

# “The Promotora Explained Everything”

## Participant Experiences During a Household-Level Diabetes Education Program

### Purpose

The purpose of this study is to describe participant experiences of a household-level, community health worker-led intervention to improve diabetes-related health behaviors and outcomes.

### Methods

The Home Health Parties (HHP) aimed to improve diabetes self-management among Hispanics living in a rural, agricultural area in eastern Washington State. Trained *promotores* (community health workers) delivered a series of education sessions and distributed incentives to support diabetes-related behavior change. Open-ended, semi-structured questionnaires were administered to a random sample of 40 HHP participants. Qualitative methods were used to code and analyze the interview transcripts.

### Results

Four primary themes emerged from interviews: (1) participants' desire for improving knowledge about diabetes; (2) experiences of building skills for diabetes management; (3) developing social support; and (4) embracing household-level change.

Megan Shepherd-Banigan, MPH

Sarah D. Hohl, MPH

Catalina Vaughan, MA

Genoveva Ibarra

Elizabeth Carosso, BA

Beti Thompson, PhD

From Health Services Department, School of Public Health and Community Medicine, University of Washington, Seattle, Washington, USA (Ms Shepherd-Banigan, Ms Vaughan, Dr Thompson); and Public Health Sciences, Fred Hutchinson Cancer Research Center, Seattle, Washington, USA (Ms Hohl, Ms Vaughan, Ms Ibarra, Ms Carosso, Dr Thompson).

Correspondence to Megan Shepherd-Banigan, MPH, Health Services Department, School of Public Health and Community Medicine, University of Washington, 1959 NE Pacific Street, Magnuson Health Sciences Center, Box 357660, Seattle, WA 98195, USA (msb23@uw.edu).

*Financial Support:* This project was supported by grant number 5 R24 MD001621 from the National Institutes of Health (NIH), National Institute of Minority Health and Health Disparities (NIMHD), grant number 1 T42 OH008433 from the National Institute for Occupational Safety and Health, and grant number TL1 TR0042 from the National Institutes of Health, National Center for Advancing Translational Sciences (NCATS). The content is solely the responsibility of the authors and does not necessarily represent the official views of NIH, NIMHD, NIOSH, NCATS, or the Fred Hutchinson Cancer Research Center (FHCRC).

*Acknowledgments:* The authors would like to thank the community health promoters at the FHCRC Center for Community Health Promotion who interviewed the participants for this project: Monica Escareño, Nathan Marchello, Nora Gonzalez, and Virginia Rodriguez.

We declare that there were no competing financial interests involving the people or organizations involved in this research that would bias the conclusions of this study.

DOI: 10.1177/0145721714531338

© 2014 The Author(s)

## Conclusion

This study shows that involving family members and increasing social support are effective strategies for improving health behaviors and chronic health outcomes among vulnerable Hispanics living with diabetes. Our findings demonstrate several important considerations regarding the design of diabetes management interventions for rural Hispanic populations including the following: (1) *promotores* are critical as they provide social support and encourage behavior change by building relationships based on trust and cultural understanding; (2) well-designed tools that provide step-by-step examples of healthy behaviors, such as cookbooks, and tools that aid participants to monitor behavior change, such as pedometers and glucose monitors, serve to build skills and improve confidence to achieve goals; and (3) targeting households is a promising strategy for individual and family lifestyle changes that benefit the entire family unit.

.....

**D**iabetes affects Hispanics disproportionately in the United States. Data from the 2007-2009 National Health Interview Survey indicate that the risk of Type 2 diabetes is 66% higher among Hispanics when compared with non-Hispanic whites (NHW).<sup>1</sup> Hispanics are also more likely to work in low-wage employment.<sup>2</sup> As a result, this group is the least likely to be insured<sup>3</sup> and have access to medical care<sup>4</sup> compared with other ethnic/racial groups in the US. Living in rural areas is also associated with reduced access to medical care<sup>5</sup> which may limit opportunities to treat and manage diabetes and other chronic comorbidities; the prevalence of diabetes is nearly twice as high among rural than urban Hispanics.<sup>6</sup>

The Lower Yakima Valley in eastern Washington State, a rural area characterized by high poverty levels, also shows racial/ethnic disparities with respect to incidence and treatment of diabetes. The prevalence of diabetes among Hispanics was 11.2% versus 7.3% for NHWs living in this region.<sup>5</sup> A smaller proportion (36%) of Hispanic residents was engaged in diabetes self-management activities compared with NHWs (61.3%).<sup>5</sup> Finally, at-risk individuals in this community did not meet the dietary and physical activity recommendations for people with diabetes, and blood sugar levels and weight were not

well controlled (B.T., unpublished data, 2007). Interviews with Lower Yakima Valley community stakeholders suggest that lack of knowledge and poor access to culturally relevant health information are barriers to the diagnosis and treatment of diabetes among this population.<sup>6</sup> These findings highlight the necessity of designing culturally relevant interventions that target priority health problems, like diabetes, faced by rural Hispanics.

As the number of Hispanics living in rural areas grows<sup>7</sup> and rate of diabetes among this population continues to be high relative to other racial/ethnic groups,<sup>5</sup> there is a need to develop and test culturally relevant, innovative behavior-change interventions that focus on diabetes prevention and self-management. Many diabetes behavior change interventions target individuals, but this may not be the most effective strategy for Hispanics given the cultural importance of family and peer support.<sup>8,9</sup> Evidence suggests that family members play a critical role in improving diabetes self-management among Hispanic populations.<sup>10</sup> Furthermore, external influences, such as those from the community or family, may interact with individual-level factors to increase disease risk<sup>11</sup> or, alternatively, to promote behavior change.<sup>12</sup>

The practice of working with lay members of a community to increase knowledge about and improve chronic disease outcomes is well documented.<sup>13-16</sup> In studies targeting behavior change to improve clinical outcomes, peer-based interventions led by community health workers improved long-term chronic disease management by delivering education and psychosocial support that complemented the role of health care professionals. Involvement of community health workers increased participant knowledge and in some cases resulted in behavior changes and improved physiological outcome measures.<sup>13</sup> Interventions that used a multilevel approach involving intrapersonal peer exchange, education, skills building, and individualized assessment of health needs were most successful in improving diabetes management among socially disadvantaged populations, including Hispanics.<sup>15</sup> Specifically, targeting lifestyle changes that promote self-management, such as diet and physical activity, reduced the onset of and adverse sequelae of diabetes among high-risk individuals.<sup>17,18</sup> These findings suggest that interventions that employ community health workers to target the individual, family, and community may be the most effective method to increase diabetes self-management and improve health outcomes among vulnerable, high-risk groups.

The Home Health Party (HHP) intervention was designed using best practices in the behavior promotion field to improve diabetes self-management among rural Hispanics by involving family members and friends in an intervention that took place in participants' homes. In the present study, we used elicitation interviews to evaluate participants' perceptions of the HHPs. The results of this study will strengthen the evidence base by providing support for best practices to improve diabetes self-management among rural Hispanics.

## Methods

### Research Design

In this study, qualitative, semi-structured elicitation interviews were conducted to explore participant perceptions of the HHPs. Qualitative methods are often used to explore complex settings and interactions, and conducting elicitation interviews allows participants to describe experiences in their own words, rather than those imposed on them by researchers.<sup>19</sup> The following research questions guided the analysis: (1) what were participant experiences from the HHPs and (2) which components of the intervention (*promotores*, material incentives, informational pamphlets, household focus) enabled participants to improve health behaviors and diabetes-related outcomes?

### Study Setting

The Lower Yakima Valley is a rural, agricultural region in Eastern Washington specializing in fruit and vegetable production. According to the 2010 US Census, 67% of Yakima Valley residents are Hispanic<sup>20</sup> and of those, 94% are Mexican American.<sup>5</sup> Hispanics in the Valley are primarily of low socioeconomic status, with relatively few years of education, low household incomes, and limited insurance coverage.<sup>20</sup>

### The Home Health Party Intervention Description and Objectives

The HHP interventions were delivered by bilingual *promotores*, known and trusted members of the community. Trained *promotores* visited participants' homes to deliver a series of 5 guided education sessions and distribute incentives related to diabetes self-management. During each session, the promotor used a set of linguistically and culturally tested flip charts focused on

1 specific theme including general diabetes, diabetes complications, self-management, diet, and physical activity. Home Health Party participants received incentives such as educational pamphlets, a cookbook tailored for people with diabetes that focused on Mexican foods, a pedometer, a glucose monitor, a set of measuring cups, high fiber cereal, and placemats with visual representations of healthy foods and portion size.

Participants were encouraged to invite family members and friends to join the HHPs. To this end, the HHPs aimed to normalize household-level expectations for healthy behaviors and provide family-level support for participants to take actions to prevent or manage diabetes. More specifically, the HHPs enabled families to improve diabetes management behaviors by (1) providing culturally relevant information and educational strategies to improve knowledge about how to reduce diabetes risk, (2) building behavioral capacity by providing tools/incentives, such as pedometers, to help participants apply skills, and (3) building self-efficacy by encouraging participants to set manageable behavior change goals, such as small changes in diet.

### The Hispanic Diabetes Education and Prevention Project Description and Objectives

The HHPs were part of a randomized, controlled trial (RCT) (Hispanic Diabetes Education and Prevention Project, Clinicaltrials.gov, NCT01564797). This RCT compared the intervention versus a wait-listed control arm on A1C levels; frequency of fruit and vegetable consumption; and frequency of mild, moderate, and vigorous physical activity in 430 Hispanic residents of the Lower Yakima Valley who were diabetic or pre-diabetic (A1C levels > 6.0%) at randomization. The study ran from 2008 to 2012.

The intervention was designed using theoretical constructs from social ecological health behavior frameworks. These models posit that intrapersonal, interpersonal, organizational, community, and public policy-level factors interact across levels and influence behaviors and that the likelihood of behavior change is enhanced by targeting multiple levels of influence.<sup>12,21</sup> Consequently, the project used mass media strategies, community health fairs, and household-level interventions to promote community-wide behavior change.<sup>6,22</sup> For example, a Spanish-language radio station produced public service announcements, radio shows about diabetes-related lifestyle behavior

changes, and *radionovelas* about diabetes testing and self-management. Project staff provided individual-level education and blood glucose tests at health fairs held throughout the Valley. The HHPs targeted household-level behavior change. The Hispanic Diabetes Education and Prevention Project was successful in reducing blood glucose levels among participants; there was a significant improvement in A1C scores ( $-37.5\%$ ,  $P = .04$ ) in the intervention arm ( $-0.64\%$ ,  $P = .10$ ) compared to the delayed intervention group ( $-0.44\%$ ,  $P = .14$ ).<sup>22</sup> The study design and effectiveness outcomes are described in detail elsewhere.<sup>6,22</sup>

## Recruitment

All 430 participants in the Hispanic Diabetes Prevention and Education Project who participated in the HHPs agreed to be recontacted for future studies or interventions. Forty of these participants were randomly selected and all consented to respond to a semi-structured, face-to-face interview to assess their experience with the HHPs.

## Study Procedures

Three trained, bilingual Hispanic interviewers conducted forty 20- to 25-minute semi-structured interviews in participants' homes between February and March 2012 in the participants' language of choice (Spanish or English). Thirty-five interviews were conducted in Spanish and 5 in English. Informed consent forms were read to and signed by each participant prior to beginning the interview. Interviews were audio-recorded. Within 1 month, bilingual transcriptionists transcribed the audio files verbatim using the Jefferson Transcription System.<sup>23</sup> The research protocol was approved by the Fred Hutchinson Center for Cancer Research Institutional Review Board (File #6194) prior to beginning the study.

## Data Analysis

The research team used a deductive approach to coding by using research questions identified prior to data analysis, constructs of social ecological models of behavior change, and themes taken from the semi-structured interview guide to designate families of codes.<sup>24</sup> The team also used open coding to identify subthemes using participants' own terms and semantics translated into English when necessary.<sup>19</sup> Open coding refers to a

process in which concepts and categories are defined based on their properties and dimensions in the context of the data.<sup>19</sup> Data coding and analysis was an iterative process that involved continual refinement of the coding structure until no new codes emerged. The transcripts were imported into qualitative data analysis software ATLAS.ti version 7 (ATLAS.ti Scientific Software Development GmbH, Berlin, Germany) for coding and analysis.

Two research team members independently read all the transcripts to calibrate the codes and worked together to develop and refine the coding structure and to code and analyze the interviews. Team members had received formal training in qualitative data methods, had undertaken qualitative research in the past, and had substantial experience working with Hispanic populations. Salient quotes were translated from Spanish to English for inclusion in the article. The team met regularly to discuss emerging themes and foster consensus about interpretations of participant-reported experiences. Descriptive characteristics were tabulated and compared using STATA version 11.1 (College Station, Texas, USA).

## Results

Forty participants ranging in age from 26 to 83 years (mean [SD] = 50.5 [12.26]) participated in this study (Table 1). Thirty-two (80%) were female and all were of Hispanic origin. Thirty-three (82.5%) were born outside of the United States, primarily in Mexico, and 80% reported that Spanish was their preferred spoken language. Twenty-eight percent of participants were employed, and few reported being covered by some form of health insurance. More than half of the participants had completed middle school or less and only 8% had completed high school.

## Thematic Analysis

Four primary themes emerged from interviews: (1) participants' desire for improving knowledge about diabetes, (2) participant experiences of building skills for diabetes management, (3) the importance of social support, and (4) embracing household change.

### Improving Knowledge about Diabetes

Participants asserted that their own diagnoses of diabetes or prediabetes influenced their decision to host an

Table 1  
Participant Demographics

Characteristic	Total Sample (n = 40)
Age, mean (SD)	50.5 (12.26)
Sex, % female (No.)	80 (32)
Ethnicity, % Hispanic (No.)	100 (40)
Education	
4th grade or lower, % (No.)	37.50 (15)
Some middle school, % (No.)	32 (13)
Some high school, % (No.)	20 (8)
Completed high school, % (No.)	5 (2)
Completed college, % (No.)	2.5 (1)
Missing, % (No.)	2.5 (1)
Employment status, % employed (No.)	27.5 (11)
Insurance status	
Private, % (No.)	10 (4)
Medicaid, % (No.)	10 (4)
Medicare, % (No.)	15 (6)
Other basic health care plan, % (No.)	15 (6)
Country of birth, % US (No.)	17.5 (7)
Preferred language, % Spanish (No.)	80 (32)

HHP. In some cases, friends or family members had encouraged their participation. Many participants viewed the HHP as an opportunity to gain new knowledge about diabetes and diabetes management, particularly regarding “what I should eat more of, what I should eat less of” and physical activities targeted to their physical needs and ability levels. Several participants also said that their family members suffered from diabetes, and the knowledge would be important to pass on beyond the HHPs. Demonstrating this point, 1 participant said,

*I've been a diabetic for more than 25 years . . . and I was able to pass on that information to my grand-daughters, because diabetes runs in our family, and I was able to explain to them they need to eat better, so they can prevent it.*

Several participants, such as this participant, had vicariously experienced family members' battles with diabetes, a fact that motivated them to address their own health before it spiraled out of control:

*It wasn't very long ago I was diagnosed with diabetes. . . . My husband is diabetic and he has already had many [problems] with diabetes. And I watch him take lots of medicine, lots of medicine, and I didn't want to take so much medicine. So I told myself, “I am going to try to take care of myself the best I can, to avoid this.”*

Participants were surprised to learn that diabetes was controllable and indicated that it was the most empowering message they received. One woman said that she “learned that one can take control of this disease. . . . I have to walk and with the right food, my [blood] sugar does not have to be too high or too low.” Another woman added that HHPs addressed her fears about having been diagnosed with diabetes: “[The promotora] told me that I could live many years if I took care of myself. And so she calmed me down because I was nervous about that.”

### Building Skills for Diabetes Management

Participants were eager to apply the knowledge they learned during the HHPs and expressed that the demonstrations by the promotor and the incentives assisted them in building skills to manage diabetes. Exemplifying this concept, 1 man reported, “Well, I asked her how many portions I could eat, and she brought me a cookbook and measuring spoons so I could know how much I could eat. And when I asked her how many tortillas I could eat, she showed me.” Another woman said the promotor showed her “how to measure food, how to know what was ‘fattening’ and how many grams (to eat).” A man who had received the placemat with visual representations of health food and portion size said the promotor taught him “how to eat small portions. You can eat more often but small portions, and combine [different] foods . . . and by doing this, you can control your sugar.”

The pedometer was the most popular incentive among participants. One participant said she enjoyed using it “because I get to see how much I'm walking.” Others said the pedometer provided instant gratification as well as motivation, because they could “look at the numbers and . . . I wanted to walk more.” Although participants were initially committed to using the pedometer, several reported that they had since lost it or that weather or other barriers made it difficult for them to continue walking.

A few participants described using the glucose monitor as a way to gauge progress in implementing healthy

behaviors. One man demonstrated this concept by noting, “I checked my [glucose level] on Saturday and it was 130 in the morning . . . and so I think I am taking care of myself.”

Although all participants were provided with informational pamphlets, slightly more than half of participants recalled having received them and only 1 reported using it.

### The Importance of Social Support

Participants described the promotor’s role as distinct from that of an educator or medical provider. They portrayed promotores as advice-givers and champions of diabetes management. Participants, such as this one, said the promotor provided them with information they found credible, as well as the skills, support, and ongoing encouragement to implement healthy lifestyle changes:

*I was always scared about how I’m gonna, if I eat this food, ah, my sugar would go way up and stuff. But [the promotora] taught me that you can eat that food, just not a lot of it. It needs to be portioned out. So I learned that from her.*

Participants said the promotor was a key contributor to both their positive experience during the HHP and their knowledge acquisition. They described the promotor as “friendly,” “helpful,” “confident,” and “knowledgeable.” They felt the promotor not only delivered trustworthy information but also put them at ease, providing a safe space to ask and answer questions about diabetes. Illustrating this idea, 1 participant reported, “Well, I felt good with the way she helped us understand nutrition, the way one should care for oneself around diabetes, practicing exercise and the diets, everything. Everything she talked to us about was a very good experience for us.” When describing their relationship with the promotor, half of participants used the word *confianza*, loosely translated as having confidence and trust in another person. This participant exemplified participants’ sentiment about the positive relationship they had developed with promotores:

*Oh yes . . . very professional, the young lady, the señorita who came . . . I liked her. She gave me assurance. She gave me confidence, like when she came to visit, taught me the lesson, I felt good. I felt peaceful. That is to say, I did not feel uncomfortable, [by] the way she would talk, ask me questions, and the answers she provided to my questions.*

Several participants also said that they had referred their friends and family to the promotor: “I grab the phone sometimes and I say to my wife, ‘Ask [promotora’s name]!’ We hope that we will always be able to count on her friendship because for us this is very important.” Most participants reported that they would go to the promotor for health advice in the future. One participant said, “Well, [the promotor] gave me the best advice. . . . I don’t ask anyone else what to do.”

Participants also identified their doctor as a source of information about diabetes but perceived the role of doctor as a clinical care provider, as demonstrated by this participant: “The only person I’ve asked is, I can feel free to call [the promotor]. . . . She’ll say, ‘If it’s bad, go to your doctor.’ She doesn’t doctor me. She’ll just give me advice.” Many participants, such as this one, said they relied on promotores because their doctors often did not have enough time to provide them with diabetes information: “[The promotores] are more informative than your doctor. . . . The promotora explained everything—why it’s necessary to do things a certain way, why things—you know—why—things that you shouldn’t do, why—why it’s important that you don’t do it—they go into more detail.”

### Embracing Household-Level Change

**Behavioral and lifestyle changes.** When asked how the intervention enabled them to modify their health behaviors, most participants were able to note at least 1 detail about the changes in individual and household behavior they had made as a result of information they received from the promotor. One participant demonstrated this theme in her report that she “used to eat more tortillas, more red meat, more soda, I smoked. I don’t smoke anymore. . . . At home we practically don’t eat red meat, and well, now we eat . . . fish, vegetables, chicken, things that don’t harm us as much.” Participants reported most behavior changes in their diet and physical activity levels. Several described how they had targeted portion sizes and the quantity of food they consumed in their household. This woman described the phenomenon of family-level changes:

*It’s just the portions and . . . all the snacking and things like that. Instead of snacking, you know . . . we didn’t have a good habit and . . . they would eat at a certain time and the kids would be snacking at a certain time and, ah, well, now it’s like “no, we’re gonna get breakfast, lunch, and dinner and we’re gonna sit down and*

*we're gonna do this together. . . . So ah, we ended up, ah, doing the 3 meals and healthy snacks instead of cookies . . . but this time they were portioned out right.*

**Positive health outcomes.** Participants spontaneously reported multiple positive health outcomes they attributed to their participation in the HHP, including reduced A1C levels, weight loss, and a general sense of improved well-being. One participant described a reduction in cholesterol, and others, such as this participant, linked behavior changes with having diabetes under control: “Yes, because I exercise and, and walk, which I didn’t do. And now, well, I am in control, because I have sugar under control and it is not high.”

## Discussion

This study provides evidence about effective mechanisms—including the use of promotores, skills building activities, and targeting households instead of individuals—that promote behavior change among rural Hispanic populations at risk for or living with diabetes. The results from this analysis demonstrate that participants made changes in health behaviors and that some experienced longer term improvements in health since their participation in the HHP intervention. Knowledge acquisition, building skills, and social support emerged as the building blocks that resulted in changes in behavior and overall perceived improvements in health among this study population.

Participants not only recalled messages they had learned from the promotores but also emphasized the importance of passing on this knowledge to others in the community. Furthermore, participants described being empowered by gaining a sense of control over diabetes as a result of what they learned from the intervention. Reports of how skills learned were applied to dietary choices and other self-management activities demonstrate how knowledge contributed to building skills for healthy living. These findings suggest that knowledge acquisition may have had broad-reaching effects in the lives of the participants.

Skill demonstrations, such as measuring oil and portion size, given by promotores, and project incentives were also essential components of building skills. This finding was consistent with other research showing that focus on behavior-related tasks in diabetes care interventions is effective.<sup>25</sup> The demonstrations increased participant self-efficacy to apply self-management behaviors,

such as checking glucose levels and measuring portion sizes. The incentives provided immediate gratification and motivation for change by allowing participants to gauge their progress and meet their goals.<sup>26</sup> Well-designed incentives, such as placemats and cookbooks, that show nutrition information and portion size may actually be more useful than less-tangible incentives, such as written materials, in helping participants to remember self-care information and to implement skills that result in behavior changes.<sup>26</sup>

This study also suggests that strengthening social support through household-level interventions may be an effective strategy for improving skills and self-management for chronic health conditions among Hispanic populations. Despite this, many diabetes management interventions continue to target individuals or nonfamilial groups.<sup>25</sup> In our study, not all participants took advantage of the household component; however, those who did involve family members reported changes in family-level lifestyles, such as eating meals together and increased consumption of healthy food choices. Some participants felt empowered to pass on information to at-risk family members to help them prevent diabetes. These findings suggest that there were positive changes in the family environment and that family-level support for healthy living increased.

The promotor was the cornerstone of the HHP intervention and served as a credible, peer role model, offering social support in the context of a shared cultural perspective. The promotores were viewed as champions of health and, from this perspective, provided a safe space for participants to seek and receive health information that was distinct from the space given by medical providers. Promotores also contributed to skills building by offering demonstrations of portion size and healthy cooking tips. Our results suggest that by imparting knowledge, skills, and encouragement to participants, the promotor played a vital role in increasing self-efficacy and advancing behavior change. The positive relationships that developed between the participants and the promotor, characterized by a high level of trust in the information provided, built participants’ confidence that they possessed the tools to control their health.

Promotores have been widely used in health interventions among the Hispanic population.<sup>27</sup> Some studies indicate that community health worker-based interventions yield positive changes in participant knowledge and health outcomes when compared with alternatives, such as no intervention, mass media, and written materials.<sup>28</sup>

Studies also suggest that community health workers are effective at providing social support and culturally competent care.<sup>25,29</sup> These effects have been most pronounced in vulnerable and minority populations.<sup>25,29,30</sup> There is also evidence that community health workers have successfully improved outcomes among patients with diabetes.<sup>25</sup> Our study contributes to the literature by providing additional evidence in favor of community health worker programs in the context of a family-level intervention.

Our findings support previous research that has shown that diabetes interventions that are culturally tailored, use community educators, apply a comprehensive approach, and focus on behavior-related tasks are more likely to achieve positive effects compared with interventions that emphasize didactic teaching methods or that focus only on increasing diabetes knowledge.<sup>25</sup>

### Limitations

Despite the strengths of this study, there are some limitations. A few participants indicated that they did not understand terms used in the semi-structured interview guide including *incentives* and *pamphlets*, and this may have led to some underreporting and potentially biased responses; however, interview transcripts suggest that the interviewers attempted to explain these terms to participants. Social desirability bias may also be present. Previous research has shown that Latino participants tend to score higher than Caucasians on some measures of social desirability.<sup>31</sup> It is possible that cultural norms related to social presentation may have influenced responses and introduced some bias by reporting more favorable perceptions and outcomes.<sup>31</sup> A further limitation is that only a sample of the trial participants was interviewed. Although the sample was randomly drawn and saturation in the responses was achieved, it is possible that interviewing other trial participants may have resulted in more diverse responses. Finally, although the HHPs were designed to target households, many participants chose not to involve family members. As a result, the full spectrum of potential perspectives about the involvement of family members may not have been captured.

### Implications for Practitioners

Our study highlights several important components of interventions attempting to address chronic diseases such as diabetes among rural Hispanic populations. Promotores are a critical component in encouraging behavior change

among this vulnerable population. Generally, promotores are trusted in the community, provide social support, and if trained appropriately, are effective at transmitting information in a culturally sensitive way that can improve self-efficacy and behavioral capabilities. Messages for achieving behavioral change should be designed to help participants achieve small, manageable goals. This may be accomplished by reducing the amount of didactic and written information and identifying a few key, simple messages. Well-designed tools can also build skills in behavior change and aid participants to monitor changes. Tools that provide step-by-step examples of behavior, such as cookbooks, and that aid participants to monitor behavior change and behavioral outcomes, such as pedometers and glucose monitors, serve to build skills and show participants that they can achieve manageable goals.<sup>26</sup> Finally, targeting households is a promising strategy for creating a supportive environment for individual and family lifestyle changes that benefit the entire family unit.

### Conclusion

This intervention is a promising, culturally and linguistically relevant strategy for addressing diabetes among rural, underserved, Hispanic populations. Of all the intervention components, the participants noted the importance of the promotores, suggesting that this approach is a valuable one for achieving behavior change.

### References

- Centers for Disease Controls and Prevention. *National diabetes fact sheet: national estimates and general information on diabetes and prediabetes in the United States*. Atlanta, GA; 2011. Available at: <http://www.cdc.gov/diabetes/pubs/factsheet11.htm>. Accessed May 29, 2012.
- Loprest P, Acs G, Ratcliffe C, Vinopal K. *Who are Low-Wage Workers? ASPE Research Brief*. Washington, DC; 2009. Available at: <http://aspe.hhs.gov/hsp/09/LowWageWorkers/rb.shtml>. Accessed May 29, 2012.
- Rhoades JA, Vistnes JP. *Health Insurance Status of Hispanic Subpopulations in 2004: Estimates for the US Civilian Noninstitutionalized Population under Age 65: MEPS Statistical Brief # 143*. Washington, DC; 2006. Available at: [http://meps.ahrq.gov/mepsweb/data\\_files/publications/st143/stat143.pdf](http://meps.ahrq.gov/mepsweb/data_files/publications/st143/stat143.pdf).
- Livingston G, Minushkin S, Cohn D. *Hispanics and Health Care in the United States*. Washington, DC; 2008. Available at: <http://www.pewhispanic.org/2008/08/13/hispanics-and-health-care-in-the-united-states-access-information-and-knowledge/>. Accessed May 29, 2012.
- Glover S, Moore CG, Samuels ME, Probst JC. Disparities in access to care among rural working-age adults. *J Rural Health*.

- 2004;20(3):193–205. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/15298093>. Accessed May 29, 2012.
6. Koopman RJ, Mainous AG, Geesey ME. Rural residence and Hispanic ethnicity: doubly disadvantaged for diabetes? *J Rural Health*. 2006;22(1):63–8. doi:10.1111/j.1748-0361.2006.00009.x.
  7. Coronado GD, Thompson B, Tejada S, Godina R, Chen L. Sociodemographic factors and self-management practices related to type 2 diabetes among Hispanics and non-Hispanic whites in a rural setting. *J Rural Health*. 2007;23(1):49–54. doi:10.1111/j.1748-0361.2006.00067.x.
  8. Livaudais JC, Thompson B, Islas I, Ibarra G, Godina R, Coronado GD. Type 2 diabetes among rural Hispanics in Washington State: perspectives from community stakeholders. *Health Promot Pract*. 2010;11(4):589–99. doi:10.1177/1524839909354458.
  9. Kandel W, Cromartie J. *New Patterns of Hispanic Settlement in Rural America: Rural Development Research Report Number 99*. Washington, DC, USA; 2004. Available at: <http://www.ers.usda.gov/publications/rdr99/rdr99.pdf>.
  10. Baig AA, Locklin CA, Wilkes AE, et al. “One Can Learn From Other People’s Experiences”: Latino adults’ preferences for peer-based diabetes interventions. *Diabetes Educ*. 38(5):733–41. doi:10.1177/0145721712455700.
  11. Raymond JS, Rhoads DL, Raymond RI. The relative impact of family and social involvement on Chicano mental health. *Am J Community Psychol*. 1980;8(5):557–69. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/7424840>. Accessed January 9, 2013.
  12. Ramal E, Petersen AB, Ingram KM, Champlin AM. Factors that influence diabetes self-management in Hispanics living in low socioeconomic neighborhoods in San Bernardino, California. *J Immigr Minor Health*. 2012;14(6):1090–6. doi:10.1007/s10903-012-9601-y.
  13. Castro FG, Shaibi GQ, Boehm-Smith E. Ecodevelopmental contexts for preventing type 2 diabetes in Latino and other racial/ethnic minority populations. *J Behav Med*. 2009;32(1):89–105. doi:10.1007/s10865-008-9194-z.
  14. Stokols D, Allen J, Bellingham R. The social ecology of health promotion: implications for research and practice. *Am J Heal Promot*. 1996;10(4):247–251.
  15. Norris SL, Chowdhury FM, Van Le K, et al. Effectiveness of community health workers in the care of persons with diabetes. *Diabet Med*. 2006;23(5):544–56. doi:10.1111/j.1464-5491.2006.01845.x.
  16. Funnell MM. Peer-based behavioural strategies to improve chronic disease self-management and clinical outcomes: evidence, logistics, evaluation considerations and needs for future research. *Fam Pract*. 2010;27 Suppl 1:i17–22. doi:10.1093/fampra/cmp027.
  17. Glazier RH, Bajcar J, Kennie NR, Willson K. A systematic review of interventions to improve diabetes care in socially disadvantaged populations. *Diabetes Care*. 2006;29(7):1675–88. doi:10.2337/dc05-1942.
  18. Ruggiero L, Castillo A, Quinn L, Hochwert M. Translation of the diabetes prevention program’s lifestyle intervention: role of community health workers. *Curr Diab Rep*. 2012;12(2):127–37. doi:10.1007/s11892-012-0254-y.
  19. Dunbar-Jacob J. Models for changing patient behavior. *Am J Nurs*. 2007;107(6 Suppl):20–5; quiz 25. doi:10.1097/01.NAJ.0000277821.67053.f7.
  20. Williamson DF, Vinicor F, Bowman BA. Primary prevention of type 2 diabetes mellitus by lifestyle intervention: implications for health policy. *Ann Intern Med*. 2004;140(11):951–7. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/15172920>. Accessed May 29, 2012.
  21. Corbin J, Strauss A. *Basics of Qualitative Research*. 3rd ed. Thousand Oaks, CA: Sage Publications; 2008.
  22. Census Bureau. Yakima County Quickfacts from the US Census Bureau. Available at: <http://quickfacts.census.gov/qfd/states/53/53077.html>. Accessed May 29, 2012.
  23. Sallis J, Owen N, Fisher E. Ecological models of health behavior. *Heal Behav Heal Educ*. 2008;4:465–486.
  24. Duggan C, Carosso E, Mariscal N, et al. Diabetes prevention in Hispanics: report from a randomized controlled trial. *Prev Chronic Dis*. 2014;11:E28. doi:10.5888/pcd11.130119.
  25. Jefferson G. Glossary of transcript symbols with an introduction. In: Lerner G, ed. *Conversation Analysis: Studies from the first generation*. Amsterdam/Philadelphia: John Benjamins; 2004:13–31.
  26. MacQueen KM, McLellan E, Milstein KK, Milstein B. Codebook Development for Team-Based Qualitative Analysis. *Cult Anthropol Methods*. 1998;10(2):31–36. Available at: <http://www.cdc.gov/hiv/topics/surveillance/resources/software/pdf/codebook.pdf>.
  27. Glazier RH, Bajcar J, Kennie NR, Willson K. A systematic review of interventions to improve diabetes care in socially disadvantaged populations. *Diabetes Care*. 2006;29(7):1675–88. doi:10.2337/dc05-1942.
  28. Petry NM, Cengiz E, Wagner JA, Hood KK, Carria L, Tamborlane W V. Incentivizing behaviour change to improve diabetes care. *Diabetes Obes Metab*. 2013. doi:10.1111/dom.12111.
  29. WestRasmus EK, Pineda-Reyes F, Tamez M, Westfall JM. Promotores de salud and community health workers: an annotated bibliography. *Fam Community Health*. 35(2):172–82. doi:10.1097/FCH.0b013e31824991d2.
  30. Viswanathan M, Kraschnewski J, Nishikawa B, et al. Outcomes of community health worker interventions. *Evid Rep Technol Assess (Full Rep)*. 2009;(181):1–144, A1–2, B1–14, passim. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/20804230>. Accessed June 13, 2013.
  31. Andrews JO, Felton G, Wewers ME, Heath J. Use of community health workers in research with ethnic minority women. *J Nurs Scholarsh*. 2004;36(4):358–65. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/15636417>. Accessed June 13, 2013.
  32. Swider SM. Outcome effectiveness of community health workers: an integrative literature review. *Public Health Nurs*. 19(1):11–20. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/11841678>. Accessed June 13, 2013.
  33. Hopwood CJ, Flato CG, Ambwani S, Garland BH, Morey LC. A comparison of Latino and Anglo socially desirable responding. *J Clin Psychol*. 2009;65(7):769–80. doi:10.1002/jclp.20584.

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