Project ECHO Brain Health: Assessing the Impact of a Pilot Program to Promote Self-Efficacy Among Community Health Workers

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This mixed-methods study sought to examine the impact of the Project ECHO Brain Health program on participating community health workers' (CHWs') self-efficacy to address dementia, promote brain health, and advocate for research among Latinx South Texas communities. Using an explanatory sequential design, quantitative data collected from pre- and post-program surveys were analyzed to inform the collection of qualitative data, followed by an interpretation of all findings to better understand the impact of the program on self-efficacy. Pre- and post-surveys were collected from 25 CHWs, 13 of whom later participated in individual interviews. There was a statistically significant increase in mean self-efficacy scores between the pre- and post-surveys among participants. Three categories reflecting the experiences of participants were identified from the qualitative data: addressing training needs; impact on CHWs and their practice; and community of learning. The findings suggest that Project ECHO Brain Health program is a timely intervention that may facilitate increased self-efficacy among CHWs as they navigate the impacts of dementia in their communities.

Key words: brain health, caregiving, community health workers, dementia, Project ECHO

INTRODUCTION

Dementia among Latinx communities

The growing number of people impacted by dementia as the global population ages is a public health crisis. The projected number of Americans aged 65 and older living with Alzheimer's dementia is expected to reach 12.7 million by 2050, and it is estimated that Texas alone will see up to a 22.5% increase in Alzheimer's dementia between 2020 and 2025.[1] Research has indicated that older Latinx populations are about 1.5 times more likely to develop Alzheimer's than non-Latinx whites.[2-6] Discrimination and barriers to care contribute to a greater risk for health conditions that increase dementia risk, such as depression, diabetes, metabolic syndrome, and cardiovascular disease.[4,6,7] Latinx individuals often experience challenges in receiving timely and accurate information from providers, accessing affordable medical services, and having less access to health insurance.[5,6] Yet, although Latinx individuals face disproportionate risk levels for dementia, they are underrepresented in research, making up only 8% of participants in clinical trials.[8] This exclusion prevents their representation in setting research priorities that align with their experiences and generates evidence that may lead to potentially irrelevant or even harmful interventions, mitigating the ability of research to address the rising prevalence of dementia and its impact among Latinx communities.[9-11]

Community health workers and dementia disparities in South Texas

As trusted members of their communities, community health workers (CHWs) and promotoras/es de salud can link their communities to health services and support their well-being outside of clinical care settings through the provision of culturally relevant education, mentorship, and support.[12,13] Both terms are sometimes used interchangeably to describe

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health workers who bring their personal experiences, expertise, and relationships to improve health within their communities. However, there are important distinctions between these titles, which should be respectfully acknowledged. Within the field, CHWs are sometimes distinguished from promotores/as by the attainment of state certification for their title, whereas promotores/as may or may not have chosen to attain the state certification. In Texas, the Department of State Health Services (DSHS) oversees the certification of CHWs on behalf of the state, which requires demonstrated skills across 8 competencies, 160 hours of DSHS-approved training (or 1000 cumulative service hours), and certification must be maintained by acquiring a designated number of DSHS-approved continuing education units (CEUs) annually.[14] Promotores/as is a term that is sometimes used specifically to describe health workers, including certified CHWs, who support Spanish-speaking or Latinx/Hispanic communities, while the term CHW is typically used to describe the broader profession without specificity to a certain population.[15] For the purpose of this study, state-certified CHWs and CHWs seeking their certification at the time of the program were enrolled.

Interventions with CHWs supporting the management and prevention of health conditions such as diabetes and vascular conditions have been implemented with success in Latinx communities.[16,17] Furthermore, CHWs can connect Latinx individuals to opportunities for research and encourage participation in studies that support their representation in aligning research priorities and in generating evidence that reflects their experiences.[18,19] While CHWs are important partners in addressing community health challenges, their skills are underutilized to promote brain health and address dementia among Latinx communities. There is a gap in the availability of educational interventions that build self-efficacy among CHWs to address dementia and brain health in their communities.

BACKGROUND

Developing Project ECHO Brain Health

Project ECHO (Extension for Community Healthcare Outcomes) is a novel educational model developed at the University of New Mexico that uses videoconferencing, lecture presentations, and case-based education to facilitate learning among front-line health workers using subject matter experts. Content delivery in Project ECHO programs is as important as the curriculum, with case presentations, didactic lectures, and interactive group discussions facilitating a supportive learning environment. Consisting of "hub" and "spoke" teams of subject matter experts, facilitators, and health care providers or educators, this model extends beyond knowledge acquisition and cultivates an environment of shared practice and problem-solving. Project ECHO programs have shown increased self-efficacy in CHWs to address a range of health issues, yet no programs developed specifically for CHWs using this model are available to address aging and brain health.[20-22]

A community-academic partnership was formed to develop, implement, and evaluate the Project ECHO program for CHWs focused on brain health, dementia, and research (Project ECHO Brain Health). This partnership between the UT Health San Antonio School of Nursing and the South Texas Area Health Education Center Program (ST-AHEC) involved the establishment of a working group of CHWs, researchers, and a program coordinator to collaborate in developing a program that responds to the educational needs of CHWs in South Texas. The community partners engaged for this project included Latina CHWs and CHW instructors representing a regional organization that provides CHW-led education and training for CHWs throughout South Texas. These partners were selected as collaborators for this project due to their extensive expertise, relationships, and capacity to develop a community-aligned program. A community assessment distributed among CHWs throughout South Texas helped to identify educational interests, existing gaps in CHW training around the topics of brain health, dementia, and research, and self-assessed knowledge around these topics. With responses from over 55 CHWs throughout South Texas and surrounding areas, a curriculum was created based on the assessment findings.

Description of Project ECHO Brain Health

The Project ECHO Brain Health "hub" team included experts in family caregiving and dementia, CHW experts, and student researchers. Table 1 presents the Project ECHO Brain Health hub team, their roles, and their expertise. CHWs participating in the program comprised the "spoke" team, whose role involved attending the sessions and contributing to case presentations, discussions, and recommendations. The 8-week virtual program involved 1.5 hour weekly sessions, including didactic presentations (30-45 minutes) followed by case presentations from CHWs. Eight didactic presentations covered 7 topic areas including: (1) dementia as a public health crisis; (2) recognizing the signs and symptoms of dementia; (3) brain health risk management and prevention; (4) person and family-centered care; (5) supporting family caregivers; (6) resources for families impacted by dementia; and (7) the role of research in addressing dementia among Latinx individuals. Case presentations

TABLE 1. Project ECHO Team Characteristics

Project team roles	Credentials	n
Program facilitator and subject matter expert[a,b,c]	MPH	1
Coordinator and technical support[b,c]	BSN, BS	2
Subject matter expertsa[b,c]	PhD, RN, MPH, BSN	2
CHW subject matter experts[a,b,c,d]	CHW, CHW Instructor, RN	3

[a]Expertise in dementia and caregiving.
[b]Expertise in health services and/or research.
[c]Expertise in program facilitation.
[d]Expertise in CHW instruction and practice.

were created by CHWs using templates provided by the hub team. CHWs were given CEUs following each session and provided with a summary of the case presentation, final recommendations, and resources recommended during each session.

METHODS

Study design

This mixed-methods study used an explanatory sequential design consisting of quantitative data collection and analysis, followed by qualitative data collection and analysis informed by findings from the surveys, and concluded with the integration and interpretation of all study findings (Figure 1). The first stage involved the collection of pre- and post-measures of self-efficacy, as well as weekly questionnaires, which were analyzed upon completion of implementation. Quantitative findings guided the development of an interview guide for the subsequent phase in which individual interviews were conducted online via Zoom and analyzed to better understand the experiences of participating CHWs. The final study phase involved the interpretation of results from both the initial quantitative phase and the subsequent qualitative phase.

Participant recruitment

CHWs from South Texas and surrounding areas were invited to participate. The recruitment of participants for this program targeted CHWs serving predominantly Hispanic/Latinx communities in South Texas and the surrounding areas. CHWs were eligible to enroll if they were certified in the state of Texas, practiced as CHWs in South Texas and surrounding areas, and committed to participate in the full program. They were unable to participate if they could not read and speak English, as the intervention was developed and delivered in English. They were also unable to participate if they were not able to access/utilize videoconferencing technology.

Data collection

All data for Project ECHO Brain Health were collected and managed using REDCap electronic data capture tools hosted at the University of Texas Health Science Center at San Antonio (UT Health San Antonio).[23,24] Pre- and post-surveys consisted of 14 questions assessing self-efficacy around each of the 8-session topic areas, developed by the investigators and based on a similar survey assessing self-efficacy to address the social determinants of health among CHWs.[21] Participants rated each question using a 5-point Likert scale from "not at all confident" to "very confident" (eg, "I feel confident that I can connect clients with community resources that will support their needs" and "I feel confident that I can describe the typical signs and symptoms of dementia"). Scores range from 0 to 56, with higher scores indicating higher self-efficacy. Pre-surveys were linked to an enrollment form collecting demographic information provided to participants prior to the start of the program. Post-surveys asked additional questions including CHW

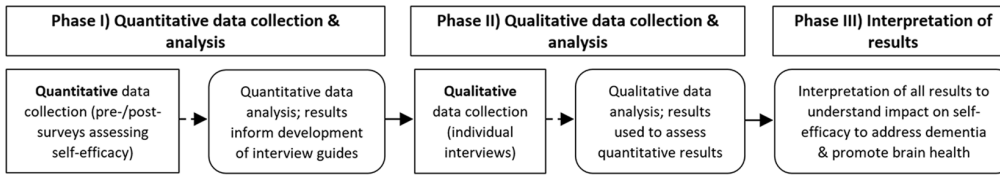

Figure 1. Data collection and analysis process.

certification identification numbers, the specific sessions they attended (corroborated with attendance reports tracked weekly by the study team), and their interest in participating in an individual interview at a future date. Participants were given $15 e-gift cards for completion of the pre- and post-surveys.

Upon conducting a preliminary analysis of the quantitative data, the hub team partnered to develop an interview guide designed to further elucidate findings from the survey data. The interview guide consisted of 7 questions and averaged 25 to 30 minutes per interview. Participants in the individual interviews were provided e-gift cards valued at $25.

ANALYSIS

Analyses of quantitative survey data were conducted using STATA 16.[25] An interitem correlation, performed to measure internal consistency of the 14-item self-efficacy survey, showed high internal consistency (alpha = 0.98). A paired-sample *t* test was performed to compare self-efficacy scores before and after Project ECHO Brain Health. The sample of 30 participants was determined to be sufficient to detect a medium effect size for self-efficacy.

Members of the hub team worked together to conduct a qualitative content analysis of narrative data collected from the interviews. After verifying the accuracy of the transcripts, 2 coders and a third member of the research team met to discuss and agree upon an approach to coding and organizing the findings. Two independent coders conducted a line-by-line coding of the interview transcripts. Relevant segments were identified by the coders and grouped together based on similarities. Upon completion of coding each transcript, the coders consulted each other to compare code groups. Code groups were then assigned based on content to categories, with subcategories used to capture more specific concepts. As indicated by the lack of new codes and categories identified as analysis progressed, data saturation was determined to be achieved with the 13 interviews.

RESULTS

Participant demographics are shown in Table 2. Thirty CHWs enrolled in Project ECHO Brain Health and attended at least 1 session. Most CHWs attended at least half of the 8 sessions (80%) and 37% attended all sessions. The majority were between 35 and 76 years of age (M = 54.2, SD = 11.12), identified as women (90%) and were Hispanic or Latinx (90%). The number of years in practice ranged from less than 1 year to 30 years (M = 7, SD = 7). Of the total participants in this

TABLE 2. Demographic Characteristics of Participants

Characteristics	*n*	%
Region		
San Antonio and surrounding area	5	16.7
Rio Grande Valley	8	26.7
South Coastal	10	33.3
Other	7	23.3
Gender		
Women	27	90
Men	3	10
Hispanic or Latinx		
Yes	27	90
No	3	10
Race		
Black	2	6.6
White	23	76.7
Other	5	16.7
Age, y		
35-45	5	16.7
46.55	14	46.7
56-65	4	13.3
66-75	6	20
Missing	1	3.3
Years practice		
1 or less	5	16.7
2-5	16	53.3
6-10	3	10
11-20	5	16.7
20+	1	3.3
Education attained		
High school diploma or GED	10	33.3
Associates	5	16.7
Bachelor's	7	23.3
Master's	6	20
Other	2	6.7
Practice setting		
Clinic/Doctor's office	3	10
Community-based organization	12	40
Faith-based organization	1	3.3
Government Health Department	3	10
Hospital	1	3.3
Private health care agency	3	10
School or University	3	10
Other	4	13.3

(*continues*)

TABLE 2. Demographic Characteristics of Participants (*continues*)

Characteristics	*n*	%
Prior training in brain health		
Yes	5	16.7
No	25	83.3
Prior training in dementia		
Yes	9	30
No	21	70
Prior training in patient-centered outcomes research		
Yes	5	16.7
No	21	70
I don't know	4	13.3

study, 28 were located in regions of South Texas including the San Antonio area, Rio Grande Valley region, the South Texas coastal region, and the Southwest Border area. The other 2 participants were located in Houston and El Paso, Texas. All geographic areas represented by the participating CHWs are identified as predominantly Hispanic or Latinx areas.[26]

Self-efficacy surveys

A total of 30 participants completed the self-efficacy pre-survey, and 25 completed the post-survey. Assessment of the 5 participants who did not complete the post-surveys determined that 4 of the 5 had attended 3 or fewer sessions, most of whom discontinued attendance after the second session. Pre-survey data from the missing 5 participants did not indicate any notable demographic differences from the other participants. A paired-sample *t* test was calculated to compare self-efficacy scores among the 25 participants who had completed both surveys (Table 3). There was a statistically significant increase in scores from the pre-survey (M = 19.48, SD = 15.21) to the post-program survey (M = 43.72, SD = 16.20); ($t(24) = 6.34$, $p < .001$). When analyzed by items and within each of the 7 topic areas (eg, the role of research in addressing dementia among Latinx individuals), there were statistically significant increases in self-efficacy scores for all items and topic areas.

Individual interviews

Thirteen CHWs who completed the surveys also participated in individual interviews. Qualitative data were grouped into 3 overarching categories, representing the reflections of participating CHWs on the program: (1) addressing training needs; (2) impact on practice; and (3) community of learning. Subcategories and exemplar quotes are provided in Table 4 and described in more detail below.

Addressing training needs

Value of the experience: The program was regarded by participants both for its responsiveness to their needs for training resources and increased capacity to address a prevalent issue impacting their communities. There are few opportunities for CHWs to engage in discussions and receive knowledge about brain health and dementia, "I would have loved to have had this when I first started." The participating CHWs shared that the training was an important resource for their communities who they have witnessed being impacted by dementia, "I know there's a need here in – in Laredo. . .."

Motivation to participate: CHWs had witnessed dementia and brain health challenges in their communities and felt the need to enhance their ability to provide support in that area, "I just kind of want to know more how we can help more individuals who are living with memory loss." They expressed a sense of responsibility to receive information and disseminate it among their communities, "you go back to what you learned through these ECHOs, like I said, and it's there for you. It's educating ourselves, and then we take it out to the community, and with whatever it is that they're experiencing, we can help them." CHWs described their personal or prior professional experience with dementia as a motivating factor to participate in the program, "I did have a grandmother that passed away, she had Alzheimer's, that my aunt cared for. And my aunt is still a caregiver for her church in her community. So, I always take what I learn, and I give it back to my family."

Supporting Latinx families: CHWs described the contributing cultural influences on how, and if,

TABLE 3. Self-Efficacy Scores (N = 25)

Self-Efficacy	Pre	Post	*t* Value	*P* value
Mean ±(SD)	19.48 (15.21)	43.72 (16.20)	–6.34	0.001
Range	0-50	0-56		

TABLE 4. Qualitative Data Organized by Category and Subcategories With Selected Quotes

Category	Subcategory	Selected Quotes
Addressing training needs	• Value of the experience • Motivation to participate • Supporting Latinx communities	• "I think it's also the topic that, that we don't have that much education on that topic." • "I think what I had was a basic understanding of dementia. But if you don't have like a slightly more in-depth and understanding of the topic and what really goes into it, it's harder to fully understand the individualized experiences of people." • "It has brought light to many questions that I've had, not just because of our population here, or what has been shared, based on the Hispanic number of individuals having dementia. But I think it's an important topic that we as Hispanics or Latinx have to be more open about it and speak about it."
Impact on CHWs and their practice	• Building confidence • Knowledge gained • Enhanced empathy • Advocating for research	• "I wasn't knowledgeable enough to really get in there, now I feel comfortable addressing it." • "I did gain some knowledge in it. And, and it reinforced some of the things that I already know, and but I think that both of those things are really important." • "I think I can definitely have a better understanding and possibly, and probably more empathy and a greater understanding of like, the conflicting feelings people have when they're dealing with people with dementia, and how they're having to care for them or being unable to care for them." • "I wish, also that the researchers understood the importance of having a community health worker that has the relationships with the families, to explain. It's not to- to encourage, well, maybe encourage, but not . . . in a negative way, but giving them information so that they will understand, and they will be actively involved."
Community of learning	• Power of storytelling (case presentations) • Learning you are not alone • Sharing resources	• "I like the fact that we have scenarios or case presentations. That helps, you know, trigger, you know, thought and action from our members, what to do. . . I really like that because that helps us learn. You know, the CHWs that were invited, you know, have vast knowledge, some more than others, and that's how we can help each other." • "I really just like hearing everybody's stories and their experiences. You know, knowing that we're not alone in, you know, maybe not knowing what verbiage to say to someone with dementia. Learning, you know, how to care for them at home." • "It really kind of helps expand your knowledge in ways that that you just don't get from, you know, basic, ordinary, like, 'Okay, this is a resource. I've looked at their website, I kind of have an idea of what they do.' But being able to talk to people that have utilized the resources or know a little bit more about what they can do and kind of how to hook up with that was always super helpful."

Latinx individuals receive the support that they need related to brain health and dementia, "it makes it even harder to get Latinx who already culturally don't like to talk about being sick, or being weak, or needing help, it makes it that much more important to- to ask those questions." Concepts of family among Latinx communities also impact the role CHWs play in supporting the whole family, "we tend to take care of our elderly and our family at home, I think it's important for us to share that [information] with them."

Impact on CHWs and their practice

Building confidence: The program impacted CHWs' confidence in engaging with communities around dementia and the topic of brain health. Having received information and resources, CHWs felt better equipped to support their clients by passing on information from the program, "I think that [the program] gives confidence, you know, in being able to share information, that when you're giving information to people, you're not leading them astray, you're not leading them, you know, some place where it's not going to be helpful for them." Participants reflected that their enhanced confidence from the knowledge and support shared through Project ECHO Brain Health facilitated their ability to support their communities, "Reading a brochure to someone is one thing, but actually feeling confident in what you're saying, and what you're projecting to the

participants or patients, and like in my population that I work with, so I feel much more confident, for sure."

Knowledge gained: Participants shared that the program helped to clarify their knowledge of brain health, dementia, and aging, including "a better understanding of what's, um, what's normal, what's not normal" and "I didn't understand the difference between Alzheimer's and dementia, so it brought a lot more clarity." One CHW shared how the program clarified prior misconceptions they had about dementia and took that knowledge to their practice where they support unhoused community members. Equipped with new knowledge from the program, the CHWs helped one of their clients attain a diagnosis of early-onset dementia.

> I talked a little bit to [my client] and I was like, '**You know, I had no idea that you could possibly have like, the early stages of Alzheimer's.**' . . .And she was like. . . 'Well, my mom, my aunt, all of them has had memory loss and passed away due to severe dementia where they couldn't even remember who she was.'. . . So, we were able to get her connected to some of those resources where she indeed was diagnosed. **I mean, it just, the training led to a conversation that I probably never would have had with her about memory loss and Alzheimer's and dementia. Because I would have thought it was something other than that that was going on with her.**

Enhanced empathy: CHWs shared that through their experience in the program, they had a more nuanced and deeper perspective of the impact dementia has on families. Many expressed that the program helped them develop a stronger sense of compassion for the complex challenges families face and the difficult decisions they may need to make,

> You know, erroneously or not, uh, in the past, I've thought, you know, people that just decide to, you know, throw their parents in a, in a nursing home, and, and, you know, barely visit them and stuff. . . I think I have a better understanding of how difficult that that is to be able to do that. . . I feel like I would have been very judgy about that, uh, prior to, prior to this ECHO, because it's, family's always been really important to me. And, and that's, you know, in my culture, how I was raised, like, your family is everything. You do anything and everything for them. And so, I've got. . . more empathy for people in the situations that they're going through and dealing with.

Advocating for research: CHWs valued the discussion of research and its role in addressing dementia, "As a promotora, I, I want the Latinx community to be represented (in research), I want us to share." Some of the CHWs described being approached by researchers to support their recruitment for studies and how the program provided them information that empowered them in their roles as participants and members of research teams, "a lot of us promotoras have been approached in many ways for research, and or participate in research, or recruit for research. . . not everybody includes it (in trainings) and not everybody explains it. They just approach us, and they want us to move forward and provide quality work for them."

Community of learning

Power of storytelling (case presentations): Participants shared that storytelling through the case presentations provided the opportunity for deeper learning that draws on the expertise and experiences of peer CHWs enrolled in the program. CHWs enjoyed hearing stories about real scenarios and people experiencing challenges related to brain health and dementia, "You have somebody that's been through it and is going through it and you could see it in their faces. It's like, that's the kind of presentations, that's the kind of research, that's the kind of things that should motivate other people to keep going."

Learning you're not alone: CHWs expressed that the community dynamic of the program brought to light their shared experiences with others who are working to address similar challenges in their communities, "and the brain health class, you know, really helped me because there's a lot more people out there that that are in my situation. And that's what helped me a lot. That I'm not the only one." CHWs shared that learning about the experiences of their peers reassured them that they were learning alongside others who were also in need of information to support families impacted by dementia.

Sharing resources: Learning of and sharing resources to support families impacted by dementia was a highlight for participants, "With this information, I was able to see there's a lot more that I can tap into, a lot more resources that we can bring in." CHWs shared that knowledge around available resources is a critical part of their role to support their communities, "I help individuals with getting properly resourced to get the things that they need to be able to take care of themselves or their loved ones. So, this is something to add to what I have." The group dynamics of the program provided the opportunity for CHWs to discuss and share resources that they had not known prior to their participation in the program, "I think also that I learned some resources that I was not aware of."

TABLE 5. Integration of Quantitative and Qualitative Findings

Quantitative Results (Mean ±(SD))	Qualitative Results	Interpretation
Pre-survey: 19.48 (15.21) Post-survey: 43.72 (16.20) *P* value: .001	Addressing training needs • Value of the experience • Motivation to participate • Supporting Latinx communities	CHWs were in need of tailored, comprehensive education around the topics covered. As indicated by increased overall self-efficacy scores and the themes within each category, the Project ECHO Brain Health program was responsive to CHWs' needs in addressing gaps in educational resources and in attending to prevalent issues among their communities.
	Impact on CHWs and their practice • Building confidence • Knowledge gained • Enhanced empathy • Advocating for research	Gained self-efficacy is evidenced by many CHWs in the integration of knowledge into their practice. Significant increases in scores within each topic area demonstrate higher self-efficacy to address dementia, provide resources and support, and advocate for research. For some CHWs, reports of higher confidence were explained by having developed greater empathy for families impacted by dementia through participation in the program.
	Community of learning • Power of storytelling (case presentations) • Learning you're not alone • Sharing resources	Qualitative findings indicate that in addition to the responsiveness of the curriculum to their needs, the program model structure can be attributed to the observed increase in self-efficacy scores. Interview data explain that the group dynamic of storytelling, peer support, and knowledge exchange among participants facilitated a sense of community that was conducive to learning, resource sharing, and confidence.

Mixed-methods interpretation

Quantitative findings from the pre- and post-surveys are better understood through the integration of qualitative findings. Table 5 depicts the interpretation of data. As indicated by the interviews with participants, the observed increases in participants' self-efficacy to address dementia, promote brain health, and advocate for research may be due in part to the dearth of available information and educational resources around the subject matter prior to the Project ECHO Brain Health program. It addressed CHWs' unmet educational needs in the topic areas covered and provided responsive information to the dementia-related challenges they witnessed. CHWs shared in their interviews that the program filled a need for information about a topic that has deeply affected their clients and their own families. Having designed the program in alignment with a community assessment, the curriculum specifically aimed to answer the questions and concerns of CHWs practicing in predominantly Latinx communities. Within all 7 topic areas, the didactic presentations and case studies were anchored in Latinx cultural experiences (eg, concepts of family and caring for elders in Latinx culture). Participants shared during interviews that they felt empowered by the program to begin incorporating information and strategies into their practice. Demonstrated by significant increases in self-efficacy scores within each topic area, CHWs reflected enhanced self-efficacy to refer families impacted by dementia to resources, support the attainment of diagnoses, promote awareness of risk factors and signs of dementia, and advocate for research that represents Latinx communities. Qualitative findings reflect that the group dynamic of the program validated the participants by making them feel less alone in their educational experience around the topic. Demonstrated by the statistical increases in overall self-efficacy and across all items and topic areas, the Project ECHO model provided the curriculum in a format that enabled participating CHWs to receive and engage with the content in an effective way. The community of learning facilitated the giving and receiving of support from peers who were experiencing similar challenges in their communities.

DISCUSSION

This mixed-methods study was designed to examine the impact of Project ECHO Brain Health program

on CHW self-efficacy to address dementia, promote brain health, and advocate for research. Qualitative and quantitative findings suggest that the program is an effective resource for CHWs to develop their confidence around the presented topic areas. Quantitative data reflected a statistically significant increase in self-efficacy scores among participating CHWs, whereas qualitative findings elucidated deeper insight into the potential facilitators of the reflected increase in scores. The findings demonstrate that the program aligns with the key facilitators of self-efficacy, creating opportunities for participating CHWs to build their perceived confidence in the topic areas presented. As a group-based learning model, Project ECHO Brain Health leveraged the existing knowledge of all participants, facilitating the application of their individual expertise to problem solve case examples with each other alongside professionals in each topic area.

In areas such as some rural parts of South Texas, where health systems may not have the infrastructure to address the medical needs of their communities and where individuals impacted by dementia may not be able to afford to adhere to treatment, culturally relevant strategies to promote brain healthy behaviors are critical to support disease prevention and management.[5,6,27] The disparate risk of dementia among Latinx communities is attributed to experiences of structural, interpersonal, and institutional racism.[28] These experiences have been tied to a greater likelihood of facing barriers to high-quality education, employment, housing, clean air and water, and access to health insurance and care services, all of which are attributed to poor cognitive health outcomes.[1,29] The curriculum for Project ECHO Brain Health was constructed in partnership with CHWs around components of social determinants of health and the structural barriers and facilitators of cognitive health outcomes. Equipping CHWs with information and strategies to address dementia in their communities is an essential approach to combating the rising prevalence among Latinx individuals, particularly while health systems remain poorly equipped or inaccessible to support those in need of dementia care.

The integration of findings allows for a more comprehensive understanding of how CHWs responded to Project ECHO Brain Health. "Quantitative findings" reflect that the community of learning facilitated through the model may be conducive to improved self-efficacy. Self-efficacy can be improved with targeted interventions that address components of self-efficacy including mastery, modeling, social persuasion, and emotional and psychological states.[22,30-32] Different aspects of the Project ECHO model addressed the components of self-efficacy by providing opportunities to learn alongside subject matter experts, providing and receiving peer support to other CHWs, modeling strategies they have used to support families, and demonstrating mastery through dialogue around case presentations. Previous studies have indicated that the Project ECHO model is conducive to the development of CHW self-efficacy to address diabetes,[20] promote healthy nutrition,[33] and address various health and social issues among vulnerable populations.[21]

"Qualitative data" reflect that CHWs who participated in Project ECHO are better prepared to support families impacted by dementia to overcome barriers to resources and care, particularly after having been provided the knowledge of local and regional resources and strategies to access them. The qualitative data reflect not only intention for practice change but also demonstrated examples of applied knowledge to support individuals impacted by dementia. Case presentations were cited as a facilitator of co-learning among CHWs, providing a meaningful connection between theory and real-life scenarios. Participants shared that the opportunity to learn and share knowledge by collectively workshopping solutions for real-life cases was beneficial to their learning and confidence. CHWs related their experience with Project ECHO Brain Health to changes in the way they deliver information to their communities, including strategies around how to support the uptake of resources.

Prior to the development of Project ECHO Brain Health, the authors could not identify any existing programs using the same model for CHWs around brain health or dementia.[34] While some trainings around brain health and dementia were available to CHWs in South Texas,[35] none had leveraged the innovative Project ECHO model. Findings from this study affirm the need for accessible learning opportunities for CHWs to facilitate their confidence and capacity to support families impacted by dementia.

LIMITATIONS

Project ECHO Brain Health was designed for CHWs working in South Texas and surrounding regions. The specificity of curriculum may impact the generalizability of the program to other regions, though the program is adaptable for other regions, cultures, and populations of interest. The program maintained good retention of CHWs throughout the program, though not all CHWs attended every session, which may have influenced the study findings. However, all CHWs were provided recordings of each session. As the study was conducted using a pre- and post-design and not as a randomized controlled trial, there may have been influences on

CHWs' self-efficacy external to the intervention. Social desirability bias was not corroborated by the inclusion of any additional measures and may present limitations to the quality of findings. However, to mitigate this potential issue, the pre- and post-surveys were intentionally not tied to the provision of CEUs. Project ECHO Brain Health was initially developed in English with plans to transadapt the program to Spanish at a future date. Although the decision to initially develop the program in English is not inclusive of monolingual Spanish-speakers, it was an approach advised by the partnering CHWs who described their communities as being largely bilingual in English and Spanish.

CONCLUSIONS AND RECOMMENDATIONS

With the rising prevalence of Alzheimer's and other types of dementia, severely limited health care infrastructure, and structural barriers preventing Latinx communities from receiving dementia support, CHWs in South Texas play an increasingly critical role on the frontlines of the dementia crisis. Project ECHO Brain Health is a promising and timely intervention that can equip CHWs with the knowledge and support they need to support families impacted by dementia in their communities. The CBPR approach to co-development and evaluation contributed to the successful creation of the program and recruitment across the wide geographic region of South Texas. Engaging CHWs as partners in research is an effective strategy to maximize outreach and integrate unique perspectives and knowledge related to cultural and regional experiences.

Future research should examine the relationship between self-efficacy and practice change including the mechanisms that may facilitate such changes. Enhanced empathy was a shared outcome among participants that may influence potential changes in practice around how CHWs can support families impacted by dementia. While the current iteration of Project ECHO Brain Health is specific to South Texas and emphasizes strategies to support Latinx families, future adaptations may expand the curriculum to other geographic regions, populations, and languages.

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