

Examining Racial and Ethnic Disparities in Site of Usual Source of Care

Darrell J. Gaskin, PhD; Jose J. Arbelaez, MD; Jorielle R. Brown, PhD; Hanno Petras, PhD; Fernando A. Wagner, ScD; and Lisa A. Cooper, MD, MPH
Baltimore, College Park and Rockville, Maryland

Financial support: This work was supported by a grant from National Center for Minority Health and Health Disparities.

Little is known about why minorities have a lower propensity to use private doctors' offices for their usual source of care than non-Hispanic whites. This study used the 2001 Commonwealth Fund's Health Care Quality Survey of adults to determine if this disparity is due to racial and ethnic differences in attitudes about health and healthcare, and perceptions of racial and ethnic discrimination in healthcare. We found that race and ethnic disparities at the site of the usual source of care persisted even after controlling for individuals' attitudes about health and healthcare, and their perceptions about racial and ethnic discrimination in healthcare. We found that the impact of attitudes and perceptions did vary by subgroups. These factors were important for Asians' site of usual source of care but had little impact on African Americans' site of usual of care. However, despite their differential impact by race and ethnicity, attitudes and perceptions were not the source of observed disparities in site of care. Therefore, in addition to focusing on provider-patient relationships, perhaps future research and policymakers should focus on system-level factors to explain and increase minority use of care in private physicians' offices.

Key words: healthcare disparities ■ minority health ■ patient preferences ■ knowledge, attitudes and beliefs

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INTRODUCTION

When people are asked where they usually go for care when they are sick or in need of healthcare, their responses vary by race and ethnicity. In comparison to whites, African Americans, Asians and Hispanics are less likely to report that their usual source of care is a doctor's office.¹ Minorities are more likely to depend on community health centers (CHCs) and hospital outpatient departments.¹ Also, minorities are more likely to report that they used the emergency room (ER) or did not have a usual source of care. However, little is known about why minorities rely less on private physicians' offices for regular care than whites.

Lillie-Blanton and colleagues conducted the only study that attempts to explain this phenomenon.² Using data from the 1996 Medical Expenditure Panel, they assessed whether race and ethnicity had an independent effect on where individuals obtained medical care. They found that after controlling for type of insurance coverage, family income and geographic region, African Americans and Hispanics were still more likely than white non-Hispanics to rely on hospital outpatient departments, clinics and ERs for their usual source of care.² They concluded that the strong influence of race/ethnicity on where people receive medical treatment warrants further investigation. They also hypothesized that systematic differences in patient-provider relationships and the content of care provided at different sites may be the source of this disparity.

The remaining research on usual source of care focuses on the determinants of having a usual source of care.³⁻⁶ Compared to whites, African Americans and Hispanics are more likely to report having no usual source of care or that the ER was their usual source of care. Insurance coverage, income and language use have been identified as important determinants of these disparities. However, Weinick and colleagues reported that racial/ethnic differences in health insurance coverage and income accounted for less than half of the observed disparity in having a usual source of care between whites and African Americans and whites and Hispan-

ics.³ In another study, Weinick and Krauss presented evidence that some of the differences between Hispanic and white children were explained by their parents' ability to speak English.⁴

Presumably, race/ethnic differences in attitudes and perceptions may explain why minorities depend more upon hospital-based services for their usual source of care. Patients' preferences have been offered as possible explanation for disparities in healthcare.⁷ While this hypothesis has been offered regarding the role of patients' values, fears, perceptions of racism, and willingness to trust providers, there is not a lot of empirical literature to support these suppositions. Most of the prior research on patient preferences has focused on whether minority patients were more likely than whites to refuse treatment, particularly invasive cardiac procedures or renal transplantation.¹⁰⁻¹⁵ No studies have investigated whether values and attitudes influence minority patients' choice of usual source of care.

In this study, we explore whether observed differences in individuals' site of usual source of care can be explained by their attitudes about healthcare and perceptions about racial and ethnic bias in healthcare delivery system. We also examine the variation within each race and ethnic subgroup to identify which factors are important predictors of site of care for each subgroup. While prior studies have focused on differences between whites and African Americans and Hispanics, our study sample includes Asians.

Conceptually, our analysis is based on the Andersen and Aday model of healthcare utilization and access to care which posits that healthcare use depends on predisposing, enabling and health need factors.^{8,9} Predisposing factors include race, ethnicity, age, gender, and marital status. Enabling factors include income, insurance coverage, educational attainment and geographic location. Health need factors include presences of chronic health

conditions and self-rated general health status. Our analysis improves upon prior research by including individual's attitudes about healthcare and perceptions about the presence of racial/ethnic discrimination in medical care as predisposing factors.

DATA

This study uses the Commonwealth Fund's Health Care Quality Survey that was conducted by Princeton Survey Research Associates between April and November 2001. The survey was a 25-minute interview administered randomly by telephone to adults living in the continental United States. Persons residing in communities with high proportions of African Americans, Hispanics and Asians were oversampled. The data was weighted appropriately to account for the sampling design. The overall response rate was 54.3%. The data were representative of adults aged ≥ 18 living in households with telephones. The survey covered several domains, including usual source of care, healthcare utilization, unmet medical needs, satisfaction, health status, socioeconomic status, demographic information, attitudes about value of medical care, and perceptions about the presence of racial/ethnic bias in medical treatment. These data do not contain any identifying information for respondents and, thus, the research presented in this article was deemed exempt by the Johns Hopkins institutional review board.

The dependent variable is respondents' site of usual source of care. Survey respondents were asked where they usually go when they are sick or in need of healthcare. Their responses were placed in four categories: 1) doctor's office or private clinic, 2) CHC, public clinic or some other place, 3) hospital outpatient department, and 4) hospital ER or no regular place of care. We coded this variable as a categorical variable with doctor's office or private clinic as the reference category.

Table 1. Racial and ethnic differences in site of usual source of care and attitudes towards healthcare

	AAs	Asians	Hispanics	Whites	P Value
Site of Usual Source of Care					
Doctor's office or private clinic	66.4	74.2	59.7	81.1	0.000
Community health center or other public clinic	12.1	11.6	23.4	9.3	
Hospital outpatient department	8.9	7.1	3.2	3.0	
Hospital emergency department or no usual source of care	12.6	7.1	13.7	6.6	
Attitudes toward Healthcare (Percentage that Strongly Agrees)					
My health depends on how well I take care of myself	84.5	79.3	82.8	81.1	0.011
Staying healthy is a matter of luck	24.2	19.5	25.9	11.9	0.000
I leave decision about my health to my doctor	37.8	30.6	41.0	31.0	0.000
It's better to take care of your own health than to go to the doctor	15.7	36.5	31.7	18.1	0.000
Discrimination					
Believes there is racial or ethnic bias in delivery of medical treatment	22.2	20.2	22.5	8.6	0.000
Number of observations	1,031	614	1142	3,447	

AA: African Americans; Source: Calculation from the Commonwealth Fund Survey of Disparities in Quality of Health Care: 2001; The four racial/ethnic subgroups were mutually exclusive. Hispanics who were also Whites, African Americans or Asians were counted in the Hispanic category.

We focused on four race/ethnic subgroups: non-Hispanic whites, non-Hispanic African Americans, Hispanics and non-Hispanic Asians. For ease of exposition, we dropped the non-Hispanic prefix when referring to whites, African Americans and Asians.

The primary independent variables are measures of the respondents' attitudes about healthcare and perceptions of racial and ethnic bias in the delivery of healthcare. To measure how respondents' attitudes about the impact of healthcare on their health, we used their level of agreement with the following four statements:

1. My health largely depends on how well I take care of myself;
2. I think staying healthy is a matter of luck more than anything else;
3. I leave it to my doctor to make the right decisions about my health; and
4. It is generally better to take care of your own health than to go to the doctor.

Their responses were recorded on a five-point Likert scale. The categories were: 1) strongly agree, 2) somewhat agree, 3) don't know, 4) somewhat disagree and 5) strongly disagree. In the multivariate analysis, we reversed the scales of the second and third statements.

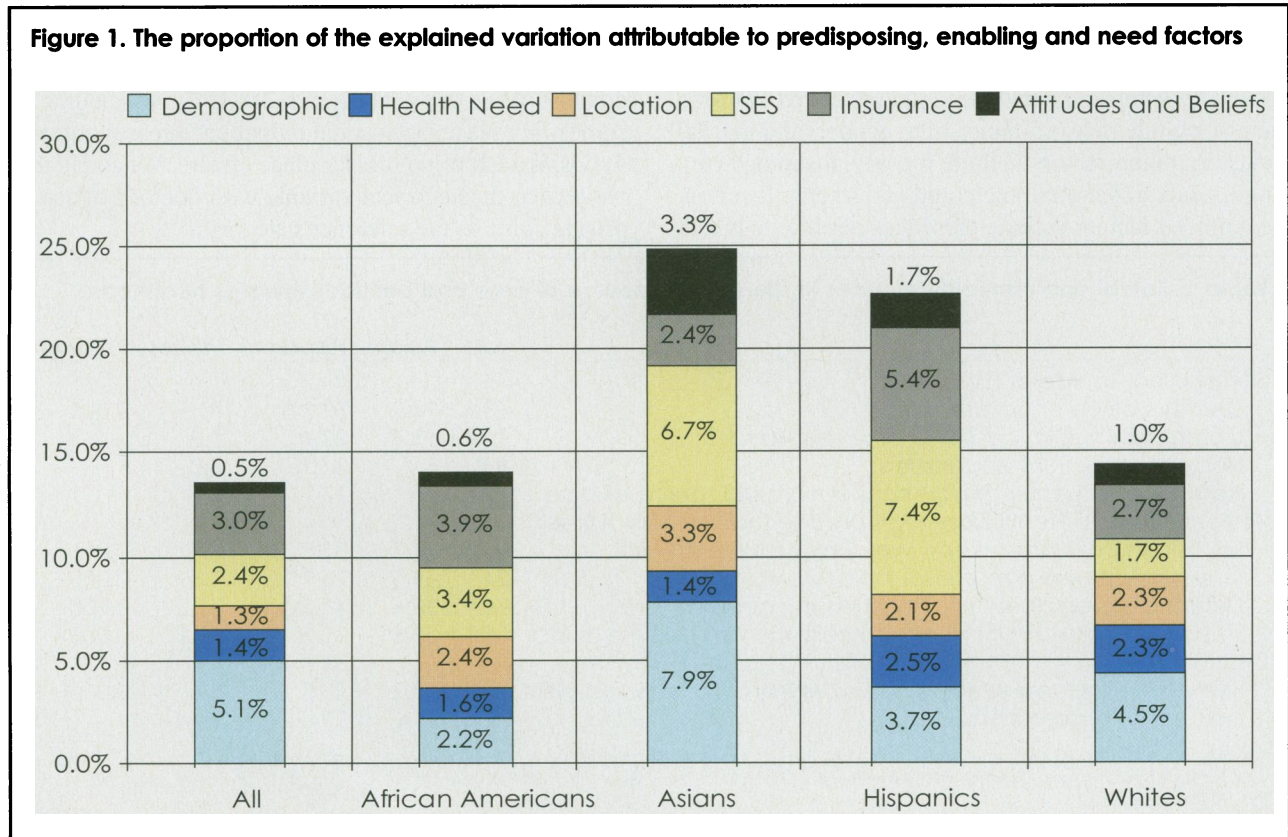
To measure respondents' perception of discrimination in the delivery of medical services we used their answers to the following questions:

1. Do you think there was ever a time when you would have gotten better medical care if you had belonged to a different race or ethnic group?
2. Over the last 2 years, has a family member or friend been treated unfairly when seeking medical care specifically because of race or ethnic background?

If the respondent answered "yes" to either question, he/she was designated as a person who believed there was racial and/or ethnic discrimination in the healthcare delivery system.

EMPIRICAL METHODS

To answer our research questions we used multinomial logistic regression. We computed relative risk ratios (RRRs) for each minority group compared to whites. This method calculates the minority group's relative risk of using a CHC, hospital outpatient department and hospital ER or no usual source of care over a private physician's office compared to whites' relative risk of using these sites of care, respectively, over a private physician's office. Multinomial logistic regression is a statistical technique appropriate for evaluating influence of individuals' characteristics on their selection of one option from a set of multiple alternatives.¹⁶⁻¹⁸ These characteristics describe the individuals making the selection. The set of alternatives has no natural order, i.e., they cannot be ranked by size or amount. Other examples of choice sets that are unordered are



modes of transportation, type of health insurance coverage and election candidates. For a more complete discussion of multinomial logistic regression, see any of the following textbooks: Greene, Hosmer and Lemeshow, or Madalla. The analysis was conducted using in STATA® version 7.

Multinomial logistic regression computes RRR. Conceptually, the RRR is a ratio of relative risks that requires the designation of a reference group and a base choice. We used whites as the reference group and physician's office as the base choice. The RRR for use of CHC compares the relative risk that a minority person would use a CHC over a physician's office to the relative risk a white person would use the CHC over a physician's office. If the RRR was >1, it implied that minorities were more likely to use a CHC over a physician's office in comparison to whites facing the same choice set. Conversely, if the RRR was <1, it implied that minorities were less likely to use a CHC over a physician's office in comparison to whites facing the same alternatives. Multinomial logistic regression computes for each option relative to the base choice a set of RRRs, one corresponding to each factor. In this study, we were interested in the RRRs associated with respondents' race/ethnicity, attitudes about healthcare and perceptions about discrimination in healthcare.

We calculated the RRRs associated with race and ethnicity in three ways to address our first research question. First, we computed the RRRs adjusting for age and gender. Second, we computed RRRs adding adjustment for marital status, insurance status, income, educational attainment, geographic location and health need. Third, we adjusted for all of the predisposing; enabling; and health factors,

including attitudes about healthcare and perceptions of racial discrimination in healthcare. Comparing the RRRs from models 1 and 2 indicates how much of the racial and ethnic disparities at the site of usual source of care can be explained by the predisposing, enabling and health needs factors without controlling for respondents' attitudes about healthcare and perceptions about discrimination. The differences in RRRs between models 2 and 3 tell us whether respondents' attitudes about healthcare and perceptions about discrimination can explain remaining disparities.

To further explore the impact of respondents' attitudes about healthcare and perceptions about discrimination, we interpret the RRRs on these variables. These RRRs should be interpreted as the relative risk that a person who holds a particular attitude (e.g., there's discrimination in healthcare) would use a CHC over a physician's office divided by the relative risk a person who does not hold that attitude would use the CHC over a physician's office. To see if the influence of beliefs on the site of care varied within race and ethnic group, we estimated the models separately by subgroup.

To address the question regarding the contribution of various factors to the site of care for the overall sample and within each ethnic group, we conducted a stepwise multinomial logistic analysis. We placed the independent variables into six categories: demographics, health status and need, geographic location, socioeconomic status, insurance coverage, and attitudes and beliefs. We then estimated successive multinomial logistic regression models by entering each category of variables in the models in the order given above. We compared the change in pseudo R² and log likelihood, measures of goodness of fit

Table 2. Relative risk ratios of using a CHC, hospital outpatient department, hospital ER or having no usual source of healthcare relative to a private doctor's office, comparing whites with African Americans, Asians and Hispanics

Race	Community Health Centers			Hospital Outpatient Departments			Hospital ER or No Usual Source of Care		
	RRR	CI	P Value	RRR	CI	P Value	RRR	CI	P Value
Model 1									
White	1	1	1						
AA	1.53	(1.13-2.08)	0.006	3.76	(2.53-5.57)	0.000	2.39	(1.70-3.34)	0.000
Asian	1.26	(0.82-1.94)	0.293	2.68	(1.59-4.49)	0.000	1.12	(0.65-1.94)	0.685
Hispanic	3.01	(2.28-3.98)	0.000	1.47	(0.83-2.57)	0.182	2.62	(1.85-3.71)	0.000
Model 2									
White	1	1	1						
AA	1.02	(0.72-1.44)	0.100	3.50	(2.18-5.60)	0.000	1.78	(1.19-2.66)	0.005
Asian	1.29	(0.78-2.14)	0.989	2.89	(1.54-5.41)	0.001	1.44	(0.77-2.69)	0.250
Hispanic	1.48	(1.05-2.09)	0.024	1.23	(0.65-2.30)	0.525	1.38	(0.92-2.09)	0.118
Model 3									
White	1	1	1						
AA	1.03	(0.71-1.50)	0.877	3.65	(2.20-6.09)	0.000	1.84	(1.20-2.83)	0.005
Asian	1.18	(0.70-1.99)	0.527	2.92	(1.53-5.60)	0.001	1.33	(0.70-2.54)	0.172
Hispanic	1.32	(0.92-1.89)	0.127	1.23	(0.65-2.30)	0.522	1.35	(0.88-2.09)	0.379

AA: African American; Source: Calculation from the Commonwealth Fund Survey of Disparities in Quality of Health Care: 2001; Model 1 controls for age and gender. Model 2 controls for age, gender, SES, and geographic locations. Model 3 controls for age, gender, SES, geographic locations, attitudes about health care and perceptions of racial bias in health care; Statistically significant results are bold.

for the multinomial logistic regression. Increases in pseudo R^2 and log likelihoods indicate improvements in model fit (i.e., an increasing amount of the variation in the site of care within the sample population is explained). We conducted this analysis for the entire sample and for each subgroup separately. We interpret the size of the change in the goodness of fit measure as an indication of the relative importance of the variable category.

RESULTS

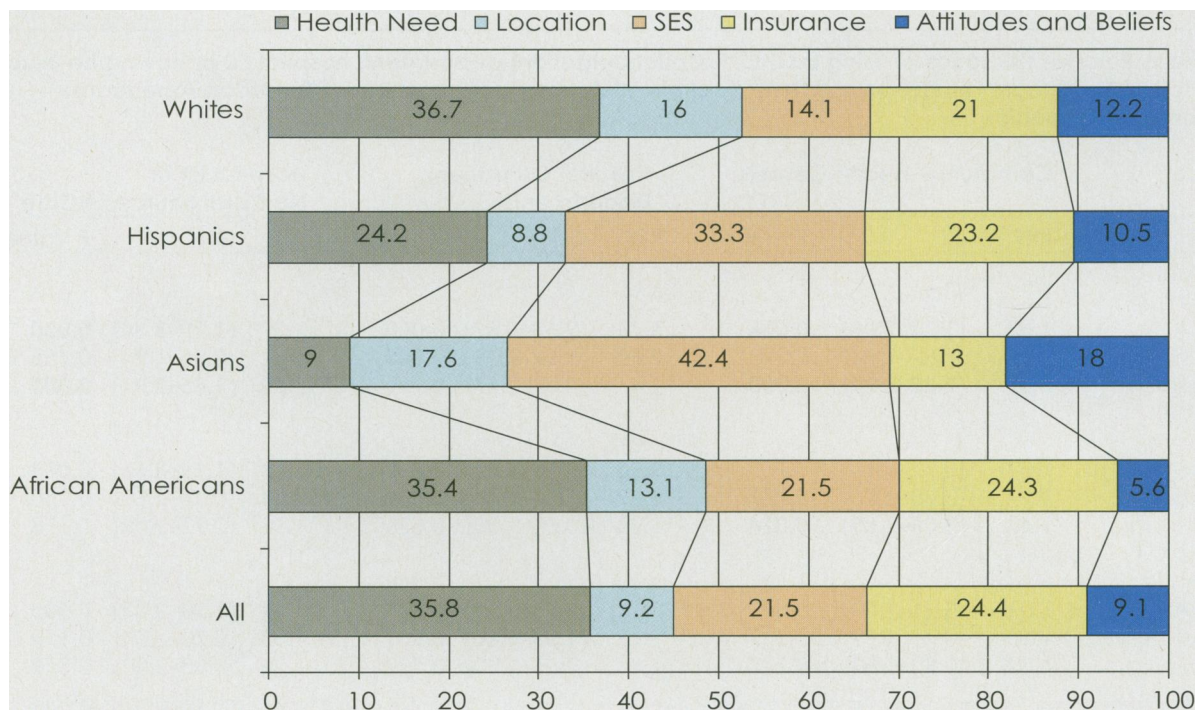
Disparities in Site of Usual Source of Care

Whites were most likely to use a private doctor's office as a usual source of care (81.1%) compared to African Americans (66.4%), Asians (74.2%) and Hispanics (59.4%). Notably, 23.4% of Hispanics relied on CHCs. Also, 13.7% of Hispanics and 12.6% of African Americans were more likely to report they used the ER or had no usual source of care (Table 1). Attitudes toward health and healthcare did vary by race and ethnicity. African Americans (84.5%) were most likely to strongly believe their health depended upon themselves followed by Hispanics (82.8%), whites (81.1%) and then Asians (79.3%). Compared to whites, the minority groups were about twice as likely to strongly believe that staying healthy was a matter of luck (19.5–25.9% vs. 11.9%). Hispanics and African Americans were more likely to strongly agree with the following state-

ment, "I leave decisions about my health to my doctor." Hispanics and Asians were more likely to strongly believe that it is better to take care of your own health than to go to the doctors. The three minority groups were almost three times more likely to believe that there is racial and ethnic discrimination in healthcare.

The disparity in the site of usual source of care persisted even after adjusting for age and gender. (Table 2 results for model 1.) In comparison to whites, African Americans and Hispanics were more likely to use CHC over a private physician's office. (RRR=1.53, $p=0.006$ and RRR=3.01, $p=0.000$.) African Americans and Asians were more likely to use a hospital outpatient department over a private physician's office in comparison to whites. (RRR=3.76, $p=0.000$ and RRR=2.68, $p=0.000$.) African Americans and Hispanics were more likely to use the ER or not have a usual source of care over a private physician's office in comparison to whites (RRR=2.39, $p=0.006$ and RRR=2.62, $p=0.000$). These findings were not surprising given that Hispanics and African Americans have a lower socioeconomic status, e.g., higher rates of Medicaid coverage and uninsurance and lower incomes and educational attainment (Appendix 1.) However, some of these differences persisted even after controlling for predisposing factors, enabling factors and health needs. (Table 2, results for model 2.) In comparison to whites, African Americans were more likely to use hospital outpatient departments (RRR=3.50, $p=0.000$) and the ER or have no usual source of care (RRR=1.78, $p=0.005$) instead of using a private physician's

Figure 2. The percentage change in log likelihood attributable to predisposing, enabling and need factors



Note: The baseline model includes demographics variables only.

office. Asians were more likely to use hospital outpatient departments instead of a physician's office (RRR=2.89, p=0.001) in comparison to whites. Similarly, Hispanics were more likely to use CHCs over a physician's office (RRR=1.48, p=0.024) in comparison to whites' use of CHC over a physician's office.

Impact of Attitudes and Perceived Discrimination

The observed disparities do not seem to be due to attitudes towards healthcare and perceptions about racial/ethnic bias in healthcare. (Table 2, results for model 3.) The estimated RRRs did not change much when these factors were included in the multinomial logistic regression analysis. The RRR for Hispanics' use of CHCs over private physicians is no longer statistically significantly different from that of whites, but the change is within the confidence interval of the model 2 estimate.

We estimated whether attitudes and beliefs had a direct association with the site of individual's usual source of care (Table 3). We estimated models for the whole sample and then for each subgroup separately. First, we discuss the results for the whole sample. We found that persons who tended to agree with the statement, "It is generally better to take care of your own health than to go to the doctor," were less likely to use CHCs (RRR=0.92, p=0.048), hospital ER or report they had no usual source of care (RRR=0.90, p=0.032) instead

of using a private physician's office than persons who tended to agree with this statement. Persons who tended to disagree with the statement, "I leave it to my doctor to make the right decisions about my health," were more likely to use the ER or report they had no usual source of care instead of using a private physician's office. Whites who felt that healthcare providers practiced discrimination against them or a family member were less likely to use CHCs (RRR=0.25, p=0.028). However, minorities who felt the same way were more likely to use CHCs.

The models estimated for the subgroups separately show some interesting differences in the association between patients' attitudes and beliefs and their choice of usual source of care. Whites who tended to agree with the statement, "My health depends on me," were more likely to use a CHC over a physician's office (RRR=1.27, p=0.033). Whites who tended to disagree with the statement, "It's better to take care of yourself," were less likely to use a CHC (RRR=0.87, p=0.019) and ER or have no usual source of care (RRR=0.85, p=0.033) instead of a physician's office. Whites who believe they or a family member were subject to discrimination in healthcare were less likely to use a CHC over a physician's office (RRR=0.27, p=0.033).

Surprisingly, attitudes and beliefs were not significant determinants of site of usual source of care for African Americans. None of the RRRs were statistically significant and all clustered around one.

The story is different for Asians. Asians were less like-

Table 3. Impact of attitudes and beliefs on relative risk ratios of using a CHC, hospital outpatient department, hospital ER or having no usual source of healthcare relative to a private doctor's office, for the entire sample and each subgroup separately

	Total		Whites		AAs		Asians		Hispanics	
	RRR	P Value	RRR	P Value	RRR	P Value	RRR	P Value	RRR	P Value
Community Health Center										
My health depends on me	1.14	0.162	1.27	0.033	0.92	0.643	1.41	0.105	0.74	0.058
My health depends more on luck	1.05	0.290	1.04	0.487	1.01	0.877	0.97	0.795	1.14	0.014
Leave health decisions to doctor	1.03	0.526	1.02	0.738	0.90	0.260	1.15	0.264	1.13	0.041
It's better to take care of yourself	0.92	0.048	0.87	0.019	1.03	0.721	0.97	0.788	1.00	0.910
Reported racial bias	0.25	0.028	0.27	0.033	1.23	0.464	1.21	0.628	0.98	0.938
Reported racial bias* minority	4.18	0.032								
Hospital Outpatient Departments										
My health depends on me	1.22	0.130	1.15	0.486	1.19	0.304	1.20	0.533	0.93	0.822
My health depends more on luck	1.10	0.126	1.03	0.734	1.10	0.247	1.24	0.108	1.17	0.260
Leave health decisions to doctor	0.98	0.756	0.90	0.373	1.16	0.121	0.68	0.025	1.06	0.711
It's better to take care of yourself	0.96	0.514	0.99	0.985	1.06	0.489	0.74	0.032	0.66	0.003
Reported racial bias	0.92	0.889	1.14	0.834	0.98	0.954	0.23	0.018	1.14	0.785
Reported racial bias* minority	1.18	0.807								
ER and No Usual Source of Care										
My health depends on me	1.07	0.509	0.97	0.864	1.11	0.502	0.91	0.773	0.95	0.746
My health depends more on luck	0.96	0.382	0.89	0.139	0.99	0.896	0.68	0.007	1.11	0.134
Leave health decisions to Doctor	1.15	0.020	1.15	0.088	1.02	0.804	1.20	0.222	1.12	0.149
It's better to take care of yourself	0.90	0.032	0.85	0.033	0.95	0.520	1.31	0.047	0.88	0.085
Reported racial bias	0.49	0.286	0.46	0.240	1.06	0.820	0.82	0.703	0.94	0.810
Reported racial bias* minority	1.93	0.360								

Source: Calculation from the Commonwealth Fund Survey of Disparities in Quality of Health Care: 2001; The analysis controls for age, gender, SES, insurance coverage and geographic locations; Statistically significant results are bold.

ly to use a hospital outpatient department over a physician's office (RRR=0.68, p=0.025; RRR=0.74 p=0.032) if they tended to disagree with the statement, "I leave it to my doctor to make the right decisions about my health," or agreed with the statement, "It's better to take care of yourself." Asians who felt they or a family member were subject to discrimination in healthcare were less likely to use a hospital outpatient department for care over a physician's office (RRR=0.23, p=0.018). Attitudes and beliefs also were associated with Asians' use of ER or reporting they had no usual source of care. Asians were less likely to use the ER or have no usual source of care over a physician's office (RRR=0.68, p=0.007) if they tended to disagree with the statement, "My health

depends more on luck." Asians who tended to agree with the statement, "It's better to take care of yourself," were more likely to use the ER or have no usual source of care over a physician's office. (RRR=1.31, p=0.047).

The influence of attitudes and beliefs was different still for Hispanics. Hispanics who tended to disagree with the statements, "My health depends more on luck," (RRR=1.14, p=0.014) and "I leave it to my doctor to make the right decisions about my health," (RRR=1.13, p=0.041) were more likely to use CHCs over physicians' offices. Hispanics were less likely to use the hospital outpatient department over a physician's office (RRR=0.66, p=0.003) if they tended to agree with the statement, "It's better to take care of yourself."

Appendix 1. Predisposing, enabling and health need factors by race and ethnicity

	African Americans	Asians	Hispanics	Whites
<i>Predisposing Factors</i>				
<i>Age</i>				
18-29	25.3	24.3	33.5	17.2
30-39	22.9	29.9	23.8	19.1
40-49	18.9	21.3	19.5	22.6
50-64	20.2	16.2	14.6	22.1
≥65	12.7	8.3	8.6	19.1
<i>Gender</i>				
Female	58.1	50.4	54.1	54.9
Male	41.9	49.6	45.9	45.1
<i>Enabling Factors</i>				
Income (average in \$10,000)	3.4	5.1	3.2	4.7
<i>Insurance</i>				
Private	64.5	75.5	43.1	69.6
Medicare	12.3	5.5	11.5	15.9
Medicaid and other government	13.7	6.3	13.3	5.8
Uninsured	19.5	12.7	32.1	9.7
<i>Education</i>				
Less than high school	19.6	9.0	39.4	11.3
High-school graduate	36.2	17.0	28.8	32.8
Some college	27.9	22.1	21.3	28.4
College degree	16.3	51.9	10.5	27.5
<i>Status</i>				
Never married	32.8	24.6	24.9	15.9
Married	41.0	66.1	61.3	64.9
Widow/divorced and separated	26.2	9.3	13.8	19.2
<i>Health Needs</i>				
Self-reported health status of fair or poor	17.2	12.5	22.0	14.4
Any chronic condition	51.5	29.7	38.6	46.8
Limited activities	21.0	21.8	23.6	20.3
Number of observations	1031	614	1142	3447

We converted the income into a continuous variable. Individuals were asked to report their total household incomes from all sources before taxes in \$5,000 intervals ranging from <\$10,000 to >\$75,000. We assigned respondents the midpoint of the range they indicated, e.g., \$30,000-\$35,000 was assigned \$32,500. Because 13.7% of respondents did not report household income, we imputed household income. This was performed using a regression with age, age squared, race, ethnicity, education, employment status, and numbers of adults and children in the household. The R² for this model was 0.35.

Respondents were asked to rate their health status on a five-point scale from excellent to poor. We created an indicator variable for those who reported that their health status was poor or fair. Respondents were asked if in the past five years they had been told by a doctor they had high blood pressure, heart disease, cancer, diabetes, anxiety, depression, obesity or asthma. We created a composite chronic condition indicator variable designating those respondents who answered "yes" to any of these conditions. To measure functional status, we used the respondent's answer to the question: "To what extent does a health problem or disability prevent keep you from participating fully in work, school or other activities?" Respondents were given a four-point scale to answer ranging from "a great deal" to "not at all." Those persons who indicated a fair amount or great deal were identified as having some physical limitation.

Relative Importance of Determinants for Each Subgroups

The results of our stepwise multinomial logistic regression analysis suggest that some factors were more important for some subgroups than others. (Figure 1 displays the contribution to pseudo R^2 for each category of determinants.) For whites, demographics factors (age and gender) and insurance status were the most important factors that contributed differences in the site of care. For African Americans and Hispanics, income, education and insurance status were the dominant factors. For Asians, demographics, educational attainment and income were the most important factors. Attitudes and beliefs were most predictive of the site of care for Asians and least predictive for African Americans.

Another way to judge the relative importance of the categories of determinants is to look at how much each category changes the log likelihood from the base model to the fully specified model. The base model included the demographic variables. Figure 2 displays the relative contributions for each category. Not surprisingly, the findings were similar but not identical to the analysis presented in Figure 1. Health need was most important for whites and African Americans and least important for Asians. Socioeconomic status and insurance coverage combined were very important for African Americans and Hispanics. Compared to the other subgroups, insurance status was not as important for Asians. However, attitudes and beliefs were more important for Asians compared to the other subgroups.

CONCLUSION

Patients' attitudes about health and healthcare, and perceptions about discrimination in healthcare do not appear to be the source of observed racial and ethnic disparities in which individuals receive routine care. Including these factors in our regression analysis did not reduce the estimated impact of race and ethnicity on the site of usual source of care. Similar to Lillie-Blanton and colleagues, we found that African Americans rely more on hospital-based ambulatory care services. We also found that Asians rely more on hospital outpatient departments for routine care. Further research, in addition to focusing on patient level factors, should consider system-level factors such as the availability of office-based private physicians in minority communities.

Having a usual source of care is important because it is a strong predictor of access to care and use of healthcare services.¹⁹⁻²⁴ Several studies have shown that having a usual source of care improves access to needed and appropriate care. Having a usual source of care promotes continuity of care, reduces other barriers to care such as waiting times, improves management of chronic conditions and improves receipt of discretionary preventative services.²²⁻²⁶ Also, prior research has shown that having a usual source of care attenuated racial and ethnic disparities in the receipt of pre-

ventative services.^{25,26} However, these studies focused on the racial/ethnic differences in whether individuals had a usual source of care. Unfortunately, no studies have investigated effects of the site of usual source of care on the disparities in access to care and use of healthcare services.

Do the disparities in which individuals receive services matter? Some researchers have posited that disparities in treatment are the result of minority patients' use of low quality and underfunded providers.²⁷⁻³¹ There is evidence that physicians serving minority patients have smaller referral networks and experience more difficulty getting their patients access to specialty and hospital inpatient services.³¹⁻³³

This study indicates that patient beliefs about health and perceptions of discrimination are probably not the reason why minorities rely more on hospital-based ambulatory care for routine treatment. While other beliefs and attitudes not measured in this study (e.g., trust in physicians or in healthcare systems) may influence minority individuals' site of care, an alternative explanation is that disparities in the site of the usual source of care are not due to patient choice but instead to system-level factors. Minorities may not have the option to choose a private physician's office as a usual source of care because they live in communities where fewer private physicians practice and therefore must rely on hospital-based ambulatory care.⁶ Efforts should be made to increase the number of physicians who practice in minority communities. While minority physicians are more likely to establish practices in minority and underserved communities, they are a very small fraction of the nation's physician workforce.⁷ Further research should explore the contribution of system-level factors such as geographic access to and health plan participation by providers in minority communities to disparities in site of care. If such factors are found to be important, policymakers might address system-level factors that limit minorities' opportunities to be treated in a private physician's office as a way of improving access to care for minority populations.

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