THE SURVEY OF INCOME AND PROGRAM PARTICIPATION

RACIAL DIFFERENCES IN HEALTH AND HEALTH CARE SERVICE UTILIZATION: THE EFFECT OF SOCIOECONOMIC STATUS

No. 124

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U. S. Department of Commerce BUREAU OF THE CENSUS

This is a revised version of a paper presented at the Annual Meetings of the Southern Demographic Association, October, 1990, Louisville, Kentucky. The authors gratefully acknowledge the support of National Institute on Aging Grant No. R01-AGO7405-OlAl. We extend our thanks to Susan Bullers and David Lesmond for research assistance, and to John Hartman for statistical consultation.

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Racial Differences in Health and Health Care Service Utilization: The Effect of Socioeconomic Status

One goal of a considerable amount of research on aging among minority groups has been to examine the outcomes of life-long patterns of inequality that cumulate in old age. The life experiences of blacks and whites in the United States, for example, have been characterized by different patterns of education, economic success, and employment, an well as different access to the goods, resources, and privileges available within the larger society. Two of the characteristics most strongly affected by these life-long inequalities are health status and economic status.

It has been obvious for some time that health status is different for the black and white populations in the United States. Patterns of infant mortality, mortality at other ages, and overall longevity were long ago noted to be sharply differentiated by race, suggesting that morbidity patterns maybe different as well (see Farley and Allen, 1987; Markides and Mindel, 1987). Recent studies of health differences among black and white populations support the conclusion that aggregate levels and patterns of health differ for these groups (Berkman, Singer and Manton, 1989; Ferraro, 1987; Ford et al., 1990; Linn, Hunter and Linn, 1980; Manton, Patrick and Johnson, 1987).

The reasons for the observed health differences between blacks and whites are not entirely clear. One of the more compelling arguments traces both morbidity and mortality experiences of blacks and whites to differences in socioeconomic status. This argument is plausible because socioeconomic status conditions many factors that relate to health, ranging from knowledge of health care practices and nutrition to ability to purchase medical care. Indeed, studies that have addressed socioeconomic determinants of health show conclusively that individuals with more education and income are in better health (Antonovsky, 1967; Syme and Berkman, 1981; Victor, 1989). Because the trajectories of both health and socioeconomic accumulation converge in later life, the study of the association between health and socioeconomic status is particularly) important for the older population.

The primary goal of this study in to consider the association between socioeconomic status and health among blacks and whites in later life. The study begins with a descriptive review of health-related differences between blacks and whites age 55 and over. This is followed by a multivariate analysis of health status and health care service utilization in later life that emphasizes socioeconomic explanations. This analysis, extends previous work in the area by considering multiple indicators of health as well as multiple dimensions of socioeconomic status, in order to provide a more comprehensive assessment of the ways in which socioeconomic status and race interact to shape patterns of health in later life.-The empirical analysis is undertaken using the third and fourth waves of the 1984 panel of the Survey of Income and Program Participation, a nationally representative survey of the household population.

Patterns of Health Among Blacks and Whites in Later Life

Several extensive analyses of racial differences in health have been undertaken in recent years, focusing largely on the documentation of these differences and the association between survivorship and morbidity. Berkman, Singer and Manton (1989) used "grade" of membership, analysis to characterize the health status of noninstitutional blacks and whites age 65 and over. Although the health characteristics of blacks and whites tended to cluster in similar ways, the overall conclusion was that good health is more concentrated in the white than the black older population. Other studies (Ferraro, 1987; Ford et al., 1990; Krause, 1987; Linn, Hunter and Linn, 1980; Markides and Mindel, 1987), using a variety of data sources, also conclude that blacks have poorer health than whites in later life.

Many causes of this differential have been highlighted in the literature. For example, Manton, Patrick and Johnson (1987) note that the relatively poor health among blacks has been variously attributed to lifestyle factors, health practices, biological traits, and low socioeconomic status. Biological and genetic factors aside[1] some analysts have suggested that socioeconomic conditions may underly a substantial share of the health differential, seemingly encompassing multiple dimensions of lifestyle including access to health care, as well as factors directly related to socioeconomic status such as economic resources. For example, Markides and Mindel (1987) cite the common conjecture that health differences between blacks and whites would disappear if socioeconomic differences were eradicated. Similarly, Jackson (1988) suggests that health differences between blacks and whites are rarely observed when age, sex, and socioeconomic status are controlled. Palmore, Nowlin and Wang (1985) found that the more disadvantaged members of their longitudinal sample, notably blacks, experienced accelerated deterioration of health an compared to more advantaged members of their sample. Other analysts (Cockerham, 1982; Seccombe, 1989) also claim that ethnic differences in health are predominantly the result of socioeconomic inequalities.

Yet empirical analyses often fail to support this generalization. For example, Ferraro (1987; 1989) examined the effect of race on both subjective health and reported disability, and found that blacks are less healthy than whites even after controlling for education. Similarly, Krause (1987) found that blacks reported poorer health than whites even when level of financial strain was controlled; Dowd and Bengston (1978) found that blacks reported poorer health despite controls for income. In one of the few studies in which minority/majority health differences are eradicated through socioeconomic controls, Seccombe (1989) f inds that health differences between elderly Alaska Natives and whites disappear when income and education are controlled. The extent to which extensive controls for socioeconomic status could account for black/white differences in health has not been sufficiently examined, largely because data sources including health indices typically offer only limited indicators of socioeconomic status.

An additional issue blurring the conclusiveness of prior studies relates to the different

[1]Farley and Allen (1987) argue that it is unlikely that genetic differences could account for much of the differential between blacks and whites in life expectancy, given the relatively small numbers of deaths attributed to genetically-linked (e.g., sickle cell anemia).

ways in which health status has been conceptualized and measured. Som e argue that objective measures such as physicians, assessments or hospital stays are best for comparative purposes, because individuals tend to evaluate their own health relative to that of their peers (see Ferraro, 1987, for related discussion). If one group is characterized by a lower level of objective health, subjective assessments made In reference to different peer groups will mask this differential. However, others note that measures of subjective health are better predictors of mortality and of health care service utilization than are more objective measures of health (Krause, 1987). Further, while some health measures obtained through self-report are clearly subjective, such as self-ratings of health as "average," "above average," or "below average "; other self-reports are believed to be more objective such as reports of activities limitations, disabilities or ailments.

The choice of measurement strategy appears to be critical when comparing the health status of whites and blacks. While some research suggests that a fairly strong positive association is evident between the health assessments of individuals and those of their physicians.(Linn, Hunter and Linn, 1980), others note that different conclusions may be drawn using different measurement schemes. For example, Andersen, Mullner and Cornelius (1987) note that blacks have poorer health than whites as measured by death, chronic disease, and self-reported dissatisfaction with health status. However, in terms of self-reports of illness or conditions and restricted activity days, older blacks appear to be about as healthy an older whites. Ries (1990) and Markides and Mindel (1987) also note that different conclusions are drawn regarding the health of older blacks vis-a-vis that of older whites using different health measures. These studies highlight the need for careful examination of multiple dimensions of health when making claims about the health status of racial and ethnic minorities. For the current study, it is especially important to consider the possibility that differences between "objective" and "subjective" measures of health may be associated with socioeconomic status. For this reason, we compare blacks and whites on a variety of health measures.

Data, Methods, and Descriptive Results

The 1984 Survey of Income and Program Participation (hereafter, SIPP), was designed to provide information on a nationally representative sample of the U.S. population over the course of a two and one-half year period (Kasprzyk et al., 1987). The SIPP includes extensive data on living arrangements, economic resources, and health. Because of its national representativeness, rich data, and large sample sizes of both blacks and whites, the SIPP is a useful data set for examining the association between health and economic resources for older blacks and whites.[2]

This survey provides information on several dimensions of health status. Although all are

[2]Although designed as longitudinal survey, and therefore having potential for dynamic analyses, the cross-sectional features of the SIPP are also valuable for analyses of information obtained at a single point in the survey, such as health. Because of its longitudinal design, some original cases were lost between the beginning of the panel, Wave 3 where health information in obtained, and Wave 4 where wealth data are collected. However, the effects of attrition are minimized by the application of weights generated for the sample individuals present at Wave 4.

reported in an interview format, they range from the highly subjective (e.g., self-assessment) to the more objective (e.g., number of days hospitalized over previous year). In the present study, we focus on four measures of health: [1] a self-evaluation of health as "excellent," "very good," "good," "fair," or "poor "; [2] a count of activities for which assistance is required, approximating an Activities of Daily Living (ADL) index (Katz et al., 1966), that ranges from zero to six; [3] a mobility index, ranging from zero to nine (see Ferraro, 1987, for a similar measure)[3]; and [4] a count of number of days when poor health kept the respondent in bad over the four months prior to interview.[4]

In addition, two measures of health care service utilization are analyzed: [1] a count of number of nights spent in the hospital over the year prior to interview; and [2] a count of number of visits to a health care provider over the year prior to interview. These two measures of utilization are emphasized by Wolinsky, Coe and Mosely (1987) and others as measures of "formal" health care service utilization. Both of these measures, as well as the number of bed days indicator of health, are truncated at the 95th percentile, in order to minimize the effect of extreme responses (Wolinsky, Coe and Mosely, 1987). Blacks and whites age 55 and over are included if they were interviewed both at Wave 3, when the health data were obtained, and Wave 4, when the wealth information was collected.[5] Given these restrictions, our sample includes 8955 whites and 848 blacks.

A description of the health status of blacks and whites is provided in Table 1. Percentage distributions for each of the six health-related measures are presented separately for blacks and whites.[6] Although the health measures differ in terms of degree of subjectivity, all indicate

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[3]The Activities of Daily Living, index is based on needs for assistance in the following areas: going outside; getting around inside; getting out of bed; housework; meals; personal hygiene. The number of these items for which a need for assistance is required was summed for each individual to yield the ADL score. The Mobility Index is a summation of difficulties and abilities in the areas of walking (1/4 mile); climing stairs; lifting (ten pounds); getting in and out of bed; going outside; and moving around inside.

[4]The fourth measure of health status, number of bed days experienced over a period of four months, introduces the possibility of some seasonality bias since these data were obtained between January and July. Accordingly, results should be generalized with some caution. This measure was also highly skewed, with a few individuals reporting very high levels of illness requiring bed rest. The measure was truncated at the 95th percentile (at 15 or more bed days over the four-month period) to minimize the effects of this skewness.

[5]We includ persons age 55 and over, rather than 65 and over, for several reasons. First, as noted by Markides and Mindel (1987) a great deal of evidence indicates that blacks age "faster" than whites, and may reach "old age" earlier than do whites. Second, it is important to consider patterns in old age within the context of later life experience. Accordingly, the examination of a broader range of age groups, as opposed to the arbitrary definition of "old age" as 65, is appropriate. Finally, the large samples obtainable with a broader age range provides more confidence in the estimates derived ion the analysis.

[6]For purposes of description, each measure is grouped into categories. These categorizations were determined by important "cut-points" in an effort to identify meaningful differences in the distributions. Tests of significance show that blacks and whites differe significantly along each of these health dimensions.

that blacks age 55 and over have poorer health than similarly aged whites. For example, 31.4 percent of the whites reported that their health was "excellent" or very good, compared to only 15.4 percent of blacks. Well over half of the blacks reported health that was only "fair " or "poor," compared to just over one-third of whites. When health is measured in terms of activities with which assistance in required (the modified ADL measure), more elderly blacks than elderly whites report some needs for assistance. Similar patterns are observed throughout this table, all indicating that blacks are in worse health than whites. In addition, a higher share of blacks spent time in the hospital over the year prior to interview; over ten percent spending over one week total (see Farley and Allen, 1987, for a discussion of recent trends in healthcare service.. utilization among blacks). Blacks also had more visits to medical personnel over the previous year, nearly a third visiting-seven or more times as compared to only about 20 percent of whites reporting as many visits.

TABLE 1: Health Status and Health Care Utilization by Race, Persons 55 and Over, 1984 Survey of Income and Program Participation

Health Measures[a]	Whites	Blacks[b]
Self-Rating		
Excellent/Very Good	31.4%	15.4%
Good	32.2	25.8
Fair/Poor	36.4	58.8
Activities of Daily Living Limitations		
Zero	89.5%	81.4%
One	3.9	6.3
TWO	2.8	4.7
Three or More	3.8	7.5
Mobility Index		
Zero	62.3%	43.9%
One or Two	18.3	22.4
Three or Four	8.5	15.2
Five or more	10.9	18.5
Bed Days in past 4 months		
Zero	78.7%	70.5%
1-7	12.2	14.2
8-14	3.3	5.6
15+	5.7	9.7
Health Care Utilization Measures		
Days in Hospital in past year		
Zero	82.6%	79.4%
1-7	9.1	10.1
B-14	4.1	4.5
15+	4.4	6.0
Visits to Medical Professional in past year		
Zero	21.9%	19.1%
1-6	58.3	48.5
7-12	13.2	21.2
13+	6.6	11.1
N of cases	8955	848

[a]See text for variable definitions.
[b]Percentages may not equal 100.0 due to rounding error. All calculations are weighted.

The differences observed here could be the result of demographic differences between blacks and whites. Among the most important demographic correlates of morbidity and mortality cited in the literature are sex (females have higher morbidity but lower mortality than males), age (older individuals exhibit worse health and higher mortality), and marital status (married persons have been found to have better health and lower mortality). Accordingly, percentage distributions are generated separately by race for each of these other demographic variables (see Table 2). Virtually without exception (see hospital stay comparisons for married and unmarried), the racial patterns observed in Table 1 are repeated throughout the table within sex, marital status, and age group. Thus, these data suggest that the poorer health and higher health care service utilization of blacks is not due to blacks' having unique demographic characteristics typically associated with high levels of morbidity and utilization. Furthermore, the poorer health status of blacks is observed both using measures that are clearly subjective, such as self-assessment of health, and using measures that are arguably more objective, such as number of days when bedrest was required due to illness. Thus, these results are much more systematic and consistent across measurement strategies than those commonly reported in many previous studies.

TABLE 2: Health and Utilization Status by Demographic Characteristics, Persons 55 and Over, 1984 SIPP(a)

Health Measure[b]		Male		Female		Married		Unmarried		55-64		65-74		75-	
		W	B	W	B	W	B	W	B	W	B	W	B	W	B
Self-Rating															
	Excellent/ Very Good	33.5%	18.4%	29.9%	13.3%	33.8%	18.1%	27.1%	13.2%	39.9%	22.2%	23.8%	11.3%	19.7%	6.8%
	Good	31.5	25.5	32.7	26.0	33.1	27.3	30.5	24.1	32.4	28.5	33.6	25.1	29.5	20.8
	Fair/Poor	35.0	56.1	37.4	60.7	33.0	54.1	42.4	62.7	27.6	49.3	38.2	63.7	50.9	72.5
Activities of Daily Living Limitations															
	Zero	91.7%	84.7%	87.9%	79.2%	92.5%	86.5%	84.1%	77.3%	95.2%	$9.3%	91.5%	81.1%	75.2%	63.6%
	one	2.6	4.5	4.9	7.6 2.6	5.5	6.2	7.0	2.4	4.1	3.3	7.0	7.7	10.3	
	Two	2.8	3.9	2.8	5.3 2.1	2.3	4.1	6.8	1.2	3.1	2.4	4.8	6.6	8.4	
	Three or More	3.0	7.0	4.4	7.8 2.8	5.8	5.6	8.9	1.3	3.4	2.8	7.1	10.4	17.7	
Nobility Index															
	Zero	69.8%	52.7%	56.4.%	37.9%	69.3%	54.4%	49.6%	35.2%	74.1%	59.1%	61.4%	37.8%	40.1%	19.0%
	One or Two	15.9	22.4	20.2	22.5	16.4	20.1	21.9	24.3	15.0	18.9	19.9	25.9	22.5	24.6
	Three or Four	6.3	11.2	10.3	17.9	6.6	12.4	12.0	17.5	5.4	10.1	8.6	19.1	14.6	20.2
	Five or more	8.0	13.3	13.1	21.7	7.7	13.0	16.6	23.0	5.5	11.9	10.0	17.1	22.8	36.2
Bed Days in past four months															
	Zero	81.5%	74.5%	76.7%	67.7%	80.7%	74.6%	75.3%	67.0%	79.3%	70.7%	79.1%	71.5%	77.1%	68.1%
	1-7	10.5	13.6	13.5	14.6	11.7	14.2	13.2	14.1	13.7	16.0	11.5	13.6	10.4	11.0
	8-14	2.8	3.9	3.7	6.8 2.7	3.7	4.5	7.2	2.6	5.0	3.7	6.1	4.1	6.3	
	15-	5.2	8.0	6.1	10.9	5.0	7.4	7.0	11.7	4.4	8.3	5.7	8.8	8.4	14.6
Health Care Utilization Measures															
Days in hospital in past year															
	Zero	81.6%	76.8%	83.I%	81.2%	83.3%	80.4%	80.9%	78.5%	86.2%	82.5%	81.1%	79.0%	77.0%	72.7%
	1-7	9.2	10.5	9.1	9.8 9.0	8.9	9.3	11.1	8.1	8.8	9.1	10.5	11.4	12.6	
	8-14	4.4	4.9	3.8	4.3 3.6	4.5	4.9	4.6	2.7	3.5	4.8	5.0	5.6	6.0	
	15+	4.8	7.8	4.1	4.8 4.1	6.2	4.9	5.8	3.1	5.2	5.0	5.5	5.9	8.8	
Visits to medical professional in past year															
	Zero	25.4%	22.0%	19.2%	17.2%	22.7%	18.8	20.6%	19.4%	25.9%	23.3%	19.9%	16.8%	17.3%	13.6%
	1-6	57.0	49.1	59.3	48.2	58.7	53.7	57.7	44.3	57.6	47.9	58.7	48.0	59.1	1.2
	7-12	11.7	17.2	14.3	23.9	12.3	19.5	14.8	22.6	10.5	18.5	14.6	23.6	16.3	23.3
	13+	5.8	11.8	7.2	10.7	6.4	8.0	7.0	13.7	6.0	10.4	6.9	11.7	7.3	11.9
N of case		3908	345	5047	503	5766	384	3189	464	3916	390	3075	292	1963	166

[a]See text for variable definitions.
[b]Percentages my not equal 100.0 due to rounding error. All calculations are weighted.

A Multivariate Analysis of Health Status Among Blacks and Whites in Later Life

The purpose of this study is to determine whether the race differences in the health indicators described above are related to socioeconomic differences between blacks and whites. Accordingly, a multivariate regression analysis was conducted separately for each of the health measures. Included in this regression analysis were categorical measures of race, sex, and marital status, as noted in Table 2, and a continuous measure of age. Regional indicators were also included as control variables.[7] Indicators of socioeconomic status included income, net worth,[8] and years of completed education, all measured continuously. Both income and net worth refer to totals for the individual, if not married, or the couple, if married with spouse present in the same household. While total household income or net worth likely overstates the economic resources actually available to an individual, personal income likely understates the resources accessible to someone who is married. Thus, the combination of spouses, resources was deemed appropriate. Income refers to -total income over the four months prior to interview. (Both income and net worth were logged in the multivariate analysis to account for skewness.) A final measure included in the analysis was a variable indicating whether the individual was covered by any form of private insurance. Although nearly all the respondents aged 55 and over in the SIPP were covered by some form of insurance, a substantial share had no private insurance coverage but rather relied solely on Medicaid or Medicare. This measure was included in the analysis in order to provide a measure of accessibility of health care.

Table 3 provides a description of the black and white subsamples in the SIPP. Median ages for the two groups are the same (66 years), but a higher share of the black sample is female, and more of the white sample is married with spouse present (64% as compared to 45%). Not surprisingly, older blacks are much more concentrated in the South than are older whites. However, some of the most striking differences are observed with regard to the socioeconomic and insurance coverage measures. While the median completed education is 12 years for whites, for blacks the median is only 8 years. Nearly 81 percent of the whites report private insurance coverage, compared to just over half of the blacks. Furthermore, blacks report personal income that is about half that for whites. (Recall that the income figures reported here refer to income over the previous four months; an approximate estimate of annual income can be obtained by multiplying these figures by three.) Finally, net worth for blacks is substantially lower than that for whites--the black median value of $11,400 is only about 18 percent of the corresponding median for whites. These figures indicate that despite some demographic similarities, blacks and whites in

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[7]Although urban/rural residence may also be important, especially for the utilization measure, no indicator of this nature is included in this data bet. A partial-measure of metropolitan residence is available and was implemented in preliminary analyses. While significant, it did not affect the other coefficients in the model. Rather than include a measure that was only a partial reflection of metropolitan status, it was excluded from the model. However, we have confidence that a more complete measure would not affect our results substantially.

[8]Measures on assets provided in the SIPP include value of own home, value of businesses and personal property, and value of interest-bearing property including savings accounts, investmantes, and the like. Both secured and unsecured debts are subtracted from this sum to yield the measure of net worth included here.

later life are quite different compositionally, especially in socioeconomic terms.

TABLE 3: Descriptive Statistics for Persons 55 and Over by Race
1984 Survey of Income and Program Participation

Characteristics[a]		Whites	Blacks[b]
Age (median)		66.0	66.0
Sex (female)		56.4%	59.3%
Marital Status (married spouse present)		64.4%	45.3%
Region:	South	32.3%	56.1%
	Northeast	23.7	16.6
	Went	15.8	8.3
	North Central	28.2	19.0
Education (median)		12.0	8.0
Private Insurance Coverage		80.7%	51.6%
Personal Income of Individual or couple (median		$5,083	$2,550
Net Worth of individual or couple (median)		$64,500	$11,400
N of cases		8955 (91.4%)	848 (8.7%)

[a]See text for variable definitions.
[b]All calculations are weighted.

The goal of the analysis is to address the ways in which these compositional differences, particularly in terms of socioeconomic status, condition the racial disparities in health observed above. To enhance the comparison of blacks and whites, while still retaining parsimony, we chose to analyze blacks and whites in the same model, including interaction terms where appropriate. Comparable models (available from the authors) run separately for blacks and whites, coupled with significance tests for difference of coefficient comparisons (Ferraro, 1987), guided our selection of interaction terms and yielded results consistent with those presented here. In Table 4, each of the four indicators of health are regressed on the variables described in Table 3, using ordinary least squares regression techniques.[9] To assist in evaluating the effects of race on health, a set of models is presented for each dependent variable. The first includes only the demographic and regional variables (race, age, sex, region, and marital status). The second adds the socioeconomic indicators of education, private insurance coverage, income and net worth. When appropriate, a third model including interactions between race and the other predictors is presented.

[9]Ordinary least squares techniques were used in order to provide results in the most easily interpretable metric. While self-rating of health is more appropriately viewed as an ordinal variable, analyses of ordinal measures using lest squares techniques typically yield results that are consistent with those from alternative analytic strategies. Indeed, ordered logistic regression models fit for this variable (reported in Appendix A) yielded similar results. Skewness among the remaining dependent variables prompted the evaluation of long-normal as well as log-log equations (Hanushek and Jackson, 1977); all were consistent with the unlogged strategies followed here. Accordingly, the results of the OLS regressions: re presented.

TABLE 4: OLS Regressions of Health Status on Race and Other Characteristics, Persons 55 and Over, 1984 Survey of Income and Program Participation(a) (standard errors in parentheses)

Variable	Self-Rating			Physical Difficulty [b] Index		
Race (1 = B)	.544*	.189*	-.292*	.667*	.158*	-.029
	(.043)	(.042)	(.105)	(.076)	(.077)	(.147)
Age	.030*	.022*	.022*	.074*	.065*	.065*
	(.001)	(.001)	(.001)	(.003)	(.003)	(.003)
Sex (1 = F)	.011	.018	.014	.350*	.370*	.368*
	(.025)	(.024)	(.024)	(.044)	(.043)	(.043)
Marital Status	-.071*	.162*	.162*	-.359*	-.018	-.017
(1 = Married)	(.027)	(.028)	(.028)	(.048)	(.051)	(.051)
Region: South	.187*	.117*	.118*	.181*	.080*	.076*
	(.031)	(.029)	(.029)	(.054)	(.053)	(.053)
Northeast	-.068*	-.085*	-.089*	-.187*	-.217*	-.218*
	(.033)	(.032)	(.032)	(.059)	(.058)	(.058)
West	-.153*	-.101*	-. 100*	-.146*	-.118	-.119
	(.038)	(.036)	(.036)	(.067)	(.066)	(.066)
Private Insurance		-.223*	-.201*		-.506*	-045*
(1 = Yes)		(.031)	(.033)		(.056)	(.060)
Education		-.072*	-.076*		-.066*	-066*
		(.003)	(.004)		(.006)	(.006)
Net Worth (logged)		-.030*	-.036*		-.071*	-.080*
		(.004)	(.004)		(.007)	(.007)
Income (logged)		-.102*	-.099*		-.080*	-.077*
		(.012)	(.012)		(.023)	(.023)
Interactions:						
Race*Insurance			-.205*			-.430*
			(.091)			(.159)
Race*Net Worth			.030*			.058*
			(.010)			(.017)
Race*Education			.043*			
			(.011)			
Intercept	1.024	3.619	3.669	-3.700	-.768	-.731
R^2	.079	.180	.182	.126	.181	.182

TABLE 4: Continued

Variable	Activities of Daily Living Limitations		Number of Bed Days, Previous Four Months	
Race (1 = B)	.213*	.088*	.775*	.250
	(.033)	(.034)	(.150)	(.154)
Age	.027*	.025*	.027*	.019*
	(.001)	(.001)	(.005)	(.005)
Sex (1 = F)	.031	.037	.260*	.288*
	(.019)	(.019)	(.088)	(.087)
Marital Status	.-.027	.065*	-.386*	-.056
(1 = Married)	(.021)	(.022)	(.095)	(.103)
Region: South	.048*	.023	.608*	.507*
	(.023)	(-023)	(.107)	(.106)
Northeast	-.018	-.025	.108	.068
	(.026)	(.025)	(.117)	(.116)
West	-.035	-.038	156	.175
	(.029)	(-029)	(.133)	(.132)
Private Insurance		-.172*		-.482*
(1 = Yes)		(.025)		(.114)
Education		-.007*		-.064*
		(.003)		(.013)
Net Worth (logged)		-.021*		-.091*
		(.003)		(.014)
Income (logged)		-.017		-.023
		(.010)		(.045)
Intercept	-1.550	-0.918	-0.317	2.204
R(2)	.068	.088	.017	.033

*p<.05
[a]All calculations are weighted

With a few exceptions, the same general results hold throughout Table 4, regardless of health measure considered. Race is usually significant and positive, indicating that blacks report worse health, regardless of the manner in which health is measured. However, the effect of race is eroded considerably by the inclusion of the socioeconomic measures, dropping substantially below its original magnitude. For example, being black is associated with an additional 0.8 bed days over a four month period before socioeconomic controls are introduced. After education, economic resources, and private insurance are controlled, the effect of race drops to 0.25, and is no longer significant. In the remaining health models the race coefficient retains significance, yet its magnitude is much smaller once socioeconomic resources are considered. Furthermore, the race coefficient becomes negative (indicating better health among blacks) for the self-rating and physical difficulty measures when interaction terms are included. This reversal in the sign of the race effect will be revisited later in the paper.

Age is consistently positive throughout the models, indicating poorer health among those who are older. The coeffi+cients for sex are also positive, indicating that females have worse health than males (see also Verbrugge, 1985). However, for both the self-rating and ADL measures, the sex coefficient is not significant. The idea that individuals compare their own health to that of their (presumably same-sex) reference group is a plausible partial explanation of this pattern. Even if women have poorer health than men on average, they may rank their health equivalently because they are drawing comparisons between themselves and other women rather than with men. ADL limitations may also be subject to different reporting patterns by men and women. For example, net of actual disabilities, men may be somewhat more inclined to report needs for assistance with housework or the like than are women.

Interestingly, the marital status effect changes substantially as controls are introduced. In the models including demographic indicators only, being married is consistently associated with better health (although not statistically significant in the ADL model). However, once socioeconomic controls have been included, this effect either reverses or becomes nonsignificant. This suggests that, net of the correspondence between marital status and socioeconomic status, being unmarried is not an impediment to good health among these older black and white individuals. Although beyond the scope of the present paper, a consideration of the marital status effect and its implications for mortality and morbidity is warranted.

For most of the health indicators, the initial effect of region is minimized once socioeconomic resources are controlled. However, respondents in the Northeast report significantly higher levels of physical difficulty, while those in the South report more bed days annually. All regional indicators are significant for the self-rating measure, suggesting that those in the South consider themselves in poorer health while those in the Northeast and West consider themselves in better health relative to those in the North central states. While it is unclear what contexts or behaviors could underly this patterning, it is noteworthy that the most consistent effect of region appears for the self-ranking measure of health. Features of the local environment, accessibility of heath care, or selectivity of the regional populations not otherwise tapped in the model could be at the root of this effect.

We include private insurance coverage in the models as one indicator of differential access, under the assumption that having private coverage as opposed to Medicare or Medicaid alone may broaden one's options for health care. Private coverage also may be related to occupational history and work conditions, or other dimensions of socioeconomic status not elsewhere addressed in the model. Having private insurance is consistently associated with better health, indicating that improved health care access may be one avenue by which good health may be maintained in later life.

In each of the models, higher socioeconomic status is consistently associated with better health. For example, those with more years of education also report better health. While this effect may indicate either a class effect or the effect of knowledge of good health practices, it is important because education may reflect health-related behaviors and . lifestyles occurring earlier in the life course. Net worth is important for similar reasons--by definition, net worth measures the accumulation of wealth over a lifetime, and therefore reflects socioeconomic standing throughout the life course more accurately than temporally-bound measures such as current income. For each health measure, greater net worth is associated with better health, above and beyond the effects of the other variables in the model.

Finally, income also shows some association with health. Those who report more income tend to rank their health as better and report fewer mobility limitations. Interestingly, income is not associated with reports of ADLA or with the number of bed days reported. This provides some support for the notion that more subjective measures of health may be conditioned to some extent by economic well-being. For example, while a person with minimal income may report being in poor health or suffering from certain aliments, it appears that the low-income person is no different than his/her higher income counterparts in terms of health-related behaviors such as being confined to bed due to illness or requiring assistance from others.

To conclude this discussion, it appears that some share of the association between race and health status is a function of socioeconomic characteristics. Consistent with other research, one of the reasons that blacks are in poorer health than whites in later life is because they are less advantaged in terms of income, wealth, access to health care, and the like. However, even controlling for many of these differences, race retains a significant effect both for subjective measures and more objective measures of health.

To consider the possibility that the health of blacks and whites is differentially related to the other variables in the model, interaction effects were estimated and tested for significance. Significant interaction effects were noted only for two of the health indicators, self -rating and the physical difficulty index, suggesting that the associations between the other independent variables and both ADLs and bed days are similar for blacks and whites.

Considering self-ratings first, several significant interactions between race and socioeconomic indicators are noted. These interactions indicate that while the effect of private insurance on self-rated health is stronger for blacks (-.406 an compared to -.201 for whites), the effects of education and not worth are attenuated- for blacks relative to whites. Thus, the

accumulation of education and net worth over the life course does not provide an equivalent level of good health for blacks asit does for whites. Similar interaction patterns are observed for the physical difficulty index; blacks benefit more than whites from private insurance coverage, but less than whites from high levels of net worth. Interestingly, for both self-rating and physical difficulty, the coefficients for race become negative, although significant only for self-rating. This suggests that once socioeconomic status and the different responses of blacks and whites to levels of socioeconomic status are controlled, whites may rank their health worse relative to their peers than do blacks.[10] No significant interactions were detected in the analysis of ADL or bed days, indicating that blacks, while evidencing poorer health in both these areas, are not much different than whites in terms of the association between their health and their economic resources.

Regression analyses were also conducted for two measures of health care service utilization: number of visits to a health care professional and number of nights spent in the hospital over the year prior to interview. In these analyses, all the variables included in the previous analysis are included, as well as the four indicators of health. Interaction terms involving race also are included where appropriate. Results from these analyses are presented in Table S. These results indicate that blacks have more visits to health care professionals than do whites, even net of socioeconomic controls and level of health.[11] Indeed, comparing the first and second equations for this variable, controlling for socioeconomic status actually results in a larger effect of race. Those with private insurance have more visits, as do those with more education and those with more income. As would be expected, most of the health status measures are also positively associated with number of visits to a health care professional. The sole exception is number of limitations in daily activities, which in not significant. No significant interaction terms were identified for annual number of visits.

[10]This result should be interpreted with caution. The logistic regression results included in Appendix A indicate that the race effect for both self-rating and physical difficulty is captured by different responses to economic resources and insurance coverage.

[11]The reader should exercise appropriate caution when considering the effects of health on health care service utilization presented in this table, due to the different reference periods associated with the various measures. For example, respondents are asked to rate their health at time of interview, while number of visits to a health care provider refers to the year prior to interview. Respondents may plausibly rank their health as poor because they made many visits to a health care provider rather than the reverse.

TABLE 5: OLS Regressions of Utilization Measures on Race, Health Status and other Characteristics, Blacks and Whites Age 55 and Over, 1984 SIPP(a) (standard errors in parentheses)

Variable	Visits to a Health Care Professional, Prior Year[b]		Nights Spent in Hospital, Prior Year		
Race (1 = B)	552*	.871*	-.249	-.132	.067
	(.166)	(.170)	(.138)	(.141)	(.157)
Age	-.013*	-.006	.013*	.015*	.015*
	(.006)	(.006)	(.005)	(.005)	(.005)
Sex (1 = F)	.303*	.299*	-.494*	-.496*	-.494*
	(.096)	(.096)	(.080)	(.080)	(.080)
Marital Status	.214*	-.061	.091	-.032	-.036
(1 = Married)	(.104)	(.114)	(.086)	(.095)	(.095)
Region: South	.127	.189	.003	.031	.025
	(.117)	(.117)	(.097)	(.097)	(.097)
Northeast	.453*	.454*	-.063	-.067	-.071
	(.128)	(.128)	(.107)	(.107)	(.107)
West	1.189*	1.165*	-.291*	-.283*	-.281*
	(.145)	(.145)	(.121)	(.121)	(.121)
Health Status:					
Self-Rating	1.041*	1.141*	.276*	.311*	.309*
	(.045)	(.047)	(.038)	(.039)	(.039)
ADL	-.110	-.116	.067	.067	.076
	(.066)	(.066)	(.055)	(.055)	(.055)
Physical	.340*	.362*	.223*	.232*	.230*
Difficulty	(.032)	(.032)	(.027)	(.027)	(.027)
Bed Days	.298*	.296*	.319*	.319*	.329*
	(.012)	(.012)	(.010)	(.010)	(.011)
Private Insurance		.515*		.323*	.317*
(1 = Yes)		(.125)		(.104)	(.104)
Education		.060*		.010	.009
		(.014)		(.012)	(.012)
Net Worth (logged)		-.009		-.003	-.002
		(.015)		(.013)	(.013)
Income (logged)		.222*		.092*	.093*
		(.050)		(.042)	(.042)
Interactions:					
Race*Bed Days					-.080*
					(.028)
Intercept	.379	-3.148	-.684	-2.006	-1.999
R(2)	.240	.247	.191	.193	.194

*p<.05

[a]All calculations are weighted.

[b]No interactions involving race were significant for this dependent variable.

The second utilization variable considers the number of nights spent in a hospital over the year prior to interview. Although age, sex, insurance coverage, income, and most of the health measures are associated with hospital stays, race is not. That is, hospital stays appear to be determined largely by health and affordability (in terms of income) rather than race. This is consistent with other research suggesting that the nearly universal coverage of Medicare and Medicaid may mitigate racial and class differences in frequency of hospital use. The final model includes an interaction between race and number of bed days, indicating that the positive association between number of bed days and number of nights spent in the hospital is less pronounced for blacks than whites. Thus, at least in terms of one indicator of health, the health status of blacks may be a less accurate predictor of hospital utilization than is the case for whites.

Discussion

The purpose of this paper was to assess the differences between blacks and whites in later life on a range of indicators of health status and health care service utilization. Especially emphasized was the role of socioeconomic status in explaining the association between race and health. Socioeconomic status is conceptualized here as encompassing both current dimensions of status, such as income, and dimensions of status that may be related to experiences earlier in the life course, such as education and wealth. Our results suggest, as would be anticipated by arguments relating to the socioeconomic origin of race differentials in health, that much of the difference in health between blacks and whites is related to socioeconomic statue. However, a statistically significant effect of race in observed above and beyond the association of education, income, and net worth, indicating that race is associated with some set of behaviors, environmental contexts, or other social realities that have implications for health in later life. While we are limited in our ability to test these other possibilities with the current data, several alternatives come to mind for future research.

One issue to consider is the so-called "crossover effect." Although most often discussed in terms of mortality differences between blacks and whites, the implications for morbidity are obvious and have been discussed in other contexts (Berkman, Singer and Manton, 1989; Ford et al., 1990; Markides, 1981). The crossover argument, generalized to the issue of health status, suggests that because more blacks are subjected to unfavorable socioeconomic circumstances and higher risk behaviors earlier in life, a smaller share survive to old age. Those who do survive are selected" on the basis of good health and favorable experiences earlier in the life course. our results are consistent with this argument in that socioeconomic status does appear to play a role in relating health and race.

However, the crossover argument suggests that much of the effect of low socioeconomic status on health has already taken its toll prior to observation at age 55 and over. Despite health care service access that appears to be more equitable than in the past, Farley and Allen (1987) point out that this relative equity of access has occurred only recently. While they were younger, today's cohorts of older blacks experienced levels of inequality that may have been much more

substantial than the current equity of access implies. Thus, the full effect of socioeconomic status differences on the health experience of this cohort might be even greater than observed here. Our assessment may be conservative and an understatement of the association between health and socioeconomic status over the life course; it most certainly is an understatement of the degree of inequality in health and socioeconomic resources between racial groups. Although our results demonstrate that even among groups selected for longevity, an association between race, socioeconomic status and health persists; a careful evaluation of race differences in health and SES over an extended period of time using longitudinal data is required for this issue to be fully addressed. Because the SIPP provides a view of health at only one point in time, we are unable to evaluate this issue with the current data. Further, given that whites are more likely than blacks to be institutionalized (Burr, 1990), the white household population may also be "selected' for health if those whites in poorest health are institutionalized. The degree to which the joint processes of institutionalization and mortality result in black and white populations selected for both health and socioeconomic status must be considered further.

A related hypothesis considers the "stress" of being a member of a minority group, and the resulting implications for health. Even advantaged era of a minority group--in this example, blacks who experienced higher incomes, better education, adequate access to health care, and a more favorable lifestyle throughout the lifecourse--may experience stress associated with minority group status. For example, Kosa, Zola and Antonovsky (1969) note that minority group status may be associated with an increase in mental disorders, while Haan, Kaplan and Camacho (1987) demonstrate that environmental features such an residing in a poverty area affect health independently of Individual characteristics and behaviors. Kessler (1979) finds that higher levels of psychological distress among blacks than among whites are a function of blacks' being exposed to higher levels of stressful events, and not to an escalated response to equal stressors. Krause (1987) demonstrates that stressful life events are related to self-reported health. However, he also finds that blacks have poorer health than whites, independent of stressful experiences. Further research is needed to determine the degree to which minority group status per se, and the stress and discrimination associated with that status, affect health above and beyond socioeconomic considerations.

Racial differences in characteristics other than socioeconomic status must also be considered more extensively. For example, differences in diet are frequently mentioned as important considerations that may have cultural origins, of course, the degree to which diet reflects socioeconomic status and affordability is also worthy of consideration. Whatever cultural factors may be playing a role, we have learned from this analysis that more than just a single dimension of health is affected. Either the cultural effect is sufficiently broad and wide-ranging as to affect all the dimensions of health examined here, or multiple aspects of culture are playing a role. other health-related lifestyle characteristics, such as smoking behaviors, drinking behaviors, and the like, may play some role as well; again, it is unclear to what extent these behaviors originate culturally, socioeconomically, or structurally.

In conclusion, we have documented important differences between blacks and whites along

several dimensions of health and health care service utilization. While part of this differential appears to be associated with socioeconomic status, an effect of race persists. The extent to which this effect reflects life-long inequalities in health and health care access, cultural differences between blacks and whites, or stress associated with minority group status are topics for future study. More research is needed on the association between socioeconomic status and health for blacks and whites, especially research on longitudinal and cohort changes in health, resources, and service utilization of individuals over extended periods of time.

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APPENDIX A: Logistic Regression of Self-Rated Health Status on Race and Other Characteristics, Persons 53 and over, 1984 Survey of Income and Program Participation(a) (standard errors in parentheses)

Variable		Self-Rating	
Race (1 = B)		.046	(.138)
Age		.035-	(.002)
Sex (1 = F)		.024	(.039)
Marital Status (Married)		.268*	(.046)
Region: South		.211*	(.047)
Northeast		-.130-	(.051)
West		-.148*	(.058)
Private Insurance (Yes)		-.146	(.173)
Education		-.122*	(.006)
Net Worth (logged)		-.115*	(.019)
Income (logged)		-.165-	(.022)
Interactions:			
Race*Insurance		-.217	(.146)
Race*Net Worth		.055*	(.016)
Intercept	1	3.185	
	2	1.971	
	3	0.443	
	4	-1.008	
Model X(2)		2013*	
Model df		13	

*p<.05
[a]All calculations are weighted