

THE NEW YORK CITY COMMUNITY OUTREACH STUDY: BIOMEDICAL AND MENTAL HEALTH STATUS AMONG A COMMUNITY SAMPLE OF URBAN HISPANICS

Objective: This report provides a snapshot of health behavior and risk in one low-income, urban, Latino community. As part of a community health and education program, 200 adult residents were asked about their health status and behavior and screened for conditions known to constitute significant health risk.

Design: A random sample of 10 buildings around a large community-based organization (CBO) service area was selected to receive personal invitation and/or door-to-door flyers announcing several days of free health screening and education at the CBO. All individuals age ≥ 18 years were eligible. Those who received screening were mailed lay descriptions of their results along with recommendations and locations for follow-up, if appropriate.

Setting and Participants: Participants were adult residents of an economically and medically under-served district in New York City, where Latinos make up $\approx 75\%$ of the population. Free screening for high blood pressure, diabetes, high cholesterol, obesity, and depression was provided.

Main Outcome Measures: The clinical outcomes of the aforementioned tests constitute the main outcomes of this report.

Results: Compared to national estimates for Hispanics, health risk was quite high in this sample, particularly with regard to diabetes and cholesterol. Moreover, participants were much less likely to have insurance or to have a regular source of health care than reported in national studies of Hispanics.

Conclusions: Though site specific, these data provide critical information to local CBOs and can be used as a tool for comparison with national data and *Healthy People 2010* goals. (*Ethn Dis.* 2007;17:99–105)

Key Words: Health Status, Hispanics, Screening

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INTRODUCTION

To facilitate the *Healthy People 2010* goals of identifying significant and preventable threats to good health, considerable effort is required to assess and address the health status and needs of disadvantaged populations, including immigrants and those with minimal socioeconomic resources. Important first steps include obtaining accurate measures of health indicators and disease prevalence for different subgroups, as well as developing an understanding of the factors that affect their health. Health screenings are one mechanism to help identify those with specific conditions as well as risk factors for future health problems. On the individual level, screening may encourage persons to adopt healthier lifestyle behaviors. On a larger scale, screenings can inform outreach efforts among disadvantaged and under-studied populations. This report provides health screening results from one under-served, urban Latino community and constitutes a model for other community-based initiatives to assess and improve health among the under-served.

Health Status of Latinos

Numerous studies have pointed to complex patterns in the health status of Latinos who live in the United States. Broad generalizations are limited, however, as most research on the national level has been among Mexican Americans in the southwestern region of the country. Indeed, the amount and re-

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On a larger scale, screenings can inform outreach efforts among disadvantaged and under-studied populations.

gency of data, as well as the specific Latino subgroups examined, tend to vary in the literature by risk factor, including studies of hypertension, cardiovascular disease, high cholesterol, diabetes, depression, and others.

Selected Health Conditions

Traditional risk factors for elevated blood pressure include being overweight, physical inactivity, and depression, all of which are found at higher rates among Latinos than among others in the United States. This rate is sometimes masked in national data; for example, analysis of the National Health and Nutrition Examination Survey (NHANES) III data showed that, among the US adult population, the prevalence of hypertension among Latinos was similar to that in other groups.¹ Nonetheless, a disproportionate burden of hypertension-related cardiovascular disease falls on Latinos because of lack of awareness, reduced access to healthcare services, lower quality of medical care, later diagnosis, and greater severity of illness. The same study showed that Mexican Americans were much less aware of their high blood pressure and were less likely to receive treatment with antihypertensive medications. Less than one third (28%) of Mexican American men were taking antihypertensive medication for their high blood pressure, and only 14%

achieved control, in contrast to 25% and 24% of non-Hispanic Black and non-Hispanic White populations respectively with hypertension.

Elevated serum low-density lipoprotein (LDL) cholesterol and low serum high-density lipoprotein (HDL) cholesterol are also strong predictors of heart disease. Specifically, levels >160 mg/dL for LDL cholesterol are deemed to be a major risk factor. According to the Hispanic Health and Nutrition Examination Survey (HHANES), 26% of Puerto Ricans, 21% of Cubans, and 17% of Mexican Americans had LDL cholesterol levels ≥ 160 mg/dL. Although these proportions are similar to those estimated for all Americans (20%), higher risk among Latinos is associated with lack of awareness of the disease. The San Antonio Heart Study found that, compared to 24% of Whites, merely 7% of Mexican Americans were aware that they had high total cholesterol.²

Type 2 or adult-onset diabetes accounts for $>90\%$ of the total cases of diabetes in the United States and appears to affect ethnic and racial groups differently. Some estimates report that, compared to African Americans and Whites, Mexican Americans have a much higher prevalence of the disease.³ At particular risk are the 5.9 million Americans who are unaware that they have diabetes. According to NHANES, 45% of Mexican Americans with diabetes were not previously aware that they had the condition, compared to 27% of Whites.⁴ Finally, two clearly identified risk factors for type 2 diabetes are obesity and physical inactivity. The HHANES reported that Latinos had substantially higher rates of overweight and obesity than those reported for non-Hispanic Americans ages 20–74.⁵

Latinos are at particular risk in other health arenas as well. Although national and regional surveys indicate that smoking rates among Latino adults are generally lower than among Whites

or African Americans, they are associated with level of acculturation, education, and gender.^{6–9} Generally, male Mexicans, Puerto Ricans and Cubans, and those with less than high school had higher rates of smoking than others.⁷

Research examining the prevalence of major depressive disorders has also produced findings relevant to acculturation among Latinos. One study conducted in Los Angeles found the lifetime rates of depression among US-born Mexican Americans (6.3%) to be double those of Mexican immigrants (3.3%).¹⁰ A similar study found that rates of depression among immigrants living in the United States for ≤ 13 years were lower than those among individuals who had been in the United States longer.

In addition to high risk in the above-mentioned areas, diagnosis and subsequent access to treatment are major issues within the Latino community. Studies have found that, among lower income individuals under the age of 65, Hispanics make up as much as 45% of those who do not have a regular source of healthcare.¹² These individuals are therefore left without the support of the healthcare system, which creates a situation in which risk factors and disease conditions go undiagnosed and untreated. The current study was undertaken to provide a more current snapshot of these health conditions among a Latino community in an urban, medically and economically under-served neighborhood in New York City.

METHODS

District 2 of the Bronx is an economically and medically under-served urban community located in New York City. The neighborhood is predominantly Latino; 75.8% of the population report Hispanic origin, 21.4% report Black/African American

non-Hispanic origin, and $\leq 1\%$ of the community report White non-Hispanic, Asian/Pacific Islander, or other race/ethnicity. The district has seen a considerable population increase in the past 10 years; an 18.7% increase was reported in 2000 (up from 14.7% in 1990), compared to a 9.4% increase for New York City overall and a 10.7% increase for the overall Bronx borough. District 2 has relatively dense households; 37% live in households with four or more persons. The median female age overall was 28.4 years, while the male median age was 25.2 years.¹³ The New York City Community Outreach Study, a collaborative research effort between Columbia University's Mailman School of Public Health and the Casita Maria community-based organization (CBO) was conducted among 200 residents of this community.

The CBO self-identified a five-block radius as their service area. A census of the identified area produced a numbered list of all buildings. A random sample of 10 buildings was selected, and flyers announcing the existence of a free risk factor screening were distributed to all residents within those buildings. If the apartment resident was home, a verbal description of the screening was given, informing the residents that a free health screening would be held at the CBO where blood pressure measurement, height and weight measurement, diabetes tests, and cholesterol tests would be provided, along with a brief health questionnaire. Residents were asked to maintain a 12-hour fast before the health screening so that valid glucose and cholesterol measurements could be obtained. Finally, they were informed that after the completion of the screening, participants would be served a breakfast and would be sent a \$30.00 money order for their participation. If the resident was not home, an information sheet was left under the door. Team members visited each building at least twice to ensure that as

many building residents as possible were reached.

Biomedical Measurements

When residents arrived at the health fair, they were given a brief overview of the project and were asked to sign a consent form if they wished to participate. Those who did were escorted to the screening area to begin biomedical assessments. Blood pressure was measured by using a standard mercury sphygmomanometer (W.A. Baum Co. Inc), with either a standard adult or large cuff, depending on the size of the participant's arm. Subjects were resting and seated while blood pressure was taken. Two consecutive blood pressure measurements were taken ≈ 60 seconds apart, and both systolic and diastolic values were recorded. The average of the two systolic measures and of the two diastolic measures was obtained. The fingerstick method was used to obtain blood samples for glucose and for total cholesterol, high-density lipoprotein (HDL) cholesterol, and LDL cholesterol. With the participant seated, the middle finger of the nondominant hand was swabbed with alcohol and then lanced. A capillary tube containing lithium heparin anticoagulant was used to capture fingerstick blood. The filled tube was then inserted into a calibrated Cholestech LDX Analyzer. Resulting cholesterol values were recorded on a data log. A second capillary tube was filled for the glucose test. After blood pressure was measured and blood for the glucose test and the cholesterol test was drawn, participants were asked to stand without shoes against the wall, where height in inches was recorded. Height was obtained by using a standard tape measure adhered to the wall near the blood pressure station. A standard scale (Taylor Professional) was used to measure weight. Participants were asked to remove shoes and heavy outerwear (eg, coats, sweaters) before being weighed. The average of two consecutive measurements in

pounds was recorded. Registered nurses and/or nurse assistants performed all biomedical measurements. A summary sheet of these measurements was given to the participants, along with explanations of the values. General risk cutpoints were provided on the summary sheet, along with recommendations to talk with a healthcare provider if values exceeded the cutpoints. A list of local healthcare providers and clinics, where participants could be seen free of charge, was also provided.

Survey

A 50-item health survey was administered to participants by trained interview staff in either English or Spanish. The content of the survey included demographic items, questions assessing history of health services and health conditions, family history of health problems, and the 21-item Beck Depression Inventory.¹⁴ To help eliminate reading comprehension bias, the trained interviewer read the demographic and health history items aloud to the respondent and recorded the results on the survey. For sensitive questions, the interviewer read the questions aloud while the respondent followed along on the survey and recorded his or her own answers on the survey. Once the health survey was complete, the interviewers again reviewed the biomedical screening results to help participants interpret the results.

The screening was held at the CBO for four days in the fall of 2001. A total of 200 community residents participated in the screening. Once all the data were entered, another information letter was produced and mailed to each participant with specific information tailored to the results of his or her individual test. The letters encouraged participants to seek care if their biomedical values were above established cutpoints, and the list of healthcare providers was again included, along with the \$30 money order for participation.

RESULTS

The study protocol restricted participants to those ≥ 18 years of age; as such, the age range of the sample was 18 to 91 years, with a mean (standard deviation) of 47.9 (19.1). Thirty-three percent of the sample was male. Most respondents indicated that they were of Hispanic descent; 40.7% of respondents indicated that they were born in Puerto Rico, 17.7% in the Dominican Republic, 5.2% in Mexico, and 15.1% in another Latino country. Sixty-seven percent of our sample reported Spanish as the primary language spoken at home.

Table 1 presents information about the sample relative to various administrations of NHANES, conducted by the National Center for Health Statistics, Centers for Disease Control and Prevention, as well as to the targets set by *Healthy People 2010*, established by the US Department of Health and Human Services. As Table 1 shows, this sample was much poorer, had less average years of education, was less insured, and had less access to care relative to the nation and to the national sample of Hispanics within NHANES. Smoking was somewhat higher than in the national sample and the Hispanic sample within NHANES, and was more than twice the 2010 target.

Risk Factors

Table 2 presents the biomedical and psychosocial factors assessed during the screening. Cut off values for obesity, cholesterol, and blood pressure were computed using National Heart, Lung, and Blood Institute (NHLBI) guidelines.¹⁵

Most (75.4%) of SBP and diastolic blood pressures (DBP) were within the normal range, although one-quarter (24.6%) of participants were classified as either high normal or as hypertensive. Using guidelines according to the American Diabetes Association,¹⁶ 25.4% of participants had glucose levels

Table 1. Comparison of sample vs national demographic characteristics and *Healthy People 2010* goals

Category	NY Sample	NHANES National	NHANES Hispanic	<i>Healthy People 2010</i> Target
Income per year	<\$5,000: 29.3% \$5,000–\$9,999: 32.4% \$10,000–\$14,999: 19.1% \$15,000–\$19,999: 8.5% \$20,000–\$24,999: 4.8% ≥\$25,000: 5.9%	Median: \$42,148	Median: \$33,447	
Education level (among those age 25–64 years)	<12 years 56% 12 years 19% >12 years 25%	<12 years 13% 12 years 33% >12 years 51%	<12 years 45% 12 years 23% >12 years 28%	
Insured	68.2%	85%	81%	100%
Access to care (has specific source of care)	25.6%	85%	76%	96%
Current smoking	26.1%	24.0%	19%	12%
Glucose levels (mg/dL)/Diabetes	% ≥126: 25.4% Mean: 119.58 Median: 104.00 Mode: 100.00	3.5 new cases/1000 population per year (1994–1996)	5.7 new cases/1000 population per year (1994–1996)	2.5 new cases/1000 population per year
Blood pressure	Systolic: ≥140 mm Hg: 21.7% Mean: 121.2 Diastolic: % ≥90 mm Hg: 11.4% Mean: 72.0	≥140 mm Hg: 28%	≥140 mm Hg: 29%	16%
Cholesterol (mg/dL)	Total cholesterol: ≥200: 37.6% ≥240: 10.1% Mean: 191.0 LDL: Mean: 113.38 Median: 112.00 HDL: Mean: 46.46 Median: 44.00	Both sexes 18.7% (≥200 mg/dL)	Male: 15.5% Female: 14.0% (≥200 mg/dL)	Reduce the proportion of adults with total blood cholesterol ≥200 mg/dL levels to 15.7%

NY=New York; NHANES=National Health and Nutrition Examination Survey; LDL=low-density lipoprotein (cholesterol); HDL=high density lipoprotein (cholesterol).

that met the definition for having diabetes.

Table 3 provides an estimate of the awareness of risk factor status. Participants were asked whether a doctor or other healthcare professional had ever informed them that they have a health problem related to their weight, cholesterol, blood pressure, or blood sugar or diabetes or have a problem with depression. According to their observed biomedical data and the appropriate cutoffs, approximately half of those who

were obese or who had high cholesterol were aware of the problem, whereas >90% of those with high blood pressure, diabetes, or depression were aware of the problem.

DISCUSSION

The main finding of this investigation is that a substantial proportion of low-income, largely Hispanic, urban residents are at risk for heart disease,

stroke, diabetes, and continued depression. The data suggest that those in the inner city may be at higher risk than our national samples have estimated and may require additional and perhaps novel modes of intervention. Additionally, data suggest that significant proportions of inner-city Latinos may be unaware of their risk for these conditions, which suggests a lack of primary care as well as curative health services. Limited access to appropriate screening and healthcare services may

Table 2. Biomedical characteristics of the sample

	Percent or Mean
Received health care in the last 6 months (%)	
None	33.8
Most common=clinic	46.1
If sick tomorrow, where would they seek health care? (%)	
ER	75.9
Clinic	16.9
Private	6.1
Other	1.1
Ever smoke cigarettes (% Yes)	41.5
Currently smoke cigarettes (% Yes)	26.1
Has a doctor or nurse ever told you that you have/were: (% Yes)	
High cholesterol	34.7
Overweight	11.5
Asthma	24.5
Depression	30.5
High blood pressure	34.9
Blood sugar problems (diabetes)	19.7
Kidney disease	5.4
Heart attack	6.7
Heart disease	5.3
On medication? (% Yes)	46.4
Beck Depression (%) (Beck, 1978)	
Normal	66.5
Mild mood disturbance	11.4
Borderline clinical depression	7.5
Moderate depression	10.13
Severe depression	4.4
Average Height (inches)/weight (lbs)	63.4/168.9
Obesity (BMI) (NHLBI guidelines) %	
Normal (BMI <25)	34.0
Overweight (BMI 25<30)	31.3
Obesity level I (BMI 30<35)	19.5
Obesity level II (BMI 35<40)	7.6
Obesity level III (BMI ≥40)	7.6
Average Total cholesterol (mg/dL)	191.0
Desirable <200	62.4
Borderline high 200<240	27.5
High ≥240	10.1
Average LDL (mg/dL)	113.4
Optimal <100	35.8
Near optimal 100–129	30.7
Borderline high 130–159	22.7
High 160–189	6.3
Very high ≥190	10.8
Average HDL (mg/dL)	46.5
Low <40	31.7
Intermediate 40<60	51.6
High ≥60	16.7
Average systolic BP (mm Hg)	121.2
Average diastolic BP (mm Hg)	72.1
Hypertension (mm Hg)	
Optimal: SBP <120 and DBP <80	0
Normal: SBP <130 and DBP <85	75.4
High normal: SBP 130–139 or DBP 85–89	15.9
Hypertension I: SBP 140–159 or DBP 90–99	7.7

The data [of this study] suggest that those in the inner city may be at higher risk than our national samples have estimated and may require additional and perhaps novel modes of intervention.

make gaining treatment for these conditions difficult. Before discussing the implications of these findings, several key limitations must be presented.

The external validity of these findings may be limited because of the nonrandom selection of subjects from the community. Although apartment buildings in the community were randomly selected, participants within buildings self-selected to participate. Those who self-selected may have been more concerned about, or more aware of, their health status. The effect of this self-selection on the observed values is unknown. Those with poor health status may have been motivated to attend so that they could verify or check their biomedical indicators, which would result in biomedical values that present a more severe picture of health status than would those from a random sample. Alternatively, health-conscious individuals could have been motivated to attend the screening to ensure that their test results were to be in a healthy range, which would have resulted in a healthier picture of the community. The results, therefore, may only be generalizable to those in the community surrounding the CBO who were ≥18 years of age and were motivated to attend a health screening.

The internal validity of the study may have been compromised by a variety of issues. The reliability of the measurements may have produced inaccurate or

Table 2. Continued

	Percent or Mean
Hypertension II: SBP 160–179 or DBP 100–109	1.0
Hypertension III: ≥ 180 or ≥ 110	0.0
Average Glucose (mg/dL)	118.0
Diabetes (Glucose ≥ 126)	25.4

ER=emergency room; Hgt=height; Wgt=weight; BMI=body mass index; NHLBI=National Heart Lung and Blood Institute; BP=blood pressure; SBP=systolic blood pressure; DBP=diastolic blood pressure.

highly variable values, resulting in inappropriate applications of test procedures and cutpoints. Although measurements may have been taken with imperfect reliability, several factors support the reliability of the constructs. The blood values (glucose and cholesterol) were obtained by using an industry standard machine that was calibrated twice a day by using standardized protocols implemented by trained nurses and nurses assistants. The protocol also stressed that participants should arrive at the screening after fasting for 10–12 hours. Most of those who arrived at the screening indicated that they had fasted, and those that had not fasted were asked to return the next day after fasting. The other biomedical indicators (weight, height, blood pressure) were taken as the average of two consecutive measurements, again performed by trained professionals, which substantially increases reliability.

In summary, data gathered from this sample of inner-city, economically disadvantaged Hispanics suggests that efforts in the areas of health education, outreach, and service provision are not reaching this segment of the population. The observed levels of risk for a number

of serious medical conditions are, generally, twice the rates observed nationally.

Perhaps equally important, and certainly critical to *Healthy People 2010* goals, less than half the sample were aware of their high cholesterol or obesity. Moreover, although most were aware of their high blood sugar, depression, and high blood pressure, awareness was not translated into appropriate and effective treatment. Certainly for this under-served, urban community, new interventions and outreach methods must be created and implemented if the *Healthy People 2010* goals are to be realized in this as well as in other Latino communities that are under-served economically and medically.

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Table 3. Unrecognized/undiagnosed risk

Risk Factor	Percent with Risk Factor	Percent Unaware
Obesity (BMI ≥ 30 kg/m ²)	34.7	53.3
Total cholesterol ≥ 240 mg/dL	10.1	52.6
Blood pressure ($\geq 140/90$ mm Hg)	8.7	7.2
Diabetes (glucose ≥ 126 mg/dL)	25.4	6.2
Depression (borderline or higher)	22.1	3.0

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