Heart Health in the Latino Community

NCLR

NATIONAL COUNCIL OF LA RAZA

The National Council of La Raza (NCLR)—the largest national Hispanic civil rights and advocacy organization in the United States—works to improve opportunities for Hispanic Americans. Through its network of nearly 300 affiliated community-based organizations, NCLR reaches millions of Hispanics each year in 41 states, Puerto Rico, and the District of Columbia. To achieve its mission, NCLR conducts applied research, policy analysis, and advocacy, providing a Latino perspective in five key areas—assets/investments, civil rights/immigration, education, employment and economic status, and health. In addition, it provides capacity-building assistance to its Affiliates who work at the state and local level to advance opportunities for individuals and families.

Founded in 1968, NCLR is a private, nonprofit, nonpartisan, tax-exempt organization headquartered in Washington, DC. NCLR serves all Hispanic subgroups in all regions of the country and has regional offices in Chicago, Los Angeles, New York, Phoenix, and San Antonio.

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INTRODUCTION

In 2007, the National Council of La Raza (NCLR) partnered with Merck/Schering-Plough Pharmaceuticals to create educational materials that would raise awareness about the importance of maintaining overall cardiovascular health, including healthy cholesterol levels, among the Latino* population. To kick off the partnership, NCLR hosted a meeting with various NCLR Affiliates and found that additional information was needed to identify the knowledge, awareness, and behaviors of the Hispanic community with regard to cholesterol and heart disease.

To that end, MSP, in collaboration with NCLR and the NCLR/California State University, Long Beach Center for Latino Community Health, Evaluation, and Leadership Training, hosted the CommUNITY Heart Health Summit, which brought together researchers, nonprofit organizations, and community members to discuss awareness of and access to heart health information within the Hispanic community as well as effective channels for disseminating such information.

The findings of that summit, NCLR's own experience with the topic, and an extensive literature review form the basis of this report.

OVERVIEW OF THE HISPANIC POPULATION

Latinos are the largest minority group in the United States, with a population of nearly 47 million—representing more than 15% of the nation's population.[1] Hispanics have accounted for more than half of all U.S. population growth since 2000.[2] Although the rate of population growth has decreased, Latinos are still the fastest-growing racial/ethnic group in the country.[3] The Latino population will continue to grow as Latino children represent 25% of the U.S. population under the age of five and 22% of youth under the age of 18.[4]

Hispanics represent more than 20 countries of origin and vary greatly in their social and economic characteristics, the political and social history of their countries of origin, educational levels, immigration experience, acculturation levels, primary language, and occupational and generational status. Mexicans are by far the largest subgroup (66%), followed by Puerto Ricans (9%) and about 3% each of those of Cuban, Salvadoran, and Dominican origin.[5] The remainder are of other Central American, South American, or other Hispanic origin.

Latino households are often of mixed nativity status. National data show that 10% of children in the U.S. live in a mixed-status family, in which at least one parent is a noncitizen and one child is a citizen. In addition to country of origin and nativity status variations that exist in the Hispanic community, it is important to note that the community is geographically dispersed throughout the country. While the majority of the Latino population lives in Texas and California, Latinos are increasingly moving to nontraditional receiving states and heading to states in the Southeast, Midwest, and Great Plains. These states with emerging populations experienced a growth rate of 61% in their foreign-born populations, nearly double the increase in the traditional "big six" immigrant-receiving states—California, New York, Texas, Florida, New Jersey, and Illinois.[6]

While the Latino community represents the largest racial/ethnic minority in the United States, they continue to face a myriad of challenges that affect their quality of life. One of the most troubling is their health. Hispanics face numerous health challenges including an increased burden of chronic and infectious diseases and limited access to culturally and linguistically relevant health care. Health care is of particular concern considering that Hispanics often interact with the health care system only when they are ill and in their most vulnerable state.

The overall poor health status of the Latino community can be linked to many barriers both within and outside the health care system. For example, lack of health insurance prevents many Latinos from accessing health care services and receiving quality health care.

* The terms "Latino" and "Hispanic" are used interchangeably by the U.S. Census Bureau and throughout this document to identify persons of Mexican, Puerto Rican, Cuban, Central and South American, Dominican, and Spanish descent; they may be of any race.

Across all age groups, Latinos are substantially more likely than non-Hispanic Whites or Blacks to lack health insurance. Recent data from the U.S. Census Bureau show that the uninsured rate for Latinos was 30.7% in 2008, compared to 10.8% for non-Hispanic Whites and 19.1% for non-Hispanic Blacks.[7] Throughout the past decade, one-third or more of all nonelderly Latinos have been uninsured each year, a rate two to three times that of non-Hispanic Whites. Two in five (40%) Latino adults aged 19 to 64 were uninsured in 2000, compared to 14% of Whites and 25% of Blacks.[8]

Moreover, Latino citizenship and immigration status are directly related to low rates of health access and availability of quality medical care. In 2009, nearly three-fifths (58%) of noncitizen Latinos lacked health insurance, more than double the percentage of U.S.-born (20%) or naturalized (27%) Latinos.[9]

Other concerns that affect Latino health outcomes are related to language. Latinos who have limited English proficiency face challenges when accessing medical care, and they are more likely to have greater difficulties communicating with a provider about their health problems and understanding instructions for prescription medicines and written information from a doctor's office. According to The Commonwealth Fund, nearly half of Spanish-speaking Latinos have problems communicating with their physicians, and close to half also report difficulty understanding instructions for prescription medicines and written information from a doctor's office, much of which is provided only in English.[10] As a result of the lack of access to health care in general, Latinos tend to receive low-quality medical care and disproportionately suffer from major complications due to chronic and infectious diseases.

These factors interact to create a troubling picture of the health status of Latinos, particularly cardiovascular health. Although Hispanic communities share many of the same heart health risk factors found in the general U.S. population, the extent and impact of the risk factors vary and, as such, an examination of how to appropriately address the heart health needs of this community is necessary. To do this, we must first understand the health care–related barriers the community faces and how these barriers affect heart health. Moreover, we must identify opportunities for developing and improving treatment and programs geared toward Latinos.

SUMMARY OF LATINO HEART HEALTH STATUS

Data from the Centers for Disease Control and Prevention (CDC) and the National Center for Health Statistics indicate that, as of 2005, heart disease is the leading cause of death for all Latinos (23%), followed by cancer (20%), unintentional injuries (9%), cerebrovascular disease or stroke (5%), and diabetes (5%).[11] Given that heart disease is the leading cause of death for Latinos and the growing importance of the Latino population to the country and its economic and social well-being, it is imperative to understand the conditions and risk factors for heart disease and their impact in order to develop effective strategies and mechanisms to lower the burden of disease among the population.

PREVALENCE OF HEART DISEASE AMONG LATINOS

Heart disease was the cause of nearly 28,000 Latino deaths, or approximately 23% of all deaths that occurred in 2004 among Hispanics.[12]

Latinos living in the U.S. have higher prevalence of risk factors for cardiovascular disease (CVD) than the general U.S. population. When comparing women with similar socioeconomic status, Mexican American women have increased CVD risk factors compared to non-Hispanic White women.[13] Mortality rates related to hypertension increased substantially from 1995 to 2002 for both Mexican Americans and other Hispanic Americans.[14] From 2001 to 2004, 22% of Mexican American men and 25% of Mexican American women (ages 20–74 years) had hypertension.[15]

Hispanics also suffer from higher rates of diabetes and its complications than non-Hispanic Whites. Among Mexican Americans, 15% have diabetes, which includes the 3.2% of the population that is still undiagnosed. Compare this to non-Hispanic Whites, whose prevalence is at less than 9% with 2.6% undiagnosed. In addition, Hispanics are at greater risk for hypertension, stroke, and cardiovascular events compared to non-Hispanic Whites. Hispanics, especially Mexican Americans, have a higher prevalence of multiple modifiable risk factors, such as overweight, low levels of physical activity, high cholesterol, and a high-fat diet.[16]

A 2006 American Heart Association study comparing cholesterol control within various ethnic groups found that Hispanics were 36% less likely than non-Hispanic Whites to maintain control of their cholesterol levels.[17] Its research also determined that more than half of Mexican American men and 45% of Mexican American women have cholesterol levels characterized as borderline high-risk.[18]

Research demonstrates that Mexican Americans have higher rates of stroke when compared to non-Hispanic Whites. In an analysis using data collected from 2000 to 2002, the stroke rate for Mexican Americans was 168 out of 100,000 while for non-Hispanic Whites the rate was 136 out of 100,000.[19] In addition, Mexican Americans were at higher risk for experiencing incidences such as ischemic stroke and intracerebral hemorrhage.[20] While higher stroke rates should not be a surprise given that the social and biological risk factors associated with stroke are more common among Mexican Americans than among non-Hispanic Whites due to the higher prevalence of diabetes, lower socioeconomic status (SES), and limited access to quality health care, it is surprising that vital statistics indicate that non-Hispanic Whites experience higher stroke-related mortality.[21] However, when broken down by age, younger Mexican Americans have higher stroke mortality rates when compared to non-Hispanic Whites whereas older Mexican Americans have lower stroke-related mortality rates than non-Hispanic Whites, demonstrating the need to dig deeper when looking at morbidity and mortality statistics.[22]

LATINO DIVERSITY AND HEART HEALTH

As noted earlier, Latinos are not a homogenous group. More than 20 countries are represented by the term Hispanic or Latino. Each country has its own history, culture, and customs which affect how Latinos seek care and identify the need for treatment. The subgroup diversity and acculturation levels of the community play a role in the heart health status of Latinos.

Latino Subgroup Diversity

The heterogeneity of the Hispanic population leads to wide variation in health behaviors, risks, and outcomes. For example, gender, birth country, age, and primary language are some of the differences among Latino populations that have been researched.

Hispanic subpopulations also differ in their factors for cardiovascular disease. For example, Hispanics from the Dominican Republic and Cuba have a lower prevalence of diabetes than Mexican Americans while Puerto Ricans have higher mortality rates from myocardial infarction and other types of heart disease than other Hispanic subgroups.[23]

Analyses of the Hispanic Health and Nutrition Examination Survey (HHANES) data found that among Mexican American, Cuban American, and Puerto Ricans, women were more aware of their hypertension than men.[24] Moreover, women receiving treatment for their hypertension were more likely than men to have their condition under control. Less than one out of every ten Hispanic men with hypertension had their blood pressure under control (<140/90 mmHg). The same analysis found that Cuban American women were the most likely to be aware of their hypertensive status. Over 90% of Cuban American women knew their status for hypertension compared

to 76% of Mexican women and 66% of Puerto Rican women.[25]

Further analysis of the HHANES data indicated that among Hispanics, women were more likely to be overweight than men. Mexican American and Puerto Rican women had the highest rates of being overweight of any group (42% and 40%, respectively).[26]

Acculturation

Latinos born in the U.S. have higher educational attainment and higher incomes, are more likely to be proficient in English, and are more likely to have Internet access than Latinos born abroad.[27] However, U.S.-born Latinos are also at higher risk for chronic health problems and less likely to engage in health-promoting behaviors.[28] A 2005 literature review examined this dichotomy by exploring potential links between the acculturation of Latinos and the health outcomes they experience, focusing on three categories of indicators: health behaviors, health care use and access, and health perceptions and outcomes.[29]

The review documented the primarily negative impacts of acculturation on health behaviors such as nutrition, substance abuse, and cigarette use. Yet, the effect of acculturation on access to health care systems and the use of preventive care services, such as cancer screenings and immunizations, was determined by most of the studies reviewed to be positive.[30] The impact of acculturation on health perceptions and outcomes received more mixed reviews. Self-assessments of health showed a positive trend, but many specific health outcomes such as hypertension, diabetes, and mortality from coronary artery disease showed mixed or negative effects associated with the process of acculturation.[31]

One study found that American-born Latinos (both men and women) who were primarily Spanish-speaking had the highest mortality risk from coronary heart disease, whereas Mexican-born men and women had the lowest mortality risk.[32] One possible reason for this is that Latinos who are born in the U.S. but primarily speak Spanish are less likely to be acculturated to the U.S. health care system, yet still likely to engage in negative U.S. mainstream behaviors such as frequently eating fast food. Another study found that among adults, Latino immigrants had lower prevalence of obesity, smoking, diabetes, hypertension, and CVD than Latinos born in the U.S.[33]

CHALLENGES AND OPPORTUNITIES TO IMPROVING LATINO HEART HEALTH

A number of socio-cultural and structural factors generally affect Latino health. These include language, lack of education, low household income, and other culturally related factors, such as diet and nutrition and belief systems. While care must be taken not to generalize these factors to all Hispanics, it is worth noting their existence as they do affect a sizable number of community members.

A. SOCIO-CULTURAL FACTORS

Education and Income

The majority of Latinos are younger, of lower SES, and less educated than non-Hispanic Whites.[34] In 2005, one in four Latinos had less than a ninth-grade education.[35] Research demonstrates that patients who do not have adequate English reading skills are twice as likely to report poor health, less likely to understand written instructions about their medications, and more likely to have trouble navigating a doctor's office.[36]

In 2008, the median yearly income of Latino households was $37,913, compared to $55,530 for non-Hispanic White households and $34,218 for non-Hispanic Black households.[37] In 2005, 21.8% of the Hispanic population fell below the poverty level, compared to 12.6% of the overall population.[38] Latinos are concentrated in low-wage service-sector employment, and often such jobs do not offer health insurance and do not pay well enough for workers to purchase

private health insurance. For conditions that persist or last a lifetime, such as hypertension and diabetes, it becomes very difficult for these individuals to pay for health care services, treatments, and medications.[39]

Diet and Nutrition

Compared to non-Hispanic Whites, Latinos consume more grams of fat per day (62.9g vs. 72.2g, respectively).[40] Additionally, Mexican American women do not meet the recommended dietary allowances of fiber intake.[41] In a nonrandom sample of 32 Mexican American adults in Southwest Detroit, trained bilingual lay health educators collected data, delivered health education sessions, and measured dietary behaviors and cardiovascular risk factors during a three-month period. The majority of participants were found to have a greater propensity for unhealthy eating patterns than heart-healthy practices. For example, the majority consumed high-fat salad dressings, whole milk, fried foods, sweets, high-fat snacks, and few fruits and vegetables.[42] Among cardiovascular risk factors, the most prevalent among participants were being physically inactive, overweight, and exposure to second-hand smoke.

The dietary behaviors found in this study increase cardiovascular risk by contributing to obesity, predisposing individuals to diabetes, and raising LDL and total cholesterol levels. Of concern was the high proportion of participants who were unaware of their personal risk factors for CVD. One out of every three people was unaware of blood pressure being high (>140/90mmHg), more than one-fourth of participants did not know they were overweight, and more than half did not know that their total cholesterol was high (<240mg/dl) or that their HDL cholesterol was low (<35mg/dl).[43]

Wide variation in diet occurs among the different subpopulations of Latinos. For example, analysis of data from HHANES revealed that Mexican American adults ate more legumes than Cuban or Puerto Rican adults. In terms of processed grains, Mexican Americans preferred tortillas, Cubans preferred rice or pasta, and Puerto Ricans preferred breads.[44] Older Mexican Americans tend to have higher fat consumption (total and saturated) compared to their Puerto Rican and Cuban American counterparts.[45] In another study looking at fat intake, similarities were found among all groups—Puerto Ricans, Dominicans, Columbians, and Guatemalans in New England. All three of these groups reported cooking with fat or oil, eating higher-fat sweets and snacks, and eating dinners containing meat, such as beef.[46]

Obesity and Physical Activity

Latinos as a whole are at high risk for being overweight and obese. The rate among Mexican American males age 20 and older is 76% compared to 71% for non-Hispanic White men. Among Mexican American women the rate is 73% compared to 57% for non-Hispanic White women. When limiting the data to obesity only, 31% of both Mexican American and non-Hispanic White men are obese. Among women, 40% of Mexican Americans and 32% of non-Hispanic Whites are obese.[47] Additionally, older Mexican American women have significantly higher rates of obesity compared to older non-Hispanic White women—50% and 21.5%, respectively.[48] The high incidence of being overweight or obese contributes to a similarly high prevalence of heart disease, stroke, and diabetes in the Hispanic population; being overweight or obese is estimated to account for 60% of deaths among Latino populations.[49]

Despite the known health benefits of physical activity, especially in reducing cardiovascular risks such as obesity, few Hispanics participate in it. More than half of all Hispanics are inactive compared to 39% of non-Hispanic Whites. Only 20% of Hispanics are regularly active compared to 32% of non-Hispanic Whites.[50] Among Hispanic women, the lack of child care, transportation, and safe and accessible exercise facilities have been identified as barriers to physical activity. In addition, Latinas have reported a lack of family support and language barriers as contributing to their lack of exercise.[51]

Cultural Beliefs

Cultural barriers may prevent Hispanic patients from fully understanding the risk of cardiovascular disease, making it difficult for physicians to detect risk factors.[52] The values, beliefs, and practices of Hispanics differ significantly within subgroups as well as from those of the mainstream U.S. community, and these varied views can sometimes limit awareness of illness or delay formal diagnosis. Many Latinos treat their symptoms with traditional medicinal alternatives such as healing teas, herbs, roots, and foods before turning to the mainstream medical system. Some may turn to a traditional *curandera*—a female healer who treats general complaints as well as symptoms of "folk conditions."[53]

For example, one common traditional belief is that disease is caused by an imbalance between hot and cold. Common treatments for this perceived imbalance include bananas and lemon juice (considered "cold") to treat a "hot" illness such as hypertension, and cactus and aloe vera juice to treat another "hot" illness such as diabetes.[54] Additional research is needed to determine whether or not these traditional beliefs and practices interfere with Western medical protocols, pharmaceutical regimens, and patient compliance.

A study about awareness of chronic disease in three ethnic minority groups examined how Latinos, among other groups, might view their conditions and what impact those views might have on the management of their health.[55] The findings for Latinos were striking. Researchers discovered that Latinos showed little comprehension of the notion of chronic illness; indeed, in their construct, each new episode of illness was a separate event with a separate course of treatment.[56] For this reason, many perceived the reduction of symptoms as a cure.

Language and Communication

Language and communication barriers may also impact awareness and compliance in Hispanic patients with health conditions. Low English proficiency is associated with lower rates of preventive services.[57] Non-English-speaking patients are at risk for misdiagnosis, poor compliance, medical errors, patient dissatisfaction and/or mistrust, increased stress, and ultimately poor outcomes.[58] Hispanics who primarily speak Spanish are much more likely than primarily English-speaking persons to be dissatisfied with their physicians and the information they received.[59]

Effective physician-patient communication results in improved health outcomes.[60] In order to disseminate information about heart health, physicians must be able to communicate effectively with their patients. If patients cannot understand the messages their providers are attempting to communicate, patients are less likely to comply with treatments.[61] A study of barriers to health promotion and disease prevention in the Latino community documented that Hispanic patients who speak Spanish reported greater satisfaction with health care professionals and rated the quality of their care more highly when the providers spoke their language.[62] Moreover, a study of non-English-speaking Caribbean and Central Americans with diabetes found that health messages presented with illustrations were preferred.[63]

It should be noted that limitations in health literacy—the capacity to take in and effectively use health information—differ from those of language and communication and may have an equally powerful impact on health status. The 2007 study of type 2 diabetes patients referenced above determined that 52% of Latinos demonstrated insufficient health literacy, compared to 15% of non-Hispanic Whites.[64] It found a correlation between low levels of health literacy and poor health outcomes and documented the potentially negative impact of Hispanic patients sharing inaccurate information with their family and friends.[65]

Knowledge and Awareness

Hispanics, especially non-English-speakers, are significantly less likely than non-Hispanic Whites to know about the cardiovascular disease risks associated with hypercholesterolemia and stroke. In addition, non-Hispanic Blacks and Hispanics

are significantly less likely than non-Hispanic Whites to believe that they will need to continue using medications for hypertension indefinitely.[66] An analysis of the Hispanic Established Populations for Epidemiologic Studies of the Elderly (HEPESE) data found that among the 60% of participants who had hypertension, 37% were unaware of their condition. Among those who were aware, 77% had been treated, significantly more than the 10% of the unaware who were treated.[67] Factors associated with unawareness of condition included being male, being married, having Medicaid (thus being low-income), and having made fewer visits to the doctor in the past year. Factors for awareness included having a known history of heart disease and having poor self-reported health. Unawareness of hypertension and its risks remains high among older Mexican Americans, indicating the need for community-based education programs that address hypertension, as well as a need to increase access to primary care services.[68]

Focus group discussions about heart disease among different racial/ethnic groups discovered that Hispanic women were not as likely to associate heart attacks with risk factors such as heart disease, gender, or age group. Rather, they associated heart attacks with symptoms and outcomes such as collapsing, holding one's chest and having difficulty breathing, or death. Non-Hispanic Black and non-Hispanic White women associated heart disease and heart attacks with men who were obese, stressed, and smokers. In addition, non-Hispanic White women consistently associated heart disease and heart attacks with men in their fifties or sixties suffering from pain on their left side. Hispanics and non-Hispanic Blacks were more likely than non-Hispanic Whites to associate heart disease and heart attacks with death and dying. Hispanic women tended to verbalize "trying" to exercise and eat healthy to reduce their risks, whereas non-Hispanic Black and non-Hispanic White women described their risk-reduction behaviors as actually "participating" in regular exercise.[69]

In a study of heart attack and stroke awareness among English- and Spanish-speaking Hispanics, fewer than 10% of Spanish-speaking Hispanics were able to correctly identify all heart attack symptoms and fewer than 20% identified all stroke symptoms. Even commonly recognized symptoms were not well-known among Spanish-speaking Hispanics. For example, 40% did not know that chest pain or neurologic symptoms, such as numbness on one side of the body, were an indication of a major cardiovascular event.[70]

These results are not surprising considering that many Latinos have not been exposed to information on stroke. NCLR, in an evaluation of a National Institute on Neurological Disorders and Stroke (NINDS) Spanish-language campaign entitled "*Ataque cerebral: conozca los síntomas y actúe a tiempo* (Know Stroke. Know the Signs. Act in Time)," found that among participants in the program, 83% reported this being the first time attending a program on stroke awareness. Additionally, 74% of program participants had not received information on strokes prior to attending the program, in spite of one-third of program participants reporting at least one personal risk factor for stroke.[71]

Based on an analysis of 2001–2002 data from the National Health and Nutrition Examination Survey (NHANES), when comparing non-Hispanic Whites (NHW) to non-Hispanic Blacks (NHB) and Mexican Americans (MA), Mexican Americans were found to have a lower prevalence of hypertension (30.6% of NHWs, 38.1% of NHBs, and 16.9% of MAs).[72] However, among those who were classified as hypertensive, Mexican Americans were the least likely to be aware of their condition (63.2% of MAs, 73.1% of NHWs, and 76.2% of NHBs). In addition, compared to non-Hispanic Whites, Mexican Americans were less likely to have their hypertension under control (62% of NHWs compared to 56.8% of MAs).[73]

Hispanics are less likely than non-Hispanic Whites to be knowledgeable about the cause of heart disease. Fewer than one in four Hispanics knew that not exercising was a cause of heart disease whereas one in three non-Hispanic Whites was aware of this information. These figures are similar for knowledge of smoking

risks (21% versus 33%, respectively). The gap persists between the two groups as Hispanics are less likely than non-Hispanic Whites to know that high cholesterol (16% and 30%, respectively) and having a family history of coronary heart disease (13% and 21%, respectively) are risk factors for heart disease. In contrast, Hispanics have a lower proportion than non-Hispanic Whites of knowing that a high-fat diet contributes to heart disease (1% and 12%, respectively). Knowledge and awareness were lower among Spanish-speaking Hispanics than English-speaking Hispanics, indicating that language is a major barrier.

Lack of concrete health information and decreased awareness extend beyond the risk factors associated with certain diseases. Two studies found that the cause or nature of disease is often misunderstood. Findings from individual interviews on diabetes knowledge with Mexican agriculture workers in Southeast Idaho indicated that respondents attribute their diabetes to *susto* (fright), *coraje* (anger), and *preocupaciones* (worries). Stigmatization was noted as participants referenced diabetes as a sign of weakness. Furthermore, participants commonly were unaware of elevated blood glucose levels or increased blood pressure and did not understand the health ramifications of having either of these conditions.[74] Belief systems have great potential to hinder the treatment of chronic illnesses and lead to disease complications.

B. STRUCTURAL BARRIERS

Access to Health Information

Poor access to health care information resulting from language barriers and cultural issues increases the risk for CVD among Latino populations and is especially important to consider when designing educational materials and interventions. A 1997 study found that heart disease prevention messages developed for the general population were not effective for Latinos because of language and cultural differences.[75] Another study found that compared to non-Hispanic Whites, Mexican Americans were less likely to be aware of therapy for acute strokes, less likely to know of the time window for treatment, and less likely to indicate that they would call 911 when experiencing an acute stroke, thereby limiting timely and appropriate treatment. In addition, Mexican Americans had less knowledge about stroke symptoms and risk factors and less confidence in their ability to prevent a stroke.[76]

A national study on women's knowledge about their risk for heart disease found that fewer Hispanic women (57%) reported having seen, heard, or read information about heart disease during the past year compared to non-Hispanic White and non-Hispanic Black women when nearly 75% of persons had heard these messages. Sources of heart disease information for participants included magazines (43%), television (24%), and health care professionals (18%). Other sources included print media such as newspapers, brochures, or books; friends and relatives; radio; the Internet; and libraries. In addition, more Hispanic women (14%) reported receiving information on heart disease from a friend or family member compared to non-Hispanic Whites and non-Hispanic Blacks (3–5%).[77]

Access to Health Care

Hispanics are two and a half times as likely as non-Hispanics to be uninsured. Thirty-eight percent of Hispanics were uninsured in the first half of 2008 compared to 17.6% of non-Hispanic Whites and 24.2% of non-Hispanic Blacks.[78] Furthermore, Hispanics are less likely to enter the health care system for any type of care, including hospital admissions or preventive services.[79] Another study examining pharmaceutical treatment differences among racial and ethnic groups found that Hispanics were nearly 13% less likely than non-Hispanic Whites to receive appropriate secondary stroke prevention medications.[80] Distrust of the health care system and difficulty in paying medical bills are major barriers for the Latino population in seeking appropriate care.[81]

Focus group discussions with Mexican agriculture workers in Southeast Idaho revealed a perception of discrimination against Latinos

regardless of country of birth. In addition, participants felt disenfranchised from "Anglo society" due to language barriers, fear, and misunderstandings. Although access to emergency medical services was not perceived by the respondents as a barrier, the high cost of such services is a constant stress for the majority of their families. Even so, participants indicated that the medical system in Mexico simply denies treatment (even in an emergency) if a person cannot pay for a health care service.[82]

Access to Specialized Care and Treatment

While having insurance increases access to health care services, it does not guarantee access to specialized, high-quality care. From 1997 to 2001, Latinos had less access than non-Hispanic Whites to specialists. In 2001, only 23% of Latinos reported their last doctor's visit as being to a specialist, compared to 28% of non-Hispanic Whites. Hispanics' access to specialists is limited whether or not they are insured, although it is more pronounced among the uninsured.[83]

Another study echoed these findings. Among adults with chronic health conditions in 2004, Hispanics were less likely (37.4%) than non-Hispanic Whites (52.8%) to report that their doctor recommended seeing a specialist.[84] Other studies have found that Latinos report access to specialty care being a problem. Hispanics in the Southeast U.S. stated lack of access to specialists as a gap in the health care system.[85] When examining access among Latinos who needed specialty care, 12.2% reported that seeing a specialist was a "big problem" compared to 6.4% of non-Hispanic Whites.[86]

Limited Cultural Proficiency of Health Care Providers

There is an immediate need for health care professionals to be trained in Latino-specific cultural and linguistic issues, including an understanding of the diversity that exists among the Hispanic population. Essential areas include basic knowledge about the health care systems of immigrants' countries of origin; the potential impact of family members and friends serving as patient translators; and an awareness of core Latino cultural constructs and their impact on heart health beliefs, prevention, and treatment frameworks. In addition to training existing professionals, there is a long-term need to develop a significant cadre of bicultural health care professionals such as nurses, nutritionists, and exercise physiologists. Furthermore, researchers have proposed developing a credential that would document a provider's cultural competencies, which would be applicable to any particular ethnic group.[87]

Existing programs working toward this goal have already shown good results. The Diversity RX initiative is one such model for promoting the provision of bilingual health services.[88] Among other activities, it uses multilingual family health workers who provide interpretation, advocacy, and patient education services at clinics. Similarly, Kaiser Permanente of California has developed a wide range of strategies for providing better language services in Spanish-dominant regions including training bilingual/bicultural staff with other functions to serve as interpreters, and providing compensatory pay for their additional services,[89] as poor Hispanic representation at all levels of the U.S. health care system workforce has been associated with less sensitive and accessible care.[90]

Research findings also point to the presence of a frequent disconnect between providers and patients, which can have a negative impact on health outcomes. Inadequate or poor communication, combined with structural barriers, frequently engenders mistrust, resulting in negative behaviors such as avoidance of care. Further research is needed to establish a better understanding of such patterns and facilitate the development of tools to overcome them. Standardization of and certification for language interpreters is also needed.

C. PROTECTIVE FACTORS

The Latino community generally demonstrates a holistic view of health where mind, body, and spirit are nurtured to achieve optimal health. For many Latinos, *el corazón* (the heart) is

not only the organ that sustains the body, but an emotional zone encompassing personal well-being, attitudes, values, and relationships. Often, these are inextricably linked, with a corresponding impact on health. In a recent study on personal resilience, researchers cited the importance of feelings in Latino culture, emphasizing the importance of communicating *"de corazón a corazón,"* or heart to heart.[91] Another study articulated the significance of *confianza* (trust), *personalismo* (personalism), and *respecto* (respect) as core values in Latino culture, which provide an emotional "home base" rooted in strong family ties and cultural grounding.[92]

Likewise, in a report on mental health and culture, the Surgeon General of the United States Public Health Service identified factors associated with resilience in Latinos during times of crisis.[93] These include strong family involvement and loyalty, a desire to maintain cultural traditions, and the capacity to function in both traditional Latino and more mainstream American arenas. These and other factors have commonly been associated with individual well-being, including heart health and mental health.

It is theorized that these factors may contribute to the phenomenon widely referred to as the Hispanic Paradox. This term refers to statistical findings indicating that, in aggregate, Latinos are significantly healthier than analyses of their socioeconomic indicators would predict. For example, public health experts have found that measures of infant mortality and overall mortality in Latino communities defy the links typically found between these indicators and various factors of disadvantage such as poverty and low levels of education.[94]

This trend has been researched extensively without any definitive conclusion or explanation. Some attribute the phenomenon to issues related to immigration, including place of birth and health practices in the country of origin, while other research implies that cultural factors such as lifestyle, diet, and the influence of familial and social support systems may also matter greatly.[95] Research shows that this discrepancy can be attributed directly to elements of Latino culture, having documented that mainstream health problems become more prevalent as immigrant Hispanic populations become more Americanized.[96] Furthermore, it is suggested that if Latino health outcomes are better understood, the trends reflected in the Hispanic Paradox might contribute to a healthier U.S. population—a direct health benefit of diversity.[97]

EFFECT OF BARRIERS ON LATINO HEART HEALTH

In combination, socio-cultural and structural barriers have a negative effect on Latino heart health outcomes. Specifically, effects have been documented regarding treatment compliance, self-reported quality of life, and disease management. Each of these can severely impact the care a patient receives and, ultimately, recovery, engagement in preventive behaviors, or development of other cardiovascular diseases.

Compliance

Poor compliance with a prescribed treatment leads to inadequate treatment and control of a disease, which results in poor health outcomes. Latinos have lower levels of treatment compliance due to factors such as a lack of awareness, high cost of health care and medications, challenges with health literacy, and cultural beliefs about medicine which impede management of health conditions. Additionally, perceived low severity of the symptom has been found to be one of the strongest predictors of low compliance, which is related to increased patient confidence in the ability to self-manage disease.[98]

A 2005 literature review of patient adherence to prescribed medication concluded that two of the top predictors of poor compliance were a lack of belief in the benefits of the treatment and inadequate insight into the nature of the illness.[99] Both of these factors are prevalent in general characterizations of Latino knowledge of and

attitudes toward health care. The same review concluded that adherence could be improved by using four general types of interventions: increasing emphasis on the patient education process, simplifying dosage regimens, lengthening office or clinic hours to provide greater access and reduced waiting time, and improving patient-physician communication.[100]

Health-Related Quality of Life

Health-related quality of life (HRQL) refers to the perception of how illness influences one's physical, emotional, and social well-being.[101] An important indicator, HRQL can affect an individual's compliance with treatment, disease severity, and clinical management. Research has indicated that Hispanics with coronary heart disease report poorer HRQL scores than their non-Hispanic White counterparts.[102] These findings can be extended beyond the impact of the illness itself to the experience of the patient in the treatment process. For example, a 2008 study of racial and ethnic differences in the concerns that diabetic patients expressed about their medications revealed that in comparison to non-Hispanic Whites, Latinos had significantly greater concern about the impact of diabetes drugs on their quality of life.[103] Their perception of the inconvenience of dependence on these medications was hypothesized to affect their willingness to commit to a multi-medicine regimen as the standard of care for diabetics.[104]

In a mid-2000s study on adults with heart failure, comparisons were made among non-Hispanic Whites, non-Hispanic Blacks, and Hispanics.[105] Of the 1,212 study participants, 19% were Black, 18% Hispanic, and the rest non-Hispanic White (63%). Study findings indicated that perceived HRQL improved more over time in Hispanics with heart failure than in their non-Hispanic White or non-Hispanic Black counterparts after controlling for demographic, clinical, and treatment group differences. One explanation offered was that many Hispanics believe that symptom remission represents the cure of an illness.[106] Another possible explanation was that Hispanics are able to draw strength from their past experiences, have a strong social support network, and are able to connect spiritually—leading to a perceived higher HRQL status.[107, 108]

Management of Condition

Research has identified a number of cultural barriers to effective chronic disease management. A 2007 study of the use of insulin in type 2 diabetes patients found that many Latino participants had little belief that their actions could alter their fate, also known as *fatalismo* (fatalism),* which often affected their willingness to play an active role in their own treatment plans and can result in inadequate self-care.[109]

Recent studies have demonstrated the importance of a patient's perceived self-efficacy on cardiac outcomes. A California study on heart failure patients found that Hispanics had higher rates of rehospitalization, increased days spent in the hospital, and increased hospital charges when compared to non-Hispanic Whites. Hispanics were also more likely to be rehospitalized multiple times.[110] Although causes of high rehospitalization rates are unclear, it is thought that poor self-care, variation in medical care delivery, and health care access barriers are correlated with this increased risk for Hispanics.[111]

A 2006 study examined the association between minority status and confidence to self-manage CVD for patients who were newly discharged from the hospital after an acute cardiac episode.[112] The participants' confidence to self-manage chronic disease was assessed, as was cardiac functional status.[113] The study found a substantial racial/ethnic disparity in confidence to self-manage, with 36.5% of Hispanic patients, 30.7% of Black patients, and 16% of White patients falling in the lowest confidence quartile. However, upon controlling for poorer health and disadvantaged socioeconomic circumstances, the association between race/ethnicity and confidence levels was no longer apparent.

Being able to manage a health condition is a critical factor for health outcomes. This involves high-quality treatment, good patient-provider

* *Fatalismo* is the belief that the environment controls the outcomes of one's life.

communication, and a personal commitment from the patient and his or her family to follow the prescribed treatment.

PROGRAMS THAT ADDRESS LATINO HEART HEALTH

Given the multitude of challenges that Latinos face and how they affect Latinos' heart health status, there is a need to develop programs that address those challenges while making use of the protective factors that the community already possesses and employing the most up-to-date health outreach strategies. An examination of the literature suggests that the most successful programs share the following elements: they are designed or tailored specifically for Hispanics, they make use of the Latino cultural belief of *personalismo* (personalism),* they directly address the barriers that participants face, and they make use of the media. A sampling of programs, described in detail below, serve as promising practices to improve Latino heart health.

DISEASE MANAGEMENT

Telephone Case Management[114]

For patients with heart failure, disease management is important for preventing further events. A study on telephone case management for patients with heart failure found that Hispanics (primarily of Mexican descent) had shorter hospital stays, lower hospital costs, fewer instances of rehospitalization, and higher patient satisfaction compared to Hispanics who received usual care.[115] This analysis served as a foundation for the development of a culturally relevant telephone case management program targeting Latino heart failure patients. Values such as *personalismo* were incorporated into the intervention, and bilingual/bicultural health care providers and researchers collaborated in delivering and implementing this study. Although the intervention group initially reduced acute care resources, no significant group differences were found in heart failure hospitalizations, readmission rates, length of hospital stays, hospital costs, mortality, HRQL, or depression.

Limitations to this intervention included difficulty reaching patients due to their moving among different households or traveling back to Mexico. In addition, these patients were more ill and further along in the progression of the disease, were more functionally limited, and had poorer HRQL, which may have decreased their enthusiasm for self-care. Results from this study suggest that telephone case management is not a sufficient method to improving outcomes in Hispanic patients with heart failure, even when delivered in a culturally and linguistically appropriate manner.

PROMOTORES PROGRAMS

As defined by the organization Latino Health Access, *promotores de salud* are well-trained, locally hired health workers who bring much-needed prevention skills and knowledge to diverse Latino communities.[116] *Promotores* play an important role by connecting with community members on a personal level, enabling them to effectively reach local audiences with key health messages. America Bracho, President and CEO of Latino Health Access, refers to this as the "black box of tricks" that *promotores* employ so that education and transformation occur.

In addition to directly transmitting information and encouraging their clients, *promotores* also help build community capacity for continued health advocacy activities. When their activities are complete, they leave behind skills and knowledge that link community members to health providers for longer-term impact. Frequently, they help empower communities to advocate for policies, programs, and funding streams that support their work within the communities. Further research is needed to better understand the characteristics of *promotores* themselves and how these characteristics impact the health of Latino communities. There is also a need to develop tools and curricular resources that are specific to the distinct contextual needs of diverse

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* *Personalismo* is the strong feeling of the importance of personal relationships.

Latino communities. The following are several examples of effective *promotores* programs.

Border Health *¡SI!*[117]

The Border Health Strategic Initiative (Border Health *¡SI!*) developed a culturally relevant diabetes outreach and education program using *promotores de salud*. This model used a five-week series of diabetes education classes designed to assist participants in gaining the knowledge and skills needed to become physically active, control their diets, monitor their blood sugar, take their medications, and be aware of complications of diabetes. Two Arizona border communities, Yuma and Santa Cruz, were used for this study; this three-year program was created in 1997 for Santa Cruz (n=406) and adapted for Yuma (n=376) in 2000.

Both communities used community health care providers to implement the patient education component. Collaboration occurred between the community health centers and local hospitals in order to facilitate education classes, train *promotores* in diabetes care, and work individually with participants. The diabetes education curriculum was based on the American Diabetes Association Standards of Care. *Promotores* provided outreach, assisted participants in incorporating self-management behaviors into their lifestyles, and offered ongoing support and follow-up. Whereas the Yuma community had four *promotores* and was able to fully implement the *promotores* model, the Santa Cruz community relied upon one *promotora* who provided telephone follow-up on the days of the diabetes classes.

Self-management practices were assessed through pre- and follow-up questionnaires administered by the *promotores* at baseline and six months post-intervention. Health outcomes monitored were blood glucose, blood pressure, weight, and HbA1c (a test that measures the amount of glycated hemoglobin in your blood to determine diabetes). A random sample from Yuma was used to coordinate in-depth interviews of participants in the second and third years of the program. These interviews explored diabetics' perceptions before and after the program, the role of family in self-management, changes in self-management practices, and ongoing barriers to diabetes control.

This program was able to significantly decrease blood glucose levels and blood pressure. Self-management behaviors (diet, foot care, and glucose monitoring) also improved from the intervention. The in-depth interviews found that participant attitude toward diabetes changed from ignorance and fear to acceptance and control. Overall, this program was successful in creating a link between the Hispanic community and health care providers—moving individuals with diabetes to adopt self-management practices—and ultimately improving patient health outcomes.

Camino por Salud[118]

A 36-week walking intervention for Mexican Americans, *Camino por Salud*, was implemented in San Antonio, Texas in order to study the effects of physical activity on coronary heart disease health risks. Serum lipid levels, body fat, blood pressure, and adherence to physical activity were measured during this study. Participants were obese Mexican American women between the ages of 45 and 70 who were also sedentary. *Promotores* implemented the walking intervention. Two treatment groups were created—one group (n=11) walked three days per week and the second group (n=7) walked five days per week. Each walking session lasted 30 minutes and participants either walked by themselves or joined the *promotores*-led walks in the local communities. In addition to the walking sessions, *promotores* held educational sessions on heart health information such as diet and cooking methods.

While measures for body fat and weight decreased and lipid profiles improved over time, neither group was able to meet its walking goals, and dropout rates reached 50% by the end of the intervention. These results indicate that increasing physical activity among

older sedentary Hispanic women can reduce cardiovascular disease risks, but more research is needed to identify large-scale interventions that maintain long-term participation in physical activity.

Formando Nuestro Futuro[119]

A community-based participatory research project, *Formando Nuestro Futuro*, focused on type 2 diabetes in Mexican American agricultural workers in southeast Idaho. Implementation was from 2004 to 2009, with a target goal of 250 Hispanic individuals ages 12 and older who have at least one family member working or who previously worked in agriculture. Measurements included qualitative interviews (n=172) on knowledge of type 2 diabetes, biometric data (e.g., blood glucose, BMI, and blood pressure), and focus group discussions.

Promotores delivered educational sessions, healthy cooking classes, and aerobics classes. Bilingual materials were developed for the recruitment process and were used in local radio programs and newspapers, as well as local businesses and churches. Family home visits by *promotores* were conducted one or two times per year during which time biometric data were collected, and individuals found to have abnormal blood glucose or blood pressure were referred to the community health clinic for follow-up. The *promotores* facilitated this process by setting up the clinic appointments for these participants and providing interpretive services during the appointments if needed.

In addition to data collection, a series of education modules were presented by the *promotores* during the home visits (results about the effectiveness of these education modules is not yet available). Interviews were also conducted in order to obtain a detailed understanding of individuals' ideas on diabetes (e.g., where it comes from, how you get it, its symptoms, and how to treat it) and obesity (e.g., ideas about body image, cultural meanings of being overweight). Preliminary findings from the qualitative data indicate that many of the participants attribute diabetes to Latino "folk illnesses" such as *susto, corajes*, and *nervios*. However, participants also expressed a willingness to learn about and understand the "biomedically recognized" interactions between diabetes, diet, exercise, and their ability to manage symptoms of diabetes.

Salud para su Corazón[120]

In 1994, the National Heart, Lung, and Blood Institute began development of a heart health community-based outreach and CVD prevention program, and in 1996 this program partnered with NCLR. The purpose was to reduce CVD risk factors and promote heart-healthy behaviors among Latinos using the *promotores de salud* model. The curriculum, "Your Heart, Your Health," was based on *promotores* delivering two-hour educational sessions on heart health, totaling seven sessions. Evaluation of the *promotores* for this project included pre- and post-tests of heart health knowledge, self-skill behaviors, number of sessions delivered, and testimonials of their experiences delivering the health sessions. Participants were measured on CVD risk factors of families.

Promotores used various teaching techniques such as self-discovery, empowerment, and clarification of values based on storytelling, poems, songs, cultural symbolism, hands-on activities, role-playing and simulation, food demonstrations and displays, audiovisuals, and *charlas*. Evaluation of the *promotores* indicated an increase in knowledge and performance skills; a progression toward goals set for training, recruiting, and teaching; and an increase in *promotores* providing follow-up and organizing community events. The train-the-trainer model was effectively applied in each setting allowing for more cost-effective approaches to training *promotores* and educating community members.

First-year implementation of *Salud para su Corazón* demonstrated that *promotores*-based partnerships are feasible in low-income Latino communities.[121] In 2001, the program was taken to a larger scale and implemented in seven sites throughout the country, reaching 223 Latino families with a total of 33 *promotores* in

California, Illinois, New Mexico, Texas, and Rhode Island. Education sessions were held primarily in family homes and community centers; churches, schools, and community health centers were also used. Families showed improvements in health behaviors such as engaging in physical activity and limiting or reducing sodium, cholesterol, and fat intake. Participants who attended the educational sessions were referred for health screenings for diabetes, cholesterol, and blood pressure, and the vast majority (90–100%) of participants referred at five of the seven sites received the recommended screenings. In addition, families showed an 18% improvement on self-reported heart-healthy behaviors, and 96% of participating families reported being very satisfied with the program.

Self-Management Program[122]

A six-month *promotores*-led diabetes self-management program for Mexican Americans was implemented in a Texas border community. This program contained two components: provider activities and patient population activities related to the use of the program. The intervention consisted of a ten-week diabetes self-management course taught by *promotores* who were employed by the clinic and supervised by the nurses. Course content was presented in Spanish and was culturally sensitive, using pictures, activities, and discussions to teach about diabetes self-management.

The *promotores*-led program was compared to a similar group receiving conventional diabetic care at the same community health clinic. Study measurements included knowledge and beliefs about diabetes and self-management as well as clinical measurements such as HbA1c levels. Bilingual materials were used for the self-management classes and evaluation instruments. The results of this program include a significant improvement among the intervention group in diabetes knowledge; however, HbA1c levels did not improve (baseline measurements indicated HbA1c levels close to recommendations, suggesting that participants were already receiving good medical care within the community). Among the two groups, there were no significant changes in health beliefs across the length of the study. The health beliefs questionnaire used in this study was adapted from an instrument designed for English-speaking, literate adults; therefore, this instrument may be culturally appropriate or sensitive for a low-SES Mexican American population.

Based on the positive results in knowledge, this program demonstrates that trained *promotores* working within an established clinic self-management infrastructure, supervised by clinic providers, can effectively teach diabetes self-management to a low-income Latino community. The use of *promotores* can enhance cultural sensitivity, increase patient understanding and implementation of healthy behaviors, and increase chronic disease self-management among vulnerable Latino populations.

SONRISA[123]

A curriculum tool kit, SONRISA was developed to address mental health and diabetes among a Mexican American border community in Arizona in 2006. Focus groups, pilot-testing, and communication with collaborating community partners were used during the development of the curriculum. Feedback from the *promotores* included suggestions for improvement by changing some of the wording to everyday language, including more stories and role-playing to make the content more relatable, and engaging the entire family and communities in the education processes. The tool kit is currently being implemented in the Southwest Center for Community Health Promotion project (a community-based participatory intervention and research program funded by the CDC). Program results are not yet available.

Un Corazón Saludable[124]

During 2003–2005, *Un Corazón Saludable,* a bilingual physical activity and health education program for Latinas, was implemented in a low-income urban community in Philadelphia, Pennsylvania. Participants were primarily of Puerto Rican descent (74%). Cardiovascular disease and depression were the focus of the health education modules, and cardiac,

psychosocial, and metabolic risk factors were measured. Three days a week, participants met for one-hour salsa dancing aerobics classes. Following the exercise classes, the education modules were delivered to participants in 30-minute presentations. There were 12 program sessions in the first year and 16 in the second. Topics covered in the educational models included a healthy diet, healthy cooking based on Latino recipes, how to recognize cardiovascular risk factors, recognizing the symptoms of depression and its impact on health, and the importance of physical activity in daily life. Half of the participants completed the two-year program; the majority of women who dropped out were caregivers, were on welfare, had more people living in their homes, had higher depression scores, and had little moral support in their lives.

This intervention resulted in participants losing weight and improving self-rated health; however, blood pressure did not improve, likely due to the low blood pressure levels at baseline. Depression scores improved among the individuals who completed the program, even with moral support and stress measurements remaining unchanged between pre- and post-intervention. Knowledge about health from the education modules did not improve significantly, even though participants reported having learned a lot. This suggests that health literacy issues could be impeding survey comprehension and program results. Future interventions should include the family in order to address moral support issues. It is unclear whether *promotores* were used to deliver the education modules or aerobics classes; however, instructors were bilingual.

SOCIAL MARKETING

Social marketing involves applying marketing practices to create specific behavioral change for a social good.[125] Population Services International describes social marketing as "an effective way of motivating low-income and high-risk people to adopt healthy behavior, including the use of needed health products and services."[126] Such practices are essential to reaching Latino communities with accessible health messages needed to bring about improved health outcomes.

Promotores can be effectively integrated into social marketing campaigns. However, appropriate tools must be developed to empower and inform them and the communities they serve. There is a significant need for original Spanish-language and culturally relevant materials created specifically to meet the needs of Latino communities, rather than translated or adapted from mainstream tools. Likewise, appropriate media contacts and outlets must be engaged in order to effectively reach Latinos and highlight community-based health care models and programs.

Washington Heights-Inwood Healthy Heart Program

The Washington Heights-Inwood Healthy Heart Program was a six-year intervention that began implementation in 1988, targeting an inner-city neighborhood in New York City. This community was mostly Latino (66%), with one-sixth of the population being Black and the remainder being White. Using a community health education model that integrated social marketing techniques and community activation to change health-related behaviors, this intervention's goal was to reduce the prevalence of cardiovascular disease risk factors such as smoking, sedentary lifestyle, obesity, hypertension, and hypercholesterolemia. This campaign included multiple components to address these goals.

One focus of the campaign was on preschool children; this population was targeted to decrease intake of saturated fat without compromising calcium intake by substituting low-fat milk (1%) for whole milk. To reach this very young population, a Disney-like cow character, Lowfat Lucy, was developed as a messenger for promoting low-fat milk. Other strategies included outdoor taste tests; low-literacy print materials; public service announcements on Spanish-language television; policy changes on the availability of low-fat milk in child care centers, school lunch programs, and local bodegas (community grocery stores); and

contests between schools and communities to promote low-fat milk. These efforts were very successful. Lowfat Lucy presentations were in high demand, and more students began choosing low-fat milk at lunch. Among the 22 schools or child care centers not offering low-fat milk options prior to the intervention, 14 began doing so after the campaign.

Another campaign focus was on encouraging Latino adults to engage in more physical activity. Directed at sedentary people, volunteer-led exercise clubs were developed. Activities included stretching, calisthenics, and low-impact aerobics. During implementation (1992 and 1993), more than 1,200 individuals participated (90% were Latina women, two-thirds of them between the ages of 18 and 39).

Given the lack of tobacco-related health promotion materials in Spanish that carry positive health messages, especially messages tailored for youth, smoking was targeted in this program. A 16-minute Spanish-language smoking cessation video, "*Usted Puede Dejarlo*," was created featuring local community figures. This video contained interviews with smokers who had successfully quit discussing their individual reasons for quitting, the benefits of not smoking, and the obstacles they had to overcome. The video was distributed to local doctors' offices, teachers for parent education activities, and community-based organizations (CBOs).

Cholesterol screening and education was another focus of the program. For more than a year, cholesterol screening, individualized counseling, and physician referrals were conducted at community sites reaching more than 4,000 community members. Although popular, the activities were labor and resource intensive. Community-based organizations were unable to sustain these programs on their own due to the technical requirements of screening, counseling, and referrals. The program was terminated after the city health department made licensing requirements more stringent. Physicians were targeted and encouraged to promote heart health in their practices by reinforcing messages about factors influencing cholesterol levels, such as low-fat milk consumption; however, many challenges limited the success of this strategy. Among these was the prevalence of competing demands for the physicians' time and attention. Bilingual materials were placed in physician offices, but few offices requested additional materials. A local media society promoted educational seminars on cholesterol management, but few people participated in the seminars.

Budget restrictions limited efforts to evaluate changes in knowledge, attitude, or behavioral outcomes in all components but the low-fat milk campaign. From the data collected, results indicated that the low-fat milk campaign, the exercise clubs, and the smoking cessation video were all successful in reaching large audiences and demonstrated a potential for effecting long-term behavior and policy change. However, the cholesterol screening activity and the outreach to physicians were not sustainable by the community beyond the six-year funding period.

With a significantly reduced budget, this program was transferred to a local CBO, the Dominican Women's Development Center, which maintained the exercise clubs and low-fat milk campaign in addition to a new component focused on nutrition and health education materials designed for English-as-a-second-language (ESL) classes. These classes reached roughly 5,400 community members each year.

The experience of this program indicates that a community-based prevention program to reduce cardiovascular risk can be feasibly implemented in a low-income, predominantly Latino, urban community. However, appropriate relationships between the program, community leaders, and community organizations must be established for implementation of such a program.

HEALTH MATERIALS

Effective public health campaigns rely greatly on the development and dissemination of

appropriate health materials. In the Latino context, this means that they must be developed with a specific focus on the communities they will serve, rather than adapted or translated from mainstream materials already in use. Training tools must be basic and clear enough to target individuals with either Spanish or English dominance at all literacy levels. Community-based organizations and the *promotores* who serve them should be involved in every step of the development and testing of interventions, evaluations, and materials, specifically through the thoughtful application of community-based participatory research techniques. Finally, campaigns must be evaluated for their effectiveness, and those findings should be applied to guide evidence-based practices. This is of particular importance as public funding for many programs is increasingly directed toward evidence-based practices that are seldom developed for and by Latinos.

OTHER PROGRAMS

Language for Health

Language for Health, a six-month federally funded initiative to develop a heart disease prevention intervention for a low-English-literate population, was developed in San Diego, California. Recent immigrants (n=732) were enrolled in ESL classes designed specifically for low-English-literate adults that incorporated nutrition education (intervention group) or stress management (control group) into their curriculum. Measurements for this study included blood pressure, cholesterol, waist and hip circumferences, and weight. Additionally, self-report surveys were administered to collect participants' nutrition-related knowledge, attitudes, dietary behaviors, and demographic information.

Based on principles of social cognitive learning and operant theories, the curriculum was adapted to address ESL students' needs. Exposure consisted of five three-hour classes over a one- to two-week period. Nutrition classes covered topics such as understanding dietary fat and cholesterol, food classification, modifying eating habits, reading food labels, understanding blood pressure and its relationship to salt intake, shopping for low-fat and low-cholesterol foods, and modifying recipes. Stress management classes included topics such as defining and identifying stressors, stress reduction techniques, and application of such techniques to one's own life. All classes were delivered by ESL teachers who were compensated for training. Both groups saw decreases in their total cholesterol levels and systolic blood pressure. However, initial results were greater among the nutrition education groups; this difference disappeared by the six-month follow-up. Among the nutrition education group, avoidance of fatty foods was greater than the control group, in addition to greater improvements in nutrition knowledge. The stress management group, however, saw greater increases in stress knowledge than the nutrition group.

It should be noted that the research methodology allowed the possibility of data contamination—a potential distortion of findings caused by the likelihood of information-sharing between members of both groups. Such exchanges were unintentionally facilitated because the classes were held in the same building and those in the control group were likely to gather some of the nutrition education information from friends and family. In addition, the stress class curriculum had a holistic orientation in which many teachers promoted healthy eating as a method for managing stress. Results indicate that an ESL-based curriculum on heart health promotion can lead to positive outcomes and can reach a population that has traditionally had limited access to public health messages.[127]

Nutrition Interventions

Common among many programs targeting Latino populations, these studies are designed to focus on women. This population is often targeted because Latina women traditionally do most of the grocery shopping and meal preparation for their families. By assuming this role, Hispanic women can have substantial impact on their family members' dietary behaviors and nutritional consumption.[128]

POLICY AND PROGRAM RECOMMENDATIONS

Based on the experience of NCLR and the success of the models it explored in this report, we recommend the following to improve Latino heart health:

New Health Education Models. There is a need to develop socio-environmental models that are dynamic and flexible and incorporate the specific risks as experienced by diverse Latino groups living in varied communities and contexts. This includes the development of models that are appropriate for low-income immigrant communities as well as Spanish-speaking Latino communities.

Creation of a Policy Agenda. Linking prevention and treatment programs with a policy agenda can help increase opportunities for long-term funding and integration of community-defined evidence-based practices into broader use. Given that disease-specific policies compete for attention with other diseases/illnesses policies, linking programs to a policy agenda may increase the political will to address cardiovascular disease.

Eliminate Barriers. Barriers that contribute to Latinos' inability to access care and follow prevention and treatment regimens (e.g., transportation, child care) must be addressed. Other disease states have done this with varying degrees of success. For example, breast cancer advocates have established a model of care and support which ensures that women have access to early detection, treatment, and follow-up by providing transportation vouchers and child care subsidies. These services are supported by a web of government, nonprofit, and corporate funding. Support for similar models is needed for other disease states such as cardiovascular disease.

Develop Corporate-Community Partnerships. Understanding that government and local communities cannot address all of the factors that increase Latinos' risk for cardiovascular disease, it is critical that corporate America join forces with them to create effective and sustainable partnerships. Specifically, corporations can serve as funders of local interventions, champions of effective programs, and providers of needed services. These partnerships should be long-term and sustainable at the community level rather than one-shot activities or projects that serve to gain name recognition for the corporate partner.

Incorporate Latino Families into Care. Latinos place a high value on family ties. To effectively treat Latino cardiovascular patients, oftentimes the patient's family must become involved. *Familismo* (familism)* is generally viewed as having protective effects for Latino families. Models should be developed which incorporate this unique characteristic into care.

Develop Evaluation Tools. New ways of measuring behavioral change must be developed. However, these new strategies must be grounded in the reality of the community. Within many communities, there exists anecdotal evidence of behavior change that is not captured with traditional evaluation tools. Working in concert with community members, researchers should create applied research methods and strategies that reflect the realities of the community and take into account the challenges of implementing interventions in low-income and immigrant communities.

Partner with Community-Based Organizations. There is an overwhelming need to increase the number of providers grounded in the community context who can provide culturally and linguistically competent care to Latinos. As such, the creation of fellowship, scholarship, and training opportunities linked to CBOs that specialize in Latino health for future health care providers would increase the pipeline of providers who specialize in this arena. Additionally, linking CBOs and schools of public health and medicine would increase the capacity of future providers to collaborate and thus better address the Latino context of disease. Finally, many *promotores de salud* programs are based in CBOs. By partnering with CBOs, providers can augment the services

* *Familismo* is the strong feeling of the importance of family relationships.

they provide and ensure that their patients continue to receive information.

Increase the Pipeline of Culturally and Linguistically Competent Providers. There is a need to create training programs and models for physicians and nurses to equip future health care providers with an understanding of the health care and prevention needs of the diverse Latino population. An example of such training programs is the Program in Medical Education for the Latino Community (PRIME-LC) at the University of California, Irvine's School of Medicine. This innovative five-year program provides medical school students with an opportunity to focus on Latino health issues and complete post-graduate work in environmental health, science, and policy with an emphasis on Latino health care disparities, public health, or health care policy.

ENDNOTES

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