
Health Care Use by Hispanic Adults: Financial Vs. Non-Financial Determinants

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The purpose of this article is to assess the relative effects of financial and cultural factors, namely language spoken, on health care use by Hispanic adults. Using a national sample, we examine the determinants of having a usual source of care (USOC), use of physician visits, and likelihood of having blood pressure checked. Multivariate analysis reveals the following: Monolingual Spanish speakers were not significantly different from English speakers for the three dependent variables; having private insurance or Medicaid was positively related to all three dependent variables. We conclude that financial factors—primarily insurance—remain as the paramount barriers to care.

BACKGROUND

Lower rates of health care use by Hispanics compared with non-Hispanic white persons—in terms of hospitalizations, physician visits, prescribed medicines, and specific preventive services—have been found in numerous studies (Andersen et al., 1981; Schur, Bernstein, and Berk, 1987; Solis et al., 1990; Harlan, Bernstein, and Kessler, 1991). A variety of explanations have been offered, from financial factors such as differences in rates of insurance coverage and economic status to non-financial influences including culturally based attitudes toward health care and bar-

riers presented by language. It has been hypothesized that Hispanics who are less assimilated into U.S. culture face more extensive barriers to health care than those Hispanics who have become acculturated. Although there is considerable empirical evidence for a variety of populations that insurance coverage, in particular, has a substantial impact on use of services, the empirical evidence on the relationship between culture and use of services is quite mixed (Andersen et al., 1981; Marks et al., 1987; Estrada, Trevino, and Ray, 1990). In other words, there is a consensus that insurance status has a strong impact on use of health care services; the question of whether culture affects use and, if it does, what its effect is relative to insurance remains unanswered. Because the policy levers needed to address financial barriers to care (e.g., insurance market reforms) are different from tools that would be used to affect cultural barriers (e.g., training of minority health personnel), it is important to identify specific factors that affect the use of health care services for this vulnerable population. The purpose of this article is to add to the body of empirical evidence on the role of cultural versus financial determinants of health care use for Hispanics.

A variety of indicators have been used to measure cultural differences or differences in the extent of assimilation within the Hispanic population. Some of the more commonly employed variables include primary spoken or written language, country of birth for respondent and/or parents, length of time in the United States, use of folk practitioners, and frequency of contact

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with homeland. Several studies provide evidence that language and other cultural indicators are associated with lower use rates for specific preventive services (Solis et al., 1990; Harlan, Bernstein, and Kessler, 1991). Solis and colleagues (1990) concluded, however, that traditional access measures such as having a USOC and insurance coverage were better predictors of use than was the level of acculturation. In a study comparing Hispanics and non-Hispanic white persons under a prepaid, capitated system where financial barriers are presumably removed, Perez-Stable et al. (1994) found that "acculturation, Latino subgroup, and birthplace were not significant predictors for use of any of the cancer screening tests." At the same time, Latinos were more likely than non-Latino white persons to give "embarrassment" or "fear of results" as a reason for not having had the tests. These reasons may be dimensions of cultural upbringing and attitude that are not easily captured in quantitative analysis.

The complex interrelationships among cultural indicators and sociodemographic characteristics that are historically associated with disadvantaged populations make it particularly difficult to assess the relationship between culture and use of services. Hispanics who are less assimilated are often poorer and less educated than their more assimilated counterparts—attributes that are themselves linked to lower health care use.¹ This makes the task of understanding causality quite difficult. For example, persons who are monolingual Spanish speakers are, on average, less educated and less likely to be employed than are Hispanics who speak

English (Schur and Albers, in press). Both education and employment status are negatively correlated with the likelihood of being insured and, in fact, those who speak Spanish only are less likely to have private coverage. Insurance coverage, in turn, is strongly associated with health care use. The following question can then be asked: Do Spanish speakers use fewer services because they are less likely to be insured or because they do not speak English?

We used national data on the use of services by Hispanics to further examine the relative importance of financial and non-financial barriers to care within the Hispanic population. We were able to control for the effect of a variety of demographic characteristics on use of services as well as for variation in health status. In order to test for financial influences on use, we included data on insurance coverage, income, and whether the person had paid leave from work for obtaining medical care. To assess the influence of culture, we used data on language and health beliefs in an attempt to control for ease of communication and attitude toward the health care system. It is hypothesized that Hispanics who are more easily able to communicate within the system or who have more confidence in the system are more likely than less assimilated Hispanics to use services. Although the available variables are limited in their ability to fully capture the extent of acculturation, our work provides some indication of the relative importance of financial and cultural factors in health care utilization.

We found a number of variables to be strong and consistent predictors of use of services. Among these, the presence of a USOC—a regular place where the respondent goes to obtain care or seek health-related advice—stands out. In addition, third-party coverage for care—both private and Medicaid—was a significant determinant of having a USOC and, for

¹Molina, Zambrana, and Aguirre-Molina (1994) provide an excellent discussion of how culture may affect the use of health care. The authors identify two dimensions of culture—psychological and sociodemographic. The first may reflect behavioral aspects of a society's beliefs and values; the second encompasses more objective characteristics such as education or income. As the authors make clear, there is a strong association between acculturation and socioeconomic position.

those with a USOC, a significant predictor of health care use. On the other hand, variables used to represent cultural differences that might inhibit the use of health care had little explanatory power in a multivariate context. Our findings have little to offer with respect to differences in content of visits and overall quality of care, and in no way do they provide support for discontinuation of culturally appropriate services. However, findings of this study do suggest that policymakers focus their efforts on expanding this population's linkage to regular providers as well as on its ability to pay for care.

DATA AND METHODS

Data for this study are from the 1987 National Medical Expenditure Survey (NMES), a national multistage probability sample of approximately 14,000 households representing the civilian, non-institutionalized population (Edwards and Berlin, 1989). During the survey, data were collected for calendar year 1987 on use of and expenditures for health care services, health insurance coverage, health and functional status, employment, income, and other demographic characteristics. Several population groups were oversampled, including the elderly, the black population, the Hispanic population, and the poor. In areas known to have large concentrations of Hispanics, Spanish-speaking interviewers administered questionnaires that had been translated from English into Spanish. As in most household surveys, Hispanic identification and classification by national origin are self-reported. No information is available on citizenship or length of time in the United States.

Data on access to health care (including language, USOC, and health beliefs) were collected from 2,998 Hispanic Americans, of whom 1,928 were adults 18 years of age

or over. Of the Hispanic adult respondents, 35 cases were dropped from the analysis for one of two reasons: (1) the respondent's native language was neither Spanish nor English, or (2) information was missing on USOC. This resulted in a final unweighted sample of 1,893 cases. In terms of country of origin, the distribution of sample respondents was as follows: Mexican American—60 percent; Puerto Rican American—12 percent; Cuban American—5 percent; and other Hispanic American—23 percent. NMES data do not allow for separate identification of Central Americans.

Because of the policy interest in minority access to health care, several questions were included in the survey related to the respondent's native language and the ethnicity and language of the respondent's usual doctor. The specific language questions were as follows: "What is (PERSON'S) native language? Does (PERSON) usually speak (NATIVE LANGUAGE) at home? Can (PERSON) conduct everyday activities comfortably in English?" In addition, for respondents who reported having a USOC and a usual doctor at that source, questions were asked about the doctor's racial/ethnic background, national origin or ancestry, and whether the doctor spoke the respondent's native language.

We present bivariate estimates related to USOC and use of physician visits as well as multivariate models to explain which variables are most important in determining who has a USOC and who uses two specific health care services. Whether an individual has a regular place at which they seek medical care has been used traditionally as an indicator of potential access (Aday, Andersen, and Fleming, 1980).

There are several limitations to USOC as an access indicator. Having a USOC is a matter of individual choice, and persons with no apparent health problems may choose not to have a regular health care

provider (Hayward et al., 1991). Moreover, different types of usual care (e.g., a physician's private office versus an emergency room) may represent different levels of quality or continuity; one study found that Hispanics were less likely than other groups to see a particular physician at their USOC (Andersen, Giachelli, and Aday, 1986).²

Despite these caveats about USOC, empirical evidence suggests that persons who report a USOC use more health services, particularly preventive services (Hayward et al., 1991; Estrada, Travino, and Ray, 1990; Aday, Fleming, and Andersen, 1984). Within this same access framework, use of health care services is a measure of realized access. Thus, we use three measures of access—USOC, number of physician visits, and whether blood pressure has been checked. These are three of many possible measures, and we make no claims that they fully represent either potential or realized access. Rather, we have tried, given available data, to represent several dimensions of access—both potential and realized and, within realized access, both preventive and illness-related.

All estimates are weighted to reflect the composition of the population in 1987. For the bivariate estimates, standard errors were computed with SUDAAN, which uses the Taylor series linearization method to account for the complex survey design (Shah, Barnwell, and Bieler, 1995).³ Tests of statistical significance were used to assess whether differences in population estimates exist at specified levels of confidence.

²We used a variable indicating whether the person had a usual doctor at their USOC and whether that doctor spoke Spanish to control for differences in type or site of USOC.

³We use this approach because the NMES sample is not a simple random sample but is derived using a multistage area sample in which respondents are geographically clustered. This increases the design effect of the estimates, so that standard errors computed in a conventional manner would understate the true variance of an estimate.

Five multivariate regression models were estimated as shown in Table 1. These models were used to assess the relative importance of financial versus cultural factors while controlling for other characteristics (e.g., health status or demographics) that influence health care use. For the three equations for which the dependent variable is dichotomous, we use the SUDAAN procedure LOGISTIC to fit logistic regression models to binary data, estimating odds ratios and confidence intervals for the parameters.

For the physician visits equations, we use a negative binomial model based on a Poisson distribution (Hausman, Hall, and Griliches, 1984; Greene, 1990). The Poisson regression model, in contrast to a linear model, allows us to improve on the estimation by accounting for the characteristics found in the distribution of visits.⁴ Although this model better reflects the observed distribution of visits, we are not able to appropriately estimate standard errors given the complex survey design of NMES. Because standard errors will thus be understated, we apply a stricter test when interpreting our results, considering as significant only those coefficients that are different from zero at a 99-percent confidence interval.

An additional comment should be made about the regression models. We have estimated use separately for persons with and without a USOC because we have observed large differences in use for these two groups. And, in fact, our results—specifically that some variables are significant in one but not in the other equation—justify this division. However, because USOC is endogenous (i.e., it is itself a

⁴Specifically, we observe a large number of zeros, a large number of small values, and a variable that is discrete in nature. The maximum likelihood estimates using the negative binomial relax the assumption made in a Poisson model that the mean and the variance of the distribution are equal.

Table 1
Overview of Multivariate Models

Model	Dependent Variable	Population	Functional Form
1 ¹	Whether Person Had Usual Source of Care (USOC)	All Hispanic Adults (18 Years of Age or Over)	Logit
2 ²	Number of Physician Visits in Last Year	Hispanic Adults With USOC	Negative Binomial
3 ²	Number of Physician Visits in Last Year	Hispanic Adults With No USOC	Negative Binomial
4 ³	Whether Person Had Blood Pressure Checked in Last Year	Hispanic Adults With USOC	Logit
5 ³	Whether Person Had Blood Pressure Checked in Last Year	Hispanic Adults With No USOC	Logit

1 Model applied in Table 4.

2 Model applied in Table 5.

3 Model applied in Table 6.

SOURCE: Schur, C.L., Albers, L.A., and Berk, M.L., 1995.

choice variable), the error terms in the two equations may be correlated.⁵

FINDINGS

The primary purpose of this article is to assess the relative effects of financial and non-financial factors in the use of health care services for Hispanic American adults. Some background data on this population is pertinent before presenting the findings from our analysis. First, the Hispanic population is heterogeneous, consisting of persons from diverse national origins and cultural backgrounds. It has been shown that these groups differ in their demographic composition and in their use of health care services (Schur, Bernstein, and Berk, 1987; Trevino and Moss, 1984). Although it would be prefer-

able to analyze each national origin group separately, sample sizes do not permit us to do so. In addition to differences related to country of origin, there is wide variation within the Hispanic population in terms of socioeconomic characteristics and levels of acculturation (Schur and Albers, in press). Second, although there is much variation within the Hispanic population, Hispanics overall are less well off than other Americans in a number of dimensions that may affect health care use. Hispanics have lower levels of education, lower incomes, and, on average, are less likely than other Americans to be employed in jobs where health insurance is provided (Valdez et al., 1993; Short, Cornelius, and Goldstone, 1990). Finally, lack of health insurance is a particular problem within the Hispanic population, affecting an even larger percent of Hispanic persons than of black persons: The proportion of uninsured Hispanic persons has grown from 8 percent in 1977 to 20 percent in 1992, surpassing that of uninsured black persons in the late 1980s (Berk, Albers, and Schur, in press).

In preliminary analyses, a dichotomous variable indicating whether an individual had a USOC was a consistently strong pre-

⁵This problem is the result of incidental truncation of the distribution of the dependent variable (Greene, 1990). In effect, independent variables in the use model may have two effects on the dependent variable—one is a direct effect, and the other is an indirect effect through affecting the probability of having a USOC. The solution to this problem is to estimate the model using an instrumental variables technique; unfortunately, we have no instrument available with which to operationalize the method. In other words, we can think of no variable available that is a determinant of having a USOC but does not influence use of services. Thus, we are left with acknowledging the problem and noting that we do not think that this problem has a substantial impact on our estimates or the conclusions to be drawn from our work. In fact, many researchers estimate use without including a measure for USOC that essentially results in similar omitted variables problems.

Table 2

Percent of Hispanic Adults With and Without a Usual Source of Care, by Selected Characteristics

Selected Characteristic	Number of Persons	Percent With a Usual Source of Care	Percent Without a Usual Source of Care
All Hispanic Adults (18 Years of Age or Over)	12,158,901	67.0	33.0
Age***			
18-44 Years	8,801,419	64.0	36.0
45-64 Years	2,590,275	72.4	27.6
65 Years or Over	767,207	83.7	16.3
Place of Origin**			
Cuba	495,879	79.2	20.9
Mexico	7,270,179	64.3	35.7
Puerto Rico	1,511,943	76.1	24.0
Central or South America	1,298,728	68.5	31.5
Other Place of Origin	1,582,172	65.7	34.3
Central City			
Yes	4,477,105	65.3	34.7
No	7,681,796	68.0	32.0
Sex***			
Male	6,010,738	58.9	41.1
Female	6,148,163	75.0	25.0
Marital Status***			
Married	6,818,109	71.8	28.2
Not Married	5,340,792	60.9	39.1
Children Under 18 in Family***			
None	5,794,265	62.5	37.5
1	2,860,730	67.7	32.3
2 or More	3,503,906	73.9	26.1
Years of Education			
Less Than 12 Years	6,076,490	65.3	34.7
12 Years	3,346,473	68.9	31.1
More Than 12 Years	2,735,938	68.5	31.5
Self-Reported Health Status			
Fair/Poor	3,181,263	70.9	29.2
Good/Excellent	8,977,638	65.7	34.4
Activity Limitation***			
Limited in Moderate Activity	1,549,785	83.5	16.5
Not Limited in Moderate Activity	10,609,116	64.6	35.4
Chronic Conditions***			
Presence of at Least One	3,577,640	77.9	22.1
None	8,581,261	62.5	37.5
Income			
\$25,000 or Less	6,905,566	65.5	34.5
Over \$25,000	5,253,335	69.0	31.1
Employment/Paid Leave**			
Employed With Paid leave	3,494,749	72.7	27.3
No Paid Leave	8,664,152	64.7	35.3
Health Insurance Coverage***			
Private	6,526,952	71.1	28.9
Medicaid	1,533,564	83.3	16.7
Medicare	248,850	78.9	21.1
None	3,849,535	52.9	47.1

See source at end of table.

Table 2—Continued

Percent of Hispanic Adults With and Without a Usual Source of Care, by Selected Characteristics

Selected Characteristic	Number of Persons	Percent With a Usual Source of Care	Percent Without a Usual Source of Care
Language Spoken			
Speaks Spanish Only	2,622,360	65.3	34.7
Speaks English	9,536,541	67.5	32.5
Health Beliefs*			
Agree With Statement [†]	4,501,214	62.7	37.3
Do Not Agree With Statement [†]	7,657,687	69.6	30.4

* $p < 0.10$.

** $p < 0.05$.

*** $p < 0.01$.

[†]Responses were given in answer to the question "I can get well without the help of a health professional."

NOTE: Significance measures taken from the chi-square test of independence.

SOURCE: U.S. Public Health Service: National Medical Expenditure Survey, 1987.

dicator of use; yet having a USOC in and of itself is determined by a combination of financial and non-financial factors. Thus, we first examine the determinants of having a USOC. Because there is evidence that persons who have a USOC use services differently from those who do not, we estimate the determinants of use separately for the two groups.

Bivariate Analyses

Of the approximately 12 million Hispanic adults living in the United States in 1987, one-third reported having no regular place to get care when they were sick or needed advice about their health (Table 2).⁶ The likelihood of having a USOC varied with a number of demographic, health status, financial, and cultural characteristics. In general, as would be expected, those groups that tend to use more health care services were more likely to have a USOC. Thus, for example, the probability of having a USOC increased with age (from 64 percent of adults 18-44 years of age to 83.7 percent of those 65 years of age or over) and was inversely related to being in good health (whether measured by self-reported health status, limitation in activity, or pres-

ence of a chronic condition). Females have traditionally been found to use more health care services than males, and Hispanic females are shown here to be more likely to have a USOC (75 percent of females compared with 58.9 percent of males). Persons who were married and had children were also more likely to be connected to a regular source of care.

Of the financial characteristics included here, income was not a significant factor in the likelihood of having a USOC. On the other hand, persons who had paid leave to go to the doctor from their place of work were more likely to have a USOC, as were those with some form of third-party coverage for health care services. Hispanic adults enrolled in the Medicaid program were most likely to have a USOC (83.3 percent), followed by the elderly with Medicare coverage but with no supplemental coverage (78.9 percent) and those with private coverage (71.1 percent). In contrast, only 52.9 percent of those who were uninsured reported a USOC. Notably, persons who do not speak English were no less likely than English speakers to report having a regular place to obtain care. We used agreement with the following statement to proxy an individual's attitude toward the health care system: "I can get well without the help of

⁶In comparison, 20 and 26 percent of non-Hispanic white persons and black persons, respectively, reported no USOC.

Table 3
Mean Number of Office and Outpatient Visits to Physicians by Hispanic Adults (18 Years of Age or Over)

Selected Characteristic	With a Usual Source of Care	Without a Usual Source of Care	Ratio
All Hispanic Adults (18 Years of Age or Over)	3.4	1.5	2.3
Age			
18-44 Years (Reference)	2.7	11.4	1.9
45-64 Years	***4.6	1.3	3.5
65 Years or Over	***5.3	(2)	NA
Place of Origin			
Mexico	3.1	1.1	2.8
Puerto Rico	3.7	(2)	NA
Cuba	(2)	(2)	NA
Central or South America	3.2	(2)	NA
Other Place of Origin	*4.3	(2)	NA
Central City			
Yes	3.5	1.6	2.2
No	3.3	1.3	2.5
Sex			
Male	***3.8	***2.5	1.5
Female	2.8	10.8	3.5
Marital Status			
Married	3.4	1.4	2.5
Not Married	3.3	1.5	2.2
Children Under 18 in Family			
None (Reference)	4.1	1.4	2.9
1	**3.1	1.7	1.8
2 or More	***2.5	1.3	1.9
Years of Education			
Less Than 12 Years (Reference)	3.3	1.3	2.5
12 Years	3.2	11.3	2.5
More Than 12 Years	3.6	2.0	1.8
Health Status			
Self-Reported Health Status			
Fair/Poor	***5.2	**2.6	2.0
Good/Excellent	2.7	1.1	2.4
Activity Limitation			
Limited in Moderate Activity	***6.6	***4.1	1.6
Not Limited in Moderate Activity	2.7	1.3	2.2
Chronic Conditions			
Presence of at Least One	***5.1	***2.9	1.8
None	2.5	1.1	2.2
Income			
\$25,000 or Less (Median Income)	**3.7	1.4	2.7
Over \$25,000	2.9	1.5	1.9
Employment/Paid Leave			
Employed With Paid leave	3.2	1.7	1.9
Not Employed or No Paid Leave	3.4	1.4	2.5
Health Insurance Coverage			
Private (Reference)	3.4	1.7	2.0
Medicaid	**4.9	(2)	NA
Medicare	(2)	(2)	NA
None	***2.1	1.1	1.9

Table 3—Continued
Mean Number of Office and Outpatient Visits to Physicians by Hispanic Adults (18 Years of Age or Over)

Selected Characteristics	With a Usual Source of Care	Without a Usual Source of Care	Ratio
Language Spoken			
Speaks Spanish Only	3.6	1.1	3.3
Speaks English	3.3	1.5	2.1
Health Beliefs			
Agree With Statement ³	***2.3	1.2	2.0
Do Not Agree With Statement ³	3.9	1.6	2.4
Usual Doctor			
No Doctor (Reference)	2.6	NA	NA
Doctor Speaks Spanish	**3.4	NA	NA
Doctor Does Not Speak Spanish	***3.8	NA	NA

* $p < 0.10$.

** $p < 0.05$.

*** $p < 0.01$.

¹ Relative standard error > 30 percent.

² Cell size less than 100.

³ Responses were given in answer to the statement "I can get well without the help of a health professional."

NOTE: Significance measures taken from *t*-test. NA is not applicable.

SOURCE: U.S. Public Health Service: National Medical Expenditure Survey, 1987.

a health professional."⁷ Persons agreeing with this statement were somewhat less likely to have a USOC. These results are largely confirmed in the multivariate analysis.

Table 3 presents the mean number of outpatient physician visits for Hispanic adults in 1987. In addition to the variation in the number of physician visits by selected person characteristics, the data show substantial and consistent differences between persons with and without a USOC. On average, Hispanic adults had 2.8 visits in 1987, with 3.4 for those with a USOC and 1.5 for those without. For those with a USOC, the mean number of visits was substantially higher for persons 45 years of age or over than for those aged 18-44 years. Females had 3.8 visits per year, on average, compared with 2.8 for males. Marital status did not affect the use of physician visits, but persons with children had fewer visits than their childless counterparts. This latter

finding may be due to childcare responsibilities that limit parents' ability to get care for themselves.

All three health status indicators show that use was substantially higher for those with health problems, regardless of whether the individual had a USOC. For those with a USOC, persons with fair or poor health status, with an activity limitation, or with a chronic condition had almost twice as many visits as their healthier counterparts. For persons without a USOC, the difference between the healthy (1.1 to 1.3 visits on average) and less healthy (2.6 to 4.1 visits) was even larger.

For those with a USOC, persons with lower incomes actually used more services than those with higher incomes. This is most likely related to underlying differences in health status. Insurance coverage appears to be a factor only for those with a USOC. Persons on Medicaid had the highest average number of physician visits (4.9), followed by those with private coverage (3.4). The uninsured—even those with a USOC—had only 2.1 annual visits. Persons who spoke Spanish only were not significantly different from English speak-

⁷NMES included a number of health beliefs statements to which the respondent was asked to indicate agreement or disagreement. We examined the full set of responses as indicators of an individual's overall confidence in medical care professionals and the medical care system. We selected one statement that appeared to be relatively clear in its implications in an effort to represent the variation in attitudes within the Hispanic population.

ers in the level of physician visits, although health beliefs did have an impact of use. As one would expect, persons who expressed the belief that they could get well without the help of a health professional had fewer visits (2.3 compared with 3.9). In addition, Hispanic adults with a usual doctor at their regular place of care had more visits, on average, than those with no usual doctor; there was, however, little difference related to whether the doctor spoke Spanish.

The third column of Table 3 shows the ratio of mean visits for those with a USOC to those without (i.e., the ratio of the first two columns). This ratio fluctuates around 2, never falling below 1.5, and indicates the strong effect of a USOC on use within a variety of population subgroups.

Determinants of USOC

There are numerous reasons why a person may or may not have a usual place to get care. It could simply be a matter of not having had an occasion to use medical care recently. Hayward et al. (1991), in a national study of access, found that of those with no USOC, 61 percent reported the reason as not wanting a regular source of care rather than a financial or availability constraint. Thus, persons who are younger, healthier, or more likely to change residences frequently might be less likely to have obtained a particular care provider. Conversely, those in poor health are probably most likely to have a place that they go to when they are sick.

Financial factors might also affect whether a person has a USOC. Persons who have the resources to pay for their care (due to either insurance coverage or higher income) may find it easier to find a permanent provider from whom they can get care on a regular basis. Finally, cultural factors may influence one's probability of finding a regular place for care. Researchers

have hypothesized that within the Hispanic population, those who have assimilated more into the mainstream American culture are more likely to use services within that norm. However, variables that control for potential barriers related to differences in culture are more difficult to define than those that represent differences in ability to pay for services. Variables used in the multivariate analyses to control for each of these influences are described later.

In the multivariate analysis, we have included independent variables such as age, sex, marital status, and number of children in the household (if any) in an attempt to control for the person's stage in life⁸ and other factors that might influence residential stability. In addition, three variables control for differences across the population in health status: a self-reported health status assessment, whether the person had moderate limitations in their usual activity, and whether the person had at least one chronic health condition.

Independent variables to control for financial access include insurance status, income, and whether the person could use paid leave to get health care during normal work hours. To proxy the level of acculturation, we used a dichotomous variable indicating whether the individual was a monolingual Spanish speaker. In addition, we examined the patterns of agreement with a number of statements reflecting attitudes about health and the health care system. Included is an independent variable indicating whether they agreed with the statement that they could get well without professional help.

Results of the logistic regression with dependent variable USOC are shown in

⁸The concept of the "family life cycle" has been applied extensively by sociologists, demographers, and economists in frameworks that incorporate the dynamic variation in social and economic characteristics of families in different life stages—from family formation and building to later stages when children leave the home and finally to the dissolution of the family. This analysis includes several independent variables that are indicative of an individual's position in the family life cycle.

Table 4
Results of Logistic Regression: Whether
Person Had Usual Source of Care

Variable Description	Odds Ratio
Age (18-44 Years Omitted)	
45-64 Years	*1.34
65 Years or Over	**1.99
In Central City	0.89
Female	***1.90
Married	***1.67
Number of Children Under 18 Years in Family	
Income (Natural Log)	***1.21
Education (Under 12 Years Omitted)	1.04
12 Years	
13 Years or More	1.35
Health Status	**1.32
Fair or Poor Health	
Limited in Moderate Activity	0.91
Presence of Chronic Condition	***1.97
Employed With Paid Leave	**1.46
Insurance Status (Uninsured Omitted)	*1.36
Medicaid	
Medicare	***3.13
Private	1.67
Speaks Spanish Only	***1.65
Can Get Well Without Help	0.84
Hispanic Origin Group (Mexican Omitted)	0.82
Puerto Rican	
Cuban	**1.57
Latin American	*1.65
Other Origin	1.16
Intercept	0.85
Statistics	
Mean of Dependent Variable	0.67
Number of Observations	1,928

* $p < 0.10$.

** $p < 0.05$.

*** $p < 0.01$.

SOURCE: U.S. Public Health Service: National Medical Expenditure Survey, 1987.

Table 4. Variables that determine whether an individual has a USOC fall into several categories. Several demographic characteristics are worth mentioning. Age is positively related to the likelihood of having a regular place to get care: After controlling for health status and other influences, persons aged 45-64 years and those 65 years of age or over were more likely than those 44 years of age or under to report a USOC. The elderly are, in fact, twice as likely as younger adults to do so (indicated by the odds ratio). Women and married persons—traditionally higher users of care—also have a higher probability of having a USOC as do those with children in the household, although the size of the effect is somewhat smaller for the latter group.

As would be expected, persons in poorer health are more likely to have obtained a provider of care, with two of the three health status indicators being positive and significant. The two health status indicators that are shown to be significant determinants of having a USOC measure the existence of a particular health problem—either a chronic condition or a limitation in activity—rather than an overall lack of well-being; this supports the notion that those with ongoing health problems are more likely to have a USOC.

Income does not affect the probability of having a USOC directly, though the two other financial variables have a significant impact. Those with third-party coverage for services—either Medicaid or private insurance—are more likely to have a USOC. It is interesting to note the size of the effects shown here: Hispanic adults on Medicaid are three times as likely as the uninsured to have a regular place to get care, whereas the effect for those with private coverage is more moderate. Curiously, those with Medicare only (i.e., no supplemental coverage) are no more likely than the uninsured to have a USOC. Elderly persons without supplemental coverage may be particularly vulnerable to high medical expenses—not poor enough to qualify for Medicaid yet unable to purchase a private policy to fill in Medicare's gaps. On the other hand, it is likely that some of those without supplemental coverage have chosen not to purchase additional insurance because they perceive themselves as low users of care. Persons with paid leave from work exhibit a higher likelihood of having a USOC than those who work and do not have paid leave or those who are unemployed. This effect is likely to work in the following way: Paid leave may enable persons to seek health care more freely and thus be more likely to have obtained a USOC. Conversely, indi-

viduals without paid leave may not be able to afford missing a day's pay to seek health care for themselves or their family.

It is particularly interesting to note that neither of the variables used to capture cultural differences that might affect care-seeking behavior are significant when we control for other factors. Lack of fluency in English has no effect on having a USOC, suggesting that entry into the system may not be substantially more difficult for those who speak Spanish only. And, in this multivariate context, a belief in one's ability to get well without a doctor had no influence on one's likelihood of having obtained a regular provider of care. There was some variation by national origin, however. Compared with Mexicans, both Puerto Ricans and Cubans were more likely to report a USOC. These groups are more likely to have third-party coverage for care (Medicaid and private insurance, respectively), but this effect is already controlled for in the model.

Physician Visits

We used two separate equations to examine the factors that determine the level of use of physician visits: one for persons with a USOC and the other for those without a USOC (Table 5). Because the distribution of physician visits has a large number of zero values and is concentrated at low integer values, we used a negative binomial model based on a Poisson distribution (see the Data and Methods section for more detail). We used primarily the same independent variables as in the USOC equation, under the assumptions that personal and family characteristics, health status, financial factors, and attitudes and language are most likely to influence use. In addition, for the population with a USOC, we had information on whether individuals had a usual doctor at

their regular place of care and whether that doctor spoke Spanish or was Hispanic.

Many of the same variables that influence whether a person has a USOC also determine the level of physician care sought. Females had more physician visits than did males, regardless of whether they had a USOC. For persons with a USOC, those who were married had approximately 20 percent more visits than those who were not; however, the number of children in the family was negatively and significantly related to the use of physician visits, even though persons with children were 21 percent more likely to have a USOC.⁹ These latter two variables were not significant determinants of use for those without a USOC. It should be noted again that the population without a USOC is, on average, younger, predominantly male, less likely to be married, healthier, and more likely to be uninsured.

In both models (with and without a USOC), two of the three health status variables were significant. For both variables, the estimated coefficients were larger for persons with no USOC than for those with a USOC: For the former group, persons limited in their activity had 61.8 percent more doctor visits than those who had no activity limitations, and persons with one chronic condition or more used 50.5 percent more visits than those with no reported chronic conditions. Given a mean number of physician visits of 1.5 for this population, however, these coefficients indicate an increase of less than one visit annually with a change in health status.

As expected, insurance status plays a role in determining use of physician visits. In the results shown in Table 5, persons with either Medicaid or private coverage

⁹In the Poisson model, the coefficients reported can be interpreted as measuring the percent change in the expected value of the number of visits for a one-unit change in the independent variable. For a dichotomous variable such as married, a coefficient of 0.196 means that married persons have a 19.6 percent higher mean number of visits than do non-married persons.

Table 5
Results of Poisson Model Regression: Number of Physician Visits for Hispanic Persons
With and Without a Usual Source of Care (USOC)

Variable Description	Estimated Coefficient	
	With USOC	Without USOC
Age (18-44 Years Omitted)		
45-64 Years	0.162	0.018
65 Years or Over	0.039	0.407
In Central City	0.023	0.171
Female	***0.214	***0.662
Married	***0.196	0.334
Number of Children Under 18 Years in Family	***-0.062	-0.002
Income (Natural Log)	-0.009	-0.087
Education (Under 12 Years Omitted)		
12 Years	0.040	-0.441
13 Years or More	0.168	***0.465
Health Status		
Fair or Poor Health	0.170	0.199
Limited in Moderate Activity	***0.420	***0.618
Presence of Chronic Condition	***0.355	***0.505
Employed With Paid Leave	0.085	0.210
Insurance Status (Uninsured Omitted)		
Medicaid	***0.509	0.483
Medicare	0.153	-0.705
Private	***0.309	0.230
Speaks Spanish Only	0.003	-0.417
Can Get Well Without Help	***-0.282	-0.164
Usual Doctor		
Speaks Spanish	0.145	—
Speaks English	***0.210	—
Hispanic Origin Group (Mexican Omitted)		
Puerto Rican	-0.058	-0.105
Cuban	-0.138	-0.727
Latin American	-0.049	-0.066
Other Origin	-0.039	-0.056
Intercept	***-1.065	-1.217
Statistics		
Mean of Dependent Variable	3.46	1.51
Number of Observations	1,336	586

*** $p < 0.01$.

NOTE: Levels of significance indicated for two-tailed test as $p < 0.01$. We use this stricter test because standard errors do not account for complex survey design.

SOURCE: U.S. Public Health Service: National Medical Expenditure Survey, 1987.

use more physician services than do the uninsured—this effect holds, however, only for persons with a USOC. The estimated coefficients for the two insurance variables are of moderate size compared with what might be expected, with persons with Medicaid coverage having 50 percent more visits and those with private coverage having 31 percent more visits compared with the uninsured. For persons with no USOC, none of the insurance variables appear to play a significant role in determining use. Perhaps, in this population, where the average use is quite low, a visit is only initiated when deemed absolutely

necessary and, at that stage, other factors become irrelevant (e.g., when persons are very sick, they are less likely to be denied care and less likely to avoid seeking care for fear of being denied because they are unable to pay). Other financial variables do not have as strong an effect, even for those with a USOC. Although income was a significant predictor of having a USOC, it had no effect on the number of physician visits. Paid leave from work has no effect in either of the equations, and persons covered by Medicare but with no supplemental coverage obtain no more visits than the uninsured.

Of critical interest to this study is the influence of language on use of services. For those individuals with a USOC, being a monolingual Spanish speaker has no apparent effect on the level of use of physician services. There is similarly no effect from having a usual doctor who speaks Spanish. In fact, persons with a usual doctor who does not speak Spanish have 21 percent more visits, on average, than persons with no usual doctor; and there was no difference in the number of visits between persons with a usual doctor who spoke Spanish and those with no usual doctor.¹⁰ The country of origin also has no effect on the level of use either for those with or for those without a USOC. Of these variables, which may control for the level of cultural influence or degree of assimilation, only the health belief indicator is significant and only for those with a USOC. As might be expected, persons in this category who believe that they can get well without a doctor have fewer visits.

Probability of Having Blood Pressure Checked

According to the U.S. Preventive Services Task Force (1989), clinicians should emphasize to their patients the importance of periodic screening for high blood pressure. Thus, although one would expect individuals to differ with respect to the number of physician visits based on their demographic and health status characteristics, there should be less of such variation with regard to blood pressure

¹⁰Separate bivariate estimates indicate that persons with a USOC but no usual doctor at that site had, on average, 4.3 visits. Those with a USOC and a usual doctor who speaks Spanish had 5.0 visits, whereas those with a USOC and a usual doctor who does not speak Spanish had a mean visit count of 5.2. Thus, there may be underlying relationships (e.g., self-selection into one of these groups) that account for the lack of a significant effect for those with a Spanish-speaking physician in the multivariate model.

testing.¹¹ The determinants of having one's blood pressure checked are also of particular interest within the Hispanic population. As discussed earlier, there is some empirical evidence that less assimilated Hispanics are less likely than those more assimilated to receive certain screening exams. Although blood pressure is a screening exam, it is one performed in the course of a regular visit, with no need for a separate appointment or special initiative on the patient's part. Thus, factors such as fear of results or lack of understanding physicians' instructions should not play as much of a role.

We have used the same independent variables as in the physician visits equations to assess the determinants of having had one's blood pressure checked, as shown in Table 6. The two columns present results from equations for persons with and without a USOC. Among all demographic subpopulations controlled for, only gender has an effect on the likelihood of having had one's blood pressure checked.

Only one of the three health status variables is significant in these equations: Persons with chronic health problems are more than twice as likely as those with no chronic conditions to have their blood pressure checked, regardless of whether they have a USOC. This may be due directly to their condition (e.g., many of these people are likely to be hypertensive), or their higher number of visits may lead to a higher likelihood of having the test. For persons with a USOC, private health insurance coverage or enrollment in the Medicaid program is positively related to the dependent variable. Here, the effect of private insurance, in contrast to the physician visits equation, is larger and stronger than that of having Medicaid coverage; it is

¹¹The possibility that individuals were unable to accurately report whether or not they had their blood pressure checked is beyond the scope of this article.

Table 6
Results of Logistic Regression: Whether Person Had Blood Pressure Checked
for Hispanic Persons With and Without a Usual Source of Care (USOC)

Variable Description	Estimated Coefficient	
	With USOC	Without USOC
Age (18-44 Years Omitted)		
45-64 Years	1.04	0.57
65 Years or Over	1.11	0.85
In Central City		
Female	1.17	0.98
Married	***2.03	***1.49
Number of Children Under 18 Years in Family	1.16	1.34
Income (Natural Log)	1.05	***0.87
Education (Under 12 Years Omitted)		
12 Years	1.01	1.11
13 Years or More	0.99	1.14
Health Status		
Fair or Poor Health	1.21	1.09
Limited in Moderate Activity	1.14	1.72
Presence of Chronic Condition	***2.16	***2.08
Employed With Paid Leave	1.22	*1.58
Insurance Status (Uninsured Omitted)		
Medicaid	*1.49	0.80
Medicare	1.49	1.04
Private	***1.92	1.42
Speaks Spanish Only	1.02	0.70
Can Get Well Without Help	**1.32	1.15
Usual Doctor		
Speaks Spanish	*1.42	—
Speaks English	1.12	—
Hispanic Origin Group (Mexican Omitted)		
Puerto Rican	*1.52	**2.01
Cuban	0.57	0.74
Latin American	0.98	1.25
Other Origin	1.23	0.73
Intercept	*0.34	1.27
Statistics		
Mean of Dependent Variable	0.73	0.46
Number of Observations	1,336	589

* $p < 0.10$.

** $p < 0.05$.

*** $p < 0.01$.

SOURCE: U.S. Public Health Service: National Medical Expenditure Survey, 1987.

possible that this may be related to the site of care, with persons having private coverage more likely to see an office-based physician who, in turn, may be more likely to check blood pressure.

Although previous research has reported a particular access problem with respect to preventive care for Hispanics, persons who spoke Spanish only were no less likely to have had their blood pressure checked. As mentioned previously, a blood pressure test differs from other screening exams in that it takes place in the course of a visit without need for special assent on the part of the patient or a separate

appointment. Interestingly, persons with a usual doctor that spoke Spanish were more likely to have their blood pressure checked than persons with no usual doctor, but persons with a usual doctor who did not speak Spanish were no more likely to have had the test than those with no usual doctor (the opposite result from the visits equation). This finding may provide support for the importance of physician language in the use of preventive services. A counter-intuitive finding is that for those with a USOC, the coefficient on the belief variable is positive: Persons who believe they can get well without a doctor are 30 percent

more likely to get their blood pressure checked. Perhaps these individuals are more health conscious and proactive in their care, increasing their likelihood of getting preventive care and supportive of their belief that they can get well without a doctor's help.

CONCLUSIONS

In this study, we have tried to examine the relative effects of financial and cultural determinants of access to care for the population of Hispanic adults. We have looked at whether individuals have a usual place that they go to for medical care when they are sick, and we have examined their contact with physicians. Estimating the likelihood of having blood pressure checked in a 1-year period has demonstrated the relative effect of financial and cultural factors on the use of one preventive service. To test the hypothesis that cultural differences may inhibit entry into the health care system and use of that system, we were limited in our selection of variables. We had information on individuals' language status, an indication of their confidence in the health care system, and, for those with a USOC, information on their doctor's language. In the five equations described in this article, monolingual Spanish speakers were not significantly different from English speakers in their likelihood of having a USOC, in the number of physician visits, or in the probability of having had their blood pressure checked.

A number of changes have occurred since 1987, the year these data were collected. Foremost, the size of the Hispanic population in the United States has grown dramatically. On the other hand, the composition of the population (at least in terms of the national origin categories used by the U.S. Census Bureau) has changed only moderately. Between 1987 and 1993, the

percent of Hispanics who reported Central or South American ancestry increased from 12.6 to 14.6 percent (U.S. Bureau of the Census, 1988; 1994). There were small decreases (approximately 1 percentage point each) in the proportion of Hispanics whose national origin was either Puerto Rican or Cuban. According to the U.S. Bureau of the Census, approximately 75 percent of Hispanics reported speaking Spanish in their home in 1980 compared with 77 percent in 1990. To the extent that these changes in composition are indicative of changes in demographic characteristics, socioeconomic characteristics such as earnings potential, and cultural characteristics such as language spoken, more recent Hispanic immigrants may have even greater access problems than those described here.

Moreover, there have been major changes in the political climate. The growing importance of the Federal budget deficit in the national policy debate has prompted several initiatives with respect to the provision of health services that would affect access to care for Hispanics. First, Medicare has been potentially targeted for increases in beneficiary premiums that could adversely affect those low-income enrollees who do not have supplemental coverage. Approximately one-third of elderly Hispanics rely on Medicare as their only source of coverage compared with about 10 percent of the elderly as a whole. More importantly, there is serious discussion concerning turning Medicaid over to the States. Under that scenario, total public funds spent on providing health services to the poor are likely to decrease. This will have a potentially large impact on use of services for some segments of the Hispanic population. Approximately 10 percent of non-elderly Hispanic adults had Medicaid coverage in 1987; for monolingual Spanish speakers, that proportion was 16 percent

(Schur and Albers, 1996). Finally, the State-level initiatives that would deny publicly funded services to undocumented immigrants (such as Proposition 187 in California) would affect some proportion of the population described in this study.

Two final caveats should be made. First, there are clearly other dimensions of culture and assimilation not captured here; data bases that would allow for inclusion of these other dimensions in a multivariate model of use would be important in providing additional evidence to inform policymakers. Second, it should be noted that the set of relationships being examined is quite complex, and some avenues have not been fully explored. For example, acculturation and language may be antecedent variables acting through financial variables: Persons who speak Spanish only may be less able to acquire insurance which, in turn, affects their use of services. If this is the case, it is critical for policymakers to affect barriers to care related to financial need as well as cultural differences.

At the same time, we note that the variables used behaved in a consistent manner. In all equations, financial indicators, primarily insurance coverage, had a stronger impact on use than did measures of culture. Moreover, financial factors were particularly important in predicting whether an individual had a regular place to obtain care. Finally, persons linked to a USOC were consistently higher users of services. These results suggest that policies aimed at increasing access should emphasize reducing financial barriers. Although making services more culturally appropriate is valuable, making them easier to pay for is likely to have a bigger policy impact.

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