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Demographics and Cardiovascular Risk Factors in a Bi-ethnic Church-based Intervention: Baseline Results of the Stroke Health and Risk Education (SHARE) project

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ABSTRACT

Objectives: Hispanics have a higher incidence of cardiovascular disease (CVD) than non-Hispanic whites (NHWs). Despite proven benefits in other minority populations, few interventions have been conducted in partnership with Churches with substantial Hispanic membership. In this context, we describe the baseline demographics and CVD risk factors among participants of a bi-ethnic Catholic Church-based CVD prevention trial.

Methods: The Stroke Health and Risk Education (SHARE) project was a cluster-randomized, multi-component, faith-based, behavioral intervention that enrolled Mexican Americans (MAs) and NHWs from Catholic Churches in Corpus Christi, Texas. Strategies to ensure MA recruitment included bilingual staff and materials and partnership with Catholic Churches and prominent parishioners for assistance in recruiting. Primary outcomes were health behaviors: sodium intake, fruit and vegetable intake, and physical activity. The proportion of participants whose intake of sodium, fruits, vegetables, and physical activity met all guideline recommendations at baseline was calculated.

Results: A total of 755 baseline interviews were conducted in MAs (84%) and NHWs (16%) from 10 Churches. The median age was 52 (IQR 43-64) years and 64% of participants were female. Few participants met dietary guideline recommendations for fruit (7.7%), vegetable (16.7%) or sodium intake (33.3%) while the majority (74%) met

guideline recommendations for physical activity. Only 0.4% of participants met all four recommendations for diet and physical activity. There were no ethnic differences in sodium or fruit intake or physical activity. MAs consumed fewer cups of vegetables than NHWs (1.36 vs. 1.75, $p<0.01$).

Conclusions: Partnering with bi-ethnic Catholic Churches is an opportunity to enroll MAs and participants with vascular risk factors. Both MAs and NHWs rarely met all four recommendations for diet and physical activity, substantiating the need for CVD prevention interventions in similar populations.

Keywords: Mexican Americans, behavioral intervention, community-based

INTRODUCTION

Hypertension is a potent risk factor for cardiovascular disease (CVD) such as stroke, coronary artery disease, and heart failure. Hypertension is extremely prevalent in the US, with estimates that 77.9 million Americans have hypertension, of which 50% are uncontrolled (Egan, Zhao, & Axon, 2010; Go, Mozaffarian, Roger, Benjamin, Berry, Blaha, Dai, Ford, Fox, & Franco, 2014). Hypertension control remains well below the Healthy People 2020 goal (Egan, Li, Hutchison, & Ferdinand, 2014).

One approach to reduce hypertension is to prioritize interventions in prevalent, high risk groups such as Hispanics. Hispanics with hypertension have a lower proportion of hypertension awareness, treatment and control than non-Hispanic whites (NHWs) (Morgenstern, Smith, Sánchez, Brown, Zahuranec, Garcia, Kerber, Skolarus, Meurer, & Burke, 2013; Sorlie, Allison, Avilés-Santa, Cai, Daviglus, Howard, Kaplan, LaVange, Raij, Schneiderman, Wassertheil-Smoller, & Talavera, 2014). Mexican Americans (MAs), the largest sub-population of Hispanics, have a higher incidence of stroke and myocardial infarction than NHWs (Goff, Nichaman, Chan, Ramsey, Labarthe, & Ortiz, 1997; Morgenstern, Smith, Sánchez, Brown, Zahuranec, Garcia, Kerber, Skolarus, Meurer, & Burke, 2013). Hispanics face many barriers to hypertension control including a higher proportion of uninsured individuals and the associated decreased healthcare utilization compared to NHWs (Baicker, Taubman, Allen, Bernstein, Gruber, Newhouse, Schneider, Wright, Zaslavsky, & Finkelstein, 2013). In fact, with one-third of working age Hispanics uninsured, Hispanics comprise the largest percentage of uninsured adults of any racial/ethnic group in the US ("The Impact of the Coverage Gap in States not Expanding Medicaid by Race and Ethnicity,"). Furthermore, ethnic disparities in hypertension may be related to the environment characteristics such as lack of healthy food stores, poor walkability, social cohesion or neighborhood safety for physical activity (L. D. Lisabeth, Sánchez, Escobar, Hughes, Meurer, Zuniga, Garcia, Brown, & Morgenstern, 2010; Mujahid, Roux, Morenoff, Raghunathan, Cooper, Ni, & Shea, 2008). Thus, approaches to CVD risk reduction outside traditional medical settings may be particularly important for Hispanics.

One community approach may be through partnerships with Churches. Church-based interventions have increased fruit and vegetable intake, physical activity, promoted weight loss, and improved cancer screening when implemented in African American Churches (Marci K Campbell, Demark-Wahnefried, Symons, Kalsbeek, Dodds, Cowan, Jackson, Motsinger, Hoben, & Lashley, 1999; Marci Kramish Campbell, Hudson, Resnicow, Blakeney, Paxton, & Baskin, 2007; Resnicow, Kramish Campbell, Carr, McCarty, Wang, Periasamy, Rahotep, Doyle,

Williams, & Stables, 2004). However, there have been no large scale CVD prevention interventions that have focused on Hispanics and none in Catholic Churches with parishioners of mixed ethnicities, where Hispanics are likely to attend ("Religious tradition by race/ethnicity (2014),"). Thus, little is known about the feasibility of recruitment of Hispanics and the CVD risk factor profiles of participants who enroll in interventions in bi-ethnic Catholic Churches. To explore these questions, we describe the baseline demographics and behavioral and biologic CVD risk factor profiles of participants in a cluster-randomized, multi-component, faith-based CVD behavioral intervention performed in bi-ethnic Catholic Churches.

METHODS

Stroke Health and Risk Education (SHARE) project overview

Modeled on Social Action Theory and Self Determination Theory, SHARE's primary objective was to encourage healthy behaviors that may lower or maintain blood pressure in a normal range (Ewart, 1991; Ryan & Deci, 2000), SHARE was conducted in the bi-ethnic community of Nueces County, located in south Texas. Over 310,000 people reside in Corpus Christi, the county seat, of which over 60% are MAs and 18% live below the poverty line.("US Census Quick Facts,") The Catholic Dioceses of Corpus Christi includes 25 Churches that were dichotomized by size (large vs. small) and neighborhood income (≤ $30,000 vs. > $30,000) based on census tract for purposes of stratified randomization. Two pairs of Churches from the low-income, large-size stratum were included, along with a single pair from the remaining stratum, for a total of 10 Churches. The one-year multi-component intervention included self-help materials (including a short film, cookbook/healthy eating guide, physical activity guide with pedometer, and photonovella), motivational interviewing calls, tailored newsletters, parish health promotion activities and environmental changes. The primary endpoints were dietary sodium, fruit and vegetable intake, and physical activity. Detailed methods and the main results of SHARE have been previously published (Brown, Conley, Resnicow, Murphy, Sánchez, Cowdery, Sais, Lisabeth, Skolarus, & Zahuranec, 2012; Brown, Conley, Sánchez, Resnicow, Cowdery, Sais, Murphy, Skolarus, Lisabeth, & Morgenstern, 2015).

Many strategies from trial planning to recruitment used in SHARE centered around recruitment of MAs (Brown, Conley, Resnicow, Murphy, Sánchez, Cowdery, Sais, Lisabeth, Skolarus, & Zahuranec, 2012). SHARE partnered with Catholic Churches, the predominant religion of MAs, in a county that is predominately MA ("Religious tradition by race/ethnicity (2014),"). Throughout the study but particularly during the development of SHARE materials, the SHARE team, many of whom were bilingual, collaborated extensively with a community advisory board to ensure the materials were culturally sensitive. Materials were tailored on deep and surface cultural structures. Surface structure refers to the observable behavioral and social aspects of a group, such as its language, music, food, clothing, and geographic location. Deep structures address underlying rules and assumptions reflecting social, historical, environmental, psychological and cultural factors as experienced by different racial/ethnic populations. These deep structures of cultural sensitivity likely have a greater impact on health-related beliefs and behaviors. All materials were designed for a low literacy level and available in English and Spanish and featured Hispanic actors and characters, the Corpus Christi Spanish dialect, bible quotations and prayers written by local priests (Brown, Conley, Resnicow, Murphy, Sánchez, Cowdery, Sais, Lisabeth, Skolarus, & Zahuranec, 2012).

Recruitment

The SHARE project was introduced through announcements in Church bulletins, during Church services, and through parish liaisons. Parish liaisons were selected by the Church leadership as parishioners interested in health and well-connected in the church community, who coordinated recruitment efforts at all but one Church. Parish liaisons received $20 for each participant they identified who enrolled in the project. Participants eligible for enrollment were NHWs or MAs, greater than 18 years of age, who spoke and wrote English or Spanish. There were no blood pressure or other CVD risk factor criteria for SHARE eligibility. Participants were recruited in friend or family member pairs. The goal was to recruit 800 participants. The study consent forms highlighted the higher risk of stroke among MAs. SHARE was designed to minimize participant burden by scheduling study visits at the convenience of participants, including outside of traditional business hours. Participants were provided incentives at each outcome assessment. Specifically, participants received $20 at the 6 month assessment and $30 at the 12 month assessment. Additionally, those in the control churches received $20 at the baseline assessment while those in the intervention churches received $5 at the 18 month assessment. All participants received SHARE promotional materials including a water bottle and t-shirt with the SHARE logo.

Measures

Behavioral CVD risk factors. Baseline data were collected during a SHARE home visit by a trained research coordinator in either English or Spanish. The primary behavioral CVD risk factors were intake of sodium, fruit, vegetable and physical activity. Dietary intake was measured using the Block Food Frequency Questionnaire which has been validated in English and Spanish (Block, Wakimoto, Jensen, Mandel, & Green, 2006; Huang, Schocken, Block, Sowers, Gold, Sternfeld, Seeman, & Greendale, 2002). The Stanford physical activity instrument, which has been validated against biological measures and used in MAs, was used to assess physical activity (Blair, Haskell, Ho, Paffenbarger, Vranizan, Farquhar, & Wood, 1985; Mitchell, Kammerer, Schneider, Perez, & Bauer, 2003). Guideline recommendation thresholds included greater than 2 cups of fruit, 2 1/2 cups of vegetables, less than 2,400 mg of sodium per day and at least 600 MET-minutes of moderate, hard, or very hard physical activity per week ("2005 Dietary Guidelines for Americans. Center for Nutrition Policy and Promotion, U.S. Department of Agriculture.," ; Eckel, Jakicic, Ard, Miller, Hubbard, Nonas, de Jesus, Sacks, Lee, & Smith, 2013; Haskell, Lee, Pate, Powell, Blair, Franklin, Macera, Heath, Thompson, & Bauman, 2007). Each behavioral CVD risk factor was measured continuously and achievement of guideline recommendations was assessed dichotomously. Additionally, the number of behavioral guidelines met for fruit, vegetables, sodium and physical activity was calculated for each participant.

Biologic CVD risk factors. Biologic CVD risk factors assessed included blood pressure, body mass index (BMI), lipids, glucose and hemoglobin A1C. Blood pressure measurements were taken using the validated A&D UA-767 automatic blood pressure cuff using standard techniques (Rogoza, Pavlova, & Sergeeva, 2000). Pre-hypertension was defined as blood pressure 120-139/80-89; stage 1 hypertension was defined as blood pressure 140-159/90-99, and stage 2 hypertension was defined as blood pressure ≥160/100, irrespective of whether the participant reported antihypertensive use (Chobanian, 2003). BMI was calculated from measured height and weight ascertained in the in-home interview and fasting total cholesterol, LDL, HDL,

triglycerides, serum fasting glucose, and hemoglobin A1C were assessed from blood draws. Diabetes was defined by a hemoglobin A1C of 6.5% or greater, or fasting glucose 126 mg/dL or greater, irrespective of diabetes medication use . Prediabetes was defined as hemoglobin A1C 5.7-6.4% or fasting glucose 100-125mg/dL. In addition, self-reported medical history of atrial fibrillation, hypertension, congestive heart failure, coronary artery disease, diabetes, heart attack, sleep apnea, history of stroke/TIA and depressive symptoms, based on the PHQ-2,(Kroenke, Spitzer, & Williams, 2003) were collected.

Analysis

Participant characteristics were calculated using descriptive statistics and compared by ethnicity using mixed effects regression models with an ethnicity indicator (MA versus NHW) as the only predictor and random intercepts for pair and Church to account for clustering within pairs and within Churches. Regression models were linear, logistic, or ordinal, depending on the outcome variable. Ethnic differences in behavioral and biologic CVD risk factors were then explored after adjustment for age (continuous), sex, and education (<high school, high school, some college/trade, college or more). Dietary and activity measures were log transformed due to skewness and percent differences by ethnicity were calculated. Stages of hypertension were explored among those with and without a self-reported history of hypertension. SAS version 9.3 was used to complete the analysis. This study was approved by the University of Michigan IRB. Written informed consent was obtained from each participant. The trial was registered on clinicaltrials.gov (NCT01378780).

RESULTS

Of the 801 subjects who consented, 760 had baseline interviews conducted. Five participants were excluded from this analysis due to missing ethnicity data, leaving 755 participants available for analysis. The vast majority, 84%, were MAs. The median age was 52 (IQR 43-64) years; 64% of participants were female; 71% were married or cohabitating and 82% had insurance (Table 1). Over half of SHARE participants had income less than $30,000 which is representative of their Church census tracts. Forty seven percent of SHARE participants reported a history of hypertension. Fewer than 5% of SHARE participants reported a history of coronary artery disease, myocardial infarction, congestive heart failure or stroke/TIA. MAs were younger (51 vs. 59, $p<0.01$), more likely to be women (66% vs. 52%, $p<0.01$), had less education ($p<0.01$) and were more likely to be working than NHWs ($p<0.02$). There were no ethnic differences in self-reported hypertension, coronary artery disease, myocardial infarction, congestive heart failure or stroke/TIA, atrial fibrillation, diabetes or obstructive sleep apnea (Table 1).

Table 1: Baseline Sociodemographics and Co-Morbidities of SHARE Participants Overall and by Ethnicity

	All Participants (n=755) N (%)	Mexican Americans (n=636) N (%)	Non-Hispanic Whites (n=119) N (%)	p-value*
Age, median (Q1, Q3)	52 (43, 64)	51 (42, 61)	59 (49, 71)	<0.01
Women	482 (63.8)	420 (66.0)	62 (52.1)	<0.01
Education				<0.01
<High School	101 (13.4)	98 (15.4)	3 (2.5)	
High School	220 (29.1)	195 (30.7)	25 (21.0)	
Some College or Trade school	267 (35.4)	224 (35.2)	43 (36.1)	
College or more	167 (22.1)	119 (18.7)	48 (40.3)	
Married/co-habitation	539 (71.4)	450 (70.8)	89 (74.8)	0.78
Annual income <$30,000	402 (53.2)	347 (54.6)	55 (46.2)	0.17
Insured	618 (81.9)	511 (80.3)	107 (89.9)	0.39
Employment status				0.02
Not employed	289 (38.3)	230 (36.2)	59 (49.6)	
Part-time	76 (10.1)	67 (10.6)	9 (7.6)	
Full-time	389 (51.6)	338 (53.2)	51 (42.9)	
Depressive symptoms PHQ2 ≥3	90 (11.9)	81 (12.7)	9 (7.6)	0.17
Medical History of…				
Hypertension	352 (46.6)	290 (45.6)	62 (52.1)	0.17
Atrial fibrillation	41 (5.4)	36 (5.7)	5 (4.2)	0.85
Congestive heart failure	18 (2.4)	15 (2.4)	3 (2.5)	0.27
Coronary artery disease	37 (4.9)	29 (4.6)	8 (6.7)	0.33
Diabetes	171 (22.6)	148 (23.3)	23 (19.3)	0.42
Myocardial Infarction	28 (3.7)	26 (4.1)	2 (1.7)	0.13
Sleep apnea	82 (10.9)	66 (10.4)	16 (13.4)	0.46
History of stroke/TIA	36 (4.8)	29 (4.6)	7 (5.9)	0.25

The median daily sodium intake among participants was 2,883 mg (IQR 2,160-3,993); the median fruit intake was 0.70 cups (IQR 0.38-1.2), vegetable intake was 1.4 cups (0.92-2.15) and the median weekly moderate/hard/very hard physical activity was 1,320 MET-minutes (IQR 540-3,360 MET-minutes) (Table 2). There were few ethnic differences in behavioral CVD risk

factors. MAs ate fewer cups of vegetables per week than NHWs (1.36 vs. 1.75, p<0.01) which remained significant after accounting for age, sex and education.

Table 2: Behavioral Cardiovascular Disease Risk Factors of SHARE Participants Overall and by Ethnicity

	All Participants (n=755) median (IQR)	Mexican Americans (n=636) median (IQR)	Non-Hispanic Whites (n=119) median (IQR)	Unadjusted Pvalue	Adjusted* % difference (MA vs NHW)	Adjusted * pvalue
Sodium intake (mg per day)	2883 (2160, 3993)	2883 (2129, 4061)	2886 (2300, 3732)	0.64	-5.0%	0.37
Fruit intake (cups per day)	0.70 (0.38, 1.20)	0.68 (0.37, 1.18)	0.82 (0.42, 1.35)	0.16	-6.3%	0.43
Vegetable intake (cups per day)	1.40 (0.92, 2.15)	1.36 (0.87, 2.11)	1.75 (1.23, 2.45)	<0.01	-22.7%	<0.01
Moderate/hard/very hard physical activity (MET-minutes per week)	1320 (540, 3360)	1320 (540, 3372)	1260 (600, 3120)	0.545	10%	0.50

*Adjusted for age, sex and education

Few participants met dietary guideline recommendations for fruit (7.7%), vegetable (16.7%) or sodium intake (32.5%); while the majority (75%) met guideline recommendations for physical activity (Table 3). Only 0.4% met guideline recommendations for fruit, vegetable, sodium and physical activity, and 3.7% met guideline recommendations for 3 out of the 4 behavioral CVD risk factors. There was no ethnic difference in the proportion of participants meeting all recommended behavioral CVD guidelines.

Table 3: Percent of Participants Who Met Guideline Recommendations for Behavioral Cardiovascular Disease Risk Factors Overall and by Ethnicity.

	All (n=755) N (%)	Mexican Americans (n=636) N (%)	Non-Hispanic Whites (n=119) N (%)	Unadjusted pvalue	Adjusted * OR (MA vs NHW)	Adjusted * pvalue
Sodium intake ≤ 2,400mg per day	239 (32.5)	206 (33.3)	33 (28.0)	0.27	1.40	0.22
Fruit ≥ 2 cups	57 (7.7)	45 (7.3)	12 (10.2)	0.34	0.75	0.48
Vegetables ≥2.5 cups per day	123 (16.7)	98 (15.9)	25 (21.2)	0.16	0.64	0.16
> 600 MET-minutes of at least moderate activity per week	564 (74.7)	473 (74.4)	91 (76.5)	0.66	0.97	0.91
Total number of all behavioral CVD risk factor guidelines met				0.80	0.99	0.99
0	88 (12.0)	74 (12.0)	14 (11.9)			
1	360 (48.9)	302 (48.9)	58 (49.2)			
2	258 (35.1)	220 (35.6)	38 (32.2)			
3	27 (3.7)	21 (3.4)	6 (5.1)			
4	3 (0.4)	1 (0.2)	2 (1.7)			

*Adjusted for age, sex and education

Sixty-six percent of SHARE participants were hypertensive or prehypertensive (Table 4). Of participants with a self-reported history of hypertension (n=352), 37.7%, 27.0%, and 9.9% were classified as pre-hypertension, stage 1 and stage 2 hypertension. There was no ethnic difference in blood pressure. Of participants who did not report a history of hypertension (n=403), 42.2%, 13.4% and 3.7% were classified as having pre-hypertension, stage 1 or stage 2 hypertension. In addition, 70% of SHARE participants had diabetes or prediabetes based on HbA1C and 87% were obese or overweight. MAs had more dysglycemia as measured both by fasting glucose and HgA1c compared to NHWs, which persisted after accounting for age, sex and education (Table 4). MAs had a higher median BMI (31.5 vs. 29.3, p=0.02) than NHWs, but this did not persist after accounting for age, sex and education (p=0.43).

Table 4: Biologic Cardiovascular Disease Risk Factors among SHARE Participants Overall and by Ethnicity.

	ALL (n=755) n (%) or median (IQR)	Mexican Americans (n=636) n (%) or median (IQR)	Non-Hispanic Whites (n=119) n (%) or median (IQR)	Unadjusted Pvalue	Adjusted* OR or difference	Adjusted* pvalue
BMI	31.5 (27.4, 36.4)	31.5 (27.6, 36.5)	29.33 (26.19, 35.48)	0.02	0.48	0.43
BMI category				0.07	1.3*	0.28
Underweight	5 (0.7)	5 (0.8)	0 (0.0)			
Normal	92 (12.2)	72 (11.3)	20 (16.8)			
Overweight	222 (29.4)	182 (28.6)	40 (33.6)			
Obese	436 (57.7)	377 (59.3)	59 (49.6)			
Systolic blood pressure	124 (114, 137)	123 (114,137)	127 (116, 138)	0.42	1.74	0.31
Diastolic blood pressure	79 (73, 86)	79 (72, 86)	79 (74, 87)	0.89	-0.09	0.93
Hypertension category				0.77	1.15*	0.53
Normal	253 (33.5)	216 (34.0)	37 (31.1)			
Prehypertension	303 (40.1)	254 (39.9)	49 (41.2)			
Stage I	149 (19.7)	120 (18.9)	29 (24.4)			
Stage II	50 (6.6)	46 (7.2)	4 (3.4)			
Total cholesterol, (IQR)	184 (161, 213)	184.00 (162, 212)	181 (160, 219)	0.46	-5.96	0.28
High-density lipoprotein	51 (43, 61)	51 (43, 60)	52 (46, 64)	0.02	-3.53	0.03
Low-density liprotein	105 (84, 128)	105 (86, 128)	105 (82, 130)	0.76	-1.14	0.77
Triglycerides	121 (88, 164)	123 (90, 164)	112.50 (77.00, 152.00)	0.86	-2.59	0.82
Fasting Glucose,	95 (88, 108)	96 (88, 109)	93 (86, 104)	<0.01	8.00	0.01
Diabetes (Fasting Glucose)				0.04	1.9*	0.01
Normal	457 (61.9)	376 (60.6)	81 (68.6)			
Pre-diabetes	181 (24.5)	151 (24.4)	30 (25.4)			

Diabetes	100 (13.6)	93 (15.0)	7 (5.9)			
HbA1c	5.90 (5.60, 6.30)	5.90 (5.60, 6.30)	5.80 (5.50, 6.10)	0.04	0.26	0.02
Diabetes (HbA1c)				0.08	1.71*	0.03
Normal	225 (30.5)	180 (29.1)	45 (38.1)			
Pre Diabetes	358 (48.6)	303 (48.9)	55 (46.6)			
Diabetes	154 (20.9)	136 (22.0)	18 (15.3)			

DISCUSSION

In SHARE, a church-based cluster randomized, controlled trial addressing behavioral determinants of CVD, the majority of those enrolled (85%) were MA, and fewer than 1% met the four sodium, fruit, vegetable, and physical activity guideline recommendations at baseline assessment. Consumption of fruits and vegetables was well below guideline recommendations and national estimates,(Guenther, Dodd, Reedy, & Krebs-Smith, 2006) sodium intake was above guideline recommendations but consistent with national estimates,(Briefel & Johnson, 2004) while physical activity exceeded national estimates (Tucker, Welk, & Beyler, 2011). Ethnic differences were noted in vegetable intake where MAs had lower intake than NHWs. We also found a high prevalence of biological CVD risk factors such as dysglycemia and obesity. Our results suggest that partnering with bi-ethnic Catholic Churches represents an opportunity to enroll MAs and NHWs with behavioral and biological CVD risk factors.

Unlike SHARE, clinical trials often have low enrollment of racial and ethnic minorities (Burke, Brown, Lisabeth, Sanchez, & Morgenstern, 2011). While enrollment of only minorities in health promotion projects may help to reduce health disparities and facilitate efficient tailoring of project materials, active exclusion of the majority population may challenge community relationships and hinder prospects for dissemination. Furthermore, we found few ethnic differences in behavioral or biologic CVD risk factors among SHARE enrollees suggesting that both ethnicities in this community may benefit from a CVD risk reduction intervention.

While SHARE had some focus on the Church environment,(Brown, Conley, Resnicow, Murphy, Sánchez, Cowdery, Sais, Lisabeth, Skolarus, & Zahuranec, 2012) there was little focus on the community environment, which is undoubtedly important in the development and perpetuation of CVD risk factors (Diez Roux & Mair, 2010; Mujahid, Roux, Morenoff, Raghunathan, Cooper, Ni, & Shea, 2008). Neighborhood disadvantage and fast food density have been shown to influence stroke risk in this community suggesting that may neighborhoods influence stroke risk factors (L. Lisabeth, Roux, Escobar, Smith, & Morgenstern, 2007; Morgenstern, Escobar, Sánchez, Hughes, Zuniga, Garcia, & Lisabeth, 2009). Furthermore, MAs are more likely to live in disadvantaged neighborhoods than NHWs in Nueces County suggesting a possible connection between ethnic differences in vegetable intake and neighborhoods. The contribution of food stores to ethnic differences in vegetable intake in Nueces County is unclear. While we previously found that there was no ethnic difference in the neighborhood availability of grocery stores or supermarkets, predominately MA neighborhoods had greater availability of convenience stores which offer less healthy food options compared to supermarkets (Bustillos, Sharkey, Anding, & McIntosh, 2009; L. D. Lisabeth, Sánchez, Escobar, Hughes, Meurer, Zuniga, Garcia, Brown, & Morgenstern, 2010).

This study is limited to a single community in south Texas and thus is not nationally representative. These data from clinical trial enrollees likely represent participants who are interested in health and therefore may not be representative of the general population of people living in south Texas. Given the lack of a non-Church-based control group, we cannot compare the demographics and risk factor profiles of community members who do and do not attend church. Nutrition data were collected using a food frequency questionnaire rather than 24 hour recall to enhance feasibility. Finally, the physical activity levels reported were particularly high raising concerns that the Stanford physical activity instrument was not a reliable measure of baseline physical activity for this population or occupational physical activity may have been high among participants.

CONCLUSION

In conclusion, the majority of participants enrolled in SHARE were MA, suggesting that partnering with the Catholic Church in a bi-ethnic community can be effective in enrolling Hispanics into a behavioral CVD prevention trial. The very low adherence to dietary recommendations and high prevalence of biological CVD risk factors such as abnormal body weight and dysglycemia found in this study support the need for CVD prevention interventions in this population.

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