HOW MUCH TIME DO AMERICANS SPEND SEEKING HEALTH CARE? RACIAL AND ETHNIC DIFFERENCES IN PATIENT EXPERIENCES ☆

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ABSTRACT

We use data from the American Time Use Survey (ATUS) to investigate racial differences in the amount of time individuals spend traveling to, waiting for, and receiving outpatient healthcare services on a randomly selected survey interview day. Of the 60,674 participants in the 2003–2006 waves of the ATUS, 2.67% (n = 1,621) reported a clinical encounter on their designated day; this proportion did not differ significantly by race. Among those reporting a clinical encounter, blacks reported spending 30 more minutes than whites in receiving services, and this race gap persisted net of socioeconomic, health, and geographic factors. Hispanics also reported significantly longer visits than whites; yet, this difference

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was partially accounted for by Hispanics' relatively poorer health status. Hispanics and persons of other ethnicity reported significantly longer wait times than whites, whereas blacks and Hispanics reported significantly longer travel times than did whites; these significant differences did not attenuate in the fully adjusted models. The results show that ethnic minorities spend far more time than whites when traveling to, waiting for, or receiving outpatient services, revealing another aspect of health care where stark racial inequities exist. We suggest that the relatively long wait and transportation times reported by ethnic minorities may reflect overcrowded care sites and the lack of quality care in neighborhoods inhabited largely by blacks and Hispanics, thus impeding the delivery of timely and "patient-centered" medical care.

Health policy experts and practitioners have articulated two core missions: to make the U.S. health care system more patient-centered and to reduce racial and ethnic disparities in care. In its influential report, *Crossing the Quality Chasm*, the Institute of Medicine's Committee on Quality of Health Care in America (2001) recommended that patient-centered medical care should not waste patients' time and should not vary in quality on the basis of patients' personal characteristics such as ethnicity or socioeconomic status. The *Healthy People 2010* initiative, which sets forth the federal government's health objectives for the United States, articulated a similar goal: "to eliminate health disparities that occur by race and ethnicity, gender, education, income, geographic location" and other social characteristics (U.S. Department of Health and Human Services, 2000).

Despite policy makers' lofty aim of eradicating health disparities in the first decade of the 21st century, racial and social class disparities remain a persistent feature of health and health care in the United States. Blacks, Hispanics, and Native Americans are disadvantaged relative to whites in terms of virtually every documented health outcome, including quality of care, insurance coverage, morbidity, and mortality (Institute of Medicine, 2003; Mead et al., 2008). However, we know of no studies that investigate whether these disparities extend to patients' time use when seeking care. We use data from the American Time Use Survey (ATUS) to investigate racial differences in the amount of time individuals spend traveling to, waiting for, and receiving outpatient healthcare services on a randomly selected survey interview day. Documenting racial disparities in the time spent seeking medical care is an important line of inquiry; the opportunity

costs involved in seeking care – such as travel time or time taken away from paid employment – may pose obstacles to the receipt of high quality and convenient medical care.

BACKGROUND

Access to timely, efficient, and geographically proximate medical care can reduce mortality and long-term disability, especially from treatable conditions such as stroke, heart attack, and bacterial infections. Ethnic minority patients typically wait longer than white patients to obtain an appointment for health care; they are less likely than whites to get a next day or same day appointment to see a doctor (The Commonwealth Fund, 2006). Data collected from 1997 to 2004 reveal that black patients seeking care in emergency rooms are more likely than white patients to leave without receiving care – a finding that the researchers speculated might be due to long and frustrating wait times (Agency for Healthcare Research and Quality [AHRQ], 2006). Some studies suggest further that blacks and Hispanics are more likely than whites to reside in areas underserved by healthcare providers; thus, they may wait longer for care in crowded, understaffed physician offices or they may travel to more distant yet better served areas to receive care (Guagliardo 2004; Williams, Neighbors, & Jackson, 2003). Ethnic minorities, especially the economically disadvantaged, also may lack efficient transportation to their healthcare providers, often relying on public transit. As such, the extensive travel time required may be an obstacle to seeking timely medical care.

The primary aim of our study is to evaluate racial and ethnic differences in the amount of time spent traveling to, waiting for, and receiving outpatient care. Prior studies have revealed the vast amount of time that Americans devote to receiving outpatient medical care (Russell, Ibuka, & Carr, 2008). Daily diary reports from the ATUS show that the average outpatient visit, including traveling to and from, waiting for, and receiving services, averages two hours for patients, and another two hours for the companions who accompany them. Over the course of a year, for persons aged 15 and older, this amounts to 207 million 40-hour work weeks for outpatient visits alone. However, an important, yet unresolved, question is whether the time burden of seeking care is equivalent for all Americans, or whether racial and ethnic minorities bear a particularly intrusive burden.

Potential Pathways Linking Race and Time Spent on Clinical Encounters

A further aim of our study is to evaluate the extent to which an observed statistical association between race and time spent traveling to, waiting for, and receiving outpatient care is accounted for by socioeconomic, demographic, access, and health characteristics. First, we consider the role of socioeconomic resources. Blacks and Hispanics lag behind whites in educational attainment, income, and assets (U.S. Bureau of the Census, 2008). Socioeconomic resources, in turn, are a widely documented correlate of receiving timely and high-quality care (AHRQ, 2006).

Second, we consider family characteristics, including marital and parental statuses. Marital status varies by race, where blacks are less likely than whites, Hispanics, and Asians to ever marry and to remain married (U.S. Bureau of the Census, 2008). Marital status and parental status, to a lesser extent, are associated with seeking regular health care; persons with close family ties receive health-enhancing supports including encouragement to seek timely care and assistance with transportation (e.g., Waite & Gallagher, 2000).

Third, we consider whether one resides in a metropolitan versus nonmetropolitan area. Persons residing in nonmetropolitan areas travel longer distances to reach healthcare delivery sites, compared to persons in urbanized areas (Larson & Fleishman, 2003). Although an estimated 20% of Americans reside in rural areas today, only 9% of physicians practice in such areas, and this shortage is compounded as hospital closures disproportionately strike rural areas (van Dis, 2002). Persons living in nonmetropolitan areas are disproportionately white non-Hispanics; yet, racial minorities living in rural areas are particularly disadvantaged with respect to seeking and receiving health care (Hartley, Quam, & Lurie, 1994).

Fourth, we consider physical health status, because it may affect the content, duration, and location of clinical encounters (Cherry, Woodwell, & Rechtsteiner, 2007). Persons with serious health conditions may face long travel and wait times when seeking specialist care (Merritt Hawkins & Associates, 2009). Health status also is associated with race/ethnicity, as African Americans and Hispanics tend to have poorer overall health and higher rates of disability and chronic conditions such as diabetes, obesity, and high blood pressure, relative to whites (Centers for Disease Control, 2008). Finally, we consider the role of health insurance, because it is an important pathway to receiving quality and timely medical care; yet, ethnic minorities are less likely than whites to have health insurance, especially employer-provided coverage (Institute of Medicine, 2001).

In sum, building upon prior studies of patients' time use and ethnic disparities in quality of and access to care, we use data from the ATUS to (1) document the amount of time that whites, blacks, Hispanics, and persons of other ethnicities spend traveling to, waiting for, and receiving outpatient medical services; and (2) evaluate the extent to which racial disparities are accounted for by differences in socioeconomic resources, demographic characteristics, health, and access to care.

DATA

We use data from the first four years (2003–2006) of the nationally representative ATUS. The ATUS, conducted by the U.S. Census Bureau for the Bureau of Labor Statistics, is designed to produce "nationally representative estimates of how people spend their time" (Bureau of Labor Statistics [BLS], 2007; Horrigan & Herz, 2004). Households are selected from those that complete their final interview for the Current Population Survey (CPS), the nation's monthly labor force survey. After the CPS's oversampling of small states is corrected, households are stratified by race and Hispanic origin, presence and age of children, and, for childless households, number of adults, and sampled at different rates within each stratum. An individual respondent is randomly selected from persons 15 years or older in each household to participate in the ATUS. In 2003, 3,375 households were selected each month. In 2004–2006, the number was reduced to 2,194 households per month for budgetary reasons.

The ATUS sample is partitioned into four subgroups, one for each week of the month. Within each week, 10% of the sample is assigned to each weekday, 25% to each weekend day. Respondents are randomly assigned a day of the week and phoned the next day. Interviews take place using computer-assisted telephone interviewing (CATI); questions focus primarily on the respondent's activities over the preceding 24-hour period. If interviewers do not reach the respondent, they attempt subsequent contacts on the same day of the week for up to eight consecutive weeks. The 5% of households that do not provide telephone numbers are mailed a request to call the telephone center for the interview.

Response rates declined slightly from 57.8% in 2003 to 55.1% in 2006 (Tai-Seale, McGuire, & Zhang, 2007; Horrigan & Herz, 2004). The ATUS sample weights adjust for differential rates of nonresponse, as well as the oversampling of weekend days and oversampling based on demographic and household characteristics (e.g., ethnicity, presence of children in

household). In 2003–2006, 60,674 respondents aged 15 years or older completed the ATUS.

Analytic Sample

Our analysis is limited to the 1,621 persons (1,208 whites, 191 blacks, 179 Hispanics, and 43 persons of other ethnicity) who reported seeking medical care for themselves on their designated survey day. Of the 60,674 participants in the 2003–2006 ATUS, 2.67% ($n = 1{,}621$) reported an outpatient health encounter; this proportion increased slightly to 3.4% when the full sample was weighted to represent the U.S. population. The proportion of the total sample reporting a health encounter did not differ significantly by race or ethnicity.

MEASURES

Dependent Variables

We focus on three outcomes: the number of minutes spent *receiving*, *waiting for*, and *traveling to inpatient medical services*. ATUS participants are asked how they spent the 24 hours beginning 4:00 a.m. the previous day (their "designated day") and ending 4:00 a.m. the day of the call. Responses are coded independently by two interviewers who did not conduct the interview; coding differences are resolved by trained adjudicators (Tai-Seale et al., 2007). Each activity is assigned a six-digit code; the first two digits indicate one of 17 major activity categories, the next four signify an intermediate category and specific activity (Abraham, Maitland, & Bianchi, 2006; Shelley, 2005). The ATUS data file shows the times each activity began and ended (see Shelley 2005 for further detail on ATUS codes).

We focus here on activities coded as traveling to, waiting for, or receiving care. We focus solely on care the respondent sought for himself or herself; different codes are used for time spent accompanying others as they seek care. All types of outpatient visits are included in the ATUS. Although inpatient stays are included in the ATUS activity definitions, no respondents reported times long enough to suggest that they were inpatients on their survey day.

Independent Variables

Our key independent variable is *race/ethnicity*. We contrast four categories: non-Hispanic white (reference category); non-Hispanic black; Hispanic; and

other ethnicity, three-quarters of whom are Asian/Pacific Islander. All analyses control for *age* and *gender*.

Our goal is to evaluate the extent to which racial differences in time use reflect disparities in socioeconomic resources, physical health, and access to care. First, we consider two indicators of socioeconomic status: *educational attainment* (years of schooling completed) and *total family income*. Education categories include less than a high school degree (reference category), high school degree, some college, college degree, and post-college education. Family income includes income of all members of the household who are 15 years of age or older. Income includes money from jobs; net income from business, farm, or rent; pensions; dividends; interest; social security payments; and any other monetary income received by family members.

Second, we consider family characteristics, including marital status and parental status. *Marital status* refers to whether an individual is never married, married (reference category), separated/divorced, or widowed. *Parental status* refers to the number of children residing in one's household: none (reference category), one, two, or three or more children. Third, we consider potential proximity to care, with an indicator of whether one lives in a *metropolitan* (reference category) versus *nonmetropolitan* geographic area. We also include a dichotomous variable indicating those persons for whom geographic location could not be ascertained.

Fourth, we captured one's *physical health* with a single dichotomous indicator of "ill health." Before 2006, the ATUS did not obtain data on physical health. The only information about health came from questions that asked whether health was a reason for the respondent's employment status. We coded a person as being in ill health if he or she cited ill health or disability as the reason why she/he was for either not working over the last four weeks, working less than full time, not wanting to work full time, leaving their last job, or not participating in the labor force.

Fifth, we considered four indicators of employment status that may be conceptualized as broad (and, admittedly imprecise) proxies for whether one has *health insurance*; we used this approach because the ATUS does not obtain data on health insurance status. Drawing on prior work describing the types of jobs and employers that typically provide health insurance (e.g., Seccombe, 1993), we developed indicators of whether one is an hourly wage earner; class of worker; full-time work; and major occupational group. *Hourly worker* refers to whether people are paid an hourly wage versus an annual salary. Persons not currently working are the reference category. *Class of worker* refers to whether one is a wage and salary (reference category), government, or self-employed worker, or not currently working.

Full-time status captures whether one works 35 or more hours per week (omitted category), less than 35 hours, variable hours, or is not currently working. *Occupational group* refers to whether one works in a management/business, professional (reference category), service, sales, administrative, or blue-collar occupation. We presume that hourly workers, self-employed persons, part-time workers, and those in nonprofessional occupations will be less likely to have employer-provided insurance and thus may have limited access to care.

Finally, in preliminary analyses, we also included an indicator of one's English language capacity, which can be conceptualized as a cultural barrier to receiving timely, proximate, and efficient care. Persons with limited English capacity may require translation services, which are not available at all healthcare sites (Jacobs et al., 2001) and may require lengthier waits or travel times. We considered a dichotomous variable signifying whether Spanish was the only language spoken by all members of one's household. The variable was not a significant predictor of any of the three outcome variables, nor did it mediate the effect of Hispanic ethnicity; thus, we do not include this measure in our analyses.

RESULTS

Descriptive Statistics

Descriptive statistics are presented in Table 1. The second column shows results for our analytic sample ($n = 1{,}621$) and the third column provides information on the full ATUS sample ($N = 60{,}674$). The two samples are very similar in their racial and ethnic composition, although whites are slightly overrepresented and persons of other ethnicity slightly underrepresented in the analytic sample, relative to the full ATUS sample. In our analytic sample, whites account for 74.5% of respondents, whereas blacks and Hispanics comprise roughly 11% each, and other ethnicities account for 2.7%. Our analytic sample includes a disproportionately high number of women and older adults, reflecting the greater tendency of both subgroups to seek health care, relative to men and younger persons. For example, 30% of the analytic sample but just 17% of the full ATUS sample is ages 65 and older. Consequently, members of the analytic sample are more likely than persons in the full sample to be not currently employed (versus employed), widowed versus married, and residing in a household with no children.

Table 1. Frequency Distribution, All Variables Used in Analysis, ATUS 2003–2006.

	Analytic Sample ($n = 1{,}621$)	Full Sample ($N = 60{,}674$)
Demographic characteristics		
Race		
White (reference category)	74.5	71.9
Black	11.8	11.6
Hispanic	11.0	11.9
Other	2.7	4.5
Age (years)		
15–24	5.7	11.8
25–34	11.0	16.6
35–44	17.9	22.2
45–54 (reference category)	20.2	18.8
55–64	16.0	13.6
65–74	15.9	9.2
75+	13.9	7.8
Female	67.4	56.7
Socioeconomic resources		
Education		
Less than high school (reference category)	16.3	17.5
High school diploma/GED	26.9	27.4
Some college	29.4	26.6
College degree	16.6	36.3
Postcollege	10.8	10.4
Income		
Less than $15,000 (reference category)	16.0	12.3
$15–29,999	15.0	15.6
$30–49,999	17.4	19.1
$50–74,999	17.4	16.9
$75–99,999	17.2	14.6
$100,000+	2.5	8.3
Missing	14.0	13.0
Family characteristics		
Married (reference category)	53.5	53.3
Divorced/separated	16.4	15.1
Widowed	13.1	8.2
Never married	17	23.2
No children in household (reference category)	61.9	52.1
1 child in household	15.4	19.4
2 children in household	13.6	18.3
3+ children in household	9.1	9.3

Table 1. (*Continued*)

	Analytic Sample ($n = 1{,}621$)	Full Sample ($N = 60{,}674$)
Geographic access		
Lives in metro area (reference category)	73.7	72.7
Lives in nonmetro area	16.8	17.6
Metro status not identified	9.5	9.7
Health		
Ill health	12.8	5.1
Proxies for health insurance status		
Hourly wage worker	22.8	32.5
Salaried worker (reference category)	18.6	24.3
Not working/NA	58.5	43.3
Wage and salary worker (reference category)	36.9	49.9
Government worker	10.9	11.1
Self-employed	4.9	7.0
Not working/NA	47.4	31.9
Full-time worker (reference category)	32.2	47.1
Part-time worker	9.8	10.5
Variable hours at work	3.9	4.8
Not working/NA	54.1	37.5
Occupation		
Business/finance	8.1	10.5
Professional (reference category)	13.5	15.9
Service	9.0	10.6
Sales	4.5	7.4
Administrative	0.2	9.8
Blue collar	9.1	14
Not working/NA	47.4	31.9

Note: Analytic sample includes persons who reported a clinical health encounter on their selected day.
Abbreviations: GED, General Equivalency Diploma; NA, not applicable.

Bivariate Analysis

Our first aim is to investigate whether the average time spent on health encounters differs across racial groups. We conducted analysis of variance (ANOVA) using unweighted data; we contrasted whether whites, blacks, Hispanics, and persons of other ethnicity differed significantly from one another with respect to each healthcare encounter measure. Results are

Table 2. Race/Ethnic Comparison of Clinical Encounter Reports, ATUS 2003–2006.

	Total Sample	White	Black	Hispanic	Other Race/ Ethnicity	Significant Subgroup Differences	Valid *N*
Percentage reporting a clinical encounter	2.67	2.77	2.70	2.47	2.38		60674
Number of minutes, total encounter	123.48	110.07	167.91	161.97	146.59	WB, WH, WO	1621
Number of minutes, travel	33.59	30.79	42.52	43.29	34.65	WB, WH	1621
Number of minutes, receiving services	74.11	66.88	102.62	89.04	88.72	WB, WH	1621
Number of minutes, waiting	45.23	37.16	56.47	73.24	73.76	WB, WH, WO	565

Notes: Unweighted data are presented. Post hoc comparisons of unadjusted means were conducted using ANOVA; significant ($p < .05$) subgroup differences are denoted as WB: white versus black; WH: white versus Hispanic; and WO: white versus other race/ethnicity.

presented in Table 2, and we denote those subgroups that differed significantly from one another at the $p < .05$ level.

We first examined whether the proportion reporting an outpatient encounter differed significantly by race. We did not find a statistically significant difference ($p < .05$); across each of the four ethnic groups, 2–3% reported that they had a clinical encounter on their designated survey day. When we focused on only those reporting the clinical encounter, we found statistically significant differences in the amount of time spent on each of three components of the medical visit, with whites consistently reporting the shortest durations and blacks and Hispanics reporting the longest. The total time spent traveling to, waiting for, and receiving care ranges from just under two hours for whites (110 minutes) to nearly three hours for blacks and Hispanics (168 and 162 minutes, respectively). Persons of other ethnicity report an average of 147 minutes.

Upon examining each of the three components of the encounters, we found that blacks and Hispanics report significantly more time traveling and receiving services than did whites, whereas Hispanics and persons of other ethnicity reported longer wait times than whites. The amount of time spent traveling to health care averaged 30 minutes among whites, but nearly 45 minutes among blacks and Hispanics. The amount of time receiving services was also lowest for whites; 67 minutes compared to 89 minutes for Hispanics and other ethnicities; and 103 minutes for blacks. Only one-third

of persons with a healthcare encounter reported waiting, and this proportion did not vary significantly by race. However, whites reported significantly less waiting time than blacks, Hispanics, and other ethnic groups ($M = 37.2$ minutes versus 56.5, 73.2, and 73.8, respectively).

Multivariate Analyses

The ANOVA analyses provide a description of racial differences in time use, based on the unweighted sample. We next evaluate potential explanations for these observed race disparities. We estimated ordinary least squares (OLS) regression models using weighted data, to predict the minutes spent receiving services (Table 3), waiting for services (Table 4), and traveling to and from services (Table 5). Model 1 includes race/ethnicity, age, and gender only; model 2 incorporates socioeconomic status indicators; model 3 adjusts for family characteristics; model 4 controls for region; and model 5 adjusts for health status. Unstandardized regression coefficients and standard errors are presented. We also estimated models that included proxies for health insurance; these are discussed in the text, but not presented in the tables.

Receiving Services

The results in Table 3 reveal that blacks spend roughly 30 minutes more receiving services during their clinical encounters than whites. Models 1 through 4 show a black–white difference of roughly 35 minutes; yet, this effect size declines to 30 minutes when health status is controlled. This slight attenuation reflects the poorer health of blacks in the analytic sample; 28.3% are classified as having ill health, compared to 12% of whites. The black–white gap does not change, however, when socioeconomic, region, and family characteristics are controlled.

By contrast, the gap between whites and both Hispanics and other ethnicities declines and becomes marginally significant when health status is controlled. For example, models 1 through 4 show that Hispanics spend 16–18 more minutes than whites receiving healthcare services ($p < .05$); yet, this gap declines to just 12 minutes and becomes marginally significant ($p = .06$) when health status is controlled. These results suggest that the longer duration of healthcare visits for Hispanics may partly reflect their relatively poorer health; 19.6% of Hispanics, yet just 12% of whites are classified as having ill health in the ATUS.

Table 3. OLS Regression Predicting Minutes Receiving Care, ATUS 2003–2006 ($N = 1621$).

	Model 1	Model 2	Model 3	Model 4	Model 5
Demographic characteristics					
Race					
Black	35.69***	34.54***	35.39***	34.39***	30.34***
	(6.28)	(6.46)	(6.54)	(6.56)	(6.55)
Hispanic	18.36***	18.62***	17.18***	15.78*	12.18
	(6.01)	(6.22)	(6.23)	(6.26)	(6.24)
Other	21.05*	18.92	20	19.84*	17.51
	(10.11)	(10.21)	(10.22)	(10.21)	(10.13)
Age (years)					
15–24	1.94	3.72	14.05	15.76	20.44*
	(7.16)	(7.44)	(9.24)	(9.26)	(9.22)
25–34	−3.67	−4.25	−.34	−.10	4.23
	(6.96)	(7.01)	(7.33)	(7.32)	(7.30)
35–44	−1.14	−1.95	1.38	1.41	3.69
	(6.18)	(6.23)	(6.63)	(6.62)	(6.57)
55–64	10.31	9.22	6.99	7.09	8.17
	(6.17)	(6.22)	(6.39)	(6.39)	(6.33)
65–74	−.62	−1.44	−3.75	−3.15	3.2
	(6.41)	(6.55)	(6.82)	(6.82)	(6.86)
75+	1.05	0.17	−3.26	−3.33	4.25
	(6.40)	(6.67)	(7.23)	(7.22)	(7.29)
Female	−17.46***	−18.87***	−19.65***	−19.45***	−18.25***
	(3.79)	(3.83)	(3.89)	(3.89)	(3.86)
Socioeconomic resources					
Education					
12 years		8.05	8.12	8.55	9.11
		(5.78)	(5.80)	(5.82)	(5.77)
Some college		5.51	5.25	5.24	6.29
		(5.90)	(5.93)	(5.93)	(5.88)
College degree		2.56	1.71	1.88	3.53
		(6.95)	(7.00)	(7.00)	(6.94)
Postcollege		0.20	0.28	0.24	3.45
		(8.11)	(8.16)	(8.16)	(8.11)
Income					
$15–29,000		−9.40	−6.95	−7.41	−4.37
		(7.28)	(7.33)	(7.33)	(7.29)
$30–49,000		−10.87	−6.57	−8.38	−1.55
		(7.09)	(7.28)	(7.32)	(7.37)
$50–74,000		−7.86	−3.76	−5.39	0.64
		(7.13)	(7.34)	(7.37)	(7.39)
$75–99,000		−2.35	2.99	0.55	7.56
		(7.79)	(8.08)	(8.15)	(8.18)

Table 3. (*Continued*)

	Model 1	Model 2	Model 3	Model 4	Model 5
$100,000+		−16.78*	−10.70	−13.17	−4.87
		(8.74)	(9.11)	(9.17)	(9.22)
Missing		−12.15	−8.67	−10.26	−4.16
		(7.07)	(7.27)	(7.29)	(7.32)
Family characteristics					
Divorced/separated			13.56*	13.16*	8.72
			(6.21)	(6.21)	(6.21)
Widowed			11.44	10.92	10.01
			(7.13)	(7.12)	(7.06)
Never married			−6.74	−7.24	−7.21
			(6.44)	(6.44)	(6.38)
1 child			−14.60*	−14.67*	−12.36*
			(6.06)	(6.06)	(6.02)
2 children			−2.50	−2.84	−1.79
			(6.69)	(6.68)	(6.62)
3+ children			−1.63	−1.61	0.23
			(7.72)	(7.71)	(7.65)
Geographic access					
Lives in nonmetro area				−9.79*	−9.90*
				(5.02)	(4.98)
Metro status not identified				−57.09	−51.65
				(45.42)	(45.03)
Ill health					33.60***
					(6.18)
Intercept	76.25***	81.80***	79.06***	82.22***	68.53***
	(4.92)	(8.26)	(8.98)	(9.09)	(9.35)
Adjusted R^2	0.03	0.03	0.04	0.04	0.06

Notes: Unstandardized regression coefficients and standard errors (in parentheses) are presented. Data are weighted to reflect each respondent's share of the noninstitutionalized civilian population age 15 or older.
*$p<.05$; **$p<.01$; ***$p<.001$.

We conducted additional analyses to assess whether the racial gaps would attenuate further when four proxies for health insurance were separately incorporated into model 4. Only one indicator was a statistically significant predictor; part-time workers spent an average of 15 minutes more per visit than did full-time workers. However, the inclusion of this measure did not alter the size or significance levels of the race coefficients.

Few other characteristics were significant predictors of the time spent receiving services. Women reported average visits that are 18 minutes

Table 4. OLS Regression Predicting Number of Minutes Waiting, ATUS 2003–2006 ($N = 565$).

	Model 1	Model 2	Model 3	Model 4	Model 5
Demographic characteristics					
Race					
Black	9.88	3.62	3.31	2.74	2.4
	(6.75)	(6.82)	(6.95)	(6.94)	(6.98)
Hispanic	31.73***	21.77***	22.18***	20.61***	20.63***
	(6.35)	(6.46)	(6.48)	(6.46)	(6.48)
Other	34.01***	33.85***	33.46***	35.20***	35.30***
	(12.01)	(11.82)	(11.85)	(11.82)	(11.83)
Age (years)					
15–24	−3.22	−10.96	−11.67	−7.38	−6.54
	(7.64)	(7.89)	(9.89)	(9.98)	(10.12)
25–34	−13.51	−17.14*	−16.19	−15.47	−14.98
	(8.12)	(7.97)	(8.45)	(8.42)	(8.48)
35–44	−8.40	−11.66	−9.42	−9.22	−9.01
	(7.14)	(7.06)	(7.61)	(7.58)	(7.60)
55–64	−1.10	−6.26	−7.16	−7.47	−7.57
	(6.88)	(6.82)	(7.10)	(7.07)	(7.08)
65–74	0.86	−5.48	−5.29	−3.97	−3.10
	(6.91)	(6.97)	(7.33)	(7.31)	(7.51)
75+	12.36	4.52	6.06	5.87	7.1
	(6.81)	(7.01)	(7.64)	(7.61)	(7.98)
Female	7.67	7.39	8.1	8.4	8.49*
	(4.20)	(4.21)	(4.32)	(4.31)	(4.31)
Socioeconomic resources					
Education					
12 years		−19.66***	−20.42***	−19.80***	−19.58***
		(5.98)	(6.10)	(6.08)	(6.10)
Some college		−8.16	−9.50	−9.39	−9.36
		(6.12)	(6.24)	(6.22)	(6.23)
College degree		−25.29***	−26.07***	−25.49***	−25.22***
		(7.18)	(7.31)	(7.29)	(7.31)
Postcollege		−24.83***	−28.01***	−28.30***	−27.85***
		(8.42)	(8.68)	(8.64)	(8.69)
Income					
$15–29,000		−2.05	−1.45	−1.75	−1.44
		(7.31)	(7.36)	(7.34)	(7.37)
$30–49,000		11.4	11.45	9.48	10.27
		(7.22)	(7.47)	(7.47)	(7.63)
$50–74,000		−8.99	−8.31	−10.14	−9.44
		(7.20)	(7.59)	(7.59)	(7.72)
$75–99,000		−14.41	−12.84	−15.36	−14.38
		(8.27)	(8.78)	(8.79)	(9.00)

Table 4. (*Continued*)

	Model 1	Model 2	Model 3	Model 4	Model 5
$100,000+		−11.45	−10.66	−12.15	−11.31
		(9.53)	(9.88)	(9.85)	(9.99)
Missing		−10.48	−10.18	−12.32	−11.79
		(7.25)	(7.48)	(7.49)	(7.57)
Family characteristics					
Divorced/separated			4.89	4.60	4.07
			(7.14)	(7.11)	(7.19)
Widowed			−8.71	−9.83	−10.17
			(7.34)	(7.32)	(7.35)
Never married			2.36	1.16	1.11
			(6.92)	(6.91)	(6.91)
1 child			−7.11	−8.83	−8.53
			(6.52)	(6.56)	(6.59)
2 children			0.90	−1.05	−.79
			(7.22)	(7.23)	(7.25)
3+ children			−12.23	−13.94	−13.64
			(8.82)	(8.81)	(8.83)
Geographic access					
Lives in nonmetro area				−12.94*	−13.09*
				(5.37)	(5.38)
Metro status not identified				−44.68	−44.03
				(38.76)	(38.80)
Ill health					3.47
					(6.76)
Intercept	32.35***	57.60***	58.93***	62.77***	61.09***
	(5.60)	(9.02)	(9.77)	(9.84)	(10.37)
Adjusted R^2	0.05	0.1	0.1	0.11	0.11

Notes: Unstandardized regression coefficients and standard errors (in parentheses) are presented. Data are weighted to reflect each respondent's share of the noninstitutionalized civilian population age 15 and older.
*$p<.05$; **$p<.01$; ***$p<.001$.

shorter than men's, whereas persons in nonmetropolitan areas reported visits that were roughly 10 minutes shorter than their urban counterparts. Not surprisingly, persons with ill health reported visits that were more than 30 minutes longer than their healthier counterparts. Taken together, these variables explained relatively little variance in amount of time receiving services, however. Even in the fully adjusted models, the adjusted R^2 values never surpassed .06.

Table 5. OLS Regression Predicting Minutes Traveling, ATUS 2003–2006 ($N = 1621$).

	Model 1	Model 2	Model 3	Model 4	Model 5
Demographic characteristics					
Race					
Black	10.94***	9.10***	9.40***	9.45***	8.98**
	(2.73)	(2.80)	(2.84)	(2.85)	(2.87)
Hispanic	11.49***	10.87***	10.98***	10.91***	10.49***
	(2.61)	(2.69)	(2.70)	(2.72)	(2.73)
Other	6.76	6.54	5.72	5.73	5.45
	(4.40)	(4.42)	(4.44)	(4.44)	(4.44)
Age (years)					
15–24	−7.26*	−6.41*	−6.46	−6.34	−5.79
	(3.11)	(3.23)	(4.01)	(4.03)	(4.04)
25–34	−5.93*	−5.67	−3.83	−3.82	−3.31
	(3.02)	(3.04)	(3.18)	(3.18)	(3.20)
35–44	−4.31	−4.71	−2.26	−2.24	−1.98
	(2.69)	(2.70)	(2.88)	(2.88)	(2.88)
55–64	0.27	−.38	−1.97	−1.97	−1.84
	(2.68)	(2.70)	(2.77)	(2.78)	(2.78)
65–74	−2.91	−4.30	−5.77*	−5.62	−4.88
	(2.79)	(2.84)	(2.96)	(2.97)	(3.01)
75+	−.96	−2.73	−3.98	−3.98	−3.09
	(2.78)	(2.89)	(3.14)	(3.14)	(3.20)
Female	−2.64	−2.77	−2.47	−2.41	−2.27
	(1.65)	(1.66)	(1.69)	(1.69)	(1.69)
Socioeconomic resources					
Education					
12 years		−.42	−.96	−1.10	−1.03
		(2.50)	(2.52)	(2.53)	(2.53)
Some college		−.85	−1.73	−1.87	−1.75
		(2.56)	(2.57)	(2.58)	(2.58)
College degree		−3.33	−4.70	−4.82	−4.63
		(3.01)	(3.04)	(3.04)	(3.04)
Postcollege		6.92*	5.65	5.52	5.9
		(3.51)	(3.54)	(3.55)	(3.55)
Income					
$15–29,000		−3.96	−3.37	−3.35	−2.99
		(3.16)	(3.18)	(3.19)	(3.19)
$30–49,000		0.14	0.67	0.6	1.4
		(3.07)	(3.16)	(3.18)	(3.23)
$50–74,000		−4.02	−3.20	−3.29	−2.59
		(3.09)	(3.19)	(3.20)	(3.24)
$75–99,000		−5.83	−4.63	−4.73	−3.91
		(3.38)	(3.51)	(3.54)	(3.59)

Table 5. (*Continued*)

	Model 1	Model 2	Model 3	Model 4	Model 5
$100,000+		−8.11	−6.72	−6.82	−5.85
		(3.79)	(3.95)	(3.99)	(4.04)
Missing		−1.25	−.95	−1.07	−.35
		(3.07)	(3.15)	(3.17)	(3.21)
Family characteristics					
Divorced/separated			0.81	.80	0.27
			(2.70)	(2.70)	(2.72)
Widowed			−1.65	−1.76	−1.87
			(3.09)	(3.10)	(3.10)
Never married			1.40	1.36	1.36
			(2.79)	(2.80)	(2.80)
1 child			−6.05*	−6.00**	−5.73*
			(2.63)	(2.63)	(2.64)
2 children			−7.07**	−7.10**	−6.98*
			(2.90)	(2.90)	(2.90)
3+ children			−6.84*	−6.87*	−6.66*
			(3.35)	(3.35)	(3.35)
Geographic access					
Lives in nonmetro area				−.31	−.14
				(2.18)	(2.18)
Metro status not identified				−19.61	−18.98
				(19.74)	(19.74)
Ill health					3.95
					(2.71)
Intercept	35.64***	39.78***	41.69***	41.87***	40.26***
	(2.14)	(3.58)	(3.90)	(3.95)	(4.10)
Adjusted R^2	0.02	0.03	0.03	0.03	0.03

Notes: Unstandardized regression coefficients and standard errors (in parentheses) are presented. Data are weighted to reflect each respondent's share of the noninstitutionalized civilian population age 15 and older.
*$p<.05$; **$p<.01$; ***$p<.001$.

Waiting For and Traveling To Services

We next investigate two aspects of the healthcare encounter that do not directly involve the receipt of care: waiting for (Table 4) and traveling to and from (Table 5) outpatient services. We find that Hispanics and persons of other ethnicity report significantly longer wait times than do whites, whereas blacks and Hispanics spend significantly more time traveling than whites – and these racial gaps remain sizeable and statistically significant even when potential confounding factors and mediators are controlled.

The results presented in Table 4 are limited to the 565 respondents (34% of the 1621 persons reporting a healthcare encounter) who indicated that they had to wait. In preliminary analyses, we conducted logistic regression analyses to identify significant predictors of whether one reported any waiting time. We did not find statistically significant ethnic or racial differences in the odds of waiting; similar results emerged in both unadjusted models and models adjusted for all independent variables included in our analyses.

The baseline model (model 1) in Table 4 reveals that Hispanics and persons of other ethnicities report waiting more than 30 minutes longer than whites to receive health care ($p < .001$), although blacks did not differ significantly from whites. The Hispanic–white gap declines from 30 to 22 minutes, after socioeconomic status indicators are controlled (model 2). However, the 22-minute gap persists even after health status, geographic region, and family characteristics are controlled. Likewise, the large gap (34 minutes) between other ethnic groups and whites remains virtually unchanged, net of all other variables adjusted in the model. None of the four proxies for health insurance was a significant predictor of wait time, nor did the inclusion of these indicators alter the race effects. Moreover, health status was not associated with the duration of waiting time.

We found sizeable differences in wait time based on educational attainment, with high school graduates, college graduates, and persons with advanced degrees reporting significantly shorter wait times than persons with less than a high school education. Persons in nonmetropolitan areas also reported shorter wait times than their counterparts in metro areas. The models presented here account for 11% of the explained variance in wait times.

Table 5 indicates that blacks and Hispanics spend roughly 10 minutes more than whites traveling to healthcare services, and this racial gap barely budges when other factors are controlled. Few other characteristics are associated with traveling time, although persons with children in the household report significantly shorter travel times (6–7 minutes) than those with no children in the household. In supplementary analyses, we found that persons working for an hourly wage have significantly shorter travel times ($b = -5.37$, $p < .05$) although the inclusion of this measure did not alter the race effects. Moreover, no other proxy measure for health insurance affected the average travel times. Only 3% of the variance in travel time is explained by the models estimated here.

DISCUSSION

Our analyses reveal that the time spent on outpatient visits is yet another in a long list of health outcomes where blacks, Hispanics, and – to a lesser extent – persons of other ethnicity are disadvantaged relative to whites. Respondents who had a clinical encounter on their designated day reported that the average encounter required roughly two hours of their time; yet, this ranged from just 110 minutes among whites to more than 160 minutes for blacks and Hispanics. How this time was spent varied widely by race as well. Blacks spent a full 30 minutes more receiving services than did whites; yet, neither Hispanics nor other ethnics differed significantly from whites on this indicator. By contrast, Hispanics and persons of other ethnicities reported significantly longer wait times, whereas blacks and Hispanics reported significantly longer travel times than whites. Each of these findings persisted when we controlled for potential pathway and control variables, including socioeconomic status, health, and access to care. We elaborate each of these findings below.

Receiving Services: Why Do Blacks Spend an Additional Half Hour?

Overall, ATUS respondents reported spending an average of 74 minutes receiving services. This figure is considerably higher than the average duration reported by physicians. Data from the National Ambulatory Medical Care Survey (NAMCS), a probability-based sample survey of office-based physicians in the United States, shows that on average physicians spend less than 20 minutes face-to-face with patients (Cherry et al., 2007). The discrepancy in reports between the ATUS and the NAMCS reveals that patients and care providers experience the clinical health encounter very differently.

The main reason for the difference between physicians' and patients' reports of time use is that an outpatient visit includes many components that do not directly involve the physician: check-in, which can require completing short forms for returning patients, longer forms for new patients; insurance verification; the trip to the examination room; time to undress if needed (and dress again afterward); tests and measures done by staff, such as height and weight, blood pressure, recording current symptoms, and vision and hearing checks; preparation for exams such as the Pap smear; having blood drawn; giving a urine sample; receiving a shot; and the delays between these tasks (Russell et al., 2008).

A critically important, yet unresolved, question is why the time spent receiving services is nearly 30 minutes longer for blacks than whites, even when socioeconomic factors, health, and access to care are controlled. We suggest two potential explanations, each of which requires exploration in future research. First, blacks are significantly less likely than whites to have a regular healthcare provider (AHRQ, 2006). As such, each visit to a new practitioner or care site may require a greater amount of time devoted to completing paper work and reporting details of one's medical and medication history. Second, blacks are significantly more likely than whites to have multiple chronic conditions, including hypertension and diabetes (Centers for Disease Control, 2008), and these conditions typically require medication therapy. Discussing multiple conditions and the medications for these conditions may require extensive time – time that the patient presumably spends with a nurse or pharmacist rather than the physician.

We cannot adjudicate which if these explanations is more plausible, because the ATUS does not collect information on whether one is seeking care at one's primary care provider versus an emergency room, clinic, or other site. Moreover, we do not have detailed information on the precise condition(s) for which one is seeking care. Our analysis provides suggestive evidence, however, that the duration of the visit may be shaped by specific health conditions. Persons classified as having ill health, based on our coarse measure of work-related disability, reported spending 33.6 minutes more than their healthier counterparts receiving services – although unhealthy persons did not differ significantly from healthy persons in the analyses predicting wait or travel times. Pinpointing which conditions require the lengthiest visits may help to shed light on the sizeable and persistent black–white gap in the time spent receiving services.

Beyond the Examination Room: Waiting For and Traveling To Services

Our analysis also revealed a considerable race gap in the amount of time spent waiting for and traveling to services. Hispanics and persons of other ethnicities reported wait times that were 20 and 35 minutes longer than whites, respectively, although blacks and whites did not differ significantly on this outcome. By contrast, blacks and Hispanics reported transportation times that were roughly 10 minutes longer than whites, even after socio-economic status and region of residence were controlled.

As with the race gap in time spent receiving services, our analysis cannot fully explain the race disparities in wait and travel time. However,

we propose several explanations, based on prior research on health inequalities. The most obvious explanation for the extensive wait times reported by Hispanics and persons of other ethnicity is that they are seeking care at crowded or understaffed offices. However, if crowds and staffing issues were the primary explanation, then we might expect to see a significant black–white gap in waiting times. We were surprised that blacks did not report longer wait times than whites, given prior research showing that blacks are more likely than whites to receive care at emergency rooms and other crowded or understaffed settings (Baker, Stevens, & Brook, 1996). It is possible that blacks, Hispanics, and persons of other ethnicities use different frameworks when reporting wait times, where blacks counted time spent waiting in the examination room as part of their "receiving services" tally rather than as a component of their wait times.

An alternative explanation for the lengthier wait times of Hispanics and persons of other ethnicities, nearly three quarters of whom are Asian, is that they may be more likely than whites to seek care at sites that provide translation services, or where staff are of similar cultural backgrounds to themselves (Ngo-Metzger, Legedza, & Phillips, 2004). Persons with limited English skills or who are relatively new immigrants also may lack the cultural capital to advocate for themselves or to request immediate attention from care providers. A growing body of research also suggests that persons who speak English as a second language perceive discriminatory treatment on the part of healthcare providers. For instance, Johnson and colleagues (2004) found that blacks, Asians, and Hispanics are significantly more likely than whites to perceive that they would receive better medical care if they belonged to a different race and that the medical staff judged them unfairly or treated them with disrespect because of their race or ability to speak English.

The more extensive travel times reported by blacks and Hispanics likely reflect the shortage of appropriate healthcare providers in areas with large concentrations of ethnic minorities (AHRQ, 2006; Bach, Pham, Schrag, Tate, & Hargraves, 2004), thus requiring patients to travel long distances for care. Studies of residential segregation reveal that blacks and Hispanics reside in neighborhoods that are more racially segregated than do Asians, with Asians more likely to reside in neighborhoods that are majority white (e.g., Reardon et al., 2009). Consistent with this context of high levels of racial residential segregation, recent studies reveal that poor and ethnic neighborhoods not only lack a high number of healthcare providers, they also lack a sufficient number of *high-quality* health providers. As such, persons intent on receiving excellent care, especially in particular

subspecialties, may be required to travel long distances. For example, a recent analysis of data from 4,300 primary care doctors in the Community Tracking Study revealed that the geographic distribution of highly qualified doctors affected care of black patients. Clinicians caring for black patients were less likely to be board certified than those caring for white patients, and they were less likely to report that they could ''always'' or ''nearly always'' provide access to high-quality subspecialists, diagnostic imaging, and ancillary services (Bach et al., 2004). Consequently, persons requiring particular technologies or services may need to travel extensively for the receipt of appropriate care.

Although differentials of 10–30 minutes in travel and wait times may not appear to be an important indicator of health inequities, we believe that these patterns may ultimately affect the health and well-being of ethnic minority patients. Research has shown persuasively that blacks and Hispanics are more likely than whites to delay seeking medical care until after a serious condition has developed rather than receiving regular preventive care, to be diagnosed with major health conditions at later stages, and to have ''avoidable admissions'' to hospital, due to the late receipt of care (AHRQ, 2006; Weissman, Stern, Fielding, & Epstein, 2001). If patients view extensive travel and wait times as costly and as interfering with other essential daily activities (especially wage labor), then these perceptions may create an obstacle to seeking preventive care.

LIMITATIONS AND FUTURE DIRECTIONS

Our study has several limitations that potentially weaken the persuasiveness and generalizability of our findings. First, the early waves of the ATUS did not obtain data on the specific symptoms, conditions, or health behaviors that may affect the time spent receiving care. Given widely documented racial differences in physical health, we suspect that at least part of the sizeable and intransigent 30-minute black–white gap in time receiving services may reflect underlying health conditions of African Americans. This study limitation may ultimately be remediable, however. The 2006 and 2007 ATUS data include information on self-reported health status, weight, and height. Several waves of such data will be required to have adequate sample sizes for exploring racial differences in time spent in healthcare encounters, given that less than 3% of the sample reports such encounters on their survey day, however. We look forward to replicating our study in future waves of the ATUS, with more detailed information on respondent health.

Second, we were unable to investigate whether access to care, measured in terms of health insurance, accounts for the racial gap in time spent on health encounters. However, we did control for socioeconomic status and age, which are associated with the receipt of public health insurance such as Medicare and Medicaid. We also constructed several proxies for health insurance, which captured attributes of jobs that are typically associated with employer-provided health insurance (Seccombe, 1993). We found that these proxies did not have direct effects on the time spent on health care, nor did they mediate the large and persistent race gaps in time use. We encourage the ATUS investigators to add a simple indicator of presence and type of health insurance in future waves.

Third, we included only a broad proxy for physical access to care – comparing persons who reside in metropolitan versus nonmetropolitan areas. Future analyses could incorporate area-level indicators of the number of healthcare providers per capita, or hospital and physician capacity in a census tract or county, or hospital referral region. We suspect that the long wait and travel times for ethnic minorities may partly reflect a relatively low ratio of healthcare professionals per potential patient in geographic regions distinguished by low socioeconomic status and high proportions of ethnic minority residents (The Dartmouth Institute for Health Policy and Clinical Practice, 2008). As such, they may be forced to wait in overcrowded settings or travel long distances to receive care.

Fourth, we are unable to distinguish whether the wait times reported vary based on site of care. For instance, prior research suggests that blacks and Hispanics are more likely than whites to use emergency departments for routine medical care (Baker et al., 1996), thus the racial gap in waiting may reflect ethnic minorities' greater tendency to seek care at emergency rooms, clinics, or other sites that typically require long waits.

Finally, it is possible that our analytic sample is biased to include persons who are healthier on average than nonparticipants; thus, the amount of time spent in receiving care may actually be *underestimated*. The response rate for the ATUS has been just under 60% instead of the 70% envisioned when the survey was being developed (Tai-Seale et al., 2007). Because the early waves of the ATUS did not obtain health data, we do not know if unhealthy people or those with particularly complex or time-intensive healthcare regimens are less likely than others to participate. Analyses of response rates reveal that busy people (indicated by work hours and children in the household) were as likely to respond as those less busy, but socially isolated people (indicated by marital status, school-age children, and homeownership) had lower response rates (Abraham et al., 2006). Older persons have

higher response rates than younger persons, but those of any age with serious health problems may be less likely to respond. Thus, the ATUS may be best suited for describing routine outpatient visits, rather than more intensive healthcare use.

CONCLUSIONS

Despite these limitations, our study is the first that we know of to document the time spent receiving, traveling to, and waiting for healthcare services among a nationally representative sample of whites, blacks, Hispanics, and persons of other ethnicities. Prior studies have documented the time spent by physicians on outpatient visits (Gottschalk & Flocke, 2005; Lo, Ryder, & Shorr, 2005), but not the time spent by patients. The *patient's perspective* – and disparities in the experiences reported by patients – provides an important yet seldom acknowledged indicator of healthcare effectiveness.

We have shown that whites fare better than ethnic minorities on all dimensions of time use. This is a troubling phenomenon, and one that we have not fully explained using measures from the ATUS. *Healthy People 2010* calls for the elimination of disparities in health, well-being, and access to and quality of health care. We would argue further that time spent receiving, traveling to, and waiting for care also are critical indicators of patient-centered care.

This time may be taken away from other valuable activities including paid employment, household tasks, child care, and other family caregiving. Moreover, the time spent seeking care is compounded by the fact that 40% of persons are accompanied by a family member or friend; these companions spend an average of 124 minutes per encounter (Russell et al., 2008). The time cost of receiving or accompanying others to receive care, in addition to the financial costs, may be onerous – particularly for those working in low-paying hourly positions and who thus lose wages when seeking care. These time investments, particularly with respect to traveling to and waiting for care, may increase in the current economic climate (Associated Press, 2008). Cash-strapped hospitals are closing, especially in poor and underserved areas, forcing local patients to travel greater distances to outpatient clinics and emergency rooms. Such cutbacks also may lead to crowding and longer wait times for patients (Buchmueller, Jacobson, & Wold, 2006).

In its definition of patient-centered care, the Institute of Medicine emphasized that care should be timely and equitable. The ATUS,

in particular, could provide new measures to benchmark timeliness, patient-centeredness, and equity of care. These measures could supplement those already used in the influential annual *National Healthcare Quality Report* (AHRQ, 2006). Documenting racial inequities in patients' time use may provide valuable insights to policy makers concerned with reducing disparities in health and health care in the United States.

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