

## **Introduction**

Research examining health disparities in older ages is becoming widespread and, most certainly, some of this can be attributed to the baby-boom generation fast approaching retirement. Census estimates show the US to be a nation that continues to grow old in the upcoming few decades. Equally important, increasing life expectancy means more time spent in later stages. In short, understanding issues surrounding health care/health utilization of the elderly are important and practical.

### *Demographic Changes*

The most recent Census press release, dated August 14, 2008, states the age 65 and older group will increase from 38.7 million to nearly 88.5 million by 2050. What this really means is nearly one in five US residents will be 65 or older. Along the same lines, the 85 and older (referred to as the oldest-old) will “more than triple, from 5.4 million to 19 million.”

Census projections also show the national median age for both sexes and all races to increase approximately one year per decade, which translates to increasing from just over 36 in 2010 to 39 by 2050. If this is examined by race, the projection is more striking—for Whites, the median age increases from 38.4 to 39.4 and for Blacks, the median age increases from 31.7 to 38.9. A final demographic characteristic to note relates to life expectancy, which has been steadily increasing in the US at a rate of 2 years per decade. Census projections show life expectancy for Whites to increase from 78.9 in 2010 to 83.3 by 2050. Once again, this is more striking for Blacks, with life expectancy increasing from 73.8 to 81.8 years. Clearly, the US is steadily progressing in age and life expectancy for both Whites and Blacks.

### *Health Care and Health Utilization*

Wolinsky et al. (1986) suggest “elderly are disproportionately heavy users of health services” and account for nearly 31 percent of total health care expenditures (pg. 106). The Centers for Medicare and Medicaid Services, National Health Statistics Group, and the Social Security Administration analysis (2004) dating from 1987 to 2004 shows this percentage to be fairly consistent. For example, in calendar year 1987, the 65 and older group accounted for 36 percent of total Personal Health Care spending, and if this age group is decreased to 55 and older, then the percentage increases to 48 percent.<sup>1</sup> The estimates are comparable for 1996, 1999, and 2002. Although the percentage decreases slightly to 34 percent for the 65 and older group from 1987 to 2004, the percentage increases slightly to 49 percent if age 55 and older is included.

As for utilization, a special report by Centers for Disease Control and Prevention (Bernstein 2004) examining trends in health care utilization shows physician visits did not change much for children or young adults (18-44 age group) from 1992-2000; however, visits to the physicians office increased 12 percent for the 65 and over age group and also increased modestly for the 45-64 age group (pg. 31). Specifically, the age 65 and over group increased from 5,470 to 6,125 visits per 1,000 persons. As for outpatient department visits, the age 65 and over increased from nearly 300 to over 400 visits per 1,000 persons. For the 45-64 age group, the rate increased from 241 to 343 per 1,000 persons from 1992-2000.

## **Previous Research**

Disparities in health for the elderly by race and socioeconomic status have been researched for several decades. Ferraro (1986) examined the double jeopardy hypothesis, which claims if “being both old and a member of a minority creates a double disadvantage to the health of people in this

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<sup>1</sup> Personal Health Care spending consists of hospital care, physician and clinical services, other professional services, dental services, home health, nursing care, prescription drugs, and durable/non-durable medical equipment.

subpopulation” (pg. 528). Using the Survey of Low-Income Aged and Disabled, Ferraro finds elderly Blacks to be in poorer health than elderly Whites; however, these groups “do not differ substantially in the number of reported chronic conditions” or “the likelihood of having a serious illness, but the illnesses are more functionally debilitating to elderly Blacks” (pg. 532). Therefore, Ferraro concludes this work does not support the double jeopardy hypothesis.

Mutchler and Burr (1991) examine health disparities between elderly Blacks and Whites (age 55 and over) based on socioeconomic status. More specifically, they claim SES “conditions many factors that relate to health, ranging from knowledge of health care practices and nutrition to ability to purchase medical care” (pg. 342). Using the Survey of Income and Program Participation from 1984, they use logit and Tobit regressions to show elderly Blacks are in worse health due to being “less advantaged in terms of income, wealth, access to health care, and the like” and “even after controlling for many of these differences, race retains a significant effect” (pg. 350).

Kawachi et al. (2005) provide a good framework for causal interpretations examining health disparities by race and class. They suggest both race and class need to be considered separately when examining health disparities and biological differences should be evaluated with skepticism. Kawachi et al. make an interesting point by arguing that hypertension and diabetes are two to three times higher among Blacks than Whites in the US; however, when “representative surveys of populations in West Africa and African-origin populations in the Caribbean have revealed prevalence rates of hypertension and diabetes that are two to five times lower than those of black Americans or black Britons” (pg. 344).

Wolinsky et al. (1986) examine the use of health services by the elderly from a behavioral model, where

$$U = f(P, E, N).$$

Specifically, utilization as a function of Predisposing factors, Enabling factors, and Need characteristics. Predisposing factors refer to sex, marital status, race, education, and labor-force participation; Enabling refers to income, type of residence, Census region; Need refers to perceived health status and limited activity. My approach most closely resembles this. However, I am able to refine perceived health status to a physical health component as well as a mental health component. Moreover, I am able to add physical functioning limitations and variables relating to difficulty lifting, reaching, and walking, similar to Mutchler and Burr. Unlike previous research, I also have two variables examining attitudes regarding the need of medical insurance and the ability to overcome illness without medical intervention.

## **Methods**

### *Data*

This analysis uses the Medical Expenditures Panel Survey (MEPS) to examine health service utilization for the near-old (age 50 and over). MEPS data series, which are projects at the Agency for Healthcare Research and Quality or AHRQ, consist of a “set of large-scale surveys of families and individuals, their medical providers, and employers across the United States. MEPS is the most complete source of data on the cost and use of health care and health insurance coverage.” MEPS two main parts correspond to (1) Household Component and (2) Insurance Component. The HC includes “detailed information for each person in the household on the following: demographic characteristics, health conditions, health status, use of medical services, charges and source of payments, access to care, satisfaction with care, health insurance coverage, income, and employment.” The IC includes “the number and types of private insurance plans offered (if any), premiums, contributions by employers and employees, eligibility requirements, benefits associated with these plans, and employer characteristics.” For this analysis, I use the HC.

### *Analytic Sample*

I use Household Component files from 2004 and 2005, which correspond to datafiles H89 and H97, respectively. Since MEPS is structured as a changing panel in which some of the respondents are replenished/replaced at the end of each year, the 2004 wave also contains some respondents from 2003

while the 2005 wave also contains some respondents from 2004. As such, the pooled cross-sectional dataset from H89 and H97 contains individuals from 2003, 2004, and 2005. As for the merged dataset using H89 and H97, that contains individuals from 2004 which were carried into 2005.

In both the pooled and merged datasets, I collect typical demographic variables (age, gender, marital status, race, MSA, Census region), socioeconomic characteristics (education, income, social security income), and various health variables (stroke, physical functioning, difficulty walking, difficulty reaching, difficulty lifting, etc.). The dependent variable refers to health utilization (doctor visits, outpatient provider visits, and dental visits) for each of the three models. Since my analysis focuses on the near-old, I exclude observations younger than 50 years of age. I initially conducted this analysis for age 65 and over but the sample size was too small. I also considered age 55 and over; although this was larger, the gain in sample size by reducing further to 50 was significant. This age group forms the final data set, which ranges from a high of nearly 8,000 observations for the pooled dataset to a low of approximately 2,000 observations for the merged.

## **Analysis**

I provide descriptive analysis for each of the three utilization variables (doctor visits, outpatient provider visits, and dental visits) by demographic characteristics (using STATA V10.1). Since the samples are weighted, I employ the person weight command to produce accurate statistics. The health utilization frequencies/tabulations provide the basis for all of the national maps at the region level (using ARCGIS). The maps provide a visual or spatial aspect to health utilization and add depth to the analysis.

As for the regression models for the pooled cross-sectional, I use count models since the dependent variable is health utilization—number of times an individual visits the doctor. I model health utilization using Poisson, negative binomial, zero-inflated Poisson, and zero-inflated negative binomial. After examining the actual and predicted counts, I find negative binomial to be the best choice. The NB model also makes intuitive sense due to over dispersion—that is, NB allows for variance to exceed the mean for the outcome by introducing a stochastic component (which typically follows a gamma distribution). The important consideration in choosing the correct model can be traced to Cameron and Trivedi (1986), who show using Poisson with over dispersion results in standard errors that are biased downward—incorrectly leading to statistically significant coefficients.

Besides over dispersion, other statistical issues relate to time dependence and heterogeneity within periods of observed health utilization (or within doctor visits). Although NB can overcome some of this, I also introduce two self-administered health status variables as contagions. Specifically, the use of a physical assessment and a mental assessment to account for dependence within doctor visits.

As for the regression models for the merged panel, I use fixed and random-effects for both Poisson and negative binomial. Once again, the NB outperforms Poisson and the Hausman test selects fixed-effects over random. This is another methodological strategy to correct for over dispersion.

## **Conclusion**

Certainly, various factors influence the decision to utilize health services or, in this case, not use them—lack of insurance, income constraints, negative attitudes towards health care, overall health, etc. In this research paper, I find Blacks utilize *fewer* services even after controlling for the above factors. In particular, Blacks have fewer annual visits to the doctor, outpatient provider, and dental office despite slightly poorer health, as compared to Whites. One important consideration relates to social environment. In other words, disparities seem to persist even after controlling for predisposing, need, and enabling factors. This result requires a closer and more qualitative approach if researchers are to fully understand health disparities. Another important consideration relates to the cumulative disadvantage resulting from fewer visits each and every year during the lifecourse. In other words, the aggregate affect of under utilization of health services can have profound consequences ten or twenty or more years in an individual's lifecourse.

## Continued Work

Please note this research project is on-going and I will introduce another regression model. At present, I am developing a fixed-effects regression model (not to be confused with the fixed-effects count model I have already used) to estimate health utilization by controlling for unobserved heterogeneity. This methodological strategy can produce unbiased estimates resulting from omitted variable bias. I will also add elements of the Lifecourse perspective to this analysis.

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