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# Limited English Proficiency Is a Barrier to Receipt of Advice about Physical Activity and Diet among Hispanics with Chronic Diseases in the United States

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## ABSTRACT

The prevalence of obesity, diabetes, and cardiovascular disease is reaching epidemic proportions among Hispanics in the United States. Health care providers play an important role in motivating patients to make healthful lifestyle changes to reduce the burden of such conditions. Data from the US 2000 National Health Interview Survey was analyzed to determine differences in report of physician-provided physical activity and/or dietary advice by level of English proficiency among obese Hispanics or those who reported having diabetes or cardiovascular disease and who contacted a physician during the past year ( $n=1,186$ ). Only one third of the sample reported receiving advice to increase their physical activity or to improve their dietary habits; one fifth reported receipt of

advice about both. English-proficient Hispanics were about 50% more likely to report receiving advice on physical activity (adjusted odd ratio [AOR]=1.5; 95% confidence interval [CI]: 1.1 to 2.1), diet (AOR=1.5; 95% CI: 1.1 to 2.2) or both (AOR=1.6; 95% CI: 1.1 to 2.3), as compared with limited English-proficient Hispanics, after controlling for health insurance coverage and number of visits to a physician during the last year. Sex, age, region of residence, level of education, annual family income, and smoking status were not significantly associated with receiving physical activity and/or dietary advice. In order to address racial health disparities, and lower the burden of chronic illness, culturally sensitive strategies must be implemented to enhance delivery of effective health-promotion messages by physicians, particularly among at-risk communities.

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The main causes of morbidity and mortality in the United States are related to smoking, poor diet, and a sedentary lifestyle (1). The prevalence of obesity, cardiovascular disease (CVD), and diabetes have reached epidemic proportions (2,3). Approximately three in 10 Americans suffer from obesity (3), and CVD accounts for 10 of every 27 deaths in the United States (4). These conditions have disproportionately affected low-income households, people with less than a high-school education, African Americans, and Hispanics (3-6). The elevated prevalence of obesity and chronic disease among ethnic minorities, as well as their concomitant excessive mortality, can be accounted for by behavioral and genetic vulnerabilities at the personal level (3,7), and by distal social and cultural influences (7-10). Particularly for Spanish-speaking Hispanic patients, language has been recognized as one of the most important factors that influence the patient-physician encounter and consequently the quality of care (11,12). Spanish-speaking Hispanic patients are less likely to mention symptoms, ex-

pectations, and concerns to their physicians (13), and are more likely to have their comments ignored (13), to report not having a regular source of care or lack of continuity, and to have difficulty getting information or advice by phone than are English-speaking patients (14). The Commonwealth Health Quality Survey (15) found that nearly half (45%) of Spanish-speaking Hispanic patients have difficulty communicating with their doctor because of a language barrier, compared with 27% of English-speaking Hispanics.

Measures such as engaging in regular physical activity and adopting a more healthful diet can reduce the risk and burden of major chronic diseases (1-4). Regular physical activity reduces incidence of type 2 diabetes by 30% in the general population (16) and modest weight loss through physical activity and diet can reduce risk of type 2 diabetes by as much as 60% during a period of 3 to 4 years among high-risk individuals (17,18). A low-fat diet and a Mediterranean diet can induce 9% and 15% reductions in cardiovascular disease risk, respectively (19). Regrettably, adoption of healthful behaviors is less common among groups most severely affected by major chronic diseases (20,21). Specifically, African Americans and Hispanics are less physically active than white Americans (21), and Spanish-speaking Hispanics are less likely than English-speaking Hispanics to participate in lifestyles that promote cardiovascular health (22).

Aware of the important role that health care providers play in motivating patients to make lifestyle changes (23-25), and with the aim to decrease the burden of chronic diseases (26), the US Preventive Services Task Force recommends that physicians routinely screen and counsel patients about important health risk behaviors using the five-step system of “ask, advise, assess, assist, and arrange” (27,28). In addition, the US Department of Health and Human Services and the US Department of Agriculture produced clinical guidelines to encourage physicians to promote dieting and exercise counseling (1,29). In accordance with these recommendations, it is expected that by the year 2010, 75% of all patients with a diagnosis of cardiovascular disease, diabetes, or hyperlipidemia will receive nutrition counseling, which is up from the current 42% (30). Despite these recommendations, national estimates in the United States indicate that Hispanics and foreign-born immigrants with diabetes are 40% less likely to receive physical activity advice than white American diabetics (8,9).

The present study aims to explore the role of English proficiency in the likelihood of receiving physical activity and/or dietary advice in a representative sample of US Hispanics diagnosed with obesity, diabetes, and/or CVD.

## METHODS

The National Health Interview Survey (NHIS) is an annual cross-sectional, household survey of the civilian, noninstitutionalized, US adult population (aged 18+ years), with oversampling of minorities. Information is collected through a computer-assisted questionnaire in English or Spanish. Additional information on the survey methodology is provided in NHIS data file documentation (31). The present study uses data gathered from 1,186 Hispanic adults (aged 20+ years) sampled in the 2000 NHIS (weighted sample=4,406,752), who are obese (body

mass index  $\geq 30$ , calculated from self-reported height and weight as  $\text{kg/m}^2$ ) or who reported to have diabetes (including borderline diabetes) and/or CVD, and who visited a physician in the previous year. CVD included coronary heart disease, heart attack, angina pectoris, stroke, or hypertension (ever told had hypertension on two or more visits). Pregnant women, individuals who reported being unable to perform moderate physical activity, and individuals for whom relevant interview data was missing ( $n=86$ ) were excluded from the below analyses. No protocol approval for human participant protection was needed for this study.

Receipt of physical activity and/or dietary advice was determined using the original NHIS variables: “Doctor recommended physical activity/exercise” and “talked about diet with your doctor.” The language in which the respondent usually communicates was selected as an indicator of their language proficiency (NHIS original variable: “In general, which language do you speak?”). Hispanics who reported to speak only English, mostly English, or Spanish and English about the same were designated as English proficient. Those who reported to speak only or mostly Spanish were classified as being of limited English proficiency. Other explanatory variables included in the analyses were sex, age (20-24, 25-44, 45-64, and 65+ years), region of residence (West, Midwest, South, and Northeast), years of education ( $\leq 12$  vs  $>12$ ), annual family income (below vs at/above the poverty line), current smoking status (yes vs no), health insurance coverage (yes vs no), number of visits to a physician in the last year (1-3, 4-9, or 10+), and years of residence in the United States ( $<5$  vs  $5+$ ).

Prevalence estimates were derived using standard NHIS procedures that account for sampling probabilities, as well as poststratification adjustment to compensate for variation in survey nonresponse. Estimated variances are based on the Taylor series linearization method under SUDAAN 9.0.1 software (2005, Research Triangle Institute, Research Triangle Park, NC), which accommodates the complex sampling design (32).  $\chi^2$  test statistic was used in categorical data analysis to assess statistical significance (defined as a two-tailed probability below  $P=0.05$ ). Regression estimates from logistic models are expressed as odds ratios and adjusted odds ratios (AOR) and their 95% confidence intervals (95% CI).

## RESULTS

Characteristics of the study population are presented in Table 1. Significant differences were evidenced among Hispanics with different levels of English proficiency in terms of age, region of residence, educational level, annual family income, health insurance coverage, and number of visits to a physician during the last year. Notably, the prevalence of obesity was higher among English-proficient Hispanics than those with limited English proficiency (66.5% vs 48.4%), while prevalence of CVD was higher among limited-English-proficient Hispanics than among English-proficient Hispanics (58.8% vs 44%). Just under one third of respondents reported receiving advice from their physician about physical activity (32.0%) or dietary habits (31.2%); 20.3% of the study sample reported having received both recommendations.

Univariate logistic regression analyses indicate that

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