

Racial and Ethnic Differences in Access to and Use of Health Care Services, 1977 to 1996

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This article focuses on racial and ethnic disparities in health care, describing both absolute differences and relative changes in access to care and the use of health services among whites, blacks, and Hispanics over the past two decades. Using data from a series of three nationally representative medical expenditure surveys, the authors present descriptive statistics on disparities in access and use between minorities and whites over time. They also use multivariate analyses to isolate the extent to which health insurance and income explain those disparities. The authors find that disparities increased between 1977 and 1996, particularly for Hispanic Americans. Results also show that approximately one half to three quarters of the disparities observed in 1996 would remain even if racial and ethnic disparities in income and health insurance coverage were eliminated.

In 1984, the secretary of the Department of Health and Human Services established a Task Force on Black and Minority Health to investigate the health problems of various racial and ethnic groups in the United States. In its report the following year, the task force noted considerable disparities between white Americans and other racial and ethnic groups with regard to

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several health conditions (Task Force on Black and Minority Health 1985). A substantial number of studies followed that further highlighted the relative disadvantage of a number of racial and ethnic minority populations (see Mayberry et al. 1999 for an overview of these studies). Since then, the department has established an Office of Minority Health and devoted considerable funds to further studies with the aim of reducing disparities. At the same time, the study of minority health has moved from a primary emphasis on black Americans to one that focuses on other groups as well, including Hispanic and Asian Americans. Despite substantial public attention and policy changes, nearly 15 years later disparities in health among racial and ethnic groups remain an area of concern, with President Clinton devoting \$400 million in 1998 toward efforts to eliminate them.

The existence of racial and ethnic disparities across a broad spectrum of health conditions is well documented. According to data from the National Center for Health Statistics (1996), for example, black Americans have higher death rates from coronary disease, breast cancer, and diabetes than do white Americans, and infant mortality rates are higher among both African American and American Indian/Alaska Native populations. In addition, the data show that there is a higher rate of uncontrolled hypertension among Mexican Americans than among white Americans and that Asian/Pacific Islander, African American, and Hispanic populations all have an elevated incidence of tuberculosis.

Similar disparities have been observed for health insurance, access to health care, and use of health care services. For example, with respect to insurance, Hispanic Americans are considerably more likely to be uninsured than are white Americans, while black Americans are more likely to be publicly insured (Collins, Hall, and Neuhaus 1999; Kass, Weinick, and Monheit 1999; Short, Cornelius, and Goldstone 1990). In terms of access, research has shown that Hispanic Americans are nearly twice as likely to lack a usual source of care as white Americans (Zuvekas and Weinick 1999); minority children are also more likely to lack a usual source of health care (Cornelius 1993; Newacheck, Hughes, and Stoddard 1996), and Hispanic and Asian adults are considerably more likely to report major problems accessing specialty care than are white Americans (Collins, Hall, and Neuhaus 1999). With respect to use, ambulatory care and mental health care use are lower among blacks and Hispanics (Cornelius 1993; Freiman and Cunningham 1997; Krauss, Machlin, and Kass 1999), black and Hispanic children are less likely to receive prescription medications (Hahn 1995), and black Americans are considerably less likely to be referred for and actually have cardiac procedures (Schulman et al. 1999; Carlisle, Leake, and Shapiro 1995).

While many studies have documented such disparities at a single point in time, there is limited evidence as to how these disparities may have changed over time. One study showed that while white and black Americans did not experience significant changes in the probability of having a usual source of health care between 1977 and 1996, the proportion of Hispanic Americans lacking a usual source of health care rose substantially over this period (Zuvekas and Weinick 1999). Trends in other types of disparities, particularly those related to the use of health care services, have not been well documented.

NEW CONTRIBUTION

This article uses a unique set of data sources to expand our body of knowledge concerning trends in disparities in the access to and use of health care services by

1. describing trends in the access to care and use of health care services by members of various racial and ethnic groups;
2. evaluating the magnitude of these trends after adjusting for health insurance coverage, income, and other individual characteristics; and
3. simulating how recent disparities would change if racial and ethnic disparities in health insurance coverage and income were eliminated.

The data used in this analysis are composed of nationally representative samples of the U.S. population at three points in time over a 20-year period, drawn from a series of surveys. Many previous studies have examined disparities at a given point in time. We make a new contribution by using these three unique data sets to examine how disparities in access to and use of health care services among racial and ethnic groups have changed over this period and by quantifying the proportion of these disparities that can be explained by racial and ethnic differences in income and health insurance coverage.

CONCEPTUAL FRAMEWORK

This analysis is based on standard models that assume that access to and use of health care services is dependent on the characteristics of individuals and the health care system (Andersen 1968, 1975; Grossman 1972). In this framework, access to and use of services are functions of individual health status and demographic characteristics; preferences related to the use of health care services; and economic and market factors, including individuals' health insurance coverage and income.

One key issue relevant to policy makers is the extent to which trends and disparities among racial and ethnic groups can be fully explained by differences in income levels, health insurance status, and other socioeconomic characteristics among the different racial and ethnic groups. However, prior research has shown that these factors can explain only a portion of the disparities. For example, Zuvekas and Weinick (1999) show that declines in health insurance coverage account for only one fifth of the decline in having a usual source of health care among Hispanics between 1977 and 1996. Similarly, Weinick and Krauss (forthcoming) show that racial and ethnic differences in usual sources of health care for children remain strong and substantial even when controlling for income and health insurance coverage.

In this article, we use regression-based approaches to understand the contribution that health insurance coverage, income, and other individual characteristics play in explaining disparities among racial and ethnic groups in access to and use of health care services. This approach allows us to examine both levels of and changes in racial and ethnic disparities over time and the extent to which adjusting for health insurance, income, and other individual characteristics affects the magnitudes of these measures.

DATA AND METHODS

The data used in our analysis come from a series of three household-based medical expenditure surveys sponsored by the Agency for Healthcare Research and Quality (formerly the Agency for Health Care Policy and Research): the 1977 National Medical Care Expenditure Survey (NMCES), the 1987 National Medical Expenditure Survey (NMES), and the 1996 Medical Expenditure Panel Survey (MEPS). The main goal of each of these surveys was to provide detailed information on the health care use and expenditures, sources of payment, health status, health insurance coverage, demographic characteristics, income, and employment status of a representative sample of the civilian, noninstitutionalized U.S. population. Each of the three surveys collected data from a sample of randomly selected households via multiple contacts over 1 or more years. Our unweighted sample sizes are 38,336 persons in 1977, 33,536 in 1987, and 20,793 in 1996. Additional details on the surveys are available in Bonham and Corder (1981), Edwards and Berlin (1989), and Cohen et al. (1996).

The first outcome we analyze in this article is whether each individual has a usual source of care. Our usual source of care measure is derived from an access to care supplement administered at one of the interviews in each of the three surveys. Common to all three supplements are questions concerning usual sources of care, including similarly worded questions in each survey

that ask if each member of the family has a particular clinic, health center, doctor's office, or other place he or she usually goes to if sick or in need of advice about his or her health. Having a usual source of care is one aspect of access to care that may positively influence health outcomes. For example, previous research has shown strong relationships between having a usual source of care and the use of preventive care services for both adults (Weinick and Bearegard 1997) and children (Lutz 1990). The second outcome we examine is the probability of having at least one ambulatory care visit (including visits to doctors' offices and hospital outpatient departments) and the average number of visits for those who have used any ambulatory care services.

Other variables in our analysis include health insurance coverage, family income, age, sex, marital status, education, health status, region of the country, and residence within or outside of a metropolitan statistical area (MSA). Health insurance is categorized as private, public, or uninsured for the younger-than-65 population, and Medicare only, Medicare plus private, Medicare plus other public, and no Medicare for the 65-and-older population. Family income is measured as income relative to the federal poverty line, with categories for poor (< 100 percent of the poverty line), near poor (100-125 percent), low income (125-200 percent), middle income (200-400 percent), and high income (> 400 percent). Age includes categories for 0 to 5, 6 to 17, 18 to 44, 45 to 64, and 65 and older. Education includes categories for less than high school, high school graduate, some college, and college graduate; mother's education is used for children. Our measure of perceived health status was categorized as fair or poor health versus good to excellent health.

We first present weighted descriptive statistics, with standard errors that have been corrected to account for the complex design of each independent survey using the Stata software package (StataCorp, 1999). Unless otherwise noted, all differences that are discussed in the text are statistically significant at the .05 level or better.

In addition, we employ a regression-based difference-in-difference approach to examine how disparities have changed over time, controlling for the variables described above. For example, to examine how disparities changed between 1987 and 1996 for Hispanics and whites, this approach, in essence, measures the difference between Hispanics and whites in 1996 and the difference between Hispanics and whites in 1987 and subtracts the two differences. These differences can be easily computed using interaction terms between the race/ethnicity and year variables in the regression models.

To implement this approach, we estimate linear probability regression models (ordinary least squares)¹ on the pooled data from all three surveys (1977, 1987, 1996), with usual source of care and having any ambulatory visits as dependent variables. We include indicators for race/ethnicity, year, and

TABLE 1 Descriptive Statistics for Access to and Use of Ambulatory Care Services, 1977 to 1996

	1977	1987	1996
Proportion with no usual source of health care			
Total	15.2 (0.61)	18.9 (0.51)	17.4 (0.44)
White	13.9 (0.65)	17.0 (0.49)	15.1 (0.48)
Black	20.8 (1.23)	23.0 (1.23)	19.2 (0.96)
Hispanic	19.9 (1.73)	28.0 (1.68)	29.5 (1.28)
Proportion with at least one ambulatory care visit			
Total	67.8 (0.46)	73.3 (0.38)	72.9 (0.44)
White	69.0 (0.48)	76.8 (0.40)	77.1 (0.48)
Black	59.3 (1.38)	62.3 (1.07)	62.7 (1.24)
Hispanic	65.0 (1.44)	62.4 (1.17)	60.7 (1.11)
Average number of ambulatory care visits (for persons with at least one visit)			
Total	4.8 (0.04)	6.8 (0.10)	7.0 (0.13)
White	4.9 (0.05)	7.2 (0.11)	7.5 (0.15)
Black	4.3 (0.13)	5.8 (0.19)	5.6 (0.29)
Hispanic	4.6 (0.21)	5.1 (0.19)	5.9 (0.58)

Note: Standard errors shown in parentheses.

interaction terms between race/ethnicity and year as follows: Hispanic and Black (white is the omitted category), 1977 and 1996 (1987 is the omitted category), an interaction term between Hispanic and 1977 (denoted Hispanic*77), an interaction term between Hispanic and 1996 (denoted by Hispanic*96), an interaction term between Black and 1977 (denoted by Black*77), and an interaction term between Black and 1996 (denoted by Black*96). Because the three surveys are independent, nationally representative samples, we can apply the survey weights corresponding to the appropriate year for each observation. We also adjust the standard errors for the complex design of the three surveys.

In this model, the regression coefficient on the interaction term Hispanic*96 represents the change in the disparities between Hispanics and whites between 1996 and 1987 (the difference in 1996 less the difference in 1987), controlling for the other covariates. The change in the disparities between 1996 and 1977 (the difference in 1996 less the difference in 1977) is given by Hispanic*96 minus Hispanic*77. The disparity between Hispanics and whites in 1996 is given by Hispanic plus Hispanic*96 and, in 1977, by Hispanic plus Hispanic*77. The disparities and changes in disparities between blacks and whites are similarly computed by substituting black for Hispanic in these calculations. Because these estimates are simply linear combinations of regression coefficients, appropriate standard errors can be obtained from the

regression variance-covariance matrices, which have been corrected for the complex design of the three surveys.

Finally, to examine the extent to which differences in income and insurance status might play a role in explaining the disparities between groups, we estimate linear probability models for 1996 with interaction terms between (1) race/ethnicity and health insurance and (2) race/ethnicity and family income, controlling for the other covariates described above.² Because almost all individuals ages 65 and older are insured, we limited these analyses to those younger than 65. We then use the regression estimates to simulate how much the disparities between Hispanics and whites and between blacks and whites would change if Hispanics and blacks had income and health insurance coverage that was equivalent to that of whites. Specifically, we compute the change in the predicted values of the dependent variables when all groups are given the same health insurance coverage and income as whites, leaving all other covariates unchanged.

RESULTS

Table 1 shows our descriptive statistics. Overall, the proportion of Americans with no usual source of care changed little over this time period, increasing slightly from 15.2 percent in 1977 to 17.4 percent in 1996. In each of the years we study, Hispanic and black Americans were considerably more likely to lack a usual source of care than white Americans. However, while changes over this 20-year period were small for white and black Americans, Hispanic Americans experienced considerable increases in the probability of lacking a usual source of care, from 19.9 percent in 1977 to 29.5 percent in 1996. Most of the change we observe occurred between 1977 and 1987 (with the proportion of Hispanic Americans with no usual source of care increasing by 8.1 percentage points to 28.0 percent in 1987); the disparity remained fairly constant after 1987.

Table 1 also shows the proportion of Americans with at least one ambulatory care visit and the average number of visits for persons with at least one visit. For all Americans, the probability of using any ambulatory care increased slightly over time, from 67.8 percent in 1977 to 72.9 percent in 1996. However, this overall trend masks some considerable differences among racial and ethnic groups. Black and Hispanic Americans were less likely to use any ambulatory care services than were white Americans in each of the 3 years. While white Americans experienced increases in the probability of using any ambulatory care (from 69.0 percent in 1977 to 77.1 percent in 1996), the probability of ambulatory care use for black Americans did not change

TABLE 2 Unadjusted and Adjusted Racial/Ethnic Differences in Access to and Use of Ambulatory Care Services

	<i>Unadjusted Differences</i>					<i>Adjusted Differences^a</i>				
	<i>Disparity in 1977</i>	<i>Change between 1977 and 1987</i>	<i>Change between 1987 and 1996</i>	<i>Change between 1977 and 1996</i>	<i>Disparity Remaining in 1996</i>	<i>Disparity in 1977</i>	<i>Change between 1977 and 1987</i>	<i>Change between 1987 and 1996</i>	<i>Change between 1977 and 1996</i>	<i>Disparity Remaining in 1996</i>
Proportion with no usual source of health care										
Black-white	6.9****	-0.9	-1.9	-2.8	4.1****	5.3****	-2.1	-1.0	-3.2*	2.1*
Hispanic-white	6.0***	5.0**	3.4	8.4****	14.4****	3.4*	2.7	3.8*	6.5***	9.9****
Proportion with at least one ambulatory care visit										
Black-white	-9.7****	-4.8***	0.1	-4.7**	-14.4****	-7.9****	-2.0	-0.4	-2.5	-10.4****
Hispanic-white	-4.0***	-10.4****	-2.0	-12.4****	-16.4****	-1.4	-5.7***	-1.7	-7.4****	-8.8****

a. Adjusted differences are derived from a regression-based difference-in-difference model that includes the following as covariates: health insurance status, family income, age, sex, marital status, education, health status, region of the country, and residence within or outside of a metropolitan statistical area (MSA). Numbers may not add precisely due to rounding.

* $p < .10$. ** $p < .05$. *** $p < .01$. **** $p < .001$.

TABLE 3 Sample Means and Linear Probability Model Regression Results for Table 2

Variable	No Usual Source of Care Regression Results			Any Ambulatory Visits Regression Results		
	Mean	Coefficient	Standard Error	Mean	Coefficient	Standard Error
Dependent variable	0.171			0.718		
Black	0.119	0.032**	(0.012)	0.121	-0.100****	(0.011)
Hispanic	0.083	0.061****	(0.016)	0.083	-0.071****	(0.013)
White, other	0.798	(omitted)		0.795	(omitted)	
1977	0.295	-0.026***	(0.008)	0.300	-0.062****	(0.006)
1987	0.316	(omitted)		0.332	(omitted)	
1996	0.389	-0.025****	(0.007)	0.368	0.003	(0.006)
Black*77	0.032	0.021	(0.018)	0.032	0.020	(0.017)
Black*87	0.038	(omitted)		0.040	(omitted)	
Black*96	0.050	-0.010	(0.017)	0.048	-0.004	(0.016)
Hispanic*77	0.014	-0.027	(0.023)	0.013	0.057***	(0.020)
Hispanic*87	0.026	(omitted)		0.028	(omitted)	
Hispanic*96	0.045	0.038*	(0.021)	0.043	-0.017	(0.017)
Private insurance, younger than 65	0.701	-0.142****	(0.009)	0.693	0.181****	(0.008)
Public insurance, younger than 65	0.082	-0.172****	(0.011)	0.085	0.219****	(0.010)
Uninsured, younger than 65	0.100	(omitted)		0.104	(omitted)	
Medicare only, 65+	0.020	-0.217****	(0.013)	0.021	0.266****	(0.013)
Medicare plus private, 65+	0.086	-0.263****	(0.010)	0.086	0.327****	(0.009)
Medicare plus public, 65+	0.010	-0.292****	(0.013)	0.011	0.332****	(0.014)
No Medicare, 65+	0.000	0.016	(0.098)	0.001	0.012	(0.070)
Poor	0.123	(omitted)		0.132	(omitted)	
Near poor	0.045	-0.003	(0.012)	0.046	0.001	(0.011)
Low income	0.145	-0.013	(0.008)	0.149	-0.001	(0.008)
Middle income	0.354	-0.039****	(0.008)	0.349	0.038****	(0.007)
High income	0.333	-0.061****	(0.008)	0.324	0.053****	(0.008)
Age 0-5	0.078	-0.224****	(0.006)	0.089	0.188****	(0.007)
Age 6-17	0.189	-0.175****	(0.005)	0.188	0.015**	(0.006)
Age 18-44	0.413	(omitted)		0.407	(omitted)	
Age 45-64	0.204	-0.066****	(0.005)	0.199	0.059****	(0.005)
Age 65+	0.117	(omitted)		0.118	(omitted)	
Female	0.516	-0.061****	(0.003)	0.514	0.109****	(0.003)

TABLE 3 Continued

Variable	No Usual Source of Care Regression Results			Any Ambulatory Visits Regression Results		
	Mean	Coefficient	Standard Error	Mean	Coefficient	Standard Error
Married	0.442	-0.053****	(0.004)	0.432	0.029****	(0.004)
Less than high school	0.262	0.014**	(0.006)	0.267	-0.032****	(0.005)
High school diploma	0.353	(omitted)		0.353	(omitted)	
Some college	0.180	-0.006	(0.006)	0.178	0.028****	(0.006)
College graduate	0.206	0.005	(0.006)	0.201	0.061****	(0.006)
Fair or poor health	0.134	-0.070****	(0.004)	0.130	0.141****	(0.005)
Good to excellent health	0.853	(omitted)		0.815	(omitted)	
Health status missing	0.013	0.037**	(0.017)	0.056	-0.027****	(0.007)
Metropolitan statistical area	0.253	-0.028****	(0.007)	0.251	-0.005	(0.005)
Northeast	0.203	(omitted)		0.206	(omitted)	
Midwest	0.258	-0.022***	(0.006)	0.256	0.001	(0.007)
South	0.345	0.022***	(0.007)	0.344	-0.013**	(0.006)
West	0.194	0.025***	(0.008)	0.195	-0.006	(0.007)
Constant		0.482****	(0.012)		0.423****	(0.011)
R ²		0.084			0.096	
N	82,184			92,665		

Note: Black*77, black*87, and black*96 indicate interaction terms between black and the years 1977, 1987, and 1996, respectively; Hispanic*77, Hispanic*87, and Hispanic*96 indicate interactions terms between Hispanic and the years 1977, 1987, and 1996, respectively.

* $p < .10$. ** $p < .05$. *** $p < .01$. **** $p < .001$.

significantly, and the probability of use for Hispanic Americans decreased (from 65.0 percent in 1977 to 60.7 percent in 1996).

All racial and ethnic groups experienced increases over time in the average number of ambulatory care visits among those persons with at least one visit. For white Americans, the average number of visits increased from 4.9 in 1977 to 7.5 in 1996. Black and Hispanic Americans experienced smaller increases (4.3 to 5.6 visits for black and 4.6 to 5.9 visits for Hispanic Americans), and in 1987 and 1996 both groups had considerably fewer visits on average than did white Americans, indicating increased disparities.

Table 2 shows unadjusted and adjusted racial and ethnic differences in access to and use of ambulatory care services. The left-hand side of the table

shows the unadjusted differences derived from the descriptive statistics shown in Table 1. The right-hand side shows these same differences after adjusting for health insurance, income, age, sex, marital status, education, health status, region of the country, and residence within an MSA. The adjusted differences were derived from the difference-in-difference models described above. The full regression results along with sample means for the covariates in each regression are presented in Table 3. Disparities are measured by the magnitude of the difference: the closer a measure is to zero, the smaller the disparity.

In general, both the unadjusted and adjusted differences show similar patterns. The racial and ethnic disparities that existed in 1977 had changed somewhat by 1996 but remained substantial. In addition, while the magnitudes of all of the disparities in 1977 and 1996 are attenuated somewhat by adjusting for health insurance, income, and other individual characteristics, the disparities remain significant and are frequently quite large. Adjusted differences in 1977 show that both black and Hispanic Americans were substantially more likely to lack a usual source of health care than white Americans; 5.3 and 3.4 ($p < 0.10$) percentage point disparities, respectively. Between 1977 and 1996, this disparity for black Americans declined somewhat (-3.2 percentage points, $p < 0.10$), while the disparity for Hispanic Americans increased by 6.5 percentage points.³ As a result, even net of health insurance, income, and other individual characteristics, black Americans were 2.1 percentage points ($p < 0.10$) more likely to lack a usual source of care than were white Americans in 1996. Even more notably, in 1996 Hispanic Americans were nearly 10 percentage points more likely to lack a usual source of care than were whites after adjusting for differences in health insurance and income as well as other characteristics.

In 1977, adjusted differences show that black Americans were 7.9 percentage points less likely to have any ambulatory care visits than were whites, while Hispanic Americans were no less likely than white Americans to use any ambulatory care services. Between 1977 and 1996, there was no statistically significant change in the black-white disparity, which measured 10.4 percentage points in 1996. For Hispanic Americans, there were considerable changes over this time period, with the disparity increasing even after adjusting for health insurance and income. Most of the change occurred between 1977 and 1987, with the disparity at the end of the 20-year period measuring 8.8 percentage points.

Since these findings hold for both unadjusted and adjusted differences, the racial and ethnic disparities we observe cannot wholly be accounted for simply by controlling for differences in health insurance, income, and other individual characteristics. Because of the policy importance attached to health

TABLE 4 Sample Means and Linear Probability Model Regression Results for Figure 1, Younger-Than-65 Population

Variable	No Usual Source of Care Regression Results			Any Ambulatory Visits Regression Results		
	Mean	Coefficient	Standard Error	Mean	Coefficient	Standard Error
Dependent variable	0.187			0.710		
Black	0.136	0.057	(0.042)	0.138	-0.087**	(0.040)
Hispanic	0.125	0.218****	(0.044)	0.126	-0.125****	(0.033)
Black*private insurance	0.078	0.013	(0.043)	0.078	-0.034	(0.038)
Hispanic*private insurance	0.060	-0.088**	(0.039)	0.060	0.010	(0.030)
Black*public insurance	0.035	-0.027	(0.045)	0.035	-0.044	(0.040)
Hispanic*public insurance	0.029	-0.145***	(0.048)	0.030	0.027	(0.037)
Black*near poor	0.009	-0.088	(0.062)	0.009	-0.007	(0.078)
Black*low income	0.026	-0.063	(0.046)	0.026	-0.024	(0.048)
Black*middle income	0.038	-0.050	(0.042)	0.038	0.002	(0.040)
Black*high income	0.024	-0.047	(0.043)	0.024	0.070*	(0.040)
Hispanic*near poor	0.010	-0.003	(0.059)	0.010	0.066	(0.045)
Hispanic*low income	0.028	-0.056	(0.041)	0.028	-0.007	(0.035)
Hispanic*middle income	0.034	-0.109***	(0.036)	0.034	0.062*	(0.033)
Hispanic*high income	0.016	-0.066	(0.042)	0.016	0.069*	(0.039)
Private insurance, younger than 65	0.749	-0.156****	(0.018)	0.745	0.187****	(0.021)
Public insurance, younger than 65	0.114	-0.157****	(0.024)	0.117	0.237****	(0.023)
Uninsured, younger than 65	0.137	(omitted)		0.138	(omitted)	
Poor	0.140	(omitted)		0.143	(omitted)	
Near poor	0.044	0.043	(0.035)	0.044	-0.017	(0.027)
Low income	0.141	0.028	(0.020)	0.142	-0.015	(0.022)
Middle income	0.330	-0.002	(0.018)	0.328	0.013	(0.018)
High income	0.345	-0.032**	(0.019)	0.343	0.028	(0.019)
Age 0-5	0.090	-0.243****	(0.010)	0.101	0.205****	(0.013)
Age 6-17	0.206	-0.204****	(0.010)	0.203	0.034***	(0.012)
Age 18-44	0.469	(omitted)		0.464	(omitted)	

(continued)

TABLE 4 Continued

Variable	No Usual Source of Care Regression Results			Any Ambulatory Visits Regression Results		
	Mean	Coefficient	Standard Error	Mean	Coefficient	Standard Error
Age 45-64	0.235	-0.071****	(0.009)	0.232	0.074****	(0.009)
Female	0.503	-0.070****	(0.006)	0.502	0.120****	(0.007)
Married	0.405	-0.061****	(0.009)	0.400	0.024***	(0.010)
Less than high school	0.180	0.033**	(0.016)	0.182	-0.030**	(0.015)
High school diploma	0.340	(omitted)		0.340	(omitted)	
Some college	0.219	-0.008	(0.013)	0.219	0.046****	(0.012)
College graduate	0.260	-0.013	(0.012)	0.259	0.096****	(0.011)
Fair or poor health	0.080	-0.102****	(0.011)	0.080	0.199****	(0.012)
Good to excellent health	0.920	(omitted)		0.920	(omitted)	
Health status missing	—	—	—	0.005	-0.334****	(0.048)
Metropolitan statistical area	0.197	-0.033***	(0.012)	0.197	-0.011	(0.011)
Northeast	0.194	(omitted)		0.193	(omitted)	
Midwest	0.238	0.003	(0.011)	0.237	-0.003	(0.013)
South	0.356	0.031**	(0.012)	0.357	-0.013	(0.013)
West	0.212	0.048****	(0.013)	0.213	-0.026*	(0.015)
Constant		0.447****	(0.023)		0.412****	(0.027)
R ²		0.122			0.117	
N		17,866			18,306	

Note: Black*77, black*87, and black*96 indicate interaction terms between black and the years 1977, 1987, and 1996, respectively; Hispanic*77, Hispanic*87, and Hispanic*96 indicate interaction terms between Hispanic and the years 1977, 1987, and 1996, respectively.

* $p < .10$. ** $p < .05$. *** $p < .01$. **** $p < .001$.

insurance and income differences across racial and ethnic groups, it is important to understand and quantify how much of the disparities between groups are explained by these two factors. We therefore simulate how these disparities would change if the health insurance coverage and income of black and Hispanic Americans younger than 65 were the same as their white counterparts in 1996.

As the data in Figure 1 show, changing the insurance coverage of black Americans to be the same as that of white Americans has no statistically significant impact on the disparity for either usual source of care or the probability

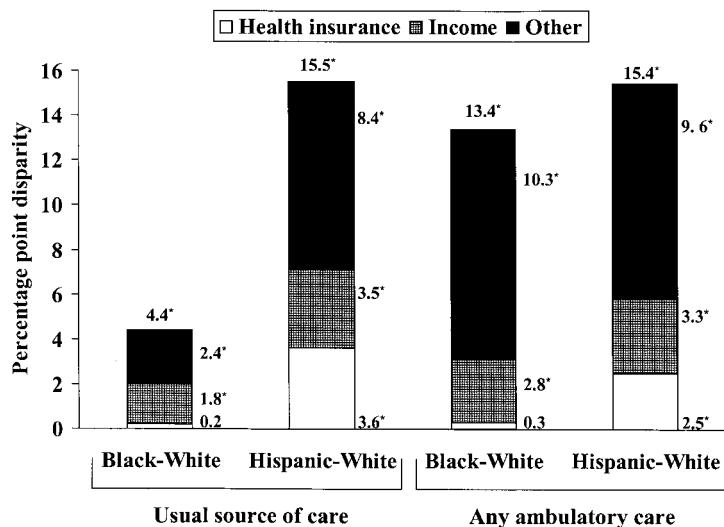


FIGURE 1 Effect of Health Insurance and Income on Disparities for the Younger-than-65 Population, 1996

* $p < .05$ or better.

of ambulatory care use. (Full regression results and sample means for the covariates are given in Table 4.) In contrast, a comparable change to the health insurance coverage of Hispanic Americans has a substantial effect on both measures, reducing the disparity in usual source of care by 3.6 percentage points (a 23 percent reduction) and the disparity in the probability of ambulatory care use by 2.5 percentage points (a 16 percent reduction). Income has significant effects on both measures for both black and Hispanic Americans. Changing the income of blacks to be equal to that of whites reduces the observed disparity in usual source of care by 1.8 percentage points (a 41 percent reduction), and the much larger disparity in utilization by 2.8 percentage points (a 21 percent reduction). Similar changes for the Hispanic population result in a reduction in the disparity in usual source of care of 3.5 percentage points (a 23 percent reduction) and a reduction in the utilization disparity of 3.3 percentage points (a 21 percent reduction). While these reductions are substantial, it is clear that 55 to 77 percent of the observed disparities remain even after making the health insurance and income of blacks, whites, and Hispanics equal. These findings show that health insurance coverage and income typically each account for only about one fifth, and never even as much as one half, of the disparities we observe.

DISCUSSION

In this article, we document trends in racial and ethnic disparities during a 20-year period in two dimensions of access to and use of health care services: having a usual source of health care and the use of ambulatory care services. We find that Hispanic Americans experienced considerable increases in the probability of lacking a usual source of care over time, while black and white Americans saw few changes, resulting in increased disparities for Hispanics. Similarly, disparities in the probability of using any ambulatory care services increased over time for Hispanic Americans. While all racial and ethnic groups we examine experienced increases over time in the average number of ambulatory care visits among those persons using such services, there were increasing disparities in the number of ambulatory care visits over time for both black and Hispanic Americans.

We also address one popular myth regarding racial and ethnic differences in health care: that disparities among black, Hispanic, and white Americans can be explained wholly or in large part by disparities in income and health insurance coverage among these groups. With regard to having a usual source of care and using any ambulatory care services, we find that disparities would be reduced by less than half if racial and ethnic differences in these factors alone were eliminated. In addition, we find that while equalizing either income or health insurance coverage would make a substantial contribution (approximately 20 percent) to reducing disparities between Hispanic and white Americans, only income has a significant effect on black-white disparities. Our findings show that although improving equality in income and health insurance coverage among racial and ethnic groups can result in substantial reductions in disparities in the access to and use of health care services, it would not eliminate such disparities altogether.

These findings need to be interpreted with caution, however, for several reasons. First, it is not clear that the disparities we observe are necessarily a result of access problems. For example, the multivariate models we estimated do not contain very sensitive measures of health status, with only a single variable indicating fair or poor health. To the extent that probability and levels of use are a function of unobserved health status differences among racial and ethnic groups, more use may not be indicative of a desirable outcome. For example, it is undoubtedly preferable to be healthy and have no ambulatory care use than it is to have serious health problems and high levels of use. Given this, it is difficult to say that higher levels of use are necessarily a laudable goal. Consequently, in this analysis we have focused only on the magnitude of utilization disparities rather than their direction.

In addition, it is not evident that using white Americans' levels of access and use provides a socially optimal benchmark. For example, it is possible that higher levels of utilization among white Americans represent overutilization compared to a healthy optimum. Moreover, it is not clear the extent to which the disparities we observe are a result of racial and ethnic differences in individual preferences for health care, which may or may not be reflective of problems with access to care.

Finally, these differences need to be interpreted in light of the changing demographics of the U.S. population, particularly Hispanic Americans, over the period we study. Between 1970 and 1990, the Hispanic population grew from 9.1 million to 22.4 million persons, from approximately 4.5 percent of the total population to 9.0 percent (U.S. Census Bureau 1993, 1999). In addition, not all subgroups within the Hispanic population expanded at the same rate: the population growth rate among Mexican Americans was particularly high, with the Puerto Rican and Cuban American populations experiencing less expansion (U.S. Census Bureau 1993). A substantial component of this growth comes from immigration, and more recent immigrants may face different barriers to care than those who are longer-term residents. At the same time, the high birth rate among Hispanic Americans means that an increasing number of Hispanics are being born and raised in the United States and may not face the same types of barriers that their immigrant parents confronted when seeking health care. Thus, to fully understand trends in disparities, researchers and policy makers may need to account for differences within as well as between racial and ethnic groups in this country and how these differences have changed over time.

Despite these cautions, it is clear that disparities in our measures of access and use have not decreased since the Task Force on Black and Minority Health issued its report in 1985. In many cases, particularly for Hispanics, these disparities actually increased between 1977 and 1996. Our findings show that even if income and health insurance coverage were equalized, differences in access to and use of health care services would not be eliminated, as one half to three quarters of these disparities are not explained by these two factors. This is indicative of the complexity of the problem, and we cannot identify a single factor or constellation of factors that will eliminate these disparities; as in many other areas of health, there is no "magic bullet" (Brandt 1985) that will resolve the racial and ethnic disparity problem quickly and easily. However, researchers are exploring some of the more complex explanations for these disparities, including job-related and nonfinancial barriers to access, a lack of cultural and linguistic competency among health care providers and institutions, the geographic distribution of health care providers compared with residential patterns of particular racial and ethnic groups, both intentional and

unintentional discrimination within the health care system, and perceptions of discrimination on the part of members of various racial and ethnic groups (e.g., see Baker, Hayes, and Fortier 1998; Kessler, Mickelson, and Williams 1999; Morales et al. 1999; Williams 1999). To most effectively target funds and programs designed to eliminate racial and ethnic disparities in health, we will need a better understanding of these issues and of the mechanisms that can be used to address them.

NOTES

1. We present estimates from linear probability models because of the computational simplicity (especially when correcting for the complex survey design of the questionnaire) and because of the complexities introduced by the nonlinearities of alternative probit or logit specifications in estimating difference-in-differences. Estimates of marginal effects from probit specifications were similar to the estimates from the linear probability specification presented here.
2. We also estimated separate regression equations for blacks, Hispanics, and whites to test the sensitivity of the pooled results presented in Figure 1. Simulations based on these separate regressions yielded quantitatively similar results.
3. As discussed in the Data and Methods section, the disparity between Hispanic Americans and whites in 1977 is computed from the regression coefficients from Table 3 as follows: $\text{Hispanic} + \text{Hispanic}^*77 = .061 + (-.027) = .034$, or 3.4 percentage points. The change in the disparity between Hispanic Americans and whites between 1977 and 1996 is $\text{Hispanic}^*96 - \text{Hispanic}^*77 = .038 - (-.027) = .065$, or 6.5 percentage points. The other figures are similarly computed.

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