

## Healthcare Utilization Among Hispanics: Findings From the 1994 Minority Health Survey

Todd H. Wagner, PhD; and Sylvia Guendelman, PhD

### **Abstract**

**Objective:** To assess the effects of health need, enabling factors, and predisposing factors on entry into any type of care, volume of care, use of emergency services, hospitalization, and receipt of preventive services.

**Study Design:** Multiple regression analysis with cross-sectional data.

**Patients and Methods:** Participants were the 1001 adults who identified themselves as Hispanic in the Commonwealth Fund Minority Health Survey; a telephone survey of noninstitutionalized persons designed to oversample minorities was conducted.

**Results:** The 3 Hispanic subpopulations had similar sociodemographic profiles and similar patterns of healthcare utilization, except that Hispanics of other national origins were more likely to use preventive care compared with Mexican Americans and Puerto Ricans. Overall, 78% of the Hispanics surveyed entered the healthcare system in the past year, making an average of 5.25 visits. After controlling for

other factors, immigrants had fewer visits and were less likely to have received preventive care. A regular source of care and insurance coverage influenced entry and volume of care, but was not associated with emergency services or hospitalizations.

**Conclusions:** Access to care for Hispanics remains a major problem, significantly affected by structural and financial factors, personal experiences with the healthcare system, and predisposing factors. Policy solutions that address the health service needs of the uninsured will largely benefit Hispanics. In addition, as managed care plans compete for contracts and become more multicultural, access to care for Hispanics, including the uninsured, may improve through market forces.

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From the VA HSR&D Health Economics Resource Center, Menlo Park, CA (THW); The Center for Health Policy, Stanford University, Stanford, CA (THW); and the Division of Health Policy and Management, School of Public Health, University of California, Berkeley, Berkeley, CA (SG). At the time of this study, THW was a doctoral student at the University of California, Berkeley.

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Address correspondence to: Todd H. Wagner, PhD, VA HSR&D Health Economics Resource Center, 795 Willow Rd (MPD 152), Menlo Park, CA 94025. E-mail: twagner@odd.stanford.edu.

Hispanics are currently the second largest minority group in America.<sup>1</sup> Although this subpopulation comprised approximately 9% of the population in 1990,<sup>2</sup> it grew to more than 11.4% in 1998.<sup>1</sup> Both high fertility and immigration account for the population growth, which is 5 times faster than that of the US population as a whole.<sup>3</sup> Although more than 70% of Hispanics are native born, many of the immigrants are long-term residents, eligible for publicly funded health services.<sup>3</sup> The rapid population growth coupled with cultural diversity—63% of Hispanics in 1991 identified themselves as Mexican American, 11% as Puerto Rican, 5% as Cuban, and 21% as Hispanic of other national

origin<sup>2</sup>—have major implications for the delivery of health services.

Research in the last 3 decades underscores the problems that Hispanics face in accessing health services. Although early research considered the utilization of health services to be a consequence of cultural beliefs and demographic traits,<sup>4,5</sup> more recent research has emphasized the effects of low socioeconomic status, insufficient health insurance coverage, and barriers to care.<sup>6-10</sup> Research also has shown that the proportion of uninsured and underinsured Hispanics has increased. A 1986 national survey found that the proportion of uninsured Hispanics increased by 50% to 21.7%. By 1989, Valdez et al<sup>11</sup> found that 39% of Hispanics under age 65 were uninsured compared with 14% of whites and 24% of African Americans. Low rates of insurance coverage matter because the uninsured are more likely to lack a regular source of care and less likely to access the healthcare system.<sup>9,11</sup> However, health insurance coverage alone does not guarantee access to care. Health plans increasingly limit benefits, require specialty referrals, and use copayments and deductibles to manage demand.<sup>11-14</sup> Consequently, poor and underinsured Hispanics frequently pay substantial out-of-pocket fees relative to their income, experience long waits in crowded, underfunded clinics, and face problems being admitted to hospitals.<sup>8,12</sup>

Although some have suggested that the healthcare system is not responsive to patients who have different cultural practices or languages,<sup>6,15</sup> researchers have suggested that national origin, ethnicity, and race also may play an independent role in the delivery of medicine.<sup>16-18</sup> Cultural prejudices that reinforce the social distance between patients and providers also may affect quality of care. The way Hispanic subpopulations perceive their experiences with the healthcare system and the extent to which these experiences affect utilization have not been studied extensively.

## ...METHODS...

### Sample and Data Collection Procedures

The Commonwealth Fund sponsored the Survey of Minority Health, which was conducted by Louis Harris and Associates from May 13 to July 28, 1994. This telephone survey of noninstitutionalized persons was designed to oversample minorities, including Hispanics. Weights to make the sample nationally representative were calculated by Louis Harris

using gender, race, age, health insurance status, and education. Included in the survey were households with a telephone from central city, suburban, and rural areas in the 48 contiguous states and Washington, DC. Further details of the survey are presented elsewhere.<sup>19</sup>

Telephone interviews were conducted with 3789 adults age 18 years and older, with a response rate of 60%. Included in the sample were 1001 respondents who, regardless of race, identified themselves as Hispanics. This Hispanic subsample was comprised of 552 (55.1%) Mexican Americans, 146 (14.6%) Puerto Ricans, and 303 (30.3%) "other Hispanics." Individuals in the latter group came from various Latin-American countries, such as Cuba, Costa Rica, and the Dominican Republic; however, separate analysis by country of origin was precluded due to small sample sizes.

### Variables

*Dependent Variables.* Five dependent variables representing utilization in the last 12 months were assessed: (1) entry into the healthcare system, (2) volume of utilization, (3) inpatient hospitalization, (4) outpatient emergency care, and (5) receipt of preventive care. Data for entry and volume were collected by asking, "Altogether, how many times have you visited a doctor (health professional) or medical facility in the last 12 months?" Entry and volume were analyzed separately because the barriers that influence patient-initiated entry into care tend to reflect discretionary use, whereas the barriers to follow-up care tend to be influenced by the provider.<sup>20,21</sup> Respondents who said that they visited a doctor in the last 12 months were asked whether they had received outpatient care in an emergency room, were hospitalized, or received preventive care (such as blood pressure tests, Pap smears, or cholesterol level readings) during that time.

*Independent Variables.* Given our primary interest in analyzing differences among Hispanic subpopulations, we classified respondents into Mexican Americans, Puerto Ricans, and Hispanics of other national origin (hereafter other Hispanics). Following the utilization model of Andersen and his colleagues,<sup>6</sup> we considered 3 types of independent variables: need-related, enabling, and predisposing variables.

Health need was assessed by perceived health status, which is a subjective measure of overall health described as excellent, good, fair, or poor. A dummy variable was included if the person had a health problem, disability, or handicap that kept them from

participating fully in work, school, housework, or other activities. Last, participants were asked about their mental health using the 5 mental health questions (MHI-5) from the Short Form 36-Item Health Survey (SF-36).<sup>22</sup> The MHI-5 was scored according to established criteria, whereby a higher number represents worse mental health.

Enabling variables examined included financial factors and structural factors. The financial factors were household income; receipt of food stamps, Aid to Families with Dependent Children, or Supplemental Security Income; employment status; health insurance status; and enrollment in a health maintenance organization (HMO). Insurance status represents the individual's status at the time of the interview. Responses were categorized into no insurance, only public insurance, and any private insurance. Structural factors, which assess availability of services, included having a regular source of care and having a choice of where to get care. Subjective experiences included perceived barriers to care, such as not having access to specialty care, inability to get an appointment, language difficulties, being nervous or afraid, having to wait too long, transportation problems, and amount of paperwork. The responses were coded as a dummy variable, whereby 0 represented no barriers. Discrimination also can be a barrier to care. To assess the effects of perceived discrimination, 2 yes/no questions were included: whether the individual was treated badly, and whether the quality of care received was lower because of the person's ethnicity.

Predisposing factors refer to the demographic attributes that characterize an individual and antecede an episode of illness. The demographic variables examined included race, age, gender, education, number of persons in the household, marital status (single, married or living as married), residence location (urban, suburban, semirural with 2500 or more persons, or rural area with fewer than 2500 persons), and geographic region (East, West, South, Midwest). It should be noted that in the survey, data on race were collected separately from data on ethnic or national origin. Among the respondents who identified themselves as Hispanic, 55% said they were white or Caucasian, 4% said they were black or African American, and the remaining individuals (41%) said they were not sure, were Asian or Asian American, were Native American, or were "other." Given this breakdown, we included a variable that distinguished between white and nonwhite. We also included nativity status (ie, foreign born vs born in the United States) and primary spoken language

(English vs other). The independent variables are listed in Table 1 along with their means.

### Analytic Techniques

Multiple logistic regression analyses were performed to determine which variables were associated with entry into care, admission to a hospital, use of an emergency room, and receipt of preventive care. Also of interest was whether the Hispanic subpopulations differed in their utilization of services. Ordinary least squares regression was used to examine volume of care among those with at least one healthcare visit. In the ordinary least squares model, we transformed volume by taking its natural logarithm. This transformation helped reduce skewness, providing a more normal distribution.

In the 5 multivariate models, all covariates were entered into the model. Checks for multicollinearity were performed by analyzing the correlation matrices and the standard errors of the covariates; no multicollinearity was detected. To assess goodness of fit, a Pregibon Linktest<sup>23</sup> was generated for the logistic regression models. A significant test statistic for the Linktest indicates a poor fit. For volume of care, the  $R^2$  is presented. For all models an  $F_{(k,d-k+1)}$  test, in which  $k$  is the number of covariates minus one and  $d$  is the number of primary sampling units, was calculated.

Given that the survey used a multistage, stratified probability sample, weighting was used for all estimation and statistical testing. Because we chose to analyze the Hispanic subpopulation, we calculated new weights based on the original survey weight. This maintained parity between the original weights and the sample sizes of the Hispanic subpopulation. All analyses were done using Stata 5.0, taking into account the complex design effects.<sup>24</sup>

## ... RESULTS ...

### Sample Characteristics

The 3 Hispanic subpopulations had similar sociodemographics and health needs (Table 1). Mexican Americans and Puerto Ricans were more likely than other Hispanics to have a lower educational level. Compared with the other 2 subpopulations, Mexican Americans were the most likely to have large households with numerous children. Other Hispanics were the most likely to be recent immigrants or first-generation Americans and the least likely to receive public assistance. Also, Table 1 shows that most Puerto Ricans (94%) do consider

**Table 1.** Utilization of Health Services: Means of Dependent and Independent Variables\*

Variable	All Persons (n = 1001)	Mexican Americans (n = 552)	Puerto Ricans (n = 146)	Other Hispanics (n = 303)
<b>Dependent variables</b>				
Entry into any type of care	0.78	0.78	0.81	0.78
Volume of care among users (No. visits in past year)	5.25	5.54	5.50	4.62
Emergency care	0.21	0.20	0.37	0.14
Hospitalization	0.12	0.12	0.13	0.11
Receipt of preventive care	0.64	0.61	0.62	0.70
<b>Independent variables</b>				
<i>National origin</i>				
Mexican Americans	0.55	—	—	—
Puerto Ricans	0.15	—	—	—
Other Hispanics	0.30	—	—	—
<i>Health need</i>				
Health: excellent	0.29	0.27	0.20	0.32
Health: good	0.48	0.49	0.44	0.47
Health: fair	0.19	0.19	0.22	0.18
Health: poor	0.05	0.06	0.05	0.02
Health problem (1 = yes; 0 = no)	0.12	0.11	0.21	0.09
Mental health (scale of 0–100) <sup>†</sup>	31.31	31.13	33.34	30.65
<i>Enabling</i>				
Household income: <\$25,000	0.50	0.49	0.50	0.51
Household income: \$25,000–\$50,000	0.35	0.37	0.35	0.30
Household income: >\$50,000	0.15	0.14	0.16	0.18
Welfare (AFDC, food stamps, SSI)	0.11	0.12	0.19	0.07
Work: employed	0.69	0.69	0.71	0.66
Work: nonworkforce	0.23	0.22	0.23	0.24
Work: unemployed	0.09	0.09	0.06	0.10
Health insurance (1 = yes; 0 = no)	0.63	0.63	0.72	0.60
Enrolled in an HMO (1 = yes; 0 = no)	0.18	0.17	0.22	0.18
Regular doctor (1 = yes; 0 = no)	0.59	0.56	0.63	0.61
Choice of doctor: a lot	0.43	0.44	0.39	0.43
Choice of doctor: some	0.26	0.25	0.33	0.24
Choice of doctor: very little	0.22	0.21	0.20	0.24
Choice of doctor: no choice	0.09	0.01	0.08	0.09
Barriers to care (1 = yes; 0 = no)	0.79	0.78	0.81	0.81
Treated badly (1 = yes; 0 = no)	0.11	0.01	0.14	0.11
Better care if different race (1 = yes; 0 = no)	0.14	0.14	0.20	0.11
<i>Predisposing</i>				
White vs nonwhite	0.55	0.51	0.52	0.64
Age: 18–29 y	0.34	0.36	0.35	0.29
Age: 30–44 y	0.36	0.36	0.38	0.35
Age: >45 y	0.30	0.28	0.27	0.36
Female = 1; male = 0	0.50	0.51	0.49	0.49
Education: less than high school	0.25	0.29	0.29	0.17
Education: high school graduate	0.36	0.39	0.31	0.33
Education: some college	0.26	0.22	0.30	0.32
Education: college graduate or more	0.12	0.10	0.10	0.18
Family size (n)	3.56	3.77	3.26	3.32
Marital status: single	0.24	0.23	0.25	0.25
Marital status: married or living as married	0.58	0.60	0.54	0.57
Marital status: divorced, widowed, separated	0.18	0.17	0.22	0.18
Residence: urban	0.54	0.52	0.67	0.51
Residence: suburban	0.34	0.33	0.29	0.39
Residence: rural (>2500 people)	0.08	0.12	0.03	0.05
Residence: rural (<2500 people)	0.04	0.04	0.01	0.05
Region: East	0.18	0.03	0.65	0.23
Region: South	0.33	0.35	0.21	0.35
Region: Midwest	0.07	0.07	0.05	0.06
Region: West	0.43	0.55	0.09	0.36
Foreign born (1 = yes; 0 = no)	0.33	0.31	0.06	0.49
English is primary language	0.58	0.57	0.66	0.58

AFDC = Aid to Families with Dependent Children; HMO = health maintenance organization; SSI = Supplemental Security Income.

\*Data represent means except where indicated.

<sup>†</sup>Participants were asked about their mental health using the 5 mental health questions (MHI-5) from the Short Form 36-Item Health Survey. Higher scores represent worse mental health.

Source: 1994 Commonwealth Fund Survey of Minority Health.

themselves native to the United States, which is consistent with the fact that Puerto Rico is technically a US territory.

### Entry Into Care

Approximately 78% of the respondents had entered the healthcare system in the past year (Table 1). Entry into care, modeled using multivariate logistic regression, was significantly associated with having poor health status and having a regular source of care. Those with a regular source of care were more likely (odds ratio [OR] = 5.98) to enter the healthcare system compared with those without a regular source of care (Table 2). Insurance coverage was also a significant determinant; compared with individuals lacking health insurance, those with coverage were 2.5 times more likely to enter the healthcare system. Individuals who felt that the quality of care that they received would have been better if they were a different race were twice as likely to have entered the system. After adjusting for other factors, cultural factors such as national origin, race, nativity status, and English as a primary language were not associated with entry. The Pregibon Linktest failed to reject the model's fit, and the overall model was highly significant ( $F_{39, 244} = 4.77; P < .0001$ ).

### Volume of Care

Hispanics made an average of 5.25 visits to a health professional in the year for which data were collected. After adjusting for other variables, there were no significant differences among the Hispanic subpopulations (Table 2). The strongest determinants of volume were self-reported health status, having a health problem, female gender, family size, being foreign born, and having health insurance. Additionally, perceptions that the care received would have been better if the individual was a different race were positively associated with volume. Overall, the model accounted for 21% of the variance in volume of care ( $F_{39, 242} = 6.37; P < .0001$ ).

### Use of Outpatient Emergency Services

Twenty one percent of Hispanics used outpatient emergency health services (Table 1). After controlling for other factors in the multivariate analysis, there were no statistically significant differences in use of emergency services by Puerto Ricans and Mexican Americans; however, Puerto Ricans were more likely to have used emergency services than other Hispanics (Table 3). People with a health problem, disability, or handicap that prevented them

from participating fully in work, school, housework, or other activities were more than twice as likely to use emergency services. Other measures of health, including self-reported health status and mental health, were not significantly associated with use of emergency services. Hispanics who thought that they were treated badly or who perceived any barriers to care were approximately 1.9 and 1.8 times more likely to have used emergency services, respectively. Age was correlated with utilization; compared with older Hispanics, those 18-29 years of age were twice as likely to have used these services. Variables representing nativity and language use were not significantly associated with utilization. Overall the model had a significant F test ( $F_{39, 244} = 3.40; P < .0001$ ), and the Pregibon Linktest failed to reject the model's fit.

### Hospitalization

Twelve percent ( $n = 95$ ) of Hispanics were hospitalized (Table 1). In the multivariate model, there were no significant differences among Hispanic subpopulations (Table 3). Statistically significant predictors were marital status, household income, family size, region of residence, and age. Compared with married individuals, single individuals were approximately half as likely to be hospitalized, whereas divorced, widowed, or separated individuals were almost twice as likely to be hospitalized. Contrary to expectations, insurance status, income, and enrollment in an HMO were not significant predictors, although the power to detect differences is affected by the low rates of hospitalization. In addition, nativity status and language use were not associated with hospitalization. The overall model was significant ( $F_{39, 244} = 3.04; P < .0001$ ). The Pregibon Linktest failed to reject the model's goodness of fit.

Of the hospitalized individuals, 58 (61%) were admitted to a public hospital, whereas the rest were admitted to a private hospital or did not know (data not shown). Exploratory analysis on this small sample show that after controlling for age and sex in a logistic regression model, predictors of admission to a public hospital included level of education and household income. Those who went to college or were college graduates, respectively, were 4.3 (95% confidence interval [CI]= 1.07, 15.12) and 5.6 (95% CI = 1.39, 35.58) more likely to have been admitted to a private hospital rather than a public hospital. Household income was important in that Hispanics whose annual income was less than \$25,000 were approximately 5 times (95% CI = 0.98, 25.23) more likely to be admitted to a public hospital than a private hospital.

**Table 2.** Utilization of Health Services Among Hispanic Adults: Multiple Regression Results\*

Variable	Model 1: Entry Into Care		Model 2: Volume of Care	
	Odds Ratio	SE	Coefficient	SE
<b>National origin</b>				
Mexican American			Reference group	
Puerto Rican	1.24	0.49	0.06	0.13
Other	1.30	0.39	-0.02	0.08
<b>Health need</b>				
Health: excellent			Reference group	
Health: good	1.32	0.37	0.16 <sup>†</sup>	0.07
Health: fair	2.04	0.97	0.41 <sup>†</sup>	0.09
Health: poor	7.42 <sup>§</sup>	6.69	0.99 <sup>†</sup>	0.22
Health problem (1 = yes; 0 = no)	1.43	0.70	0.31 <sup>†</sup>	0.15
Mental health (scale of 0-100) <sup>  </sup>	1.00	0.01	-0.00	0.00
<b>Enabling</b>				
Household income: <\$25,000			Reference group	
Household income: \$25,000-\$50,000	1.23	0.39	-0.03	0.08
Household income: >\$50,000	0.78	0.27	0.04	0.11
Welfare (AFDC, food stamps, SSI)	1.06	0.50	0.18	0.12
Work: employed			Reference group	
Work: nonworkforce	1.09	0.34	0.05	0.10
Work: unemployed	2.37	1.57	-0.06	0.12
Health insurance (1 = yes; 0 = no)	2.54 <sup>‡</sup>	0.75	0.17 <sup>§</sup>	0.08
Enrolled in an HMO (1 = yes; 0 = no)	1.52	0.59	0.05	0.08
Regular doctor (1 = yes; 0 = no)	5.98 <sup>‡</sup>	1.45	0.16 <sup>†</sup>	0.09
Choice of doctor: a lot			Reference group	
Choice of doctor: some	0.93	0.32	-0.09	0.07
Choice of doctor: very little	0.48 <sup>†</sup>	0.19	-0.02	0.09
Choice of doctor: no choice	0.71	0.39	0.10	0.17
Barriers to care (1 = yes; 0 = no)	1.00	0.33	0.13 <sup>†</sup>	0.08
Treated badly (1 = yes; 0 = no)	0.98	0.48	0.34 <sup>†</sup>	0.11
Better care if different race (1 = yes; 0 = no)	2.00 <sup>†</sup>	0.74	-0.05	0.09
<b>Predisposing</b>				
White vs nonwhite	0.78	0.20	-0.04	0.07
Age: 18-29 y			Reference group	
Age: 30-44 y	0.91	0.23	-0.10	0.08
Age: >45 y	0.72	0.20	-0.01	0.09
Female = 1; male = 0	1.15	0.32	0.32 <sup>†</sup>	0.06
Education: less than high school	0.78	0.38	-0.15	0.12
Education: high school graduate	0.81	0.34	-0.11	0.09
Education: some college	0.92	0.38	-0.03	0.08
Education: college graduate or more			Reference group	
Family size (n)	1.00	0.07	0.06 <sup>†</sup>	0.02
Marital status: single	1.49	0.48	-0.13	0.08
Marital status: married or living as married			Reference group	
Marital status: divorced, widowed, separated	0.88	0.39	0.01	0.09
Residence: urban			Reference group	
Residence: suburban	1.30	0.31	-0.11	0.08
Residence: rural (>2500 people)	1.00	0.40	-0.06	0.12
Residence: rural (<2500 people)	0.69	0.44	-0.23	0.19
Region: East			Reference group	
Region: South	0.63	0.24	-0.19 <sup>§</sup>	0.10
Region: Midwest	1.35	0.72	-0.04	0.17
Region: West	1.03	0.36	-0.05	0.10
Foreign born (1 = yes; 0 = no)	0.62	0.19	-0.08 <sup>†</sup>	0.09
English is primary language	0.60	0.19	0.13	0.07
<b>Model characteristics</b>				
Sample size	917		782	
F test (degrees of freedom) <sup>¶</sup>	4.77 (39, 244)		6.37 (39, 242)	
Pregibon Linktest	P = .12		—	
R <sup>2</sup>	—		0.21	

AFDC = Aid to Families with Dependent Children; HMO = health maintenance organization; SSI = Supplemental Security Income.

\*Model 1 is a multiple logistic regression presented with odds ratios; model 2 uses ordinary least squares regression.

<sup>†</sup>Significant at the 10% level (2-tailed test).

<sup>‡</sup>Significant at the 1% level (2-tailed test).

<sup>§</sup>Significant at the 5% level (2-tailed test).

<sup>||</sup>Participants were asked about their mental health using the 5 mental health questions (MHI-5) from the Short Form 36-Item Health Survey. Higher scores represent worse mental health.

<sup>¶</sup>Degrees of freedom: the first number is the number of covariates minus one; the second number is the number of primary sampling units.

Source: 1994 Commonwealth Fund Survey of Minority Health.

**Table 3.** Utilization of Health Services Among Hispanic Adults: Multiple Regression Results\*

Variable	Model 3: Emergency Care		Model 4: Hospitalized		Model 5: Preventive Care	
	Odds Ratio	SE	Odds Ratio	SE	Odds Ratio	SE
<b>National origin</b>						
Mexican American			Reference group			
Puerto Rican	1.69	0.63	0.82	0.31	0.87	0.30
Other	0.73	0.17	1.00	0.24	1.87 <sup>†</sup>	0.47
<b>Health need</b>						
Health: excellent			Reference group			
Health: good	1.16	0.32	1.17	0.46	1.49	0.38
Health: fair	0.99	0.33	1.43	0.69	2.31 <sup>†</sup>	0.80
Health: poor	0.94	0.60	1.37	0.89	2.63 <sup>†</sup>	1.12
Health problem (1 = yes; 0 = no)	2.49 <sup>‡</sup>	0.82	1.50	0.51	0.91	0.29
Mental health (scale of 0-100) <sup>§</sup>	1.01	0.01	1.01 <sup>  </sup>	0.01	0.99	0.01
<b>Enabling</b>						
Household income: <\$25,000			Reference group			
Household income: \$25,000-\$50,000	0.95	0.39	0.59 <sup>  </sup>	0.19	1.87 <sup>†</sup>	0.46
Household income: >\$50,000	1.27	0.44	0.71	0.26	1.23	0.36
Welfare (AFDC, food stamps, SSI)	1.89 <sup>  </sup>	0.72	0.72	0.33	1.28	0.53
Work: employed			Reference group			
Work: nonworkforce	1.15	0.33	1.62	0.49	1.50	0.38
Work: unemployed	0.68	0.34	1.15	0.51	0.63	0.22
Health insurance (1 = yes; 0 = no)	0.94	0.30	1.01	0.30	1.23	0.33
Enrolled in an HMO (1 = yes; 0 = no)	0.99	0.25	1.28	0.41	1.43	0.35
Regular doctor (1 = yes; 0 = no)	1.03	0.26	0.84	0.28	1.52 <sup>  </sup>	0.31
Choice of doctor: a lot			Reference group			
Choice of doctor: some	0.75	0.22	0.69	0.23	0.81	0.18
Choice of doctor: very little	1.05	0.28	0.66	0.29	1.15	0.34
Choice of doctor: no choice	0.73	0.41	1.19	0.58	1.05	0.39
Barriers to care (1 = yes; 0 = no)	1.77 <sup>†</sup>	0.49	1.33	0.38	1.30	0.31
Treated badly (1 = yes; 0 = no)	1.91	0.55	2.18 <sup>†</sup>	0.77	2.04 <sup>†</sup>	0.63
Better care if different race (1 = yes; 0 = no)	1.22	0.44	0.81	0.38	0.77	0.25
<b>Predisposing</b>						
White vs nonwhite	0.74	0.17	1.01	0.31	0.99	0.21
Age: 18-29 y			Reference group			
Age: 30-44 y	0.42 <sup>‡</sup>	0.10	0.50 <sup>†</sup>	0.15	1.05	0.25
Age: >45 y	0.40 <sup>‡</sup>	0.11	0.82	0.28	1.17	0.33
Female = 1; male = 0	1.38	0.31	0.96	0.23	2.55 <sup>†</sup>	0.49
Education: less than high school	1.18	0.50	0.96	0.43	0.36 <sup>‡</sup>	0.12
Education: high school graduate	0.88	0.32	0.63	0.26	0.29 <sup>‡</sup>	0.08
Education: some college	0.87	0.32	0.84	0.31	0.61	0.19
Education: college graduate or more			Reference group			
Family size (n)	0.92	0.07	1.20 <sup>†</sup>	0.10	1.08	0.06
Marital status: single	0.69	0.21	0.63	0.20	0.47 <sup>‡</sup>	0.12
Marital status: married or living as married			Reference group			
Marital status: divorced, widowed, separated	0.74	0.23	1.92 <sup>  </sup>	0.65	0.84	0.27
Residence: urban			Reference group			
Residence: suburban	0.76	0.21	0.89	0.21	0.99	0.19
Residence: rural (>2500 people)	0.80	0.30	0.81	0.45	1.30	0.45
Residence: rural (<2500 people)	0.93	0.59	0.55	0.46	0.57	0.33
Region: East			Reference group			
Region: South	0.83	0.30	1.28	0.52	0.89	0.27
Region: Midwest	0.82	0.33	2.86 <sup>†</sup>	1.27	0.62	0.29
Region: West	0.78	0.23	0.59	0.22	0.95	0.27
Foreign born (1 = yes; 0 = no)	1.13	0.33	0.86	0.29	0.63 <sup>  </sup>	0.17
English is primary language	1.48	0.38	1.41	0.41	1.66 <sup>†</sup>	0.42
<b>Model characteristics</b>						
Sample size	786		784		786	
F test (degrees of freedom) <sup>¶</sup>	3.40 (39, 244)		3.04 (39, 244)		3.31 (39, 244)	
Pregibon Linktest	P = .17		P = .22		P = .18	

AFDC = Aid to Families with Dependent Children; HMO = health maintenance organization; SSI = Supplemental Security Income.

\*Models 3, 4, and 5 are multiple logistic regressions presented with odds ratios.

<sup>†</sup>Significant at the 5% level (2-tailed test).

<sup>‡</sup>Significant at the 1% level (2-tailed test).

<sup>§</sup>Participants were asked about their mental health using the 5 mental health questions (MHI-5) from the Short Form 36-Item Health Survey. Higher scores represent worse mental health.

<sup>||</sup>Significant at the 10% level (2-tailed test).

<sup>¶</sup>Degrees of freedom: the first number is the number of covariates minus one; the second number is the number of primary sampling units.

Source: 1994 Commonwealth Fund Survey of Minority Health.

### Receipt of Preventive Care

Approximately 2 of every 3 Hispanics received preventive care in the previous year. Consistent with past studies,<sup>25,26</sup> education and income were significant predictors of preventive care use. Hispanics with less than a high school education were almost 2.5 times less likely to have received preventive care than those with a college degree. Those with an annual household income of less than \$25,000 were the least likely to have received preventive care compared with people with higher household incomes. Other important determinants of preventive care were a fair or poor health status, being female, having a regular source of care, perceptions of being treated badly, and marital status. In addition, Hispanics with English as a primary language were 1.65 times more likely to use preventive care and foreign-born Hispanics were less likely to use preventive care compared with native-born Hispanics. Compared with Mexican American and Puerto Ricans, whose usage was similar, other Hispanics were 1.87 times more likely to have received preventive care. The final model was significant ( $F_{39, 244} = 3.31$ ;  $P < .0001$ ). The Pregibon Linktest failed to identify problems with the model.

### ... DISCUSSION ...

Studying utilization patterns is critical in order to understand how factors such as health insurance, a regular source of care, perceived barriers to care, nativity, and language use affect the demand for health services. Although Hispanics are often considered as a single ethnic group, this group is very heterogeneous. Using a recent national survey of Hispanics, we were able to analyze the determinants of care among Hispanics of different national origins.

The findings indicate that 78% of the adult Hispanics surveyed entered the healthcare system in the past year, making an average of 5.25 visits (median = 3 visits). In comparison, 87% of white non-Hispanics and 89% of African Americans had gained entry in that same period.<sup>27</sup> There was similarity across the Hispanic subpopulations in entry into care, volume of care, and hospitalization, after adjusting for health status, age, and other cultural, financial, structural, and perceptual characteristics. The 3 Hispanic subpopulations differed, however, in the receipt of preventive care. Other Hispanics, which included Cuban Americans and individuals from South and Central America, were more likely to have received preventive care than Mexican

Americans or Puerto Ricans—the 2 largest single subpopulations. This difference may reflect factors not included in our model, such as perceptions of susceptibility to illness, social support, family structure, and healthy behaviors.

After controlling for national origin and other variables, using English as a primary language was associated with an increased likelihood of receiving preventive care. However, the other indices of utilization were not related to nativity and language use. Perhaps Spanish-speaking immigrants are able to obtain health services in urgent situations and rely on self-care and more culturally traditional forms of medicine at other times.

Structural factors measuring availability of care were more consistently related to utilization than cultural factors in our multivariate models. Having a regular source of care was positively related to entry into care and receipt of preventive care, which is consistent with past research.<sup>28</sup> After controlling for other factors, having a regular source of care increased the odds of entering the healthcare system 6 times and the odds of getting preventive care 1.5 times.

Even after controlling for having a regular source of care, insurance remained a strong determinant of entry into care and volume of care. Insurance also was associated with a greater likelihood of using preventive care, but this association was not statistically significant. These findings corroborate the findings of other studies, which indicated that health insurance coverage significantly influences Hispanics' ability to obtain needed services.<sup>29</sup> Thirty-eight percent of the respondents were uninsured. This lack of coverage depresses utilization rates and suggests that many Hispanics are underutilizing appropriate and necessary services. Policy solutions that address the health service needs of the uninsured, whether through expansion of employer coverage, individual tax credits, or single-payer government insurance, will largely benefit Hispanics. In addition, as managed care plans compete for contracts and become more multicultural, access to care for Hispanics, including the uninsured, may improve as a result of market forces.

Although enrollment in an HMO was a positive sign in 4 of the 5 models, the relationships were never statistically significant. This is surprising given that managed care plans have been credited with increasing preventive care services and reducing inpatient hospitalizations.<sup>14,30</sup> It should be noted that the effect of HMO membership might be muted if there is a selection bias such that healthier

Hispanics are enrolling in managed care plans. Although such a bias is possible, this dataset did not contain any variables that could be used as instruments to address this potential endogeneity. Also, it is difficult in telephone surveys to collect valid insurance and HMO enrollment data.<sup>31</sup> Hence, it will be helpful to investigate some of the datasets currently under construction (eg, the Medical Expenditure Panel Survey) to study the effects of different insurance types and managed care indicators (eg, copayments, specialty referrals) on access and utilization.

Perceived discrimination by the healthcare system also influenced utilization. Those who felt that the quality of care they received was inferior because of their race were approximately twice as likely to gain entry. This association should be interpreted cautiously. Whether more exposure to the system increases negative perceptions, or alternatively, whether bad treatment from providers increases health need, could not be ascertained with these cross-sectional data. The former seems more probable, however. Also, this result may simply reflect the fact that those who do not use care have little experience about which to report. Nevertheless, the concern is that sicker individuals will be exposed to more insults, causing them to avoid getting needed medical care. If this happens, then the health system needs to be more sensitive in order to bring these individuals back into the system. Employee diversity training along with quality improvement programs could easily be designed to address these issues, as is currently done nationwide in the VA healthcare system.

Past studies have shown that socioeconomic factors are the strongest determinants of health utilization for Hispanics, whereas structural factors, gender, language use, and social discrimination predict volume among those persons using healthcare.<sup>8</sup> Our findings show that while these factors remain important, subjective experiences with the healthcare system also influence entry into any type of care, volume of care, emergency care, hospitalization, and preventive care. Given the rapid changes in the organization and delivery of care, patient perceptions of quality of care may be gaining far more influence as determinants of utilization and health plan switching. Hence, one might expect that choice of care would be an important factor. Although having choice was not an important predictor in 4 of the 5 models, further analysis (not shown) indicated that having a choice of where to get care increased overall satisfaction with care 7.3 times.

The results of this study must be interpreted cautiously given some limitations in the study design. Because the survey only sampled households with telephones, certain Hispanic households without phones, such as those of seasonal migrants, undocumented residents, and newcomers, may have been underrepresented. Compared with the 1994 Current Population Survey, which was not limited to households with telephones, our sample was more educated, wealthier, and more likely to be employed. Because the more vulnerable and less educated were underrepresented, our findings may be conservative. Second, the cross-sectional design obscures the temporal sequence of the independent variables relative to the outcomes. In addition, some of the questions on utilization referred to the past year, whereas some of the independent variables, such as health insurance, referred to the time of the survey. Third, some of the independent variables, most notably health insurance and enrollment in an HMO, may suffer from self-selection bias. As discussed earlier, however, the dataset lacked instrumental variables by which we could address such potential problems.

Despite these shortcomings, we conclude that access to care for Hispanics remains a major problem. Significant differences exist in structural and financial availability and in experiences with the healthcare system. Future studies need to monitor utilization patterns, perceptions of care, and satisfaction with care among Hispanic populations as they join managed care plans.

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