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Latino Health Access: Comparative Effectiveness of a Community-Initiated Promotor/a-Led Diabetes Self-management Education Program

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Abstract

Community-initiated health interventions fill important gaps in access to health services. This study examines the effectiveness of a community-initiated health intervention to improve diabetes management in an underserved community of color using a retrospective observational study, comparing a study intervention, the Latino Health Access Diabetes Self-Management Program (LHA-DSMP), with usual care. The LHA-DSMP is a 12-session community health worker (*promotor/a*) intervention developed and implemented by a community-based organization in a medically underserved area. Usual care was delivered at a federally qualified health center in the same geographic area. Participants were 688 predominantly Spanish-speaking Latinx adults with type 2 diabetes. The main outcome was change in glycemic control (glycosylated hemoglobin [HbA_{1c}]) from baseline to follow-up. At 14-week follow-up, mean (95% CI) HbA_{1c} decrease was

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−1.1 (−1.3 to −0.9; $P < .001$) in the LHA-DSMP cohort compared with −0.3 (−0.4 to −0.2; $P < .001$) in the comparison cohort. Controlling for baseline differences between cohorts, the adjusted difference-in-differences value in HbA_{1c} was −0.6 (−0.8 to −0.3; $P < .001$) favoring the LHA-DSMP. A community-initiated *promotor/a*-led educational program for diabetes self-management is associated with clinically significant improvement in blood sugar control, superior to what was observed with usual medical care.

Keywords

community health centers; community health education; community health workers; diabetes mellitus; Hispanic Americans; Latinx; *promotores* ; type 2

Promotores/as or community health workers (CHWs)—lay health workers trained to deliver health education and services—hold an important role linking residents of low-income communities and communities of color with health services and encouraging them to take ownership of their health.[1] The literature has documented *promotor/a* and other CHW interventions that effectively do prevention work, overcome cultural and linguistic barriers, help patients navigate health systems, and improve the quality and cost-effectiveness of care,[2] but the effectiveness of these interventions varies widely.[3,4]

In communities of color, *promotores/as* help overcome mistrust of health providers seen as outsiders and bridge language and cultural barriers between community residents and health care professionals.[5] Although successful partnerships between community, academic, and health care partners have emerged,[6] many barriers to developing these partnerships exist,[7] especially for resource-limited community organizations and within structurally marginalized communities where mistrust of formal institutions and experiences of systemic racism are common.[8–10]

For this reason, community-initiated *promotor/a* interventions ("*of* the community"), developed and implemented through grassroots efforts by community-based organizations, may be especially well-suited to engender trust and engagement in ways that efforts initiated by health care organizations, government agencies, or universities ("*for* the community") cannot. Although they may lack access to some resources and expertise found in larger institutions,[7,11] community-initiated programs can engage residents in health behavior change through promoting less hierarchical exchange of information, facilitating support between peers, and acting as gatekeepers to vet the quality and trust worthiness of "outsider" health provider organizations.[5,12] Community-initiated interventions, therefore, are likely to be strengthened by shared cultural environments, languages, and lived experiences to become more trusted and more responsive to the needs of the population.[13,14]

The benefits of community-initiated *promotor/a* interventions may be particularly great in the prevention and management of diabetes in low-opportunity Latinx communities. The burden of diabetes prevalence, morbidity, and mortality is considerably higher among Latinx Americans than among white Americans.[15,16] Furthermore, barriers to access to medical services and hesitancy to utilize services or adopt treatment recommendations

from medical institutions that have not earned the community's trust are common in these communities.[17–23]

These challenges are counterbalanced by important assets observed in Latinx communities in the United States (US), including strong social cohesion[24–27] and informal, multigenerational networks that share information and resources that have been vetted by trusted gatekeepers.[5,18,24,28–31] Community-initiated *promotor/a* programs capitalize on these assets by identifying and elevating these trusted gatekeepers that are knowledgeable of trustworthy (and untrustworthy) resources that peers in their community can access.[5,32,33] In this way, these programs may be optimally situated to address the challenges that perpetuate diabetes disparities in Latinx communities.[32,34]

Despite the promise of these programs, however, remarkably few "stand-alone" community-initiated *promotor/a* interventions operating independently of a medical system have been studied.[13,14,35] Organizations that deliver these interventions often lack the resources to conduct rigorous effectiveness studies with an appropriate comparison group and adequate control for confounding variables.[7,11,12] The present study is an example of a partnership between a community-based organization and an academic institution to study the impact of a community-initiated *promotor/a* intervention. Improvements in blood sugar control in low-income, Spanish-speaking adults with type 2 diabetes participating in a 12-week community-initiated *promotor/a* program were compared with those seen in a cohort of sociodemographically similar Latinx adults receiving usual care for diabetes at a nearby federally qualified health center (FQHC).

METHODS

The study was a retrospective, comparative, observational cohort study, in which de-identified data were analyzed from 2 cohorts of Latinx adults with type 2 diabetes—an "intervention cohort" and a "comparison cohort." The intervention cohort comprised individuals who completed the 12-week Latino Health Access Diabetes Self-Management Program (LHA-DSMP) between 2014 and 2016. The LHA-DSMP is a community-initiated program developed by Latino Health Access (LHA), an organization with no formal affiliation with a health system. LHA employs and trains *promotores/as* to provide diabetes self-management skills and support to low-income, Spanish-speaking adults at no cost to participants. The comparison cohort comprised individuals who had similar clinical and demographic characteristics to members of the intervention cohort and who were receiving usual care for diabetes from a primary care physician at an FQHC in the same geographic area where the LHA-DSMP was offered.

LHA approached investigators at an academic medical center to study the effectiveness of the LHA-DSMP and entered a data sharing agreement with them. The study, an analysis of data with no personal identifiers, was determined to constitute non-human subjects research by the office of the University of California, Irvine Institutional Review Board (IRB) and therefore does not require IRB review or oversight.

Setting and participants

Intervention cohort—The LHA-DSMP is offered by LHA, a non-profit community-based organization in central Orange County, California. Its mission is to deliver culturally appropriate health-related services and programming to address urgent health concerns and to engage individuals in low-income, structurally marginalized areas in transforming their environments and creating positive, concrete changes in their homes and communities by providing tools, training, and mechanisms for civic engagement and participation. Although it offers services to residents throughout all of Orange County, 78% of participants report residing in the city of Santa Ana. In Santa Ana, 78.2% of residents are Latinx, 69.2% are US citizens, and 21.2% of residents live below the poverty level.[36] Of those under the poverty level, 45.9% are Hispanic.[36] LHA serves a particularly disadvantaged subset of residents of Santa Ana and surrounding communities: 90.5% of LHA participants are Latinx/Hispanic, 88.9% report a yearly income under $30000, and 48.7% are uninsured (LHA data from 2015).

Participants for the LHA-DSMP were recruited from Santa Ana and the surrounding area predominantly through word-of-mouth outreach by *promotores/as* and local community clinic referrals. Individuals with a diagnosis of diabetes by a medical provider were eligible to participate in the LHA-DSMP, and others without a diabetes diagnosis were also welcome to attend for preventive education or to support loved ones. All participants were adults older than 18 years. Data from only those participants with a self-reported diagnosis of type 2 diabetes and who graduated from the program between January 1, 2014, and December 31, 2016, were included for analysis in the present study.

Comparison cohort—Members of the comparison cohort were identified from a registry of adults receiving usual care for type 2 diabetes with a primary care physician at one of 2 FQHC sites affiliated with an academic medical center in the same geographic area that LHA serves. In addition to primary care services, each FQHC offers a mix of supportive resources that are available to patients at either site. These resources include one-on-one diabetes coaching, certified diabetes educator visits, a monthly food pantry, group health education classes about diabetes and other wellness topics, and on-site pharmacy and laboratory services. Utilization of these supportive services is not tracked in the registry.

All adult patients with a diagnosis of type 2 diabetes who attended at least 2 medical visits at the participating clinics in any 12-month period between January 1, 2012, and December 31, 2014, were included in the registry. The registry included 824 adults with average ± SD age of 59 ± 12 years. Of these individuals, 544 (66%) were women, 675 (82%) were of Hispanic ethnicity, 163 (20%) were uninsured, and only 21 (3%) had private health insurance.

Program overview

The philosophy and procedures of the LHA-DSMP *promotor/a* program and curriculum are described in detail elsewhere.[37] In short, the LHA-DSMP includes 12 2-hour sessions led by 1 *promotor/a* once a week for 24 hours of hands-on instruction. Participants must complete at least 10 of the 12 sessions (20 hours) to earn a graduation certificate.

In the sessions, *promotores/as* instruct adults with diabetes on basic human anatomy and physiology, concepts in diabetes and its complications, and strategies for managing blood sugar levels through fitness and exercise, menu preparation, glucose monitoring, and managing stress. Intervention sessions begin with a check-in, in which the participants weigh themselves and have their blood sugar and blood pressure measured. Check-in is followed by a convivial group discussion in which the *promotor/a* presents the module topic, facilitates conversation, and encourages participants to share ideas and personal experiences.

The program assesses glycosylated hemoglobin (HbA_{1c}) levels between modules 2 and 3, not only as an outcome measure but also as an educational tool for self-management. Furthermore, *promotores/as* understand that diabetes is a chronic illness that requires a holistic approach and well-being in order to prevent the complications associated with this diagnosis. For this reason, *promotores/as* are experts in identifying additional needs a participant may need and providing referrals to various community resources such as community clinics, podiatry and diabetic retinopathy examinations, nutrition consultations, legal assistance, food banks, and one-on-one counseling.

All LHA-DSMP *promotores/as* are former participants or volunteers in the program and have diabetes, prediabetes, or a loved one with diabetes. During all LHA-DSMP classes, not just during the study period, the *promotores/as* leading the classes are directed to look for participants and volunteers who exhibit characteristics identified by LHA as important traits of successful future *promotores/as*. These characteristics include active participation in the classes, engagement with peers, mastery of the material about diabetes self-management, and volunteerism before, during, and after the class. When positions to hire new *promotores/as* open up, LHA leaders actively recruit, hire, and train former participants with these preferred characteristics. Recognizing that workers without extensive formal education in the county are often undervalued in the labor market, the organization is committed to providing equitable pay and thorough training to all *promotores/as*. Upon being hired, *promotores/as* receive approximately 115 hours of paid training and shadowing before leading a class. Compensation for *promotores/as* varies with experience and budgetary constraints. During the time of the study, the hourly wage for LHA *promotores/as* ranged from $13.00 to 16.00 per hour and averaged approximately $15.00 per hour, well above the state minimum wage at that time (which rose from $8.00 to $9.00 in July 2014 and then to $10.00 per hour in 2016).

Four *promotores/as* taught the intervention cohort sessions. These *promotores/as* (3 women, 1 man) ranged in age from 51 to 75 years and were born outside of the US in North, Central, and South America. They all had at least 15 years of teaching the class series and participated in annual training updates. All have extensive experience leading their peers toward wellness. The combination of a personal touch in their own language and a willingness to go above and beyond what other providers are able to do (such as go to someone’s home, help a patient make an appointment, and drive the person to the appointment) creates a bond that is very helpful supporting behavior change and promoting self-advocacy.[25]

Data collection

Intervention cohort—LHA-DSMP graduates Demographics.—Age, sex, ethnicity, education level, income, insurance status, national origin, and preferred language for LHA-DSMP participants were collected at the introductory session by a program staff member using an intake form.

Clinical indicators.—HbA_{1c} was measured by *promotores/as* at baseline between modules 2 and 3 and at follow-up after the 12th session. A reliable and accurate point-of-care HbA_{1c} test (the Alere Afinion HbA_{1c} Dx test)[38] is used to take the HbA_{1c} measurements and display the resulting value immediately. The testing equipment is maintained and calibrated following the manufacturer's instructions. *Promotores/as* are trained by a phlebotomist, nurse, or physician who attests to the correct technique for taking the finger-stick blood samples for the test.

Because graduation requires completing at least 10 of the 12 sessions, not all graduating participants attend the 12th session. In those cases, participants were asked to come in on a different date to complete their follow-up measurement, resulting in some variability in follow-up time. Average time to follow-up for the intervention cohort was 82 days from the baseline measurement and fell between 50 and 149 days for 99% of participants.

Participation data.—Records of session attendance, referrals to outside services, and utilization of these services were kept for each participant over the course of the intervention. To graduate the program, participants were expected to complete at least 10 of the 12 modules and had the opportunity to make up to 2 absences with their *promotor/a* in a one-on-one or small group format.

Comparison cohort—Diabetes usual care Demographics.—Demographic data for members of the comparison cohort were extracted from the FQHC's diabetes registry, derived from the electronic health record. The available demographic data elements in the registry were age, sex, race/ethnicity, insurance status, and preferred language.

Clinical indicators.—In the comparison cohort, HbA_{1c} was measured in the course of usual care, not following a specific timeline or study protocol. To derive intervals from baseline to follow-up HbA_{1c} measurements that were comparable with those observed in the intervention cohort, all intervals of consecutive HbA_{1c} measurements that fell between 50 and 149 days in length (corresponding to the range of pre- to postintervention measurements observed in the LHA-DSMP cohort) were identified for the 675 Latinx adults who were in the registry. Of these, 288 patients did not have any pairs of consecutive HbA_{1c} measurements between 50 and 149 days apart and were therefore excluded. This left 383 registry patients with a total of 1003 valid pairs of consecutive measurements separated by 50 to 149 days. A single valid pair of consecutive HbA_{1c} measurements was then randomly selected for each of these 383 individuals to form the analytic sample.

Statistical methods

Baseline characteristics of the intervention cohort were compared with those of the LHA-DSMP participants who enrolled in the program but did not graduate and with those who graduated but did not complete a follow-up HbA_{1c} measurement. Then, the baseline characteristics of the intervention and comparison cohorts were compared to determine the degree of imbalance on these variables at baseline. Independent-samples *t* tests were used for continuous variables, and chi-squared tests were used for categorical variables.

The effectiveness of the LHA-DSMP was evaluated using a difference-in-differences approach, comparing the mean change in HbA_{1c} from baseline to follow-up for members of the intervention cohort with the change observed in the comparison cohort. Difference-in-differences analysis is a method used to estimate intervention effects by comparing changes in outcomes from before to after an intervention between groups.[39] The method accounts for background changes in outcomes that would have occurred without intervention, which allows for robust comparisons between groups when other methods such as experimental or matched designs are not feasible or appropriate.[40]

The primary endpoint for the analysis was the adjusted difference-in-differences in HbA_{1c} for all participants. This primary endpoint was evaluated by regressing change in HbA_{1c} (follow-up value minus baseline value) on the treatment cohort (intervention vs comparison) in an ordinary least squares model, controlling for age, sex, language, insurance status, baseline HbA_{1c}, and time to follow-up to account for any imbalance between groups. For presentation purposes, mean change in HbA_{1c} from baseline to follow-up with 95% confidence interval (CI) was computed within each treatment group using paired *t* tests. Exploratory subgroup analyses were also conducted examining the treatment effect within subgroups of participants stratified by baseline HbA_{1c} levels (<7.0%, 7.0%–7.9%, 8.0%–8.9%, and ≥9.0%). Distributional properties of the mean change in in HbA_{1c} were examined using visual inspection of frequency plots and computed skewness and kurtosis values. When evidence of meaningful deviations from the normality assumption was noted, sensitivity analyses using transformed change scores were conducted. All group comparisons were performed using SPSS v.24 (IBM Corp, Armonk, New York).

RESULTS

Participant characteristics

LHA-DSMP graduates versus nongraduates—A total of 431 participants joined the LHA-DSMP between 2014 and 2016 (Figure 1). Of those, 354 (82.1%) graduated the program after completing a minimum of 10, and an average ± SD of 11.1 ± 1.1, of the 12 sessions, including makeup sessions, with 148 (42%) of the graduates completing all 12 sessions. Comparison between program graduates and nongraduates revealed no significant differences in demographics, although program graduates were slightly older and had marginally higher HbA_{1c} values at enrollment than participants who did not complete the graduation requirements (Table 1).

Among graduates, complete baseline and follow-up HbA_{1c} data were available for 305 (70.8% of the total enrolled participants), who comprised the intervention cohort in the

subsequent comparative effectiveness analysis. The 49 graduates who did not have complete baseline and follow-up HbA_{1c} data did not differ from the 305 participants with complete HbA_{1c} data on any demographic or baseline clinical characteristics (data not shown) except for national origin, with a larger proportion of graduates having complete data reporting national origin outside of the US than those without complete data (58% vs 41%, respectively; $P = .037$).

Similarly, in the comparison cohort, the 288 patients who were excluded because they did not have 2 HbA_{1c} measurements in the specified time interval did not differ significantly in age, gender, or percent uninsured compared with patients included in the analytic sample (data not shown). The excluded patients did have significantly lower mean ± SD initial HbA_{1c} (8.0 ± 2.3 vs 8.4 ± 2.0; $t_{673} = 2.1$; $P = .041$), suggesting that patients with lower HbA_{1c} values may not have their glycemic control checked as frequently as those with higher values.

Intervention versus comparison cohorts—Because the demographic data available from the diabetes registry for the comparison cohort were less comprehensive than the data collected by LHA, comparison of the cohorts was limited to the characteristics of age, gender, language preference, health insurance status, baseline HbA_{1c}, and time to follow-up (Table 2). Significant differences were observed between the intervention and comparison cohorts for age (53.1 vs 59.0 years, respectively), insurance status (66.9% vs 44.1% uninsured, respectively) and time to follow-up (11.7 vs 15.3 weeks, respectively; all Ps < .001), and for language preference ($P < .05$) and baseline HbA_{1c} ($P < .05$). To account for this imbalance, subsequent analyses were adjusted for baseline characteristics and time to follow-up.

Primary clinical outcomes

All participants—Mean values for HbA_{1c} at baseline and follow-up, mean difference in HbA_{1c} for each treatment group, and the unadjusted and adjusted difference-in-differences are presented in Figure 2 and Table 3. Over an average follow-up interval of 11.7 weeks, HbA_{1c} levels for members of the intervention cohort (LHA-DSMP graduates) changed from 8.7 ± 2.4to 7.6 ± 1.5, a mean difference(95% CI) of −1.1 (−1.3 to −0.9; $P < .001$). Over an average time to follow up of 15.3 weeks, HbA_{1c} changed for members of the comparison cohort (usual care) from 8.4 ± 2.0 to 8.1 ± 1.8, a mean difference (95% CI) of −0.3 (−0.4 to −0.2; $P < .001$). The unadjusted difference-in-differences value (95% CI) between the 2 treatment groups was −0.81 (−1.00 to −0.51; $P < .001$), favoring the LHA-DSMP intervention. Controlling for age, sex, preferred language, insurance status, baseline HbA_{1c}, and time to follow-up, the adjusted difference-in-differences value (95% CI) was −0.56 (−0.77 to −0.34; $P < .001$), also favoring the LHA-DSMP intervention.

Sensitivity analysis—As some left skew was observed in the outcome variable, we conducted a sensitivity analysis, repeating the regression using a transformed HbA_{1c} change value (centered around a positive constant and squared) that showed no skewness. However, analysis of the transformed variable (data not shown) demonstrated the same pattern of

results as the primary analysis presented in this article. For further information on the variable transformation, analysis, and results, please contact the authors.

Subgroup analysis—Because the size of intervention effects on blood sugar control is known to vary on the basis of how high or low HbA_{1c} values are at baseline,[35,41] exploratory subgroup analyses, stratified by baseline HbA_{1c} subgroups of HbA_{1c} less than 7.0%, 7.0% to 7.9%, 8.0% to 8.9%, and 9.0% or greater, are presented in Table 3 and Figure 2. In the intervention cohort (LHA-DSMP), significant improvements in HbA_{1c} were observed in the baseline HbA_{1c} 8.0% to 8.9% subgroup, with a mean difference (95% CI) of −0.8 (−1.0 to −0.6; $P < .001$) and the baseline HbA_{1c} 9.0% or greater subgroup, with a mean difference (95% CI) of −2.4 (−2.8 to −2.1; $P < .001$). In the comparison cohort, significant improvements in HbA_{1c} were only observed in the baseline HbA_{1c} 9.0% or greater subgroup, with a mean difference (95% CI) of −1.1 (−1.4 to −0.8; $P < .001$).

The unadjusted and adjusted difference-in-differences (95% CI) were statistically significant, favoring the LHA-DSMP intervention, in the baseline HbA_{1c} 8.0% to 8.9% subgroup, −0.60 (−0.92 to −0.28); $P < .001$ and −0.44 (−0.84 to −0.05); $P < .05$, respectively, and in the baseline HbA_{1c} 9.0% or greater subgroup, −1.33 (−1.79 to −0.87); $P < .001$ and −1.10 (−1.58 to −0.62); $P < .001$, respectively.

DISCUSSION

This study demonstrated greater reductions in HbA_{1c} for Latinx adults with diabetes who completed a community-initiated *promotor/a* program versus those who received usual care. The observed reduction in HbA_{1c} is greater than those documented in other similar *promotor/a* interventions initiated by health care and academic organizations,[13,42–48] albeit smaller than the 4% reduction over 12 months observed in a longer and more intensive nurse case management intervention targeting patients with higher baseline HbA_{1c} (>12.0%).[33]

Given that HbA_{1c} values appear to become more difficult to lower in patients with lower HbA_{1c} at baseline,[35,41] comparisons of intervention effects should take baseline HbA_{1c} into account. The significant pre-/postintervention reductions in HbA_{1c} were observed even in LHA-DSMP patients, with baseline values as low as 8.0% suggest that this intervention may help participants who are already approaching glycemic targets of 8.0% or lower.

The average pre-/postintervention reduction in HbA_{1c} of 1.1 percentage points observed in the intervention is clinically meaningful, as longitudinal studies have shown that every percentage point decrease in HbA_{1c} (eg, from 9% to 8%) is associated with a 14% reduction in risk of heart attack, 21% reduction in diabetes mortality risk, and a 37% reduction in risk of microvascular complications such as kidney disease, vision loss, and nerve damage.[49] Subgroup analyses suggest that the greatest benefits of the intervention may be realized among the patients with higher HbA_{1c} values, as the mean reduction in HbA_{1c} among participants with baseline HbA_{1c} 9.0% or greater is approximately twice as great in the intervention group versus the comparison group. In addition, given the difficulty of maintaining, much less improving, glycemic control among individuals with fairly good control at baseline,[50] additional investigation of interventions to preserve or extend glycemic

control in individuals with low to moderate baseline values is warranted. Point estimates of the pre/postintervention changes were favorable in the LHA-DSMP group for the 2 subgroups with the lowest baseline HbA_{1c} values, which suggests that community-initiated *promotor/a* models are promising candidates for study in individuals with low to moderate baseline values.

While this study utilized statistical approaches to control for differences in baseline characteristics of the 2 cohorts, this design is not equivalent to a randomized controlled trial (RCT). LHA-DSMP participants chose to join and complete the program, displaying personal motivation to improve their health. This self-selection bias may favorably influence the results. Without random assignment, the potential for selective attrition bias in the intervention cohort could not be rigorously assessed, although analysis showed that participants who dropped out of the program were similar at baseline to graduates. One interesting difference, however, is the LHA-DSMP participants who did not complete the follow-up HbA_{1c} measurement were less likely to have disclosed their national origin than those who completed the program. Given challenges related to immigration status that many members of this community face, disclosing one's national origin can be viewed as an expression of trust and opting not to disclose may be an indicator of perceived vulnerability to actions from law enforcement or immigration authorities, or even an unstable living situation. Interventions that rely on trust require sensitive handling of these concerns to ensure vulnerable members can safely access programs and resources.[25,51–53]

Because the study relied on combining 2 separately developed data sets, the overlap in available data elements was limited, which did not allow us to examine the mechanism of the effect (eg, group differences in changes in knowledge, access, and behaviors). If such interventions can be closely reproduced, identifying the precise mechanism of action may be less important.[54] However, further study to understand these mechanisms would help guide faithful replication of successful approaches and to define principles to include in the design of novel interventions. The peer support aspect of the intervention, in particular, warrants further study, as psychosocial factors can influence outcomes and cost-effectiveness of health services.[55] Furthermore, the limited follow-up time did not allow for examination of the persistence of effects. Therefore, conclusions about the effectiveness of the intervention cannot be extrapolated beyond the 14-week follow-up period. Finally, data on diabetes duration, a factor that influences the ease of achieving glycemic control, were not available. This was addressed, in part, by controlling for baseline HbA_{1c} and age, which tend to be correlated with diabetes duration.

Despite limitations, the comparative observational study design carries some advantages over RCTs, including greater feasibility, lower cost, and the opportunity to evaluate treatment effectiveness (in practice) as opposed to efficacy (under carefully controlled conditions).[56] Employing nonexperimental methods such as a comparative observational cohort study design and a difference-in-differences analysis lowers barriers to research in community settings. Such efforts can produce meaningful evidence to guide intervention in low-socioeconomic-status communities of color that are largely underrepresented in research.

There is a significant need for effective diabetes prevention and treatment in Latinx communities. Given the widespread impacts of systemic racism and restrictive immigration policies coupled with wide variation in engagement efforts from health care and academic institutions, there is also great potential in community-initiated approaches to deliver meaningful benefits with limited resources.[5,51] The potential benefits of this approach likely extend to other marginalized communities where hesitancy to trust medical and government institutions is prevalent.[32] Despite this potential, however, resource limitations make it challenging for community-based organizations to evaluate and disseminate such approaches. For this study, a community-based organization overcame these limitations by engaging an academic partner to apply low-cost strategies to evaluate an intervention they initiated.

Compared with usual care at an FQHC, a 12-session community-initiated *promotor/a* diabetes self-management intervention was found to be associated with greater improvements in glycemic control after roughly 3 months. The greatest benefits were observed in individuals with the highest HbA_{1c} values at baseline. Moreover, in addition to providing evidence for the comparative effectiveness of a community-initiated *promotor/a* intervention to improve glycemic control in Latinx adults with diabetes, the study serves as an example of a successful community-initiated research collaboration with an academic partner.

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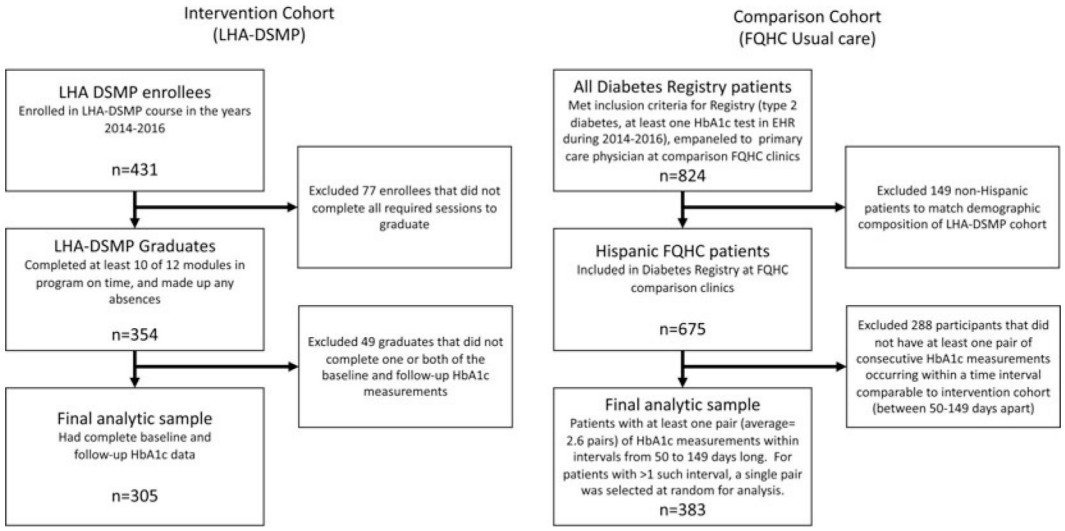

Figure 1.

Study flow diagram. LHA-DSMP indicates Latino Health Access Diabetes Self-Management Program; FQHC, federally qualified health center; HbA_{1c}, glycosylated hemoglobin; EHR, electronic health record.

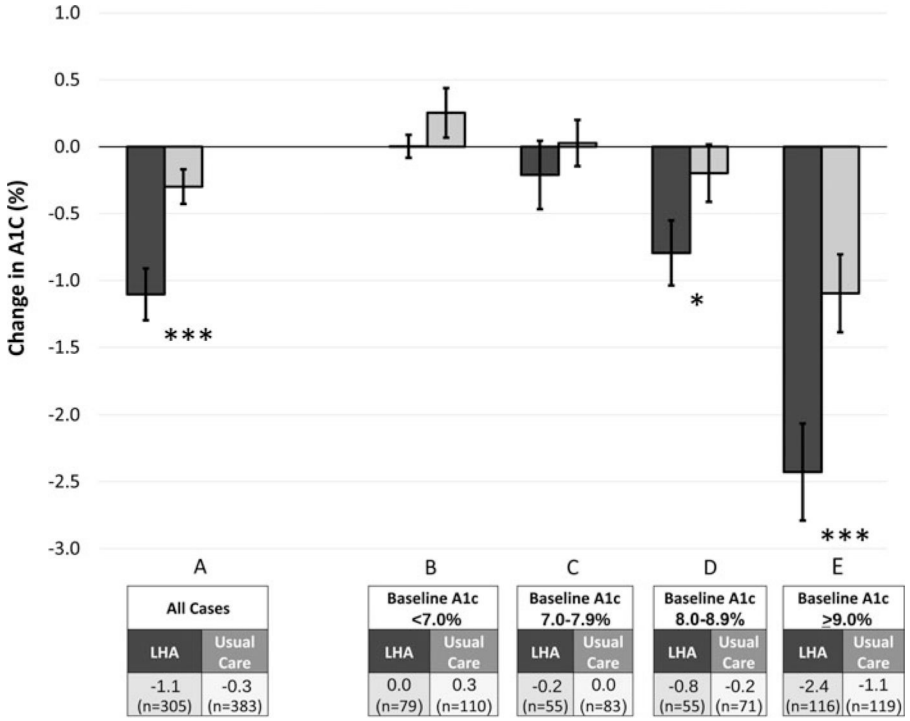

Figure 2.

Comparison of changes in HbA_{1c} from baseline to follow-up for individuals in the intervention cohort ("LHA") with those in the comparison cohort ("Usual Care"). Primary endpoint is difference-in-differences in HbA_{1c} from baseline to follow-up between the 2 treatment groups (A). Exploratory hypothesis-generating subgroup analyses are also presented with comparisons stratified by subgroups defined by baseline HbA_{1c} values (B-E). Bars represent unadjusted change in HbA_{1c} from baseline to follow-up with 95% CI computed using paired *t* tests within each treatment group. Asterisks ("*") indicate significant difference-in-differences from baseline to follow-up between treatment groups as estimated using an ordinary least squares regression model adjusted for age, sex, preferred language, insurance status, baseline HbA_{1c}, and time to follow-up (*$P < .05$; ***$P < .001$). Average ± SD time to follow-up for all participants was 13.7 ± 3.4 weeks. LHA indicates Latino Health Access; HbA_{1c}/A_{1c}, glycosylated hemoglobin.

TABLE 1.

Participant Characteristics: All LHA-DSMP Enrollees

Characteristics	All Participants (n = 431)	Graduates (n = 354)	Nongraduates (n = 77)	*P* [a]
Age, mean ± SD, y	52.4 ± 10.8	52.9 ± 10.7	50.0 ± 11.2	.034
Gender, n (%) female	290 (67.3)	240 (67.8)	50 (64.9)	.69
Language preference, n (%) Spanish	409 (94.9)	337 (95.2)	72 (93.5)	.37
Education level, n (%)				.44
<Ninth grade	220 (51.0)	177 (50.0)	43 (55.8)	
Ninth grade or above	189 (43.9)	160 (45.2)	29 (37.7)	
Missing	22 (5.1)	17 (4.8)	5 (6.5)	
Average income, n (%)				
<$20 000	233 (54.1)	192 (54.2)	41 (53.2)	
$20 000–$40 000	119 (27.6)	101 (28.5)	18 (23.4)	
≥$40 000	18 (4.2)	13 (3.7)	5 (6.5)	
Not disclosed	61 (14.2)	48 (13.6)	13 (16.9)	
National origin, n (%)				
Born outside United States	240 (55.7)	197 (55.6)	43 (55.8)	.89
Born in the United States	8 (1.9)	6 (1.7)	2 (2.6)	
Not disclosed	183 (42.5)	151 (42.7)	32 (41.6)	
Health insurance, n (%) insured	110 (25.5)	91 (25.7)	19 (24.7)	.94
HbA_{1c} at baseline, mean ± SD, %	8.7 ± 2.4	8.8 ± 2.4	8.2 ± 2.3	.058

Abbreviations: HbA_{1C}, glycosylated hemoglobin; LHA-DSMP, Latino Health Access Diabetes Self-Management Program.

[a]Computed using independent-samples *t* tests for continuous variables, and Pearson's chi-squared test for dichotomous variables.

TABLE 2.

Participant Characteristics: Intervention Cohort Versus Comparison Cohort

Characteristics	Intervention (LHA-DSMP) (n = 305)	Comparison (Usual Care) (n = 383)	*P* [a]
Age, mean ± SD, y	53.1 ± 10.7	59.0 ± 11.3	<.001
Gender, n (%) female	209 (68.5)	269 (70.2)	.68
Language preference, n (%) Spanish	290 (95.1)	343 (89.6)	.01
Health insurance, n (%)			<.001
Uninsured	204 (66.9)	169 (44.1)	
Insured	76 (24.9)	214 (55.9)	
Unknown/not disclosed	25 (8.2)	0 (0.0)	
HbA_{1c} at baseline, mean ± SD, %	8.7 ± 2.4	8.4 ± 2.0	.03
Time to follow-up, mean ± SD, wk	11.7 ± 1.9	15.3 ± 3.5	<.001

Abbreviations: HbA_{1C}, glycosylated hemoglobin; LHA-DSMP, Latino Health Access Diabetes Self-Management Program.

[a]Computed using independent-samples *t* tests for continuous variables, and Pearson's chi-squared test for dichotomous variables.

TABLE 3.

Change in HbA_{1c} From Baseline to Follow-up, by Cohort[a]

	Intervention Cohort (LHA-DSMP)				Comparison Cohort (Usual Care)				Difference-in-Differences (95% CI)	
	N	Baseline	Follow-Up	Difference (95% CI)	N	Baseline	Follow-Up	Difference (95% CI)	Unadjusted	Adjusted
All participants	305	8.7 ± 2.4	7.6 ± 1.5	−1.1 (−1.3 to −0.9)***	383	8.4 ± 2.0	8.1 ± 1.8	−0.3 (−0.4 to −0.2)***	−0.81 (−1.03 to −0.58)***	−0.56 (−0.77 to −0.34)***
Subgroups, by baseline HbA_{1c}										
<7.0%	79	6.2 ± 0.4	6.2 ± 0.5	0.0 (−0.1 to 0.1)	110	6.4 ± 0.4	6.6 ± 1.1	+0.3 (0.1 to 0.4)**	−0.25 (−0.48 to 0.02)	−0.07 (−0.38 to 0.24)
7.0%–7.9%	55	7.4 ± 0.3	7.2 ± 1.0	−0.2 (−0.5 to 0.0)	83	7.4 ± 0.3	7.4 ± 0.9	0.0 (−0.1 to 0.2)	−0.24 (−0.53 to 0.06)	−0.08 (−0.43 to 0.28)
8.0%–8.9%	55	8.4 ± 0.3	7.7 ± 0.9	−0.8 (−1.0 to −0.6)***	71	8.4 ± 0.3	8.2 ±0.9	−0.2 (−0.4 to 0.0)	−0.60 (−0.92 to −0.28)***	−0.44 (−0.84 to −0.05)*
≥9.0%	116	11.2 ± 1.7	8.8 ± 1.6	−2.4 (−2.8 to −2.1)***	119	10.8 ± 1.6	9.7 ± 1.7	−1.1 (−1.4 to −0.8)***	−1.33 (−1.79 to −0.87)***	−1.10 (−1.58 to −0.62)***

Abbreviations: HbA_{1c}, glycosylated hemoglobin; LHA-DSMP, Latino Health Access Diabetes Self-Management Program.

[a]Baseline and follow-up HbA_{1c} presented as mean ± SD. Primary endpoint is adjusted difference-in-differences in HbA_{1c} from baseline to follow-up between the 2 groups, controlling for age, sex, preferred language, insurance status, baseline HbA_{1c}, and time to follow-up. Average ± SD time to follow-up for all participants was 13.7 ± 3.4 weeks.

*$P < .05$.

**$P < .01$.

***$P < .001$.