franks MM, Hemphill RC, Seidel AJ, Stephens MAP, Rook KS, Salem JK. Setbacks in diet adherence and emotional distress: a study of older patients with type 2 diabetes and their spouses. *Aging Ment Health.* 2012; 16:902–910. [PubMed: 22533446]
46. de Alba Garcia JG, Rocha ALS, Lopez I, Baer RD, Dressler W, Weller SC. “Diabetes is my companion”: lifestyle and self-management among good and poor control Mexican diabetic patients. *Soc Sci Med.* 2007; 64:2223–2235. [PubMed: 17383785]