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RESEARCH METHODS AND PRACTICE

Empowerment of *Promotoras* as *Promotora*–Researchers in the *Comidas Saludables & Gente Sana en las Colonias del Sur de Tejas* (Healthy Food and Healthy People in South Texas *Colonias*) Program

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Abstract *Promotoras* are trusted members of underserved, at-risk Hispanic communities experiencing social and health inequities. As *promotora*–researchers, *promotoras* have the unique ability and opportunity not only to provide outreach and education but also to be actively engaged in conducting research in their communities and serve as a cultural bridge between the community and researchers. In this article, we present a case study of personal and collective empowerment of six *promotora*–researchers who participated in seven community-based participatory research projects. Data sources included debriefing interviews with the *promotora*–researchers, milestone tracking and documentation completed during and after each study, and observations by the principal investigator and project managers regarding the role of the *promotora*–researchers in these studies. We qualitatively analyzed the data to identify the processes and decisions that were developed and implemented in a series of projects, which resulted in *promotora*–researcher empowerment. We found that active engagement empowered *promotora*–researchers personally and collectively in all phases of the research study. Common elements that contributed to the empowerment of *promotora*–researchers were valuing *promotora*–researchers' input, enabling *promotora*–researchers to acquire and utilize new skills, and allowing *promotora*–researchers to serve as both researchers and traditional *promotoras*. Together, these elements enabled them to more fully participate in research projects, while allowing them to identify and address needs within their own communities.

Keywords *Promotoras* · *Promotora*–researcher · Empowerment · Food security · Nutrition · Mexican-origin · Border health

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Introduction

The purpose of this case study is to describe the changes in personal and collective empowerment of

promotoras de salud (*promotoras*) through their work as *promotora*–researchers, with an emphasis on a community-based participatory research (CBPR) approach. In this article, the term "empowerment" is used to indicate a multidimensional process that involves *promotoras* assuming personal control and mastery in the context of the *colonia* environment through project training and acquisition of new skills, as well as application of these research methods (Page & Czuba, 1999). In practical terms, this empowerment involved the fostering of personal empowerment among *promotoras* to conduct rigorous research projects and to take more ownership in the project decision-making process and the fostering of collective empowerment among *promotora*–researchers expressed by outreach efforts on issues they define as important to their own lives, their communities, and their society (Stewart, 1990). The role of *promotora*–researchers is described across seven, nested research projects in *colonias* along the Texas–Mexico border. During the initial 5 years of the research program, which the *promotoras* named "*Comidas Saludables & Gente Sana en las Colonias del Sur de Tejas*" (Healthy Food and Healthy People in South Texas *Colonias*), *promotoras* were actively engaged in comprehensive training and project activities throughout the research process. This active engagement led to personal and collective empowerment through a participatory approach that expanded their role from *promotoras* to *promotora*–researchers, a professional qualification coined by team *promotoras*. To contextualize our case study, we briefly describe the priority population and research setting, a CBPR approach, the rationale for using *promotoras* for this population, and the traditional and emerging roles of *promotoras*. After providing this context, we discuss the empowerment processes of *promotora*–researchers.

Background

The research studies presented in this case study were conducted in two Lower Rio Grande Valley (LRGV) counties—Cameron and Hidalgo—in the southernmost region of Texas, along the US–Mexico border. The LRGV remains one of the fastest-growing areas in the United States, with over 1.1 million residents, 90 % of whom are of Mexican origin (US Census Bureau, 2010). Population growth and demands for low-cost housing in this area have resulted in the development of more than 1,000 *colonias*, a Spanish term that describes unincorporated subdivisions that lack adequate infrastructure, such as paved streets, sidewalks, storm drainage, sewers, electricity, potable water, US Postal Service, and telephone lines (Texas State Energy Conservation Office, n.d.; Ward, 1999).

Colonia families are one of the most disadvantaged, hard-to-reach minority groups in the United States (Mier et al., 2008). *Colonia* residents experience numerous social, economic, and health disparities. For example, Mexican-origin children and families exhibit high rates of poverty, geographic challenges, food insecurity, unmet physical and psychological needs, and a considerable burden of chronic diseases (Díaz-Apodaca et al., 2010; Ezendam et al., 2011; Hoelscher & Day, 2004; Mier et al., 2008; Peña & Rosenthal, 2010; Sharkey et al., 2011a). Many residents live in persistent poverty: 30 % live at or below the federal poverty level, which is significantly higher than the national rate of 12.4 % (US Census Bureau, 2010). Geographic challenges, such as neighborhood deprivation (e.g., limited means of transportation) and locational disadvantages (e.g., living in unincorporated areas that are spatially removed from urban centers such as McAllen, Edinburg, and Mission), constrain access to basic necessities, such as food, employment, and health/medical care (Sharkey et al., 2009a, 2011a). Household food insecurity is extremely high; food insecurity at the level of household, adult, or child was recently shown to be 78 % (Sharkey et al., 2011a), which compounds health and developmental issues, especially among children. The health of *colonia* residents is largely defined by higher rates of chronic diseases and poor health status (Díaz-Apodaca et al., 2010; Ezendam et al., 2011; Mier et al., 2008; Peña & Rosenthal, 2010). While obesity continues to rise at alarming rates among all subpopulations, prevalence is highest among racial and ethnic minority groups, including Hispanics, and continues to increase among the economically disadvantaged (Flegal et al., 2004; Kumanyika, 2006; Ogden et al., 2006). Obesity and diet-related chronic diseases are extremely high in both children and adults of the LRGV (69 % of adults have a body mass index $\geq$ 25 kg/m^2; Sharkey et al., 2011a). However, the limited presence of community partnerships, especially participatory approaches that actively engage *promotoras*, is a critical barrier to implementing public health interventions in

these communities (Balcázar et al., 2009). CBPR provides a cyclical process for coalition building, community identification of problems of community concern, community needs and resources, and the capacity to plan an approach directed at individuals and their environment (Israel et al., 1998). CBPR provides an opportunity for co-learning, mutual benefit, and the creation of trust and long-term commitment among and between community-based organizations, community residents, and academic partners (Wallerstein & Duran, 2006). A major barrier to CBPR, especially among hard-to-reach populations, is the knowledge required of the population and trust of researchers by participants. *Promotoras* are cultural brokers who are trusted by residents and reside in the *colonias*.

The Case for *Promotoras*

LRGV *colonia* residents have significant needs and face substantial barriers to being healthy, and a few characteristics in particular make this population difficult to reach. They are geographically isolated, monolingual (Spanish), and cautious of others who do not share their Mexican ancestry, Spanish language, and community-wide values and norms. As a result, *colonia* residents participate less in evidence-based prevention and screening, and thus experience significantly poorer outcomes. Residents need effective strategies to improve health outcomes and overall health status. This case study highlights the use of *promotoras* [female community health workers (CHWs)] in research projects, which is one evidence-based strategy for improving health among vulnerable Hispanic and Latino populations (Crowe et al., 2008; Larkey et al., 2009; Marsiglia et al., 2010; Ramos et al., 2001; Staten et al., 2005), as well as a CBPR approach (Brumby et al., 2009; Cartwright et al., 2006; Naylor et al., 2002; Savage et al., 2006). *Promotoras* are effective in Hispanic and Latino populations because they are native to the community, trusted by residents, and share the language and cultural beliefs (Larkey et al., 2009; Levine et al., 1992; Ramos et al., 2001).

Traditional and Emerging roles of *Promotoras*

The 2007 Community Health Worker National Workforce Study defined *promotoras* as "lay members of communities who work either for pay or as volunteers in association with the local health care system in both urban and rural environments and usually share ethnicity, language, socioeconomic status and life experiences with the community members they serve" (Bureau of Health Professions, 2007, p. 2). *Promotoras* are known by several names (e.g., CHWs, patient navigators, and community health representatives), and work in a variety of health fields (Bureau of Labor Statistics, 2008). Traditional services provided by *promotoras* include interpretation and translation services, health education and information, needs assessment, accessing healthcare services, eligibility screenings, advocacy direct services (e.g., first aid and blood pressure checks), referrals to needed services, and record keeping (Bureau of Labor Statistics, 2008). Through these skill sets, *promotoras* increase access to care in the community by serving as a link between residents and needed health and social services.

Several studies have demonstrated the effectiveness of *promotoras* in helping underserved Hispanic and Latino populations achieve positive health outcomes, through traditional functions such as health education, promotion, outreach, case management, service coordination, and referrals (Crowe et al., 2008; Larkey et al., 2009; Marsiglia et al., 2010; Ramos et al., 2001; Staten et al., 2005), as well as in health behavior interventions (Balcázar et al., 2009; Heisler et al., 2009; McCloskey, 2009; Marsiglia et al., 2010). In addition, there are emerging roles and responsibilities for *promotoras* that transcend health education, promotion, and outreach. One such non-traditional role engages *promotoras* in research studies. However, there are few published studies acknowledging the emerging role of *promotoras* in research projects, beyond those studies that utilize *promotoras* in the recruitment of participants (Brumby et al., 2009; Cartwright et al., 2006; Naylor et al., 2002; Savage et al., 2006). Although CBPR has taken on added importance in community-based research for several years, it appears that there are no research projects that engage *promotoras* in a decision-making role within CBPR.

Stewart (1990) described two levels of empowerment: personal and collective. In this case study, personal empowerment refers to intrapersonal processes on the part of the individual *promotora*, and collective empowerment refers to the ways in which *promotoras* relate to the *colonias* in which they live

and work. Change in empowerment is seen as a process and outcome of the emerging non-traditional, research role for *promotoras*. Thus, this case study provides an in-depth discussion of the expanded roles of *promotora*–researchers in conducting research and changing personal and collective empowerment. The goals of this case study in empowerment are to: (1) discuss in-depth training across multiple research projects; (2) discuss *promotoras*' involvement and rationale behind key decisions; and (3) present the case for empowerment of *promotoras*–researchers from the perspectives of the project, the *promotoras,* and community residents.

Methods

Characteristics of *Promotora*–Researchers

Characteristics include those personal and professional attributes that describe this team of *promotora*–researchers. The six *promotora*–researchers featured in this article had a broad range of life and professional experiences, but they shared a common desire to serve their communities with "heart." This team of women was middle-aged (age ranged from mid-30s to 50s), of Mexican origin, and native Spanish-speaking. The *promotora*–researchers were either from the *colonias* in the study areas or from nearby *colonias*. Most were or became certified CHWs through the Texas Department of State Health Services, CHW/*Promotora* Training and Certification Program, during these projects. All *promotora*–researchers had previously worked in community health settings—including clinics, community resource centers, and other health and human service agencies—for at least 10 years. Their combined skills and experiences in health services and outreach in conjunction with their commitment to serving the community benefited the research projects in unexpected ways and led to further collaboration in research and outreach, which is discussed in detail below.

Research Projects

The academic (research)–*promotora* collaboration spanned multiple research projects and involved this team of six *promotora*–researchers. All projects were set in Hidalgo and Cameron counties in the LRGV, with fieldwork activities completed in Spanish. Projects shared a focus on understanding contextual issues related to food/eating behaviors, access to food, food insecurity, and health. They also focused primarily on more vulnerable residents in the community, such as families with children and older adults. (Table 1 provides a detailed description for each project.) Figure 1 connects the seven projects over time by

Table 1 Detailed description of research projects

	Project name	Description
1	The Participant Observation (POP) Project	This project was an intense qualitative study, with two, two-person research teams made-up of a *promotora*-researcher and a university-based researcher. Teams made observations in families' homes during two, four-hour weekday visits and one, eight-hour weekend visit (Sharkey et al., 2010; Sukovic et al., 2011). Data collection was from January to February 2007. Ten families participated in this project—five families from *colonia* clusters near Alton and San Carlos (Hidalgo County). The observation guide for completing in-home observations was developed in collaboration with *promotora*-researchers. The purpose of the project was to learn more about food and eating behaviors of families living in *colonias*—areas with exceptionally high rates of food insecurity and diet-related chronic diseases
2	The Healthy Brain Focus Groups (HBFG)	The HBFG were part of an effort aimed at better understanding mental health experiences of older adults (Sharkey, et al., 2009b). From June to August 2007, *promotora*-researchers recruited 33 Mexican American older adults (9 men and 24 women) from two *colonia* clusters to participate in focus groups. Participants completed a 19-item questionnaire, and *promotora*-researchers from the community conducted four focus groups of older adults and one focus group of *promotoras* (10 women) using a semi-structured interview guide

Table 1 continued

	Project name	Description
3	The Household Food Inventory (HFI) Project	The HFI worked with families in two different *colonia* clusters from August to October 2008 (Sharkey et al., 2010). Phase one involved six families (three from each *colonia* cluster), with five household inventories taken every week for 5 weeks. Phase two involved 20 families (10 from each *colonia* cluster) and household food inventories were conducted three times, 2 weeks apart each time. In addition, *promotora*-researchers assisted the families with completion of surveys and interviewed each family about household food availability. *Promotora*-researchers also assessed location of household appliances, both inside and outside, and evaluated functionality. The purpose was to develop an approach for understanding intra-month variability in the availability of household food resources to family members
4	The Mobile Food Vendors (MFV) Project	The MFV project focused on describing the role that MFV have on food and beverage access in *colonias* (Sharkey, 2011). In Phase one, *promotora*-researchers met with 100 *colonia* residents to discuss their family's utilization of a variety of types of foods and beverages marketed by mobile food vendors. In Phase two, data collection included several different methods and one new method: geographic information systems (GIS), and was from April-June 2009. *Promotora*-researchers completed GIS-based tracking of individual vendors, administered surveys, and led interviews with the mobile food vendors
5	The Participant-Driven Photo-Elicitation (PDPE) Project	The PDPE project combined in-depth interviews with participants' photographs to better understand mothers' day-to-day food choices. Data collection was done between August- September 2009 (Johnson, et al., 2011). *Promotora*-researchers recruited 10 Mexican-origin mothers who had participated in the Household Food Inventory project (in *colonias* near Alton and San Carlos). *Promotora*-researchers used existing qualitative skills and one new method: participant-driven photo-elicitation. Major activities included: facilitating an in-depth interview, teaching mothers how to use the disposable cameras, picking-up the cameras, developing the photographs, and using the mothers' photographs as probes into a photo-elicitation interview. *Promotora*-researchers were involved in post-data collection activities e.g., translating recorded interviews, interpreting data, and dissemination of research findings
6	The *Colonia*-Household and Community Food Resource Assessment (C-HCFRA) Project	The C-HCFRA project was completed in *colonias* near La Feria and Progreso (in Hidalgo County), from August-November 2009 (Sharkey, et al., 2011a, b, c). *Promotora*-researchers went door-to-door administering a comprehensive survey to the adult primarily responsible for food acquisition and preparation. More than 600 women completed this survey and provided valuable details about the community including, federal and community food and nutrition programs, perceptions of the food environment, and food security status. Additional *promotora*-researchers tasks included data collection, storage, and entry
7	The *Pulga* Project	This was a blended project where the *promotora*-researchers administered surveys to and interviewed *pulga* (flea-market) owners and operators in Hidalgo and Cameron Counties, from February to August 2010 (Dean, et al., 2011). This project was designed to quantitatively and qualitatively describe *pulga* settings as one component of the retail food environment, and as an understudied alternative food source, and required the *promotora*-researchers to apply many skills they had acquired during previous projects

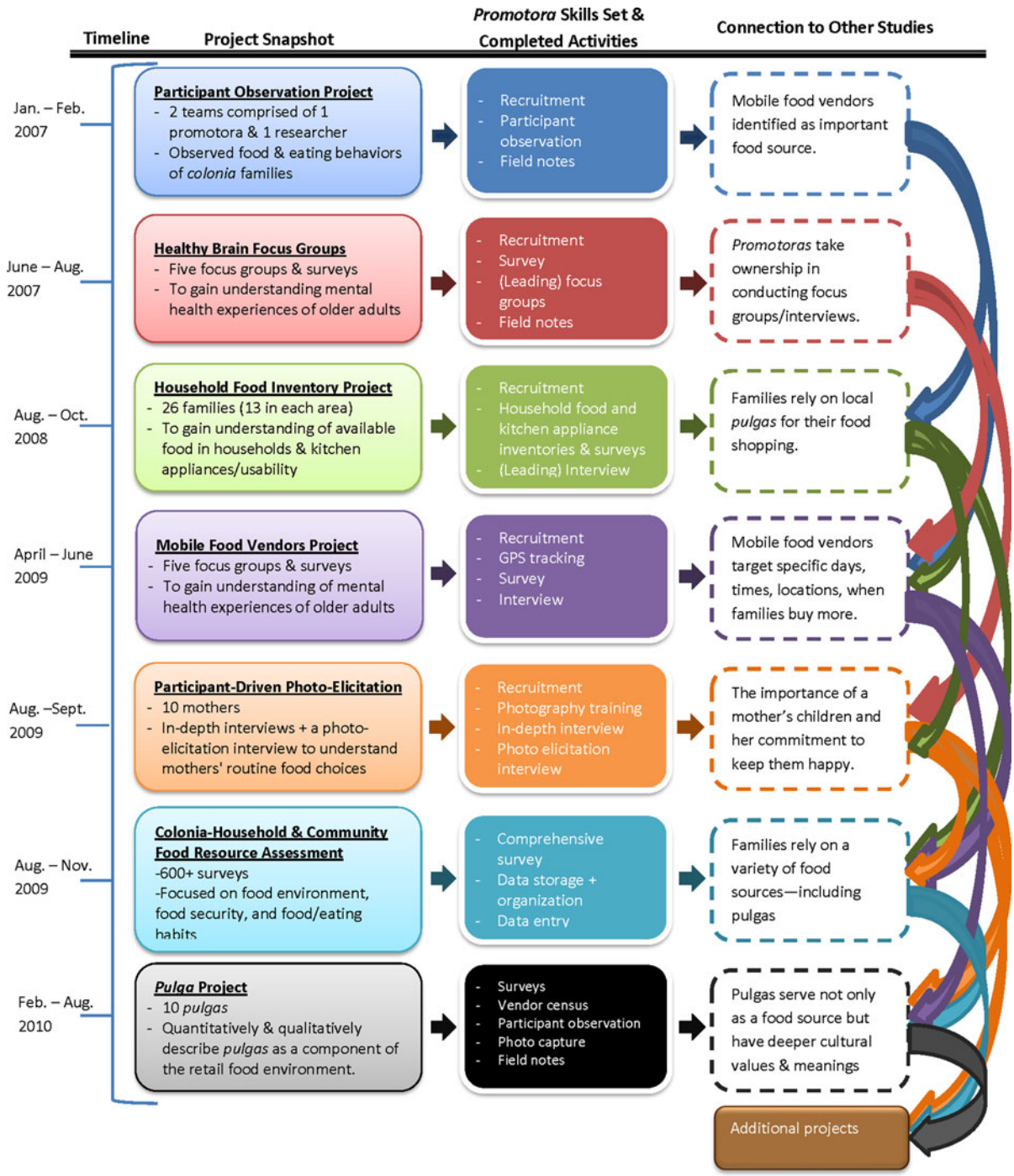

Fig. 1 Key features of each project, research skills needed for each project, and observations or outcomes connecting projects to each other

providing a description of the skill set required of *promotora*–researcher for each project. This figure also demonstrates how an observation or outcome from one project influenced the design of a future project. Of note, there is an expansion in the roles of *promotora*–researchers across projects, as they

became personally empowered through the acquisition of new knowledge and skills, sought greater involvement, and engaged in more stages of the research life cycle (e.g., from conceptualization through data collection, analysis, and dissemination).

The data sources for this study included (1) audio-recorded debriefing interviews conducted with the team of *promotora*–researchers after completing each project; (2) milestone tracking and documentation completed during and after each study documenting any changes in research methods, research materials, and timelines; and (3) observations by the principal investigator (PI) and project managers regarding the role of the *promotora*–researchers in the research studies. The debriefing interviews were conducted in Spanish by bilingual staff. We used open-ended questions, audio-recorded the interviews, and took detailed notes; all materials were translated into English. To ensure data quality, an iterative phase transcription and translation process was conducted by a team of bilingual, bicultural researchers of Hispanic and Latino ancestry with graduate training and experience in these community-based research projects. Cross-checks were built-in. Briefly, one researcher listened to the audio file and transcribed until repeated playbacks did not add anything else to the Spanish-language transcript. Then, another researcher listened to the audio file and modified the first transcript. Translation was the last step, and followed a similar procedure with at least two researchers working to create a quality transcript in English. Additional details on the translation process are available elsewhere (Johnson et al., 2011). An example of a debriefing interview guide used in the Participant-Driven Photo-Elicitation (PDPE) project is shown in Table 5. Although the initial decision to incorporate a debriefing interview was seen in additional fieldwork documentation, the *promotora*–researchers shared valuable observations and insights that influenced future projects. As a result, debriefing interviews became a critical component of future projects. In addition, the project manager recorded *promotora*–researchers' needs, comments, experiences, and suggestions in an Excel spreadsheet as part of milestone tracking and documentation; this was done throughout the project and after its completion. Each response or action taken also was recorded in the Excel spreadsheet. Further, the project manager and PI frequently discussed progress and observations to use in project debriefings and to inform and guide the development of subsequent projects.

All textual data (i.e., handwritten observations, transcribed and translated audio recordings, and other documents) were organized into segments, read through to identify and assign themes, and sorted and sifted to identify similar phrases, patterns, themes, and common sequences (Miles & Huberman, 1994; Maietta, 2007). We used a triangulation approach to analyze the data in which we integrated data collected from various sources to better understand the role of *promotora*–researchers across projects. Handwritten notes from observations and other documents were added to the margins of translated transcripts. Project staff read *promotora*–researchers' interviews and follow-up communications numerous times to gain an overall sense of the data. The goal was to identify what made our *promotora*–researcher collaboration different from that reported in other studies, since there is limited literature regarding *promotora*–researchers' roles, responsibilities, and decisions over the course of a research project. After 5 years of collaboration and data, we determined how *promotora*–researchers were empowered—personally and collectively—in their dual role as *promotoras* (traditional role in advocacy, education, and outreach) and as *researchers* (emerging role in data collection, analysis/interpretation, and dissemination).

Results

Knowledge of research methods and skill-building through training was an important contributor to personal and collective empowerment. In Table 2, training is shown as part of the pre-planning phase. During pre-planning efforts (after conceptualization), university-based researchers and *promotora*–researchers worked together to identify training needs related to protocol and data collection instruments. Training sessions were held in the community where the projects were conducted, and were held in either a residence or a hotel lobby. University-based researchers developed an agenda for training, and brought needed materials (copies of protocol, data collection instruments, office supplies, etc.) for the *promotora*–researchers to evaluate and suggest modifications. The training sessions were led by bilingual, bicultural university-based researchers. Training sessions were supervised by experienced university-based researchers, and one team member is also a Texas Department of State Health Services–certified CHW instructor/trainer with 10 years of experience in training *promotoras*.

Table 2 *Promotora*–researchers' contributions during the life cycles of each project

Project	Stage of research project with *promotora*–researcher engagement							
	Conceptualization	Pre-planning[a]	Pre-testing	Recruitment	Collecting data	Data processing[b]	Data analysis and interpretation	Dissemination of findings
POP		X	X	X	X	X	X	X
HBFG		X		X	X			
HFI		X	X	X	X			X
MFV	X	X	X	X	X			X
PDPE		X	X	X	X	X	X	X
C-HCFRA	X	X		X	X			X
Pulga	X	X	X	X	X			X

POP participant observation project, *HBFG* healthy brain focus group, *HFI* household food inventory, *MFV* mobile food vendor, *PDPE* participant-driven photo-elicitation, *C-HCFRA colonia*- household and community food resource assessment

[a] This stage included planning study activities (e.g., determining responsibilities, timing of activities, identifying training needs and needed materials and levels of support, etc.), developing study protocols and data collection instruments, and training sessions

[b] This stage included data entry for surveys, and transcription and translation of observational field notes and audio files

Each project required different research methods than used previously, and *promotoras* were provided additional research skills and experience that they could apply in their work as *promotoras* and as researchers. For example, in the Participant Observation Project (POP), *promotoras* had no experience with participant observation methods; then in later projects, *promotoras* used their observational skills along with new research skills, such as conducting household food inventories or leading photo-elicitation interviews. One *promotora*–researcher stated, "For me also… I liked the project a lot… because I learned, one learns very much… "Over time, the *promotora*–researchers took on a more central role in all stages of the research, from conceptualization to data collection, interpretation, and dissemination. We identified that active engagement throughout the life cycle of each project and across projects empowered the *promotora*–researchers personally and collectively in their roles as *promotoras* and as researchers. Drawing on multiple data sources, we found that our approach of active engagement throughout the research process created a rich partnership between the research team and the team of *promotora*–researchers. This, in turn, resulted in greatly increased knowledge of food security and nutrition in *colonia* communities (Dean et al., 2011; Dean et al., 2012; Johnson et al., 2011; Sharkey, 2011; Sharkey et al., 2010, 2009b, 2011a, b, c; Sukovic et al., 2011), but more importantly, *promotora*–researchers were personally empowered as they gained the skills, experience, and confidence needed to conduct community-based research, and collectively empowered to better address the needs of their communities as *promotora*–researchers. For example, one *promotora* stated about the residents participating in the research studies, "They were accommodating to us, had confidence in us…" Collective empowerment supported, in turn, the personal empowerment of the *promotora*–researchers: the residents' confidence in the *promotora*–researchers inspired the empowerment and motivation of the *promotora*–researchers in their research and their personal lives. Some of the comments made by *promotora*–researchers were:

- "So it made me, these people motivated me. Instead of me motivating them, they motivated me."
- "They motivate me to see that, that there is something more in the future that we could, that they could, that we could live [for]. New things that we would never think that existed so much…"

Active Engagement Throughout the Research Process

This collaboration was anchored by key decision points during project pre-planning, data collection, post-data collection, and interstitial fieldwork activities—and was facilitated by ongoing communication

between university-based researchers and field-based *promotora*–researchers (see Table 2 for active engagement across the life cycle for each project). Here, we describe the general approach of involving the *promotora*–researchers in decisions identified across projects and then describe decisions by the phase of the research process. Starting with the first project (POP), *promotora*–researchers' feedback obtained during the debriefing interviews was incorporated into subsequent projects. For example, they identified the role of mobile food vendors in improving food access ("bringing the convenience store to the neighborhood") for *colonia* families, which influenced a later project, Mobile Food Vendors (MFV), which focused specifically on the role of mobile food vendors in *colonias* (Fig. 1). Additionally, through their acquired participant observation and detailed note-taking skills (gained in the POP project), the *promotora*–researchers influenced the decisions regarding which research methods and skills could be used in future data collection [e.g., using demographic surveys and household food and appliance inventories in the Household Food Inventory (HFI) project]. This iterative process of involvement and feedback became our general approach, and resulted in nested projects. That is, *promotora*–researchers' feedback was incorporated into project decisions in ensuing projects, which allowed them to increase their research skills. As such, this increased their personal empowerment.

Pre-Planning

The pre-planning process was similar across projects, and began with university-based researchers engaging *promotora*–researchers in the development of project protocol and instruments (e.g., observation guides, surveys, interview guides) and then discussing how to prepare for training. The university-based team included members who were either (1) bilingual, bicultural researchers from the LRGV or who had Hispanic and Latino ancestry, with graduate training and experience in these projects; (2) a certified *promotora* trainer with graduate training and experience in these projects; or (3) experienced faculty members with extensive training and experience in community-based nutrition and health projects in the LRGV. For example, in the HFI project, university-based researchers solicited the *promotora*–researchers' feedback on common types of foods and appliances present in families' homes in the *colonias*. Across all projects, training sessions provided a combination of skills needed to conduct the research projects. Some of these skills were ones the *promotora*–researchers already possessed, while others were gained during the projects. Regardless, skills contributed to the development and implementation of additional research studies. University-based researchers and *promotora*–researchers jointly shaped decisions regarding the nature of training; preparation for training sessions; *promotora*–researchers' training needs; final training content, delivery, and project materials; and logistics (e.g., timing, length of training sessions, refreshments, and securing a comfortable setting in the study community to host the training). Training sessions were facilitated by feedback-oriented discussions and hands-on experience with protocol and instruments in the community. The *promotora*–researchers received training in the following nine domains across the seven projects: (1) institutional review board training/submission; (2) obtaining informed consent; (3) developing project protocols and training materials; (4) developing and validating survey instruments; (5) conducting participant observation and preparing field notes; (6) leading focus groups and in-depth interviews, including photo-elicitation interviews; (7) administering surveys; (8) preparing detailed field notes and reports; and (9) compiling research findings into presentations for dissemination of research findings. With each project, *promotora*–researchers were personally empowered as they gained additional skills and participated in more involved and methodologically challenging projects, such as the PDPE and *Pulga* (flea market) projects.

Prior to pre-testing instruments with study participants, *promotora*–researchers conducted practice food and appliance inventories in each other's homes and in the homes of neighbors and family members, and received feedback on these practice activities from the project PI (based on practice inventories), project managers, and co–*promotora*-researchers. This type of feedback was used to modify study protocol and instruments. For instance, wording changes were made to surveys and instruments to utilize the local Spanish vernacular in South Texas that addressed both culture and educational level for participants and *promotora*–researchers. Other changes included formatting and adding instructions that made the

instruments user-friendly for the *promotora*–researchers. Further, two *promotora*–researchers conducted food and appliance inventories in the same household and then compared results and shared strategies for conducting the inventories. Training and practice continued until all project *promotora*–researchers and staff felt comfortable with the protocols and instruments, and the team was ready to begin pre-testing and recruitment. Specifically in the MFV, PDPE, and *Pulga* projects, the project time frames were delayed to allow time for additional pilot testing and training in order for all *promotora*–researchers to demonstrate the needed skills and high self-efficacy in carrying out project roles and responsibilities. After completing the training phase and before starting data collection, the project PI debriefed the *promotora*–researchers on the training process, and their feedback was used to inform subsequent trainings and projects, as well as to identify additional areas of needed training. Common characteristics of the trainings across projects were being detailed, being hands-on, and including ongoing communication and performance feedback from each other and supervisors.

Data Collection

The personal empowerment of *promotora*–researchers can be seen in the way that their engagement in the field during data collection influenced the collection of data. The process included regular, on-going communication between *promotora*–researchers and investigators for the investigators to address *promotora*–researchers' questions or concerns regarding procedures and data collection. As an example, during the MFV project, changes were made in the data collection schedule based on the *promotora*–researchers' feedback about days and times of the day when vendors visited *colonias* in the study area. A second example was in the PDPE project where the *promotora*–researchers decided to extend the interviews beyond the original target of 45–60 min. They believed that in-depth interviews lasting 90 min provided more of an opportunity to understand the mothers' perspectives regarding food choices in their families.

Post-Data Collection

These decisions included decisions made after the fieldwork, such as recorded debriefing interviews of the *promotora*–researchers and the involvement of the *promotora*–researchers with the interpretation and dissemination of research findings. An example of this was in the MFV project where *promotora*–researchers shared with the research team an observation: one mobile food vendor requested a certificate or letter that documented his participation in the research study. As a result, presentation of a certificate of completion and a framed photograph became an important part of each project, by which the *promotora*–researchers recognized the participants' contribution to the research study. Another example involved the *promotora*–researchers in understanding or interpreting the collected data. Not only did the university-based researchers benefit from obtaining the *promotoras*' perspectives on the data, but the *promotora*–researchers were empowered, both personally and collectively. For example, in the PDPE project, *promotora*–researchers focused on how much they learned from the study participants, resulting in their personal empowerment. The following quote is an example of a *promotora*–researcher sharing what she learned from the residents during the debriefing interview:

> On one occasion I arrived with broccoli and ranch [salad dressing] because they [participant mothers] were mentioning a lot about that, and my husband tells me, "And what do you bring? Are you on a diet? Did you put yourself on a diet, honey?" And I tell him, "No, I had a desire to eat fruit and vegetables." On the other hand, I also did a mixture that [one participant mother] did…that one with yogurt and it was very tasty. My children loved it, and I said to them that I am going to give them a fruit snack that I learned from a few of the residents…

Their collective empowerment can be seen in the satisfaction they expressed in response to their role in helping the participants "open up their minds," see their "value as mothers," and to "make them feel important." In one *promotora*–researcher's words, "It is satisfying to know that we help these women to realize many things." *Promotora*–researchers also were empowered to share their perspectives about what was important in the research setting (e.g., not being in the *colonias* after dark or scheduling appointments around family responsibilities or dedicated family time), improvements to protocol (e.g., phrasing of questions), and suggestions for future research, such as considering mobile food

vendors and *pulgas* as important sources of food in the community. We want to emphasize that as the *promotora*–researchers became a part of the research team, they were more comfortable and willing to come forward with their ideas on their own—demonstrating empowerment as *promotora*–researchers. Table 3 shows examples of unanticipated but essential observational insights from the *promotora*–researchers that strengthened our understanding of food security and nutrition in these families, which impacted ensuing projects and empowered *promotora*–researchers. For example, the *promotora*–researchers repeatedly shared (during debriefing interviews and meetings for the POP, HFI, PDPE, and *Colonia*-Household and Community Food Resource Assessment [CHCPF] projects) that, "Family is everything." This shared belief among our priority population directly influenced the design of a future project (mother–child dyads) to include the entire family. Projects including the entire family personally empowered the *promotora*–researchers in their roles, and validated their expertise and contributions in the research team. Their feedback directly impacted project designs. Of note, key characteristics during the pre-planning, data collection, and post-data collection phases were the flexibility and adaptability of the research team as a whole that helped facilitate the collective empowerment of the *promotora*–researchers in CBPR efforts. As new ideas and opportunities arose—led by the *promotora*–researchers (mentioned previously)—the team worked together to adapt accordingly and continue with the research to achieve project completion and outcomes.

Table 3 *Promotora*–researchers' observational insights as researchers

Observational insight	Example
Dietary decision-making	*Promotora*–researchers' observations that *pulgas* are an important source of food to *colonia* residents (made during a debriefing interview) provided critical insight and a springboard for future projects
Dietary patterns	*Promotora*–researchers observed the use of corn *tortillas* as utensils during meals, which affected the composition and content of meals. This observation highlighted the importance of understanding dietary patterns in a way that uncovered the aspects of food/meal acquisition, preparation, and consumption that are taken for granted
Cultural practices	*Promotora*–researchers emphasized how much they learned from the mothers they photographed who shared home remedies using plants and herbs and who talked about prayers, teas, balms, and rituals to help with stress, illness, and fear. This observation signaled that the mothers' practices may have not been as common as we may have once believed
Meanings	*Promotora*–researchers emphasized the labor of love and the "super" mothers who participated in the Participant-Driven Photo-Elicitation project. They explained that the mothers did everything for their families because they loved their children, and this meaning behind food choices was applicable to mothers making multiple dishes for each family member at one meal, preparing labor-intensive traditional dishes, and waking up early in the morning to make homemade *tortillas* to make breakfast for their families
Family coping strategies	*Promotora*–researchers shared an example of one mom who cooked specials meals and went "all-out" for her son who she was trying to keep out of a gang. By spending time with her son and cooking the foods he liked, the mother felt she could keep her son at home and closer to her, so that he would not be off roaming around with the wrong crowd. This insight showed us a whole new perspective on the social context of a family's eating habits
Nutrition knowledge	*Promotora*–researchers shared several examples of how much mothers knew about fruits and vegetables, which ones had different benefits, how to pick/select them, and various preparation methods; they were impressed with the new ways that mothers were incorporating vegetables into dishes for their families, and the *promotora*–researchers wanted to learn how to make similar healthy dishes for their families
Beliefs	The *promotora*–researchers shared that, for *colonia* families, "Family is everything," which greatly influences the way in which we now conduct research. For example, this has influenced research design to include the whole family, and has made us consider how data collection may interfere or compete with family time
Environmental knowledge	This included knowledge of the physical locations of *colonias* and how that played a role in conducting research projects, such as what areas to avoid, areas where certain target audiences live (e.g., elderly populations, young families), etc.

Interstitial Fieldwork

The *promotora*–researchers made significant contributions and increased their empowerment in their dual role in an additional phase of research that we refer to as "interstitial fieldwork." This term captures the activities that occurred in between projects and were initiated primarily by the team of *promotora*–researchers. Through personal and collective empowerment, this team perceived the needs of their neighbors and friends, who were all co-residents in the community, and took action to address these needs in ways that were meaningful to them personally, to the community residents, and to our ongoing research endeavors. Table 4 briefly describes some discrete actions and outcomes occurring in this phase. Their self-initiated actions and outcomes provide additional evidence that the *promotora*–researchers were empowered—personally and collectively—through this active engagement in research over 5 years.

Discussion

In this case study, we described the personal and collective empowerment of *promotoras* as *promotora*–researchers, which was made possible by active engagement throughout the research process. *Promotoras* have unique access to at-risk and priority Hispanic populations because they share ancestry, life experiences, language, and values with them, and are essential to community health education, nutrition, and outreach activities (Larkey et al., 2009; Levine et al., 1992; Ramos et al., 2001). However, *promotoras* have additional capacity—when collectively empowered as *promotora*–researchers—to bridge additional barriers, meeting physical, emotional, psychological, and social needs of their communities and residents, as well as identifying critical issues and solutions, which can ultimately initiate change and improve health status in their communities. Ultimately, because the *promotora*–researchers are members of the communities in which the research is conducted, the relationship and investment within the community continues. During these seven, nested research projects, several families participated in other projects with the research team. As our case study suggests, *promotora*–researchers can serve as both *promotoras* and researchers if they are empowered to be collaborators in the research—by actively engaging them throughout the project life cycle and beyond. These are essential steps in empowering *promotoras* as *promotora*–researchers, and we contend that conducting research is a core competency of *promotoras* and CHWs. This concept is supported by Otitiano et al. (2012) who, based on their case study of *promotoras* that participated in a research capacity–building course focused on community health needs assessment, suggest that opportunities for *promotoras* as researchers must be tailored to the *promotoras*' needs in addition to provision of support. Otitiano et al. (2012) also assert that fostering collaboration between *promotoras* and partnering with local community-based organizations using CBPR principles and strategies can help facilitate the acquisition of needed research skills among *promotoras*, resulting in personal empowerment where *promotora*–researchers assume personal control and mastery through training and acquisition of new skills, and in turn contributing to collective empowerment as *promotora*-researchers apply these acquired research methods and skills in their own lives, their communities, and in their societies. Similarly, Ruiz et al. (2012) report that results from a *promotora*/CHW training program that included research-specific skill sessions demonstrated that research training can successfully impact *promotoras*' perceived confidence and intentions to apply learned content resulting in personal empowerment and can provide a larger social justice context of their role and work as a *promotora*–researcher through collective empowerment.

This case study also illustrates that pre-planning and training activities in particular must be tailored to the personal and professional strengths and needs of the *promotora*-researchers—this is also supported by the findings of Otitiano et al. (2012) and Ruiz et al. (2012). Active engagement during these early phases provides *promotora*–researchers with the support needed to learn, develop, and utilize their research and outreach skills and contributes to their empowerment. Specifically, active involvement in project development and decision-making, fieldwork, and post-data collection activities, such as data analysis, interpretation, and dissemination of findings, contributes to empowerment. Of note, this active engagement goes beyond the research process, and influences other exchanges between *promotora*–researchers, the community, and the university-based researchers. One example is their interstitial fieldwork and resulting

Table 4 *Promotora*–researchers' actions and outcomes

Observation	Action taken	Outcome
Promotora–researchers observed that many families lacked adequate clothing and shoes for the summer and winter seasons. Families had also solicited *promotora*–researchers and asked if the research program could assist with clothing donations	Project team started collecting gently used/new clothing in Bryan/College Station, TX, and delivered it to South Texas on research trips for *promotora*–researchers to coordinate distribution	Families in different *colonias* were given gently used/new clothing and shoes This donation is ongoing and happens two to four times a year
During the holiday season, *promotora*–researchers noticed that participant families were not able to provide children with Christmas presents	*Promotoras* identified areas with the most need (each year a new area is selected) *Promotoras* identified families with children who were least likely to receive any gifts; provided children's age, gender, and wish list items (e.g., clothes, shoes, jackets) to research team; and worked tirelessly to coordinate the Christmas party where gifts are personally delivered to each family *Promotoras* personally delivered party invitations to families and pictures with Santa after the Christmas event	Annual Christmas event, "Christmas in the *Colonias*" 2009 (*San Carlos/Alton*) 53 children received Christmas gifts 19 mothers received gift bags 8 families received grocery gift cards 2010 (*Progreso*) 120 children received Christmas gifts 30 mothers received gift bags 2011 (*Peñitas*) 75 children received Christmas gifts 21 families received food boxes 20 boxes of men's, women's, and children's clothing and shoes were distributed
During the summer, *promotora*–researchers noticed that mothers were concerned about not having the resources to get their children ready for school, i.e., school supplies, uniforms, and shoes	*Promotora*–researcher team came up with Spanish name for project, "*Preparando a los niños para tener éxito en la escuela*" They identified families with children needing assistance with preparing children for school; provided children's ages and genders to research team; and worked to coordinate a multi-day event where "backpacks" were delivered to children They also identified families' need for portable fans to help provide comfort during the hot weather	Annual Back-to-School event, "Back-to-School Promotion" 2010 (*San Carlos/Alton*) 68 children received school supplies, backpacks, and a $20 Wal-Mart gift card 21 fans were delivered to *colonia* homes 2011 (*Peñitas/Progreso*) 110 children received school supplies, backpacks, and a $20 Wal-Mart gift card 35 fans were delivered to *colonia* homes
Promotora–researchers noticed that kids had trouble focusing during research projects because of hunger	*Promotora*–researchers came up with the idea of putting together emergency food boxes	Many boxes regularly delivered to families beginning in 2011
Promotora–researchers noticed that some families' homes were cold and in need of heaters	*Promotora*–researchers asked research team to provide space heaters for cold homes	3 heaters were delivered to families
Local community partner was hosting a back-to-school fair and needed school supplies	*Promotora*–researchers acquired pencil boxes and school supplies for distribution	25 pencil boxes with complete set of supplies were delivered to Progreso Community Center for distribution.
Donation requested from ARISE (local community agency providing *colonia* residents with health and human services)	*Promotora*–research team requested that we partner with ARISE in their community Thanksgiving meal event	$50 HEB gift cards were donated to ARISE

outcomes. Another example is the reciprocal exchange of information between *promotora*–researchers and the university-based researchers, where the research team trained the *promotoras* on research methods and study purpose, and the *promotoras* educated the researchers about the community (e.g., history, culture, and conduct in the community).

We identified common elements across the projects that facilitated this active engagement and contributed to empowerment of *promotora*–researchers. First, when something did not work with a particular project, through the input of the *promotora*–researchers, we adjusted to make the project work and work better for everyone. By valuing and encouraging their feedback, knowledge, experience, and expertise, we enabled the *promotora*–researchers to become even more actively engaged. This has created a self-propagating process where the *promotora*–researchers want to do more as *promotoras* and researchers, and the university-based researchers provide the training and support for them to do so. University-based researchers also benefit from *promotora*–researchers' empowerment, as they witness their contributions and insights, and incorporate these contributions and insights into future research and outreach activities. As the *promotora*–researchers became more empowered over time, the research projects were strengthened, in terms of development, methodological rigor, research findings, and post-collection activities (Fig. 1; Tables 2, and 3). As mentioned previously, *promotora*–researchers' feedback influenced project design, instrument refinement, location and time of research conduction, and numerous other influences. The end result was a mutually beneficial collaboration between *promotora*–researchers and university-based researchers focused on a common goal: quality research tan benefits the community.

Second, personally empowering *promotora*–researchers helped them become better *promotoras* and researchers, which is something they communicated throughout the projects. This dual role required *promotora*–researchers to build on current skills and develop new ones. Through our shared experience, *promotora*–researchers became more confident, which was seen in the initiated outreach activities described in Table 4. As *promotora*–researchers became empowered collectively, they engaged in self-initiated and designed outreach and activities that met the needs of the study participants and benefited the community.

Third, *promotora*–researchers must be allowed to fulfill both roles—as a researcher and as a traditional *promotora*. Allowing them to continue their outreach

Table 5 Debriefing interview guide used after completion of the participant-driven photo-elicitation (PDPE) project

"Today, we'd like to discuss your experiences in the project. (Engage *promotoras* in discussion)
1. I would like for each of you to tell me a story that describes your experience with this project
2. Tell us something that comes to mind about each participant.
What stands out about these women? Or the food items they prepare?
Tell me a story about this participant or a story this participant told you that you can share?
3. Describe what participants said about doing this photo activity [photography assignment]?
How did they enjoy the activity or not?
What about the activity did they enjoy?
4. How did your relationship with participants change between the first visit and the visit where you reviewed the pictures they took (the photo-elicitation interview)?
Were the participants more open with you?
How was this different among the participants?
5. In working in this project, what did you learn from it that you did not know before?
Is there some experience you had or information about the women that you knew that this project helped confirm?
How do you think the participants felt talking with you?
6. Can you explain this project to me as if I did not know anything about *colonias?*
7. Personally, how would you describe your experience in the project? How did if affect you?
8. If we were to do this project again, what would you change about what we did?
9. "Anything else you would like to add that we haven't already spoken about?"

Source: Author

and education role enabled them to do their research role even better. When *promotora*–researchers observed a need in the community, it was important for them to address that need, and to do so in a way that was meaningful to them and their neighbors and friends, who were the co-residents in the community. We experienced several examples of this across our projects, which are depicted in Table 4. Empowering *promotora*–researchers to identify and meet some of these pressing needs in their communities, where they also were conducting research, allowed them to fulfill their roles as *promotoras* and as researchers.

Although this study offers new insights regarding *promotora*–researchers, there are some limitations worth noting. First, the seven projects described in this article were not designed to measure change in empowerment. Thus, additional details regarding the process and outcomes of personal and collective empowerment cannot be fully explicated. Second, we lacked a comparison group of *promotoras*, which limits our ability to ascribe research engagement as the sole reason for change in both forms of empowerment. These limitations, however, are mitigated by the strengths of this study, which include having a long-lasting relationship between university-based researchers and community-based *promotoras* and conducting CBPR with *promotora*–researchers working in underserved communities for 5 years (Table 5).

Conclusions

This case study presented the rationale behind key decisions resulting from this 5-year collaboration with a team of *promotora*–researchers. We highlighted their actions during different phases of the project life cycle (e.g., pre-planning including training, data collection, post-data collection, and interstitial fieldwork) and related outcomes. Future research is needed to examine the training process in detail (Otitiano et al., 2012; Ruiz et al., 2012) and to explain the observed process whereby an increase in research capacity facilitated *promotora*–researchers' personal and collective empowerment as they became engaged in the projects and in their community. By understanding the importance of *promotora*–researchers' role and contributions, other research projects can empower *promotora*–researchers so that they are better equipped to address health issues in their communities. This is particularly important as we collectively encounter persistent health challenges and disparities. *Promotora*–researchers must be allowed to engage in education and outreach as well as to actively conduct research that will yield beneficial information to improve the health and quality of life for their communities.

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