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WEALTH EFFECT AND DENTAL CARE UTILIZATION IN THE U.S.

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Abstract

Objective—The purpose of this article is to examine the relationship of wealth and income and the relative impact of each on dental utilization in a population of older Americans, using data from the Health and Retirement Study (HRS).

Methods—Data from the Health and Retirement Study (HRS) were analyzed for U.S. individuals aged 51 years and older during the 2008 wave of the HRS. The primary focus of the analysis is the relationship between wealth, income and dental utilization. We estimate a multivariable model of dental use controlling for wealth, income and other potentially confounding covariates.

Results—We find that both wealth and income each have a strong and independent positive effect on dental care use of older Americans [$p < .05$]. A test of the interaction between income and wealth in our model failed to show that the impact on dental care utilization as wealth increases depends on a person's income level, or, alternatively, that the impact on dental use as income increases depends on a person's household wealth status [$p > .05$].

Conclusions—Relative to those living in the wealthiest U.S. households, the likelihood of utilizing dental care appears to decrease with a decline in wealth. The likelihood of utilizing dental care also appears to decrease with a decline in income as well.

Keywords

Dental; Utilization; Dentistry; Insurance; Coverage; Wealth; Income; Retirement

INTRODUCTION

For many workers, retirement is a time for leisure and relaxation. For others, retirement can be difficult and confusing. Faced with the post retirement challenges associated with the loss of income, retirees often must navigate through a myriad of complex questions and choices. One seemingly inconsequential choice for some retirees may be what to do about the need for dental care and the paucity of available dental care coverage. [1-3] Many U.S. workers who lose health benefits upon retirement easily transition to Medicare. [1-3] However, since Medicare does not cover routine dental care, retirees must often plan to pay out of pocket for needed dental care. [4-6] Apart from dental services related to and performed at the same time as a Medicare covered primary service, there is some limited dental coverage for those in Medicare Advantage programs and for low income dual Medicare/Medicaid beneficiaries. [6-8] As a result, retirees either lack dental coverage or gain coverage through a broader supplemental private medical plan or a separate “stand alone” private plan.

Previous work has shown that dental coverage, income, education, health status, presence of teeth, and race/ethnicity are highly correlated with the likelihood that an individual in the U.S. will choose to seek dental care. [5,9,10] Of these determinants of dental care use, income is the characteristic that is most noticeably impacted by retirement. Many studies have shown that individuals in the U.S. with higher income, even in retirement, are much more likely to seek dental care than persons with less income. [5,9-11] However, with limited insurance coverage and loss of earnings, a retiree's decision to seek dental care is more likely to be a function of an individual's full economic status rather than income alone. According to Hurd, economic status is a measure of wealth and represents the “...consumption opportunities available to an individual.” [12] He further notes that while income may be the most widely used measure of economic status it “is far from perfect.” [12] Wealth, on the other hand, may be more inclusive and provide an equally important if not better measure than income alone of an individual's economic capacity to consume dental care. Several studies have examined the influence of wealth on the use of medical care services. [12-16], fewer still have done so for dental care. Kington, Rogowski, and Lillard first estimated the influence of wealth and income in a dental utilization model for older U.S. adults using a 1990 supplement of 975 elderly individuals from the Panel Study of Income Dynamics (PSID). [17] More recently, Allin, Masseria, and Mossialos estimated income and wealth effects in a model of dental utilization using the 2004 HRS for the U.S. component of a cross country study. However, their study did not construct wealth separately from income but rather used either income alone or income combined with wealth in their dental utilization models. [18]

The purpose of our study is to estimate the relationship of wealth and income on dental utilization for an aging U.S. population using more recent 2008 data from the Health and Retirement Study (HRS). We model dental care use as a function of wealth and income controlling for dental care coverage status, retirement status, and other individual and household characteristics. Specifically, we calculate national estimates of the number, percent of the population, and characteristics of those persons age 51 years and above with a dental visit, by wealth, income and other factors. We hypothesize that wealth and dental utilization will be positively correlated in a population of older Americans and that both income and wealth will each occupy strong, significant roles in a model of dental use for the this population.

METHODS

The Health and Retirement Study (HRS) is a nationally representative longitudinal household survey in the U.S. that collects self-reported data from interviews with

individuals over age 50 and their spouses every two years. We use the 2008 wave of the HRS for our study containing 17,217 sampled individuals. Administered by the Institute for Social Research (ISR) at the University of Michigan and sponsored by the National Institute on Aging, the HRS is useful for the study of aging, retirement, and health among older populations in the United States.[19-20] Each respondent is asked a large battery of questions including information about demographics; income and assets; physical and mental health; cognition, family structure and social supports; health care utilization and costs; health insurance coverage; labor force status and job history; and retirement planning and expectations. Because of the breadth of data available across health and labor force measures and the large sample of older Americans, the HRS is an excellent data source for assessing the association between dental coverage, use, and retirement among an older population.

This analysis focuses on self reports in the HRS of whether or not a person visited the dentist for dental care at least once during the two-year period prior to the most recent survey in 2008. Survey respondents are designated as fully retired if at the time of the survey interview they were not working for pay or self-employed and either (1) said that they were completely retired, or (2) reported their sole employment status as retired. Individuals are classified as partially retired if they were not fully retired but report retirement and either working or looking for work. Individuals not classified as fully or partly retired are designated as in the labor force if they report working for pay or report their labor force status as working full-time, part-time, or unemployed. Persons are classified as not retired and out of the labor force if they report being disabled, not in the labor force or never in the labor force.

Dental insurance coverage in the 2008 HRS is identified in one of two ways: either a) the respondent reported seeing a dentist for dental care during the 2-year period preceding the survey and reported having expenses completely, mostly, or partially covered by insurance; or b) the respondent did not see a dentist but reported that they would expect any costs to be covered by insurance if he or she did need to see a dentist.

The wealth measure we use is total net value of wealth including the net value of any secondary residence owned by the household. The HRS collects data on separate components of wealth and debt and then sums them to produce a total net value of wealth. Responses are bracketed for cases in which respondents cannot provide exact data to improve the accuracy of imputed values. [21-23] Wealth measures include the net value of primary, secondary and other real estate, vehicles, businesses, tax-deferred retirement savings accounts including Individual Retirement Accounts (IRAs) for employed workers and Keogh accounts for self-employed individuals or those who own their own incorporated businesses, stocks, mutual funds, investment trusts, checking, savings and money market accounts, interest earning savings instruments issued by banks (Certificates of Deposit (CDs)), government savings bonds and Treasury bills, bonds, bond funds and the value of all other savings and debt. [21]

We use a relative measure of wealth in our study indicating which decile or groups of deciles in this distribution a person's household belongs. We split the 11,187 households in our sample into single and couple households for our relative measure because of disparities in wealth. For example, the mean wealth above the 60th percentile and at or below the 90th percentile (deciles 7 to 9) for a couple household is more than double that of single household (\$790,041 v. \$362,955). Couple households are defined as persons who are married or "living together as though married" in the HRS, in addition to infrequent cases in which HRS couple's status does not indicate marriage or partnership and the household has two members. [21] Single households comprise all other households in our sample not

meeting the requirements to be defined as a couple household. Along with calculating z tests for the bi-variable relationships between mean values of dental visits and wealth, and other person and household characteristics, we also estimate a logistic regression model of the association of dental service use with wealth controlling for other potentially confounding variables.

The HRS core sample design is a multistage area probability sample of households, so all estimates and statistics reported were computed taking into account this design with the use of the software packages SUDAAN and STATA. [24-25] We used z tests to identify statistically significant differences in our descriptive tables. Unless otherwise stated, all reported results are significant at the .05 level.

RESULTS

Descriptive Results

After dropping 2,247 persons with zero weights, the 14,970 participants in our 2008 HRS sample represented 73.754 million members of the U.S. community-based population age 51 and above in that year, and comprise the study sample. Of these, more than half of the participants were female (59 percent, N=8,820). Fourteen percent (N=2,122) of the participants were non-Hispanic Black and 9 percent (N=1,346) were Hispanic. Thirty-two percent (N=4,856) of the participants were age 75 or older, 38 percent (N=5,709) were between the ages of 65 and 74, and 29 percent (N=5,709) were between the ages of 51 and 64. More than half the sample (56 percent, N=8,433) were classified as fully retired; 10 percent (N=1,550) as partially retired; 22 percent (N=3,295) as not retired and in the labor force; and 11 percent (N=1,692) as not retired and out of the labor force.

Wealth

Table 1 shows the size distribution of household wealth in the 2008 HRS. The first two panels of Table 1 show the separate wealth distributions for single and couple households, respectively. The third panel combines single and couple households into wealth deciles based on the separate wealth distributions in the first two panels for each type of household. Mean household wealth for the combined households is \$511,048 and ranges between a minimum of -\$1.064 million and a maximum of \$55.441 million. Our preliminary analysis of dental coverage, use, and expense indicated consistent behavior over the wealth decile groupings in Table 1. These groupings were also adopted by Lusardi, Schneider and Tufano [16] in their study of the effect of the recent recession on medical care use.

Table 2 arrays older Americans across the size distribution of household wealth by characteristics of this population in 2008. Overall and across the wealth deciles, individuals living in the wealthiest households generally tend to be aged 65 to 79, male, white non-Hispanic, high income, college graduates, married, in two-person households, in excellent or very good health, dentate, and partially retired. For example, college graduates live in households with higher mean wealth than that of persons without a college degree both overall and above the 30th and at or below the 90th percentiles of the household wealth distribution.

Households containing females in Table 2 have lower mean wealth overall, and in each of the wealth classes at or below the 90th percentile, compared to households containing males. Clearly this result is driven by the household wealth of male only and female only households even though married people were included in the table. Wealth at the person level in Table 2 represents the combined wealth of the household members and is therefore the same for both the male spouse and the female spouse in a married couple household.

Dental Use

Table 3 shows the characteristics of the study sample with a dental visit by wealth status for selected population characteristics. Overall, 66 percent of all older adults had a dental visit during the two year period ending in 2008. The dental use rate increases monotonically from 43 percent at or below the 30th percentile of the wealth distribution to 88 percent for those above the 90th percentile of the distribution. Within each population category of Table 3, a similar monotonically increasing dental use rate with household wealth is observed. Figure 1 illustrates this relationship within each of the income groups. Both overall and within wealth decile groups, we note the lower use rates of those in the 80 and older age group compared to those older adults less than 80 years of age. We also note, with only a few exceptions in the highest wealth deciles, the higher use rates of White non-Hispanic, high income, college graduate, dentate, married older persons in excellent/very good health who have dental insurance coverage and are not retired, in the labor force compared to dental use rates of respective Black non-Hispanic, lower income, lower education, edentulous, widowed/divorced older Americans in fair or poor health who have no dental insurance coverage and are either fully or partially retired or not in the labor force, not retired.

Logistic Regression Results

Table 4 presents the results of a logistic regression model of dental use that controls for confounding factors that could influence the observed association between wealth and dental use. Adjusted odds ratios of the probability of having a dental visit during the two year period ending in 2008 are shown. To help interpret the table, the odds ratio estimate for females of 1.584 indicates that the odds of an elderly female having a dental visit are nearly 60 percent greater than the odds of an elderly male after adjusting for other covariates, where the odds are defined as the probability of a dental visit divided by the probability of not having a dental visit.

Wealth and Income Status Effects

The odds of utilizing dental care are higher for those older Americans in households at the highest decile of the wealth distribution compared to those in households at or below the 90th percentile of the distribution. Relative to those living in the wealthiest and highest income households, the odds of utilizing dental care appear to decline monotonically with declines in wealth and income similar to the patterns observed in Table 3. Notably both income and wealth have strong, positive effects on dental care use of the older Americans in our model which supports the hypotheses underlying our study. A test of the interaction between income and wealth in our model failed to support an ancillary hypothesis that the impact on dental care utilization as wealth increases varies with a person's income level, or, alternatively, that the impact on dental use as income increases varies with a person's household wealth status.

Other Effects

After controlling for other variables, we find a reversal of the bivariate age effects from Table 3. Our regression results show that the odds of dental use for those less than 70 years of age are lower than the odds for those 80 years and older. With few exceptions, the regression results for the other non-wealth and non-income effects are otherwise similar to those in Table 3 without controls for confounders. Notable exceptions are that the odds of dental use for Hispanics are no different from those of Whites and that retirement status has no influence on dental use in our regression results in Table 4. The odds of using dental care are higher for older Americans who are White non-Hispanic, married, dentate, college graduates, in excellent or very good health, and who have dental coverage than corresponding persons who are, respectively, Black non-Hispanic or other race/ethnicity,

widowed or divorced, edentulous, not college graduates, in good, fair or poor health, and who have no dental coverage.

DISCUSSION

We had expected both wealth and income to have strong, positive effects on dental utilization in our 2008 community-based population of U.S. adults aged 51 years and older. Not unlike previous studies, we found this to be the case. In the earliest study of this type, Kington, Rogowski, and Lillard estimated positive and significant coefficients for income and wealth in a dental utilization model for a PSID population of persons age 66 and older in the U.S. [17] Using 2004 HRS data, Allin, Masseria, and Mossialos found that merging wealth into their income variable had a stronger effect than income alone for services such as dental requiring more patient cost-sharing. [18] Our results showing strong and positive separate effects of income and wealth on dental utilization with more recent HRS data are consistent with their findings.

Our descriptive results show that older adults below age 80 live in households with more wealth than that of households containing person 80 years and older. Without controlling for wealth, age contains elements of both need and enabling factors for dental utilization because of its correlation with wealth. Our bi-variable results in Table 3 without controlling for wealth show persons 80 years and over are less likely to use dental services than those in the younger age groups. In effect, the enabling effect of age predominates. Not surprisingly, after controlling for wealth in our logistic regression, we find that persons 80 years and older are more likely to use dental services than those 69 years and younger. As might be expected, the perceived need for care as one ages predominates once the correlation between age and wealth is controlled.

Apart from age, perceived need for dental services is measured in our study by general health status as a proxy for oral health status and by dentate status. General health status serves a dual role as both a predisposing and a need factor in modeling dental use. Arguably it could be considered a predisposing factor as a determinant of preventive dental care and a need factor for non-preventive dental care. Our results show that it predominates in the former role as we find that those self-reporting their health status to be excellent or very good are more likely to visit the dentist than those reporting fair, poor, or even good health. Data in the HRS were not available to separate preventive from non-preventive dental procedures by the dental provider, so we were unable to pursue this dual role of health status any further.

The 66 percent dental utilization rate we found in the 2008 HRS is identical to the estimated rate from the 2004 HRS in the Allin, Masseria, and Mossialos study. [18] The two-year recall in the HRS produces a higher dental utilization rate than found in studies using survey data with an annual recall. For example, data from the Medical Expenditure Panel Survey show 43 and 40 percent utilization rates for persons 65 years and older in the U.S. in 2004 and 1996, respectively. [5] Dental utilization for the 65 and older age group in the U.S. has risen steadily since 1977 (30 percent) and 1987 (37 percent). [26] Cross-country estimates from Europe in 2004 based on annual recall survey data range between 26 percent in Spain to 77 percent in Denmark. [18]

We also found that our population of nearly 50 million households had a mean value of household wealth of \$511,048 and greater than \$25 trillion in total household wealth. Wealthier households among this population typically contain persons who are white non-Hispanic, high income, college graduates, married, in excellent or very good health, dentate, and living in two-person households. Persons aged 65 to 79 live in households with the

highest mean wealth which declines as individuals reach 80 years of age and older. This offers some support for a life cycle or asset depletion theory that households spend down their assets as they age. Then again, this result might simply represent a cohort effect and therefore not be conclusive without a follow-up longitudinal analysis.[23] Overall, the strong, positive correlations between total net wealth and health status, income, and education found in earlier studies with HRS data were unchanged in our findings. [22,23]

Limitations

The HRS data are useful, comprehensive, and provide estimates that are nationally representative. Nonetheless, they do have limitations. Analyses of data from different survey sources have historically resulted in varied national estimates of dental coverage and dental use. The self-reporting of dental use and insurance coverage data, as is done in the HRS, is less accurate than collection from administrative records such as billings or claims data. Further, data available in the HRS do not disaggregate results by benefit plan generosity or record payments by source other than those paid out of pocket. We did not include future claims on Social Security payments or private pension plans in our measure of wealth. Incorporating claims on Social Security payments can reduce the race/ethnicity gaps in wealth among households. [19] The income variable in our study also included returns to components of our household wealth variable such as interest and dividend income which suggests that multicollinearity between these measures might be a problem in our regression model. However, both income and wealth effects are strong and statistically significant in our dental use regression model which proved otherwise. The HRS also lacked measures of oral health status and procedures administered by dental providers. Finally, since wealth is accumulated over a lifetime, less healthy individuals may accumulate less wealth which can introduce selection into our wealth coefficient estimates that would best be controlled in a longitudinal study. [18] Despite these limitations, our results using the HRS indicate that the net wealth of older Americans has a strong positive effect on the utilization of dental services independently of family income and other personal characteristics.

Future Research

In future research we intend to examine the effect of changes in wealth and income from the recent recession between the 2006 and 2008 HRS on the utilization of dental services to determine the recession's impact on dental utilization of older Americans. Lusardi, Schneider, and Tufano examined the impact of the current recession on the use of medical services but not on dental services. [16] As additional HRS waves become available, we plan to incorporate them into our longitudinal analysis of the effect of changing economic conditions through changes in wealth and income on the use of dental services by older Americans.

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Table 1
Size Distribution of Household Wealth for the Elderly by Household Composition, 2008

Household Composition	Wealth Deciles	Number of Households	Mean Household Wealth (\$)	Standard Error of Mean (\$)	Minimum Wealth (\$)	Maximum Wealth (\$)
Single	1 to 3	7,330,865	(3,272)	745	(553,270)	16,600
	4 to 6	7,348,684	77,481	954	16,617	163,000
	7 to 9	7,317,236	362,955	3,783	163,500	732,000
Couple	10	2,430,364	1,965,591	153,318	733,000	38,050,000
	1 to 3	7,654,822	47,610	1,487	(1,064,000)	135,000
	4 to 6	7,640,381	260,709	2,028	135,100	430,000
Single/Couple	7 to 9	7,651,080	790,041	6,913	430,185	1,459,000
	10	2,540,406	3,593,522	196,788	1,459,839	55,441,000
	1 to 3	14,985,687	22,719	1,170	(1,064,000)	135,000
	4 to 6	14,989,065	170,878	3,185	16,617	430,000
	7 to 9	14,968,316	581,261	6,860	163,500	1,459,000
	10	4,970,770	2,797,576	168,244	733,000	55,441,000
Total		49,913,838	511,048	21,711	(1,064,000)	55,441,000

Source: RAND HRS Data, Version H. Produced by the RAND Center for the Study of Aging, with funding from the National Institute on Aging and Social Security Administration. Santa Monica, CA (February 2008)

Note: The sample size is 11,187 households. There were 710 households excluded from the estimates without a household weight. The wealth deciles of the separate single and couple households were used to determine the wealth deciles for households in the collapsed single/couple panel of the table. The HRS sample design was incorporated in the estimates of the standard errors for the means of the collapsed single/couple households but not for the standard errors of the means of the separate single and couple households in the first two panels of the table. Dollar values in parentheses indicate negative values. Couples are defined as persons married or living together as married in the HRS including infrequent cases of two person households not otherwise meeting the definition of a couple. [15] Single households consist of all other households not otherwise defined as a couple household.

Table 2

Mean Wealth by Wealth Deciles and Other Characteristics of the Elderly and Near-Elderly, 2008

Total Population			Wealth Deciles							
Person/Household characteristic	Number of Persons (1,000s)	Mean Wealth (\$)	1-3		4-6		7-9		10	
			Percent Population	Mean Wealth (\$)	Percent Population	Mean Wealth (\$)	Percent Population	Mean Wealth (\$)	Percent Population	Mean Wealth (\$)
Total	73,754	565,370	28.75	29,278	30.02	191,517	31.05	638,797	10.19	2,955,849
		23,637	0.81	1,339	0.67	3,423	0.94	6,860	0.51	183,585
Age in years										
51 to 64	34,737	515,632	32.47	29,442	29.85	201,251	28.93	663,513	8.75	2,904,620
		32,376	1.06	2,279	0.89	5,081	1.1	11,041	0.58	293,910
65 to 69	12,368	679,218	27.52	31,991	28.44	204,113	32.57	680,762	11.47	3,406,142
		71,644	1.33	1,798	1.13	5,200	1.39	15,555	1.05	436,876
70 to 74	9,856	629,812	25.43	31,603	30.19	196,660	32.37	641,325	12.01	2,953,070
		43,606	1.42	2,526	1.27	5,931	1.5	16,743	0.98	259,326
75 to 79	7,106	605,453	23.4	30,938	32.45	183,220	33.04	601,748	11.11	3,058,981
		34,829	1.29	2,658	1.55	4,985	1.54	14,454	0.89	246,906
80 and older		503,410	24.26	20,909	30.66	143,904	33.9	535,718	11.18	2,437,828
		29,416	1.16	1,794	1.26	4,332	1.08	14,251	0.92	209,449
Sex										
Male	32,333	627,199	29.17	34,353	28.96	217,293	31.2	681,713	10.68	3,199,606
		31,640	0.96	1,766	0.75	3,826	1.12	8,420	0.6	205,925
Female	41,421	517,107	28.42	25,214	30.84	172,621	30.93	605,012	9.81	2,748,714
		24,442	0.81	1,420	0.7	3,513	0.9	8,025	0.5	224,751
Race										
Black Non-Hispanic	6,779	153,687	52.72	14,529	31.61	133,930	14.16	482,198	1.51	2,340,550
		14,707	1.73	2,372	1.5	5,042	1.14	20,630	0.26	598,225
Hispanic	5,022	192,359	55.25	18,138	26.46	168,206	16.29	619,293	2.01	1,841,475
		17,763	1.86	4,703	1.5	14,247	1.89	30,696	0.65	173,909
White Non-Hispanic	60,119	637,576	23.61	35,970	30.15	200,588	34.34	647,181	11.91	2,908,579
		27,056	0.81	1,689	0.84	3,231	0.96	7,125	0.6	180,484
Other	1,822	746,456	35.63	11,447	29.86	173,078	26.23	624,651	8.28	6,362,671 *

Person/Household characteristic	Total Population	Wealth Deciles							
		1-3		4-6		7-9		10	
		Number of Persons (1,000s)	Mean Wealth (\$)	Percent Population	Mean Wealth (\$)	Percent Population	Mean Wealth (\$)	Percent Population	Mean Wealth (\$)
Total	73,754	565,370	29,278	28.75	30.02	191,517	31.05	638,797	10.19
		23,637	1,339	0.81	0.67	3,423	0.94	6,860	0.51
		260,784	10,287	3.23	3.83	21,708	3.71	30,172	2.73
									2,472,873
Family Income ^a									
Poor	6,342	174,987	8,954	58.89	24.09	94,799	14.45	516,773	2.56
		40,160	2,480	1.75	1.54	5,844	1.4	41,871	0.67
Low Income	11,802	203,261	18,108	45.24	32.86	142,012	18.72	429,689	3.17
		15,603	2,753	1.51	1.13	4,870	1.11	13,750	0.48
Middle income	21,432	323,958	36,714	32.55	34.16	185,297	27.99	564,587	5.29
		15,354	2,362	1.18	1.16	4,762	1.19	11,920	0.69
High income	34,179	914,218	45,526	15.07	27.54	232,456	40.3	712,777	17.09
		44,115	2,678	0.69	1.09	4,026	1.01	8,834	0.84
									232,006
Education									
Some or no school	12,523	199,767	19,988	53.28	29.77	153,371	14.39	546,753	2.56
		23,848	2,049	1.35	0.96	5,313	1.1	20,322	0.34
High school graduate	43,289	444,881	33,431	28.76	33.3	191,479	30.78	609,532	7.17
		19,601	1,639	0.83	0.77	3,664	1.03	8,268	0.42
College graduate	17,880	1,113,506	33,612	11.44	22.32	227,154	43.4	710,646	22.84
		58,078	4,206	0.74	0.91	6,534	1.23	11,100	1.21
Marital Status									
Married	45,872	711,205	50,855	27.82	30	260,884	31.82	795,342	10.35
		29,927	1,818	1.15	0.82	3,023	1.18	7,822	0.57
Widowed, Divorced	24,837	327,687	(3,144)	30.35	30.21	77,477	29.68	360,938	9.75
		29,192	1,238	0.95	1.11	1,102	1.02	5,858	0.62
Never Married	3,041	307,618	(5,122)	29.52	28.57	78,072	30.64	384,617	11.28
		36,420	3,124	2.3	2.25	4,498	2.59	16,356	1.84
									183,711
Family Size									
One	18,859	393,966	(2,554)	26.3	29.06	83,088	32.45	382,900	12.19
									2,020,148

Total Population		Wealth Deciles							
		1-3		4-6		7-9		10	
Person/Household characteristic	Number of Persons (1,000s)	Percent Population	Mean Wealth (\$)	Percent Population	Mean Wealth (\$)	Percent Population	Mean Wealth (\$)	Percent Population	Mean Wealth (\$)
Total	73,754	28.75	565,370	30.02	191,517	31.05	638,797	10.19	2,955,849
		0.81	23,637	0.67	3,423	0.94	6,860	0.51	183,585
		1.01	37,908	1.18	1,563	1.07	4,080	0.82	266,991
Two	38,831	24.59	739,007	30.2	236,529	33.97	759,659	11.24	3,544,153
		1.07	35,142	0.97	4,101	1.25	10,347	0.62	258,897
Three or more	16,064	41.67	346,878	30.69	204,972	22.35	630,955	5.29	2,465,345
		1.55	24,397	1.11	5,752	1.12	15,290	0.86	175,400
Health Status									
Excellent/Very Good	30,028	17.54	798,393	28.88	211,085	38.87	666,043	14.72	3,204,254
		0.73	46,640	0.95	4,831	1.09	8,452	0.81	285,600
Good	23,361	27.33	508,662	32.56	190,596	30.82	630,729	9.29	2,612,427
		0.92	24,061	0.85	3,489	1.06	11,071	0.56	160,918
Fair/Poor	20,327	46.91	286,758	28.81	163,696	19.74	574,114	4.54	2,576,365
		1.27	14,750	0.85	4,458	0.98	12,245	0.46	191,708
Permanent Teeth									
All missing	11,075	46	222,777	32.61	156,044	18.05	520,561	3.34	2,037,226
		1.17	9,385	1.09	4,519	0.92	15,363	0.42	145,746
Not missing all	60,351	25.25	624,201	29.69	199,411	33.57	653,048	11.49	2,945,381
		0.8	25,607	0.71	4,123	1	7,017	0.56	188,635
		0.81	23,637	0.67	3,423	0.94	6,860	0.51	183,585
Dental Coverage									
Has Coverage	35,309	26.68	524,695	30.67	203,968	33.4	643,280	9.26	2,582,672
		0.94	22,221	0.96	4,318	1.11	10,176	0.56	150,248
No coverage	38,446	30.65	602,726	29.42	179,598	28.89	634,037	11.04	3,243,123
		0.94	36,471	0.79	3,923	1.07	9,239	0.65	270,973
Retirement Status									
Not Retired, In Labor Force	23,190	27.57	567,120	29.26	200,695	32.97	651,500	10.2	3,311,118
		0.99	47,929	0.82	4,674	1.09	11,991	0.62	466,013
Fully Retired	35,084	20.58	556,514	28.94	184,794	34.61	627,269	15.87	2,829,659

Total Population		Wealth Deciles							
		1-3		4-6		7-9		10	
Person/Household characteristic	Number of Persons (1,000s)	Mean Wealth (\$)	Percent Population	Mean Wealth (\$)	Percent Population	Mean Wealth (\$)	Percent Population	Mean Wealth (\$)	Percent Population
Total	73,754	565,370	28.75	29,278	30.02	191,517	31.05	638,797	10.19
		23,637	0.81	1,339	0.67	3,423	0.94	6,860	0.51
		25,432	1.21	1,692	1.38	3,812	1.8	9,243	1.41
Partially Retired	7,736	748,898	28.68	42,963	32.06	203,586	30.38	679,660	8.88
		53,482	1.07	2,785	0.87	7,083	1.04	19,355	0.61
Not Retired, Out of Labor Force	7,744	416,911	42.42	17,499	28.4	179,590	20.82	598,135	8.36
		33,565	1.96	3,306	1.71	6,676	1.51	20,708	0.91
								252,589	

Source: RAND HRS Data, Version H. Produced by the RAND Center for the Study of Aging, with funding from the National Institute on Aging and the Social Security Administration. Santa Monica, CA (February 2008).

Note: Persons with missing data for race/ethnicity, education, marital status, and health status are included in the population total but excluded from the respective categories. Persons never in the labor force are included in the not retired, not in the labor force group. Percentages across the rows may not sum to 100% because of rounding. Sample size is 14,970.

Standard errors appear beneath estimates of mean wealth and percent population in the shaded rows of the table. Mean wealth estimates in parentheses indicate negative values.

^aWhere low income refers to persons in families with incomes 101 percent to 199 percent of the poverty line; middle income, 201 percent to 400 percent of the poverty line; and high income , over 400 percent of the poverty line. Poor persons are at or below 100 percent of the poverty line including persons in families with negative income.

* Indicates relative standard error greater than 30 percent because of small sample cell size.

Table 3

Mean Percent Population with Dental Use by Wealth and Other Characteristics of the Elderly, 2008

Population characteristic	Population Size (1,000s)	Wealth Deciles							
		Total	1-3	4-6	7-9	10			
Total	73,754	65.6	42.9	63.8	81.0	88.2			
		0.8	1.1	0.9	0.8	1.2			
Age in years									
51 to 64	34,737	69.6	47.3	71.8	85.9	91.4			
		0.9	1.7	1.3	1.0	1.7			
65 to 69	12,368	65.3	40.4	61.2	80.5	92.2			
		1.3	1.9	1.9	1.7	2.0			
70 to 74	9,856	62.8	37.5	56.1	80.0	86.9			
		1.6	2.0	2.2	1.8	2.3			
75 to 79	7,106	62.6	36.8	58.2	77.4	85.5			
		1.5	2.6	2.3	1.8	2.6			
80 and older	9,687	56.8	35.8	51.0	70.3	77.6			
		1.2	2.0	2.0	1.8	2.7			
Sex									
Male	32,333	64.1	41.9	62.5	79.1	85.5			
		0.9	1.7	1.4	1.2	1.7			
Female	41,421	66.8	43.7	64.7	82.5	90.5			
		0.9	1.1	1.1	0.9	1.2			
Race									
Black Non-Hispanic	6,779	45.5	36.8	51.0	63.4	69.8			
		1.7	2.2	2.7	3.4	7.4			
Hispanic	5,022	51.4	41.2	56.3	74.1	84.1			
		2.4	3.0	3.1	3.9	8.7			
White Non-Hispanic	60,119	69.3	44.8	66.0	82.5	88.6			
		0.9	1.6	0.9	0.8	1.2			
Other	1,822	58.3	45.0	58.8	67.3	85.0			
		3.8	4.4	8.4	5.0	9.4			

Population characteristic	Population Size (1,000s)	Wealth Deciles							
		Total	1-3	4-6	7-9	10			
Total	73,754	65.6	42.9	63.8	81.0	88.2			
Family Income^a									
Poor	6,342	39.0	30.3	39.7	67.3	72.3			
		1.8	1.7	3.7	4.7	12.1			
Low Income	11,802	47.3	34.0	52.2	66.3	73.6			
		1.3	1.8	2.0	2.5	5.7			
Middle income	21,432	60.8	44.3	60.3	75.5	87.0			
		1.2	2.0	1.3	1.6	2.7			
High income	34,179	80.0	59.4	75.1	86.7	89.9			
		0.7	2.3	1.2	0.8	1.2			
Education									
Some or no school	12,523	35.9	27.7	38.9	54.0	67.9			
		1.2	1.6	2.2	2.8	7.7			
High school graduate	43,289	65.6	46.7	65.1	79.2	85.8			
		0.7	1.3	0.9	0.9	1.9			
College graduate	17,880	86.5	70.2	82.1	90.4	91.6			
		0.8	2.8	1.5	1.1	1.1			
Marital Status									
Married	45,872	70.8	47.1	71.1	85.0	89.8			
		1.0	1.6	1.1	0.9	1.3			
Widowed, Divorced	24,837	56.2	36.2	50.6	72.9	84.5			
		1.0	1.4	1.6	1.4	1.9			
Never Married	3,041	65.9	40.3	62.3	84.0	92.7			
		2.2	4.0	4.9	3.9	3.7			
Family Size									
One	18,859	61.4	38.3	54.3	76.5	87.9			
		1.1	1.7	2.1	1.4	1.7			
Two	38,831	70.0	44.6	68.6	83.6	88.9			
		1.0	1.6	1.3	0.9	1.3			
Three or more	16,064	60.0	44.1	62.8	79.6	85.9			

Population characteristic	Population Size (1,000s)	Wealth Deciles							
		Total	1-3	4-6	7-9	10			
Total	73,754	65.6	42.9	63.8	81.0	88.2			
		1.3	1.7	1.9	2.0	3.2			
		0.8	1.1	0.9	0.8	1.2			
Retirement Status									
Fully Retired	35,084	60.9	35.4	56.5	77.8	87.9			
		1.1	1.3	1.5	1.1	1.5			
Partially Retired	7,736	70.5	47.7	61.4	84.5	86.0			
		1.5	2.9	3.2	1.8	2.7			
Not Retired, In Labor Force	23,190	74.7	54.8	76.3	87.4	90.5			
		0.9	2.0	1.5	1.3	2.0			
Not Retired, Out of Labor Force	7,744	55.0	38.9	58.0	71.0	87.3			
		1.8	2.1	2.5	3.3	3.2			
Health Status									
Excellent/Very Good	30,028	76.9	53.0	72.2	86.1	90.2			
		0.8	2.2	1.2	0.9	1.3			
Good	23,361	66.8	46.0	65.0	80.7	88.2			
		1.1	1.6	1.5	1.5	2.0			
Fair/Poor	20,327	47.8	35.4	49.8	67.1	79.4			
		1.0	1.2	1.7	1.8	3.2			
Dental Coverage									
Has Coverage	35,309	76.5	56.7	75.5	88.6	92.8			
		0.8	1.5	1.1	1.0	1.3			
No Coverage	38,446	55.7	31.9	52.6	73	84.7			
		1.0	1.3	1.3	1.2	1.6			
Permanent Teeth									
All missing	11,075	16.7	12.9	17.7	22.1	29.3			
		0.7	1.0	1.2	2.1	6.9			
Not missing all	60,351	74.7	52.8	73.2	86.8	91.5			
		0.8	1.3	0.9	0.8	1.0			

Source: RAND HRS Data, Version H. Produced by the RAND Center for the Study of Aging, with funding from the National Institute on Aging and the Social Security Administration, Santa Monica, CA (February 2008).

Note: Persons with missing data for race/ethnicity, education, marital status, and health status are included in the population total but excluded from the respective categories. Persons never in the labor force are included in the not retired, not in the labor force group. Sample size is 14,970.

Standard errors appear beneath estimated dental use percentages in the shaded rows of the table.

^aWhere low income refers to persons in families with incomes 101 percent to 199 percent of the poverty line; middle income, 201 percent to 400 percent of the poverty line; and high income, over 400 percent of the poverty line. Poor persons are at or below 100 percent of the poverty line including persons in families with negative income.

Table 4

Adjusted odds ratios with 95% confidence intervals for predictors of dental care use during the two-year survey period ending in 2008, HRS estimates

Population Characteristic	95 % Wald Confidence Limits		
	Odds Ratio ^b	Low	High
Age			
51 - 64	0.761**	0.634	0.915
65 to 69	0.855*	0.733	0.997
70 to 74	0.952	0.819	1.107
75 to 79	1.045	0.914	1.196
80 and older (ref.)	1.000	1.000	1.000
Sex			
Female	1.584**	1.418	1.770
Male (ref.)	1.000	1.000	1.000
Ethnic/racial Background			
Hispanic	0.975	0.814	1.169
Black non-Hispanic	0.571**	0.476	0.685
Other	0.689*	0.514	0.942
White (ref.)	1.000	1.000	1.000
Family income by poverty status^a			
Poor	0.540**	0.420	0.692
Low income	0.686**	0.590	0.797
Middle income	0.749**	0.656	0.854
High income (ref.)	1.000	1.000	1.000
Education			
Some or no School	0.347**	0.297	0.406
High school graduate	0.588**	0.524	0.660
College graduate (ref.)	1.000	1.000	1.000
Marital Status			
Widowed, Divorced	0.630**	0.510	0.777
Never Married	0.849	0.629	1.146
Married (ref.)	1.000	1.000	1.000
Family Size			
Two	0.831	0.681	1.013
Three or more	0.731**	0.608	0.879
One (ref.)	1.000	1.000	1.000
Permanent Teeth			

Population Characteristic	95 % Wald Confidence Limits		
	Odds Ratio ^b	Low	High
All missing	0.097**	0.084	0.112
Not missing all (ref.)	1.000	1.000	1.000
Health Status			
Good	0.882*	0.785	0.992
Fair/Poor	0.681**	0.596	0.779
Excellent/Very Good (ref.)	1.000	1.000	1.000
Dental Coverage			
Has Coverage	2.345**	2.090	2.632
No Coverage (ref.)	1.000	1.000	1.000
Wealth Deciles			
1 to 3	0.235**	0.181	0.307
4 to 6	0.399**	0.315	0.504
7 to 9	0.713**	0.558	0.912
10 (ref.)	1.000	1.000	1.000
Retirement Status			
Fully Retired	0.903	0.752	1.085
Partially Retired	0.930	0.745	1.160
Not Retired, In Labor Force	0.937	0.758	1.158
Not Retired, Out of Labor Force (ref.)	1.000	1.000	1.000

Source: RAND HRS Data, Version H. Produced by the RAND Center for the Study of Aging, with funding from the National Institute on Aging and the Social Security Administration. Santa Monica, CA (February 2008).

Note: Ref. indicates the reference groups for each categorical variable in the table. Sample size is 14,472. The 498 excluded from the sample include 467 with missing values for the teeth status variable and 31 additional with missing values for at least one other covariate. Pseudo $R^2 = 0.28$.

^aWhere low income refers to persons in families with incomes 101 percent to 199 percent of the poverty line; middle income, 201 percent to 400 percent of the poverty line; and high income, over 400 percent of the poverty line. Poor persons are at or below 100 percent of the poverty line including persons in families with negative income.

^bOdds ratio point estimate is the estimate of [probability of dental visit/probability of no dental visit] for persons with row characteristic divided by [probability of dental visit/probability of no dental visit] for reference group (ref.).

* P less than or equal to .05

** P less than or equal to .01.