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Perceptions and Motivations to Prevent Heart Disease among Puerto Ricans

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Abstract

Objectives—We performed a qualitative assessment of Puerto Ricans' knowledge and perceptions of cardiovascular disease (CVD), and motivations/barriers and preferences to participate in community/ clinical programs for CVD-prevention.

Methods—Four guided focus group discussions were conducted on a total of 24 Puerto Ricans, aged 40–60 years in Boston, MA.

Results—Participants were aware of CVD, but less knowledgeable about its prevention. They perceived it as serious, and either had CVD or knew someone who had it. They favored education and activities on nutrition, exercise, clinical advice, and social interaction, in weekly/ biweekly small-group sessions with other Latinos, led in Spanish by a familiar health professional, in a convenient community location. Age- and culture-specific program content and educational materials were preferred. A theme emerged on 'personal or family motivations' such as to become healthier and live longer so they would feel better and support their families, or to learn about CVD-prevention. Main barriers included family obligations, weather, safety concerns, transportation, and depressive mood.

Conclusions—Culturally-tailored CVD-prevention programs for Puerto Ricans should include multiple behavioral and social approaches, and draw on intrinsic motivators while reducing barriers to help enhance efficacy and sustainability.

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Human Subjects Statement

The Tufts Medical Center Institutional Review Board approved all study protocols and procedures prior to data collection.

Conflict of Interest Statement

The authors declare no conflicts of interest.

Keywords

Puerto Ricans; heart disease prevention; lifestyle behaviors; focus groups; community health

Puerto Ricans are the second largest Hispanic/Latino ethnic group living in the United States (US), and the largest one in Massachusetts.¹ As a group they report the highest prevalence of cardiovascular diseases (CVD) compared to other Hispanic/Latino ethnic backgrounds in the US.² Manifestation of risk factors for CVD among Puerto Rican adults is also common, with prevalence of diabetes for men and women at 16% and 19%, of hypertension at 27% and 29%, and of obesity at 41% and 51%, respectively.³ Having 3 or more adverse CVD risk factors is more common among Puerto Rican men and women than for other Hispanic/Latino groups.² Lifestyle behaviors that could help prevent these risk factors are not generally practiced among Puerto Ricans. Smoking is reported by nearly one-third of the group,⁴ and an estimated 18% follow a high quality diet.² Studies of middle-aged Puerto Rican adults from the Boston metro area report higher prevalence of diabetes (>34% for adults 45–59 years), obesity (>50%), and hypertension (nearly 60%),⁵ and multiple studies have documented poor diet quality and low physical activity levels for Puerto Ricans in this urban area.^{5,6} The disproportionate burden of CVD and its risk factors in this population suggests that prevention initiatives are not reaching this at-risk group, and highlights the urgent attention needed to address this disparity.

Whereas multiple community and clinical programs and interventions have been created to help Latinos prevent and reduce risk factors for CVD, there are limited examples of programs designed specifically for Puerto Ricans, despite calls to prevent and manage CVD by individual Hispanic/Latino background.^{4,7} Programs for Latinos in general have shown positive results in increasing knowledge of CVD risk factors and improving biological markers;^{8,9} however, these results tend to be modest and of limited sustainability.^{10,11} The outcomes of these programs among Puerto Ricans exclusively are not known. Content, themes, duration and strategies of the programs have varied considerably, and their relevance to the Puerto Rican community is undetermined. Additionally, program attrition may impact its feasibility and success,^{8,11} and this also has varied across Latino-wide programs.

Formative research that could help tailor CVD-prevention programs for Puerto Ricans has been limited;^{12,13} yet, this group may have distinct health-related beliefs and attitudes.¹² For example, Puerto Ricans perceive CVD as a serious but preventable disease, and even though they named some behavioral risk factors that they would like to improve, they do not know how to do so.¹³ It is unclear if current CVD-prevention programs are reaching Puerto Rican adults, or if the content and logistics are adequate to encourage attendance for this particular group. Thus, further assessment of perceptions and preferences for CVD-programs in Puerto Ricans is needed.

To improve the development of CVD-prevention programs and interventions targeted to the needs of the Puerto Rican community, we aimed to: (1) conduct an exploratory study to assess attitudes and knowledge of CVD and its prevention; (2) explore the barriers and facilitators to attending CVD prevention and control services; and (3) elicit preferred themes and logistics for attending such programs among Puerto Rican adults. We used focus group

discussions for this formative research because these have been effectively used to evaluate and understand a community's knowledge, opinions, and needs to design culturally-appropriate programs.^{14,15-17}

METHODS

Study Design and Recruitment

Focus groups were conducted in a convenience sample in 2009 at the Human Nutrition Research Center on Aging, Boston, MA. Flyers in English and Spanish describing the study and eligibility criteria were posted on community and public locations, namely community centers, clinics, residential buildings, and public transportation sites (ie, bus stops), in neighborhoods with a high population density of Hispanics/Latinos. To participate, a person had to be: (1) of self-reported Puerto Rican descent; (2) 40–60 years of age; (3) able to understand Spanish and to answer questions in English or Spanish; and (4) residing in the Boston, MA metropolitan area at the time of the study.

Upon contacting the study, potential participants were given a short questionnaire to collect information about sex, age, marital status, socioeconomic status, residence, language use, and current attendance in health promotion or social programs. This information was used to confirm eligibility. A total of 58 individuals were screened for potential participation, of which 2 were excluded because they were older than 60 years, 9 others had work or personal obligations (such as travel or medical procedures), and 13 did not provide final confirmation of attendance. Scheduling was assigned based on participant's preference, while allocating a balanced representation of sex, age, and socioeconomic status on each session, to maintain representation and diversity of the group. All scheduled participants were reminded of their appointment on the week and the day before the discussion by phone. Participants were given a \$25 cash incentive, refreshments during the session, and a reimbursement for transportation expenses, if requested. All participants were informed about the study and notified that they would be asked for written informed consent on the day of the discussion.

Focus Groups Procedures

Of the 34 individuals scheduled for one of the 4 planned discussions, 24 attended and participated in the focus groups, with 5–7 participants per session. Each session lasted 1–1.5 hours. Each focus group was audio-recorded, and was facilitated by a trained bilingual moderator, with assistance of a bilingual co-moderator who took notes. The discussions were conducted in Spanish, with a few participants speaking in English or a mix of both languages, in which case the moderator translated the comments into Spanish for the rest of the group. Prior to the session, the moderator explained the purpose and protocol of the focus group, obtained written informed consent from all participants, and reminded them to maintain confidentiality.

A moderator's guide was developed in Spanish with input from the research team, and pilot-tested among Spanish-speakers for clarity. Three main topics were explored using open-ended questions: (1) perceptions and knowledge of CVD; (2) preference for themes, activities, and logistics of CVD-prevention programs, and (3) barriers and motivators for

attending CVD-prevention programs. Specific concepts were probed by the moderator when not given by participants to elicit further comments, although absolute preferences and perceptions were asked, rather than to choose from specific options. The moderator provided a summary at the end of each discussion to confirm the responses with participants. The moderator and co-moderator debriefed together and took additional notes after each session.

Qualitative Analysis

The audio-recording of each session was transcribed verbatim in the original language by a research assistant. Content analysis was done in NVivo software version 10 (QSR International Pty Ltd., 2012) by the moderator and co-moderator separately. The participants' responses were placed into pre-selected nodes based on expected main topics, and then meaningful units from each node were coded to derive emerging themes. Representative quotes for each theme were selected and translated into English. Resulting themes were discussed between the coders for consensus, using the session notes and debriefing notes for confirmation. There were no coding discrepancies between the coders. Descriptive socio-demographic data were analyzed using SAS v9.4 (SAS Institute, Cary NC).

RESULTS

Participants Characteristics

There were no statistical differences in socio-demographic characteristics between those who attended and those who did not (data not shown). Of the 24 participants, approximately half were female, most were single (never-married), more than half had completed at least a high school degree, 70% earned less than \$10,000 per year, and nearly as many had social security as the main source of income (Table 1). Half of the participants lived in public or assisted housing. Over 90% preferred Spanish as the spoken language, and less than one-fifth currently attended a social program or service related to heart disease.

Pervasiveness of CVD and Attitudes towards CVD

A central theme that emerged was the perception of CVD as a serious and devastating disease. Nearly all participants either had close relatives or friends with CVD, or they themselves had heart problems, and multiple risks factors. Participants often shared stories of how CVD has affected them and their families, usually in a solemn and resigned tone. For example, a participant recounted that

“my dad had a stroke recently and has no control on one side [of the body]. I had 2 [strokes], and I have problems with this hand. And my mom also suffers from the heart. She had a leg amputated recently, and her heart is not working well. My sister-in-law also had a heart attack and became comatose.”

Another participant mentioned that

“my mom had 3 mini heart attacks, and if she was not taken to Emergency quickly, she was going to die. My dad had a hemorrhagic stroke. I have an uncle that is on treatment because he has a clogged vein.”

Death and disability, as consequences of CVD, were common themes in their remarks.

Participants realized that heredity played a role in CVD, as it was perceived as a condition shared with their relatives, giving them the sense that CVD was inevitable. One participant captured this notion by saying:

“I already noticed that this is hereditary...so as much as one takes care of oneself, it will still happen.”

Still, knowing that they were at risk may help them prevent or delay the onset of CVD

“I am predisposed to [suffer from] the heart... and so I try to take care of myself, to avoid complications”.

Knowledge of CVD and its Risk Factors

Participants reported being concerned with CVD and believing that it is important to take action in preventing it because “*the heart is the most important part of the body.*” Several mentioned that they had to take care of themselves because they did not want to experience the same problems and suffering as relatives did.

Although awareness was high, knowledge of accurate CVD terminology and its pathology was limited. Comments included:

“I don’t know many things about the heart. The only thing I know is that a stroke can happen as a surprise, and that your veins can get clogged,” “the heart is mainly like the pump where blood passes through, and if blood doesn’t get to the heart or if it doesn’t work well, then there will be a secondary problem,” and “I suffer from the heart; the disease, to tell the truth, I don’t remember.”

Still, many participants were cognizant of the primary risk factors of CVD. Behavioral risk factors (ie, diet, exercise, and smoking) were mentioned often, and specific dietary examples included too much salt, fat, and red meat, little vegetable consumption, and too many condiments. Some dietary recommendations, such as avoiding fatty foods, were mentioned as hard to follow for Latinos. Participants were also aware of biological risk factors such as excess weight, high cholesterol, and hypertension. Additional risk factors mentioned were stress and anger, alcohol intake, pollution, and drugs – illegal ones being harmful, and legal (such as aspirin) being beneficial. Regular medical care and the advice and clarifications given by the doctor were mentioned as important.

The main sources of CVD-related information were radio/television, through relatives and friends, and in clinics/hospitals (from informational brochures, talks, and conversations with a health professional). Other sources, used less frequently, included magazines, the Internet, and newspapers. Participants agreed that learning about CVD prevention in school when a person is young, can help with an early start on learning about CVD and following healthy behaviors.

Preferred Logistics for CVD-prevention Programs

Some participants mentioned current attendance in disease-prevention or social groups, such as a senior center. However, the majority did not, nor was aware of the existence of such programs.

Most participants said that they would attend a program if it was in a central and familiar location, such as a community center, church, clinic, hospital, or the research center where we conducted the study. They would travel to attend the program as long as it was easily accessible to public transportation, within reasonable distance and time.

Most participants preferred the sessions to be weekly, or twice a month, and to last 1–3 hours. They noted that they would continue to attend as long as

“it is beneficial for us, and we know that we are taking advantage of it” because “the more you know, the better; it doesn’t matter the time it takes; the more I learn the more confident I will be.”

Whereas there was no consensus about the preferred time and day of the week because everyone’s schedule differed, it was important that the sessions be at the same time and day for consistency because “*you memorize it*.” Those who worked said that they were willing to attend evenings or weekends. Reminders by phone or mail were considered essential. They preferred that the program be led by respectful Latino health professionals with the knowledge to answer any questions they may have, whom they knew and trusted, and had experience working with the community. This person should be friendly and speak their language in a clear and non-critical manner.

It was nearly unanimous that the sessions should be in small groups of up to 10 people. Participants commented that small groups

“give more chances for one to express one’s feelings and participate,” and “are more welcoming, because that way you get more focus and more communication;” although in large groups, “you lose too much information.”

These groups should be with people similar to them in age and culture, specifically with other Latinos.

There was consensus that prevention programs should focus on educational activities on exercise and nutrition, and that they must include a social and hands-on component. A suggestion that emerged in all focus groups was to create community walking groups. Participants expressed to “*not only have talks, but also to...organize a club in the community*.” The concept of community-organized groups seemed to carry over from their experience in Puerto Rico, with participants saying that

“in Puerto Rico, there was a man who was a leader in the community and he organized a group that every afternoon...gathered men, women, children, and everyone...a group of 200–300 people, they went out to walk,” and “if I were to find a group of people, Latinos like us, that would get together, we could walk. Because in Puerto Rico, we went to...walk and exercise at various places, and why can’t you do this here? It can be done!”

Finally, participants generally agreed that printed materials with information and guides were useful, but those materials, as well as any educational content, had to be appropriate for their age and culture, and sufficiently clear for them to understand and consult frequently.

Intrinsic Motivations

When asked about motivations for attending CVD-prevention programs, the predominant themes that emerged were personal and family reasons. The main personal motivation was to feel good, be healthy, and live longer, ie,

“I would be motivated by myself; because I don’t want this heart to stop working;”
“I don’t want to die yet, I need to take care [of my health];” “I am still too young, I don’t want to go down the drain.”

Another personal motivation was to gain knowledge on CVD and its prevention through a healthy lifestyle (ie,

“every day you learn something new;” “if you want to educate yourself, you go;”
“the more I learn about the situation, the more I have to protect myself.”)

Moreover, participants expressed interest in becoming healthy so that they could take care of their family, because their family needed them (ie,

“I think my children still need me; I should take care of myself to have more time with them;” “it’s always good to see that someone loves you and needs you, and needs you to be healthy.”

The theme of social and family support, both getting it and giving it, also emerged. Participants agreed that family support was essential, and several mentioned that they received most of their support from the family, even during hard times. In addition, they mentioned that attending CVD-prevention programs would help them become more socially connected and allow them to help and educate others and stay motivated (“*I have kids that are overweight, but if I get informed, I can help them prevent heart disease, diabetes, high blood pressure.*”) Support from their doctors was also mentioned as helpful.

Material Motivations

The intrinsic motivations were the primary reasons to attend CVD programs, and the moderators had to probe about potential material facilitators. In general, participants mentioned that other incentives (giveaways, gift cards, money, refreshments) would be welcomed, but not needed. Monetary incentives, in particular, were not deemed essential, with participants commenting that

“I would go if it’s for one’s benefit, but if we get money, then even better,” and
“this is to educate yourself, not to get paid.”

Barriers

Factors that would prevent participants from attending a CVD program were mainly external and out of their control. Recurrent examples included severe weather conditions (year round), concerns about safety in their neighborhoods, work and family obligations, and

transportation (finding parking, waiting for the bus). The only intrinsic barrier that emerged from the discussion was their mood. Comments on this theme included:

“I am in a state of depression, I don’t go out and that prevents me from going to the programs,” “I get into a depression and I don’t leave the house,” “I have depression, I get sluggish, I don’t want anyone speaking to me.”

For the most part, though, they expressed having ample motivation from personal and family reasons to overcome the barriers for attending the programs, except for the weather and transportation. They welcomed the idea of receiving transportation vouchers, or having a taxi paid by the program to transport them. All themes resulting from the focus group discussions, along with representative quotes, are summarized in Table 2.

DISCUSSION

In this exploratory study involving a convenience sample, Puerto Rican adults living in Boston, MA communicated that learning how to improve CVD risk factors by participating in culturally-relevant programs and services in their community is of high interest. The general perception is that CVD is a serious condition that could be devastating to them and their families. Themes emerged on the importance of intrinsic motivation and on family and social support, and how these may help overcome possible barriers for attending such programs. Suggestions from participants about preferred format and content are important to the design of CVD-prevention programs and services that are culturally-tailored to this at-risk population in clinical or community settings. Attention to these concerns could enhance attendance and efficacy. Most participants in this study neither attended nor were aware of such programs, stressing the need to create them and properly disseminate their availability.

The perception of severity of CVD has been mentioned in a previous qualitative study among Latinos,¹⁶ as well as among Puerto Ricans exclusively.^{12,13} Puerto Ricans stated that CVD is of concern,¹² and often mentioned their fear of death and disability from CVD, as they all had a relative with heart disease,¹³ consistent with our results. In focus group discussions conducted in adults of 4 different Latino backgrounds, Puerto Rican participants suggested that health is a right and a life priority, whereas those of other Latino backgrounds said that health is something that you have to work at and earn.¹² Our focus group members expressed that CVD may be inevitable, even when one tries to prevent it. Others also have raised the perception of inevitability of disease or the hereditary component of CVD.^{12,18} *Fatalismo* is a common cultural belief among Latinos,⁴ and this concept, as well as the hereditary aspect of CVD, should be addressed in future programs. Still, a positive attitude and openness to learn about CVD and to engage in preventive behaviors was expressed here and in other qualitative studies among Latinos.^{13,19}

A national survey showed that, in 2012, only 34% of Hispanic women reported awareness of heart disease as the leading cause of death, compared to 65% of non-Hispanic Whites.²⁰ Qualitative work, including ours, suggests that Puerto Ricans and Latinos overall have some awareness of CVD and its risk factors, but not sufficient knowledge or confidence in their knowledge.^{17,21} Risk factors that were commonly mentioned in our study, as well as others, include poor diet, lack of exercise, worries and stress, overweight, hypertension, high

cholesterol, and access to medical care.^{13,15,17,18,22} Participants in others studies were not aware of other common risk factors,^{13,17} suggesting the need of conveying basic CVD information. In fact, one qualitative study purposely recruited Puerto Rican women with at least a high school education and without previous heart disease, to avoid bias in knowledge, but that study also showed that participants did not have proper knowledge or did not feel confident about it.¹³ Gaps in knowledge of CVD and related risk factors, misconceptions, and inaccurate information on CVD persisted in our group and elsewhere.^{17,18}

Our participants, as well as others in previous qualitative studies, suggested that, although some traditional food behaviors are unhealthy (such as consuming fatty or fried foods), changing dietary behaviors would be difficult because healthy diets are often not preferred and hard to follow within their family, culture, time, and financial situations.^{16,18,23} Focus group discussions that included Latinos in Boston suggested that participants need creative ways to adopt healthy foods that complement their ethnic diets and traditional eating behaviors,¹⁸ a suggestion that we firmly support.

The main sources of CVD-related information mentioned here, namely media (newspapers, TV, radio) and friends and family, are consistent with other qualitative reports.^{12,13,17,21} Our focus group members also mentioned obtaining information from clinical settings and health professionals, as others have.^{17,21} In another study, Puerto Ricans mentioned churches and health fairs as sources of information,¹² but that did not emerge in our study and should be probed further. It is important to note that Puerto Ricans in our study, and Latinos in general, want health professionals that are trustworthy, friendly, respectful, and knowledgeable of their needs and culture.^{4,16} Still, a survey among adult women found that Latinas were less likely than white or black women to feel that their healthcare provider was sensitive to their culture.²⁰ These observations suggest that health professionals should receive cultural competency training, and that there should be more effort to recruit a diverse health workforce to provide better CVD-related support and counseling to Latinos.

Participants mentioned that locations for CVD-prevention programs and services should be familiar and in convenient community settings, also consistent with previous qualitative studies.^{16,18,24} Community-based clinical settings may be appropriate for Puerto Ricans, as most of them have health insurance^{2,25} and often seek care in physicians' offices, clinics or hospitals.²⁵ It would be worthwhile to schedule the same program at different days and times of the week to accommodate working and stay-at-home participants.

Available health information and printed materials were deemed useful by participants in our study and elsewhere,¹⁸ but other Latinos have found them ineffective because they have language that is hard to understand.¹⁷ Indeed, there seems to be a strong desire for printed materials that are clear, simple, colorful, include pictures, are in English and Spanish, and that 'speak to their culture'.^{15,17,18}

There is a clear need to address multiple risk factors for CVD prevention.¹⁶ Nutrition, exercise, and social support were named here as the main themes for CVD-prevention program content, with the suggestion that they should contain not only information but also hands-on activities. Participants in similar focus group discussions have agreed that an

instructional component is useful, but that it must include interactive modules such as small-group discussions, videos, and skill-building hands-on workshops.^{16,18} Our participants, as those in other studies,^{8,18} were particularly interested in group exercises to encourage social support and interaction. Similarly, small-group settings to deliver the programs were considered as most effective here and elsewhere,^{8,18,24} because they promote social interaction. Using *telenovelas*²² and *promotoras*²⁶ have been mentioned in formative studies among Latinos as helpful strategies for learning and support, but such themes did not emerge in our study nor in a study of solely Puerto Ricans,¹³ suggesting that these may be less relevant for this group.

Intrinsic motivation seemed to be the main driver to learn about CVD-prevention among our group, and such personal motivations (such as to do something for oneself, feel/look better) have been reported in other focus groups discussions.^{8,16} In focus groups with Hispanics and other minority women, self-motivation and ‘staying healthy for themselves’ was deemed as more important for sustaining behavioral changes than other incentives.¹⁶ In our study, the theme of being healthy for their family was a novel comment. It was previously reported that Latinos perceive that family needs are more important than their own, and thus, taking care of oneself could be seen as self-indulgent,²⁷ but our participants seemed to interpret this family need as a reason to seek out prevention services. The importance of family (*familismo*) has been well documented as a key cultural factor among Latinos⁴ and has been mentioned as a motivation for adapting health behaviors.^{12,28} In general, the sense of family as a health unit, and of family and social support (receiving and giving it) are considered as important and needed;^{8,12,15,18,27} thus, any future program or intervention should draw on these intrinsic motivators. For Puerto Ricans, alluding to the importance of self-care as a way to be healthy and able to care for dependents may appeal to program participation.

Material incentives were generally deemed helpful but not necessary; however, meals, vouchers for transportation, and free childcare were considered essential for consistent participation.^{16,18} Lack of transportation, caregiving and family obligations, and limited resources and time, seem to be common barriers for many Latinos to attend clinical programs and services.^{8,16,17,19,29} Whereas some barriers mentioned by our participants cannot be controlled (eg, weather, safety concerns), scheduling of CVD-prevention programs should be flexible and mindful of the main barriers. In our study, efforts to encourage attendance in the sessions, such as reminders and reimbursement for transportation, were likely helpful, and we had 70% of scheduled people attending. Such strategies should be applied whenever possible.

Other focus group discussions have identified themes related to external sociocultural and family pressures and expectations as barriers to attending programs and changing lifestyle behaviors;^{16,19} yet, we did not hear this from our participants. Social norms inherent to the Puerto Rican community may explain this difference. This encouraging finding may assist with higher program attendance in this group. The theme of how depression affects participation in CVD programs was revealing but not surprising, as it has been estimated that 38% of Puerto Ricans nationwide are depressed,³⁰ with high prevalence of depressive symptomatology among Puerto Ricans living in Boston, MA.⁵ Depression and emotional barriers for disease treatment and program participation have been mentioned in previous

qualitative studies as well.^{8,18,27,31} Addressing emotional well-being in CVD-prevention programs may improve attendance.

One of this study's limitations is its small sample size and that it was a convenience sample; moreover, its exploratory nature limits any causal inferences. However, saturation of themes was achieved and there was no need for conducting further focus groups. Recruitment was conducted in urban neighborhoods, which tend to be of lower socioeconomic status, and may limit generalizability. However, the Puerto Rican population in the US is concentrated in urban areas³² and has high poverty rates,⁴ suggesting that the opinions expressed here may be shared by other Puerto Ricans across the nation. Finally, bias in the sample could have been present if those who volunteered were less knowledgeable of CVD, and thus, more interested and engaged in the topic. Our results, however, are analogous to those from other focus groups among Puerto Ricans exclusively, as discussed above, suggesting that we captured accurate opinions; therefore, generalizability may be applicable. Additionally, the consistency of results suggests that cultural preferences and perceptions of CVD-prevention are fairly stable in this group. Alluding to these deeply-rooted opinions may assist with sustainability of programs. The consistent results also suggest that lack of knowledge of CVD and its prevention is widespread in this group, and that general population approaches may not be reaching or suiting this group, which may be reflected on the existing health disparities they present.

Our study has several strengths. Our discussions ran satisfactorily, and we had general participation by all attendants even when conducted in both languages. The use of bilingual and bicultural moderators was essential to establish trust and openness. Whereas previous studies have conducted focus groups separately for men and women to elicit honest discussions¹⁷ and to assess differences by sex,³¹ we found that both sexes were equally open and shared similar opinions. Finally, gauging opinions from a single Latino background can help tailor programs and interventions more deeply than if conducted for Latinos overall. Although there are shared values, there are also specific experiences and cultural perceptions by background, as shown in one focus group study where differences in resulting themes of health beliefs were seen across 4 Latino backgrounds.¹² Table 3 summarizes the practical implications of our results for designing and implementing behavioral prevention programs for Puerto Ricans.

Involving participants in the planning stages of CVD-prevention programs can help increase motivation and participation.^{8,16} The information obtained through this qualitative analysis will help us strategically plan sustainable, culturally-tailored programs and interventions that address social, behavioral, and environmental CVD risk factors. For example, we developed the Heart Healthy Initiative for Hispanic Adults (HIP), a multilevel randomized controlled pilot intervention designed to promote heart-healthy behaviors. Using themes elicited from the focus groups, the HIP curriculum uses a participatory community approach and includes nutrition, physical activity, stress management, and health literacy, emphasizing cultural lifestyle behaviors and social relationships. The intervention includes 6 months of weekly group educational sessions and 12 months of fitness classes and tailored computer-delivered health messages. The program is currently being offered at community centers in the Greater

Boston area. HIP, as well as future programs and interventions informed by this formative research, may help Puerto Ricans prevent heart disease and take control of their heart health.

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Table 1

Characteristics of Puerto Rican Adults Participating in Focus Group Discussions about CVD-prevention Programs (N = 24)

Age (years)	51.1 (4.5)
Sex (% female)	54.2
Educational attainment	
8 th grade or less	25.0
9 th –11 th grade	20.8
Completed 12 th grade/GED	45.8
Some college or higher	8.3
Income level	
<\$10,000	69.8
\$10,000–25,000	17.4
>\$25,000	13.0
Income source	
Employment	19.1
Social Security	66.7
Other Government Assistance	14.3
Marital status	
Single	65.2
Married	13.0
Widowed/Divorced/Separated	21.7
Type of housing	
Own	12.5
Rent	37.5
Public or assisted housing	50.0
Language preference (% Spanish)	91.3
Currently attend heart disease prevention program	16.7
Currently attend social program or service	20.8

Table 2

Summary of Resulting Themes and Representative Quotes from Puerto Rican Adults Participating in Focus Group Discussions about CVD-prevention Programs

Main Topic	Resulting Themes	Summary or Representative Quotes
Attitudes and knowledge	Seriousness and pervasiveness of CVD	<ul style="list-style-type: none"> “My dad had a stroke recently and has no control on one side [of the body]. I had 2 [strokes], and I have problems with this hand. And my mom also suffers from the heart. She had a leg amputated recently, and her heart is not working well. My sister-in-law also had a heart attack and became comatose”
	CVD as hereditary and inevitable	<ul style="list-style-type: none"> “...so as much as one takes care of oneself, it will still happen” “I am predisposed to [suffer from] the heart...and so I try to take care of myself, to avoid complications”
	Limited knowledge of CVD	<ul style="list-style-type: none"> “I don’t know many things about the heart. The only thing I know is that a stroke can happen as a surprise, and that your veins can get clogged” “I suffer from the heart; the disease, to tell the truth, I don’t remember”
	Recognition of CVD risk factors	<ul style="list-style-type: none"> Behavioral risk factors: diet, exercise, and smoking Specific dietary factors: too much salt, fat, red meat; few vegetable Biological risk factors: excess weight, high cholesterol, hypertension Additional risk factors: stress/anger, alcohol, pollution, drugs, medical care
	Sources of CVD-related information	<ul style="list-style-type: none"> Radio/television, relatives and friends, informational brochures, talks at the clinic, conversations with a health professional.
Preferred logistics	Location	<ul style="list-style-type: none"> Central and familiar location: community center, churches, clinic/hospital
	Timing	<ul style="list-style-type: none"> Weekly or biweekly regularly-scheduled sessions, 1–3 hours, for as long as useful Need reminders
	Implementation	<ul style="list-style-type: none"> Led by respectful and familiar Latino health professionals Small groups of up to 10 people of similar age and culture, because these “give more chances for one to express one’s feelings and participate” “not only have talks, but also to...organize a club in the community”
	Educational, social, and hands-on content	<ul style="list-style-type: none"> “if I were to find a group of people, Latinos like us, that would get together, we could walk!” Content has to be age- and culture-appropriate, and clear
Motivations and barriers	Intrinsic motivation	<ul style="list-style-type: none"> “I don’t want to die yet, I need to take care [of my health]”
		<ul style="list-style-type: none"> “I think my children still need me; I should take care of myself to have more time with them”

Main Topic	Resulting Themes	Summary or Representative Quotes
		<ul style="list-style-type: none"> • “the more I learn about the situation, the more I have to protect myself”
	Giving/receiving family support	<ul style="list-style-type: none"> • “it’s always good to see that someone loves you and needs you, and needs you to be healthy” • “I have kids that are overweight, but if I get informed, I can help them prevent heart disease, diabetes, high blood pressure”
	Material motivations	<ul style="list-style-type: none"> • Welcomed but not needed • “I would go if it’s for one’s benefit, but if we get money then even better”
	External barriers	<ul style="list-style-type: none"> • Severe weather conditions, safety concerns, work and family obligations, and transportation
	Internal barriers	<ul style="list-style-type: none"> • “I get into a depression and I don’t leave the house”

Table 3

Implications and Recommendations for Designing and Implementing CVD-prevention Programs for Puerto Rican Adults

Main Topic	Implications and Recommendations
Attitudes and knowledge	<ul style="list-style-type: none"> The perception of CVD as serious and the openness to learn how to prevent it can be leveraged to increase interest in prevention programs. CVD-prevention programs need to educate participants about CVD and its behavioral risk factors, as there still is inadequate knowledge of such.
Preferred logistics	<ul style="list-style-type: none"> There is a need for creative ways to choose healthier ethnic foods and eating behaviors. Increase efforts to diversify the health workforce, and train health professionals on how to gain trust, be friendly, respectful, and mindful of patient's needs and culture. Latino-oriented materials should be clear, simple, pictorial, bilingual, and culture-minded. Skill-building and interactive activities, as well as components with social interaction and family support, are essential. Allow flexibility in programs to appeal to the variety of schedules and preferences in the community.
Motivations and barriers	<ul style="list-style-type: none"> Intrinsic and material motivations can be leveraged to improve participation. Allude to the importance of being healthy in order to take care of the family. Barriers will always exist, but can be minimized. Address emotional health as part of CVD-prevention as it seems to be common, a strong barrier, and a potential CVD-risk factor.
Overall	<ul style="list-style-type: none"> Engage the target community before designing programs to help gain trust, and increase participation and sustainability. Perceptions and preferences seem to be deeply engrained and consistent. While some perceptions and preferences of CVD-prevention programs are common among Latinos, some aspects are ethnic-specific. Programs and interventions should be multi-level (individual, social, and environmental) and include multiple lifestyle behaviors. CVD-prevention programs may be more appealing, attended, and sustainable, when tailored to the preferences and needs of the group served.