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# Promotoras Can Facilitate Use of Recreational Community Resources: The Mi Corazón Mi Comunidad Cohort Study

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*Introduction.* Limited research has documented interventions aimed at promoting use of existing recreational community resources among underserved populations. This study (HEART [Health Education Awareness Research Team] Phase 2) reports findings of an intervention (Mi Corazón Mi Comunidad) where community health workers facilitated use of diet and exercise programming at local recreational facilities among Mexican American border residents. The aim was to evaluate overall attendance rates and to assess which factors predicted higher attendance. *Method.* The design was a cohort study. From 2009 to 2013, a total of 753 participants were recruited across 5 consecutive cohorts. The intervention consisted of organized physical activity and nutrition programming at parks and recreational facilities and a free YWCA membership. Attendance at all activities was objectively recorded. Regression analyses were used to evaluate whether demographic factors, health status, and health beliefs were associated with attendance. *Results.* Participants included mostly females at high risk for cardiovascular disease (72.4% were overweight/obese and 64% were [pre-]hypertensive). A total of 83.6% of participants attended at least one session. On average, total attendance was 21.6 sessions (range: 19.1-25.2 sessions between the different cohorts), including 16.4 physical activity and 5.2 nutrition sessions. Females ( $p = .003$ ) and older participants ( $p < .001$ ) attended

more sessions. Participants low in acculturation (vs. high) attended on average seven more sessions ( $p = .003$ ). Greater self-efficacy ( $p < .001$ ), perceived benefits ( $p = .038$ ), and healthy intentions ( $p = .024$ ) were associated with higher attendance. *Conclusions.* The intervention was successful in promoting use of recreational facilities among border residents at high risk for cardiovascular disease. Findings were similar across five different cohorts.

**Keywords:** community intervention; health promotion; Latino; lay health advisors/community health workers

## ► INTRODUCTION

Obesity, diabetes, metabolic syndrome, hypertension, lack of physical activity, and high stress are major public health conditions highly prevalent among Hispanics (Daviglius et al., 2012), the largest and fastest growing minority population in the U.S. Mexican

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Americans living in the U.S.-Mexico border region have been found to have an even higher prevalence of cardiovascular conditions (Bliss, 2010; Pan American Health Organization, 2008). The great burden of chronic disease experienced by Mexican American border residents, combined with limited access to health care (U.S.-Mexico Border Health Commission, 2010) calls for immediate actions of prevention and control of chronic conditions via sustainable public health efforts.

Traditionally, research on prevention of common chronic diseases has focused on achieving individual behavior change. However, in the past 15 years, a shift has occurred toward an ecological perspective, recognizing that environmental factors facilitate engaging in healthy behaviors (Balcázar et al., 2012; Baron et al., 2014; Egger & Swinburn, 1997; French, Story, & Jeffery, 2001; Hill & Peters, 1998; Kaczynski & Henderson, 2008; Lavizzo-Mourey & McGinnis, 2003; Sallis et al., 2006; Srinivasan, O'Fallon, & Deary, 2003). This focus has been supported by research documenting the association between environmental factors and health outcomes and that low-income minority populations at high risk for common chronic conditions often have less access to community resources such as public recreational programs, facilities, parks, and chain supermarkets (Dahmann, Wolch, Joassart-Marcelli, Reynolds, & Jerrett, 2010; Moore, Diez Roux, Evenson, McGinn, & Brines, 2008; Powell, Slater, Mirtcheva, Bao, & Chaloupka, 2007).

Research has further documented that beyond proximity, the actual use of resources such as parks is an important factor for the prevalence and progression of cardiovascular disease (CVD; Tamosiunas et al., 2014). This is consistent with studies suggesting that while access to an environment supportive of physical activity is a requirement, it may not be sufficient to achieve recommended levels of physical activity, particularly among populations low in socioeconomic status (Giles-Corti & Donovan, 2002a, 2002b). For example, lack of social support to try new resources or financial barriers may prevent individuals and families from taking advantage of available resources. Therefore, ways to facilitate the use of these resources should be explored. One example is a study by Jilcott, Vu, Morgan, and Keyserling (2012), which reported that group trips to free, easily accessible, and family-friendly physical activity and nutrition resources were most appealing to low-income women.

Despite these insights and the conceptual/theoretical basis, to date, there is little research demonstrating how use of already existing community resources can be promoted among high risk Hispanic border residents. One potential way to facilitate use of existing

resources in the Hispanic community is the *community health worker/Promotora de Salud* (CHW/PS, terms used interchangeably) model. CHW/PS are members of a community who serve as a link between community members and health care providers, providing information and social support in a culturally competent manner (Balcázar et al., 2011; Witmer, Seifer, Finocchio, Leslie, & O'Neil, 1995). Although not specifically oriented at promoting the use of existing recreational facilities, studies have shown that PS may be able to promote physical activity and diet in CVD risk reduction programs aimed at Hispanics such as *Camina por Salud* ("Walks for Health"; Keller & Cantue, 2008), *Pasos Adelante* ("Steps Forward"; Staten, Scheu, Bronson, Peña, & Elenes, 2005), and *Salud Para Su Corazón* ("Health for Your Heart"; Balcázar, Alvarado, Hollen, Gonzalez-Cruz, & Pedregón, 2005).

One recent study, *Familias Sanas y Activas* ("Healthy and Active Families"; Ayala, 2011) provided preliminary evidence that CHWs may be able to promote utilization of community facilities. The study included community and recreation centers as locations to teach PS-led activity classes. PS were volunteers, but received professional development incentives and training on how to lead a physical activity program to facilitate behavior change. They also received a physical activity toolkit, including exercise materials, a community resource guide of free and low-cost resources, and maps of parks and locations of recreational facilities. Over a 12-month period, participants attended an average of 16 health education and physical activity sessions and day use of parks and recreational facilities increased by 10%.

The current study builds on this research by presenting findings from HEART (Health Education Awareness Research Team) Phase 2, a community-based study of CVD risk reduction. The study aimed to promote use of community nutrition and physical activity resources among five cohorts of Mexican American border residents at risk for CVD. This article describes (1) participants' objectively measured attendance at physical activity and nutrition programming facilitated by PS and (2) whether a set of baseline demographic, clinical, or behavioral predictors were associated with program attendance.

## ► METHOD

### *The HEART Project: Theoretical Framework*

Project HEART (Health Education Awareness Research Team) was an 8-year NIH community-based participatory study including two phases, a randomized

controlled community trial (HEART Phase 1; Balcázar et al., 2009, 2010) and HEART Phase 2, a community cohort intervention called *Mi Corazón, Mi Comunidad* (MiCMiC; “My Heart, My Community”) conducted between 2009 and 2013. HEART Phase 2 was guided by an ecological framework aimed at promoting utilization of physical activity and nutrition programming through PS (Balcázar et al., 2012). The ecological approach identified change agents at the individual (the study participants), interpersonal (the PS and participants’ family/friends), organizational (the YWCA and parks and recreations), community and policy level (represented by the Community Health Advisory and Leadership Council [CHALC] established in HEART Phase 1). The MiCMiC intervention included *Salud Para Su Corazón* (SPSC), an educational curriculum to promote heart-healthy behaviors among Hispanics (Balcázar et al., 2005, 2006). SPSC was developed from an ecological perspective and informed by individual level behavioral theories. These included health belief model constructs, which have been widely shown to be empirically valid predictors of health behavior change (Janz & Becker, 1984).

In this context, the current article reports participant utilization patterns of the MiCMiC intervention, and whether demographic, clinical, and behavioral factors were associated with program attendance. Demographic variables (age, sex, acculturation) were included as they were associated with promotora intervention attendance among similar populations (de Heer, Balcázar, Castro, & Schulz, 2012). Health belief model constructs were selected as they have been associated with behavior change (Janz & Becker, 1984) and treatment adherence, particularly self-efficacy (e.g., Gherman et al., 2011). Health status variables were collected to document CVD risk and to assess whether attendance was higher among people who were already healthy. The baseline to follow-up changes of clinical variables and associations with attendance are described elsewhere (de Heer et al., 2015).

### **Community Setting and Recruitment**

The implementation of the MiCMiC intervention took place in two selected zip codes in the lower valley of El Paso, Texas, identified by the CHALC. The area is characterized by very low socioeconomic status, educational attainment, a high percentage of Mexican American residents (more than 90%), and a high prevalence of CVD risk (Balcázar et al., 2009, 2010).

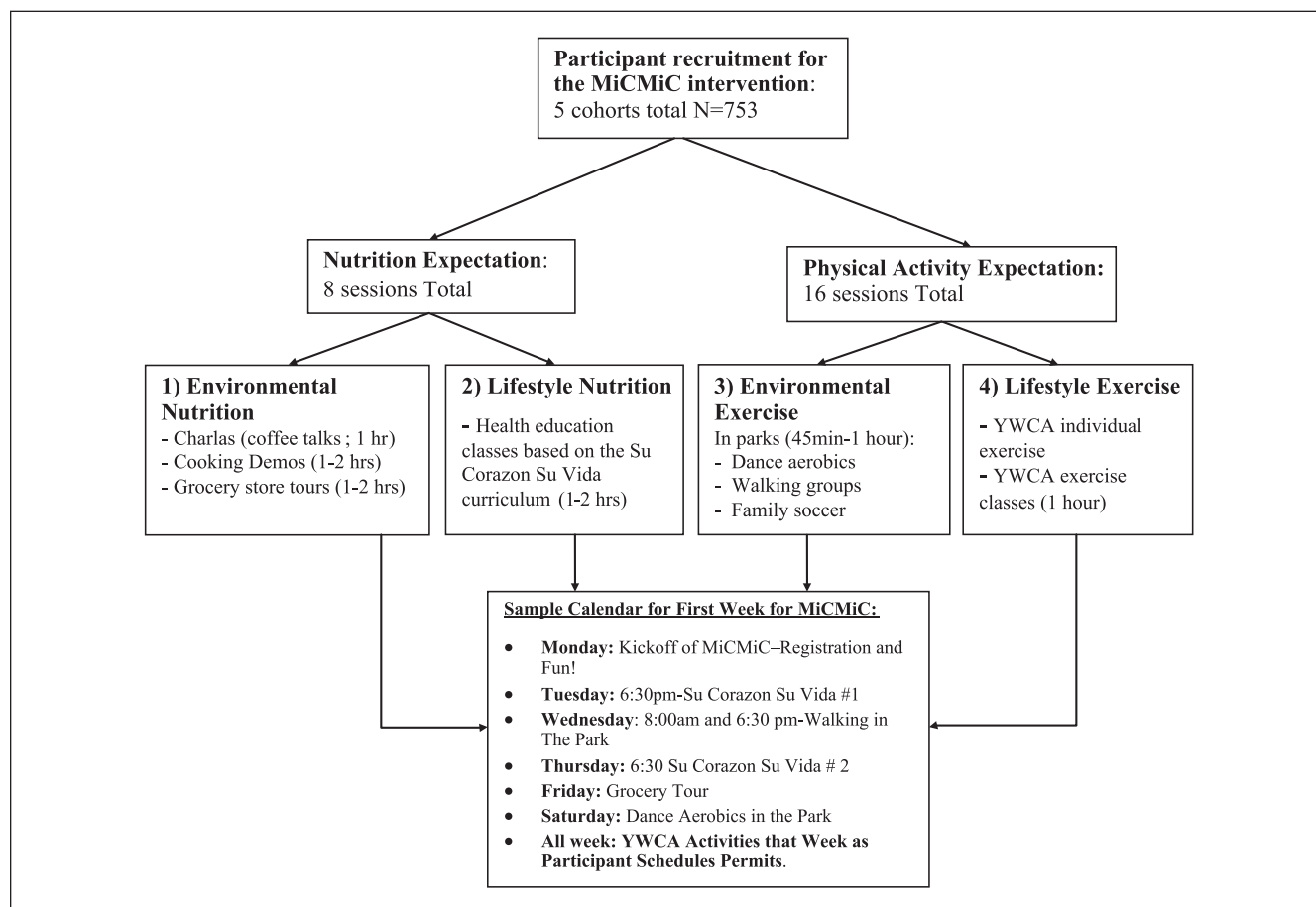
People were eligible if they lived in the zip codes, were Hispanic adults, and reported being able to participate in physical activities provided by MiCMiC.

Current members of the YWCA were not eligible to participate. Recruitment activities were led by the three PS, who were hired full-time and located at the YWCA. Recruitment took place at community health fairs, the YWCA, recreation centers, community health clinics, and through radio and TV Spanish programming (Balcázar et al., 2012). PS not only visited recruitment sites and left their contact information but also directly interacted with potential participants. The recruitment time period for each cohort ranged from 4 to 6 months. This time frame included preparation for the MiCMiC intervention. No further details were retained on the number of events visited or number of potential participants spoken to at recruitment events. PS checked for eligibility and maintained a list of eligible people, who were invited to a general meeting to explain the program and schedule baseline assessments. Based on project and community partner capacity, the projected number of participants was 150 per cohort (750 total). By the end of Cohort 2, the PS were very successful in achieving the projected recruitment numbers, demonstrated by increased recruitment from Cohorts 1 to 4. The institutional review boards of the University of Texas Health Science Center and the University of Texas at El Paso approved all procedures.

### **MiCMiC Programming**

After completion of baseline measurements, participants received the MiCMiC activities calendar at a kick-off event. The 4-month MiCMiC intervention activities were grouped into four exercise and nutrition categories (see Figure 1). Exercise included *lifestyle exercise* (YWCA individual and group exercise classes) and *environmental exercise* (dance aerobics and walking in parks, family soccer). Nutrition included *lifestyle nutrition* (classes based on the *Su Corazón Su Vida* curriculum) and *environmental nutrition* (*charlas* [coffee talks], cooking demos, grocery tours). The programming integrated best practice methods following guidelines from the CDC Task Force on Community Preventive Services (Centers for Disease Control and Prevention, n.d.). All activities were related to heart healthy behaviors and included topics such as diabetes, blood pressure, and maintaining a healthy weight. For each cohort, a calendar of activities was developed. Figure 1 shows a sample weekly schedule from a MiCMiC calendar. Sessions ranged from 45 minutes to 2 hours in duration.

A total of 753 participants across 5 cohorts were recruited. Each cohort was offered a 4-month intervention. The decision to have a cohort design was driven by the CHALC (Balcázar et al., 2009, 2010). Three key community partners included (1) the YWCA (3 PS



**FIGURE 1 Components and 4-Month Expectations the *Mi Corazón Mi Comunidad* (MiCMiC; My Heart, My Community)**  
NOTE: Intervention implemented from 2009-2013 in El Paso, Texas.

were hired by the YWCA with NIH funding to support MiCMiC), (2) parks and recreation of the City of El Paso, and (3) Centro San Vicente, a community health clinic. A total of six different parks in the two zip codes of the study were used.

### Outcomes

The primary outcome for the current study was attendance at the health sessions. Attendance goals included a total of 28 sessions, including 8 total nutrition sessions, 16 total physical activity sessions, and 4 additional sessions of MiCMiC activities (“free choice”). Attendance goals were based on three factors: (1) prior research (Ayala, 2011) who reported use of parks and recreational facilities about 7 days per month by two thirds of participants; (2) recommendations by the Promotoras on what would be reasonable and feasible for them to manage; and (3) the length of typical

Promotora-led health education series among low-income Hispanics, such as SPSC (8-12 total sessions). Incentives (small awards, e.g., shirts, water bottles, cooking utensils, etc.) were given for those participants meeting a set of intermediate attendance milestones.

Detailed attendance records were kept by the PS, who were located at the YWCA facilities for the duration of the intervention. For lifestyle physical activity, an electronic card system was used to track use of the YWCA facilities. For the other categories, attendance was monitored by the promotores, who generally also led these activities.

### Predictors of Attendance

A survey was used including demographics, health behaviors, and health status, and to evaluate whether these factors were associated with program attendance. Data collection took place at the YWCA. The

questionnaire (available in English and Spanish) was administered by a bilingual HEART Phase 2 research assistant. Demographic information included age, gender, marital, and socioeconomic status (income in increments of \$10,000, years of education, employment status, health insurance). Acculturation was assessed based on the Short Acculturation Scale for Hispanics (SASH; Marín, Sabogal, VanOss Marín, Otero-Sabogal, & Pérez-Stable, 1987).

Health belief model constructs related to heart healthy behaviors were assessed, previously tested and shown to have adequate reliability in CVD risk reduction (Balcázar et al., 2009, 2010). All scales (except self-efficacy) were 10-point scales ranging from (1) *Strongly disagree* to (10) *Strongly agree*. Intentions for diet and physical activity included 7 items, for example, "Within the next 6 months, I intend to exercise at least 30 minutes a day 3 days a week." Perceived susceptibility to CVD included 9 items, for example, "I believe I am at higher risk for CVD because I am overweight"; perceived severity included 4 items, such as, "I believe that CVD leads to serious complications"; barriers and benefits to engage in healthy behaviors (6 items). Self-efficacy included 8 items such as "How confident are you that you can cook using less salt?" with answers ranging from (1) *Not at all confident* to (10) *Absolutely confident*.

A number of clinical measures were collected including blood pressure, body mass index (BMI), hip and waist circumference, following national standard protocols (i.e., American Heart Association). Based on adding a total of 11 factors associated with CVD (including clinical and survey measures), a sum of all CVD risk factors (presence or absence) was calculated. These included lack of recent screening practices for (1) blood cholesterol and (2) diabetes; presence of (3) high cholesterol, (4) high blood glucose, (5) high blood pressure; (6) abdominal obesity or (7) BMI above healthy ranges; and health behaviors including (8) smoking cigarettes; (9) not exercising for at least 30 minutes 3 times per week; (10) not eating at least five fruits and vegetables a day; and (11) not having taken a class to improve one's health in the last 3-6 months.

### **Data Analyses**

Descriptive statistics and frequencies were used to describe participants' demographic characteristics, clinical indicators, behaviors, and the primary outcome: attendance at MiCMiC physical activity and nutrition programming. Linear regression analyses were used to

evaluate associations between baseline demographic, clinical and behavioral characteristics and the attendance records. Covariates included in all models were age, gender, income, acculturation, and cohort membership. All analyses were conducted with SPSS 20 (SPSS Inc, IBM Corp, Armonk, NY).

## **► RESULTS**

### **Participant Characteristics**

A total of 753 participants were recruited for the intervention across 5 cohorts (Cohort 1,  $n = 117$ ; Cohort 2,  $n = 139$ ; Cohort 3,  $n = 153$ ; Cohort 4,  $n = 199$ ; Cohort 5,  $n = 145$ ). The majority of participants were female (82.9%) with a mean age of 44.4 years ( $SD = 13.4$ ). Most participants (79.9%) were low in acculturation, born in Mexico (62.2%) and chose Spanish (82.8%) as their survey language. More than 70% reported an annual income of less than \$20,000 and almost 50% reported no health insurance (see Table 1).

Participants were at high risk for cardiovascular and metabolic conditions. More than 70% were obese as measured by waist circumference. A total of 64% of participants were classified as having either prehypertension or hypertension, even though only 28.2% reported ever having been told to have hypertension or prehypertension. The average number of risk factors on the CVD risk score was 5.56 ( $SD = 1.74$ ) out of 11 potential number of risk factors.

### **Utilization of Community Resources**

Attendance records indicated that approximately 5 out of 6 participants (83.6%) attended at least 1 session over the 16-week study period. The average attendance per participant was 21.65 sessions ( $SD = 26.49$ ; see Table 2).

This represents approximately 75% of the goals set for the participants (total 28 sessions). The mean attendance included 16.44 ( $SD = 22.70$ ) exercise sessions and 5.21 ( $SD = 5.64$ ) nutrition sessions. The most popular physical activity was attendance at the YWCA, with an average of just over 14 sessions ( $SD = 21.10$ ). The most popular nutrition related activity was attendance at Su Corazón Su Vida classes (mean of 3.59,  $SD = 3.99$ ). Total attendance was similar across the five cohorts, and ranged from 19.1 to 21.6 for Cohorts 1, 2, 3, and 5, and 25.2 for Cohort 4.

### **Factors Associated With Attendance**

Several factors measured at baseline were associated with attendance (see Table 3). Older participants

TABLE 1

**Baseline Demographic and Clinical Characteristics of Mexican American Border Residents at High Risk for Cardiovascular Disease (CVD) in El Paso, Texas, Participating in a Cohort Study Aimed at Promoting Utilization of Community Resources<sup>a</sup>**

Variable	Total (N = 753)
Height (inches)	63.38 (3.10)
Weight (pounds)	178.49 (40.09)
BMI, mean (kg/m <sup>2</sup> )	31.20 (6.40)
Underweight	0.5%
Normal	14.6%
Overweight	32.2%
Obese	53.2%
Waist (inches)	38.84 (5.30)
Abdominal obesity	72.4%
Hip circumference (inches)	43.97 (5.30)
Systolic BP (mm/Hg)	126.40 (18.13)
Diastolic BP (mm/Hg)	77.09 (14.89)
Prehypertension or hypertension	64.0%
Reported hypertension or prehypertension	28.2%
Reported diabetes or prediabetes	20.6%
Reported high cholesterol	32.3%
CVD risk index (number of 11 factors)	5.56 (1.74)

NOTE: BMI = body mass index; BP = blood pressure; CVD, cardiovascular disease.

<sup>a</sup>Values represent mean (*SD*) or percentage.

( $b = 0.285$ ,  $p < .001$ ) and female participants ( $b = 7.850$ ,  $p = .003$ ) attended more sessions. Furthermore, controlling for age, gender, and income, participants low in acculturation (as classified by the SASH; Marín et al., 1987) attended between 7 and 8 sessions more on average compared to participants high in acculturation: 23.51 ( $SD = 27.58$ ) compared to 15.70 total sessions ( $SD = 20.80$ ).

Baseline health status (BMI, waist circumference, diabetes, and hypertension) was largely unrelated to attendance, suggesting that attendance was not limited to already healthy individuals. Only reported high cholesterol was associated with increased attendance ( $b = 4.735$ ,  $p = .048$ ). Intentions to improve diet and exercise were also associated with attendance ( $b = 1.319$ ,  $p = .024$ ). The strongest association with attendance was self-efficacy to engage in healthy behaviors ( $b = 2.129$ ,  $p < .001$ ). Perceived benefits were also associated

with attendance ( $b = 1.739$ ,  $p = .038$ ), but perceived susceptibility, severity, and barriers to diet and exercise were not.

## ► DISCUSSION

This study evaluated whether utilization of community resources could be facilitated among Mexican American adults at high risk for CVD living in the U.S.–Mexico border area. Using an ecological model employing CHWs as facilitators, approximately five out of six participants attended at least one of the nutrition or physical activity sessions. On average, more than 16 physical activity sessions and 5 nutrition sessions were attended over a 4-month period. These numbers suggest that promoting nutrition and physical activity programming at existing recreational facilities is possible among five subsequent cohorts of Hispanic adults at high risk for CVD living in the border area.

Our findings confirmed that the participants in the MiCMiC intervention were a high-risk population. For example, about 85% of participants were overweight, and more than half were obese. Almost two thirds of participants had hypertension or prehypertension, which was concerning because only 28% of participants had ever been told they did. These findings are consistent with prior research (Balcázar et al., 2009; Balcázar et al., 2010) and support the need for programs such as MiCMiC in this population.

Notably, the highest attendance was found for the YWCA, followed by the Su Corazón Su Vida curriculum sessions. Attendance at the “environmental activities” such as family soccer, walking in the park, and grocery store tours was lower. Several potential reasons can be hypothesized for the difference. For example, the fact that the baseline measurements were conducted at the YWCA, the availability (participants could enter the YWCA during a wide range of hours) and the nature of some activities (participants may not go on a grocery store tour more than once) could be related to attendance. Also, tracking attendance at parks or grocery stores may have been more challenging compared to a swipe card system that was used at the YWCA.

This study provides information regarding the extent of participation that can be expected in these types of programs. On average, 21 sessions were attended, or about 5 to 6 sessions per month. Although without “baseline attendance” we are limited in our ability to infer true *increases* in attendance, another study (based on the current sample) documented substantial increases in weekly hours of activity among participants who

**TABLE 2**  
**Attendance at a 4-Month Nutrition and Exercise Intervention Among 5 Cohorts of Mexican American Border Residents at High Risk for Cardiovascular Disease in El Paso, Texas, Implemented Between 2009 and 2013**

<i>Attendance</i>	M (SD)	Mdn	Range	<i>Attended at Least One Session (%)</i>
Attendance total	21.65 (26.49)	10.00	0-192	83.6
Cohort 1	19.87 (28.08)	9.00	0-160	
Cohort 2	20.64 (23.07)	11.00	0-119	
Cohort 3	21.72 (28.02)	9.00	0-155	
Cohort 4	25.17 (27.22)	16.00	0-192	
Cohort 5	19.06 (25.36)	8.00	0-108	
Total exercise sessions	16.44 (22.70)	6.00	0-182	77.8
Total nutrition sessions	5.21 (5.64)	3.00	0-23	68.5
Individual nutrition	3.59 (3.99)	2.00	0-16	63.7
Environmental nutrition	1.61 (1.98)	1.00	0-10	55.4
Individual exercise	14.01 (21.10)	4.00	0-181	68.0
Environmental exercise	2.40 (3.97)	1.00	0-28	52.0

attended more MiCMiC sessions (de Heer et al., 2015). The numbers found in the current study were substantially higher over a shorter period (4 months), compared with another study in the U.S.–Mexico border area that evaluated utilization of parks and recreational facilities, which reported 16 sessions over a 12-month period (Ayala, 2011). The higher attendance in the current study could potentially be attributed to several factors including setting an a priori schedule of activities and outlining participation objectives and incentives, and employ paid Promotores de Salud who were located at the recreational facilities. Also, it is important to note that little variability in attendance across five different cohorts was found. The lowest average number of sessions attended in any cohort was 19, whereas the largest number 25. This shows that the intervention was repeatable among a population at high risk for CVD.

The current study further provides some insight into baseline participant characteristics associated with greater program attendance. For example, health status was not associated with program attendance, suggesting that the intervention did not simply facilitate access for already healthy individuals. Furthermore, participants low in acculturation attended more classes, consistent with a prior study that showed that being born in Mexico was associated with greater participation in a Promotora intervention (de Heer et al., 2012). Although we did not systematically collect qualitative

information as to why this was the case, one possible option is that due to the culturally tailored nature of the program it was a better fit for participants lower in acculturation. It is possible that the culturally appropriate Promotora model employed in the current study facilitated participation of participants low in acculturation. Although we did not collect systematic information on *how* Promotoras facilitated participation, it is likely that many known roles were used, such as providing information and education, conducting outreach, and providing informal counseling and social support (Balcázar et al., 2011).

The results of the current study contribute to the limited evidence-based literature on ways to facilitate access to community resources among high risk border residents. Our findings further expand the body of research on community-based CVD prevention using CHWs (Ayala, 2011; Balcázar et al., 2005; Keller & Cantue, 2008; Staten et al., 2005).

This study is also consistent with recommendations by Sallis et al. (2006), who indicated that (following an ecological model) the most powerful interventions would combine safe, attractive and accessible facilities with motivational and educational opportunities to promote the use of these facilities. Jilcott, Laraia, Evenson, Lowenstein, and Ammerman (2007) have further provided a guide that describes intervention tools addressing environmental factors to improve diet and physical activity, initiating a dialogue of promoting the

TABLE 3

Factors Associated With Total Number of Sessions Attended at a 4-Month Nutrition and Exercise Intervention Among 5 Cohorts of Mexican American Border Residents in El Paso, Texas, Between 2009-2013

Variable	Coefficient	$p^a$
Constant	9.499	.104
Demographics		
Age (years)	0.285	<.001**
Gender female	7.850	.003*
Income >\$20,000	1.660	.181
Acculturation (SASH; high vs. low)	-7.356	.003*
Cohort membership	-0.337	.646
Health status		
Body mass index	-0.054	.729
Abdominal obesity (yes vs. no)	-0.875	.687
Ever had hypertension or prehypertension (yes)	-0.905	.716
Ever had diabetes prediabetes or gestational diabetes	-2.479	.339
High cholesterol (yes)	4.735	.048*
Sum of 11 factors associated with CVD (0-11)	-0.784	.178
Intentions, barriers, self-efficacy		
Intentions (dietary+ 1 exercise)	1.319	.024*
Perceived barriers to exercise	-0.921	.081
Perceived barriers to healthy diet	-0.614	.179
Perceived susceptibility to CVD	-0.409	.683
Perceived severity of CVD	0.436	.475
Perceived benefits of health behaviors	1.739	.038*
Self efficacy total diet, exercise, smoking	2.129	<.001**

NOTE: SASH = Short Acculturation Scale for Hispanics; CVD = cardiovascular disease.

<sup>a</sup> $p$  values were calculated using linear regression analyses with number of sessions attended as the outcome variable. All models included all the demographic variables. Variables describing health status and intentions, barriers and self-efficacy were all entered in separate models. A negative coefficient indicates fewer sessions attended, a positive coefficient indicates more sessions attended.

\* $p < .05$ . \*\* $p < .01$ .

use of existing community resources to support health behavior changes. Our HEART Phase 2 study supports this dialogue of *healthy environments for multi-component health promotion interventions* to build programs that take advantage of community resources in low-income high-risk populations.

### Study Limitations

The study was not a randomized controlled intervention. Participants in the sample self-selected to participate in the study and were encouraged to participate in MiCMiC activities as much as they could. Use of resources outside of the MiCMiC programming was not systematically collected. Also, for confidentiality

reasons, we did not collect information on the exact location of participants' residence, and proximity may have influenced their participation in certain activities. This study included mostly women that were low in acculturation. The low acculturation is a reflection of the proximity to the Mexican border and do not represent the population of Hispanics/Mexican origin populations outside the border. Furthermore, although we found that several factors were associated with program attendance, we did not collect information to gain insight into potential underlying mechanisms. Finally, we did not systematically collect information beyond the 4-month intervention period, limiting our ability to draw conclusions regarding sustainability of the program activities and participant behaviors.



## Conclusions

The MiCMiC study of HEART is one of the first evidence-based studies of Promotora de Salud interventions to use a comprehensive group of health promotion activities that were blended with community resources for fostering a new “health promotion environment.” We found that promoting use of community resources through physical activity and nutrition programming is possible among high risk border residents, and that Promotores de Salud can act as major catalysts of action. In the context of high risk for CVD among border residents, developing partnerships between community organizations to increase access to available resources for those at highest risk is a potentially valuable public health strategy that warrants further evaluation.

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