

# Racial differences in physician usage among the elderly poor in the United States

Corey M. Abramson<sup>\*</sup>, Martín Sánchez-Jankowski

*Department of Sociology, University of California-Berkeley, 410 Barrows Hall #1980, Berkeley, CA 94720-1980, United States*

Received 20 April 2011; received in revised form 19 November 2011; accepted 24 November 2011

## Abstract

Despite the rapidly growing ranks of the elderly in America, the increasing racial and ethnic diversity of this population, and the large number of seniors who are poor, there are relatively few systematic investigations that examine the causes of racial differences in health care use specifically among elders living in poverty. This article addresses this issue by examining differences in patterns of having and using a physician among the elderly poor, the role that race plays and what might explain it. We demonstrate that even within this disadvantaged and medically engaged population there are persistent and significant racial differences in having and using a doctor. Specifically, we show: (1) Whites and women are more likely to have a regular doctor than men and African Americans; (2) Among those who have a doctor, whites and women also visit the doctor with greater frequency than other groups even at the same levels of health or illness; (3) After accounting for the varying levels and effects of social connectedness, racial differences in having a doctor essentially disappear; and (4) While differences in having a regular doctor can be accounted for using measures of social connectedness, substantial and robust racial and gender differences in doctor use remain. In the end, we provide an analysis that examines typical factors known to influence health care use, and find that while need, structural factors, perceptions of care, and social connectedness have a powerful effect on doctor visits, the racial variation in using a doctor cannot be explained away with the available measures.

© 2011 International Sociological Association Research Committee 28 on Social Stratification and Mobility. Published by Elsevier Ltd. All rights reserved.

*Keywords:* Health care use; Race; Aging; Poverty; Health; Social connectedness

## 1. Introduction

Of the roughly 36.8 million seniors in America, an estimated 343,300 were living below the poverty line

(U.S. Census Bureau, 2009).<sup>1</sup> Despite the rapidly growing ranks of the elderly in America, the increasing racial and ethnic diversity of this population (Hayes-Bautista, Hsu, Perez, & Gamboa, 2002), and the large number of seniors who are poor, there are relatively few systematic investigations that explain racial differences

<sup>\*</sup> Corresponding author at: University of California, Berkeley, The Institute for the Study of Societal Issues, 2420 Bowditch St. #5670, Berkeley, CA 94720-5670, United States. Tel.: +1 510 642 0813; fax: +1 510 642 8674.

*E-mail address:* [coreya@berkeley.edu](mailto:coreya@berkeley.edu) (C.M. Abramson).

*URL:* <http://cmabramson.com/> (C.M. Abramson).

<sup>1</sup> 2008 estimates. Here living in poverty means their incomes, even with the aid of social security and any retirement plan they may have been enrolled in while they were working, produced an income below the official poverty level.

in health care use specifically among elders living in poverty.<sup>2</sup> This article addresses this issue by examining differences in patterns of having and using a doctor among the elderly poor, the role that race plays and what might explain it. Consequently this work adds to our knowledge about the medical behaviors of a population subject to many health needs and scarce resources, which can potentially provide insight into racial differences in health care use more generally (Wan, 1982).

In examining the health behaviors of the elderly poor, we demonstrate that: (1) whites and women are more likely to have a regular doctor than men and African Americans; (2) among those who have a doctor, on average whites and women also visit the doctor with greater frequency than other groups even at the same levels of health or illness; (3) after accounting for the varying levels and effects of social connectedness, racial differences in having a doctor essentially disappear; and (4) while differences in having a regular doctor can be accounted for using measures of social connectedness, substantial and robust racial and gender differences in doctor use remain. Since any reasonable examination of race must go beyond aggregate patterns and look at underlying mechanisms, we examine what might explain the observed differences by testing several common sociological explanations. In the end, we provide an analysis that examines typical factors known to influence health care use, and find that while need, residual structural factors, perceptions of care, and social connectedness have a powerful effect on health care use, the racial variation in using a doctor cannot be explained away with the available measures. Finally, we offer a number of potential explanations for the remaining variation.

### 1.1. Background

Race has long been one of the enduring characteristics of social stratification in America (Fischer et al., 1996; Massey, 2007). Against the shifting demographic backdrop of an aging American population, race remains a salient aspect of health and health care (Shuey & Willson, 2008; Smedley, Stith, & Nelson, 2002; Spalter-Roth, Lowenthal, & Rubio, 2005; Williams, 2005; Williams & Collins, 1995). In general, we know that whites are healthier, live longer, and have access to better medical care on average than minority populations (Smedley et al., 2002; Spalter-Roth et al., 2005; U.S. Dept. of

Health and Human Services, 2003). Racial disparities are also found in patterns of service provision. Individuals of color in general, and those living in poverty more specifically, receive less adequate care than their peers on a variety of measures (see Smedley et al., 2002 and Fiscella, Franks, Doescher, & Saver, 2002 for reviews). In short, racial disparities in health and health care are a well-documented and ubiquitous social issue in American society.

The notion that those who need good medical care the most (e.g. the poor, racial minorities, the elderly), are less likely to get it, is known as “the inverse care law” in health economics (Hart, 1971). The elderly poor, many of whom were subject to disadvantages over their life-course, have increased health needs. However, those who survive to old age and live in poverty are also subject to leveling processes such as biological “robustness,” selective mortality, and the provision of social policies or “entitlements” like Medicare (Bartley, 2004; Dupre, 2007; House et al., 1994; Knesebeck, Lüschen, Cockerham, & Siegrist, 2003; Lynch, 2006; Preston & Taubman, 1994). In other words, much of the relationship between inequality and health plays out in who reaches old age, which, combined with societal interventions, results in the appearance of leveling among those survivors with regards to health and access to care (Dupre, 2007). Conventional economic logic also suggests that once need and access are taken into account, racial differences in care-seeking behavior should disappear. If economic models hold, we would expect the elderly poor to lack access to care, but we would not expect racial differences in patterns of seeking health care because after examining differences in health and illness, the decision to get care would be mostly a function of need and access. Yet past studies have continually shown that there are pronounced differences in patterns of seeking medical care by race, even among the elderly (Cox, 1986; Escarce, Epstein, Colby, & Schwartz, 1993; Lum, Chang, & Ozawa, 1999; Wan, 1982). Thus, in their deviations from expected patterns and their high levels of need, the elderly in general (and the elderly poor specifically) provide a useful lens for examining why racial differences persist in patterns of health care use.

It is important to note that there are key analytical and practical distinctions between *differences*, *disparities*, and *discrimination* in health care use (Rathore & Krumholz, 2004; Smedley et al., 2002). The term *difference* simply implies variation, which may or may not be the result of racial inequality. *Disparities* on the other hand refer to differences that do not arise from patient preferences or need. These are differences that arise from biases, access issues, and structural inequities.

<sup>2</sup> See Wan (1982) for an exception. For racial differences in health care use among the elderly in general, see Cox (1986), Escarce et al. (1993), and Lum et al. (1999).

*Discrimination* is more specific. This term generally refers to the prejudicial behavior of health care providers or institutions in the treatment of minority groups (Rathore & Krumholz, 2004; Smedley et al., 2002). The question then becomes, if *discrimination* and *disparities* experienced over the life course determine who lives to old age (and who lives to be both old and poor), what explains the remaining difference in patterns of seeking care? The literature tends to emphasize three explanatory factors that are not necessarily exclusive: structural disparities (Anderson, 1995; Smedley et al., 2002), social connectedness (Hendryx, Ahern, Lovrich, & McCurdy, 2002; Pescosolido, 1992), and culture (Freidenberg, 2000; Shim, 2010).

The first explanation is that remaining racial differences in health care use are due to structural disparities or resource differences which disproportionately affect minority elders. This explanation argues that remaining racial differences in use are caused by the uneven distribution of economic resources across different groups. Those who invoke the *structural explanation* contend that limited resources, inequities in access, and discrimination restrict options for maintaining health, seeing a doctor, receiving diagnostic tests, and getting quality medical care (Farmer, 1999; Shuey & Willson, 2008). Even among those living in poverty, it is possible that variation in the resources available to different racial groups accounts for the baseline racial differences in health service use (Sen, 1984). Inequalities in access to resources can affect health care utilization and potentially explain some racial differences regardless of people's desires or preferences (Ajzen, 1991; Anderson, 1995; Noar & Zimmerman, 2005; Schnittker, Pescosolido, & Croghan, 2005).

The second explanation for racial differences in health care use posits that any remaining racial difference is the consequence of varying levels of *social connectedness* or "social capital" between groups. This category of explanation emphasizes variation in how connected individuals are to each other and their community, and argues that more connected groups seek care at greater rates. Proponents of this explanation claim that living in conditions like poverty can potentially make it difficult to secure and maintain the types of inter-personal relationships necessary for wellbeing (Berkman, 2004; Wilson, 1987). For instance, Hendryx and colleagues (2002) found that respondents in communities with higher levels of "social capital" reported fewer access problems in gaining care. Likewise, Bartley (2004) asserts the importance of social connectedness in reducing health problems and enabling health care use for the elderly. The importance of social networks in the decision

making process is highlighted by those who employ the network episode model to show how decisions are made in the process of interacting with other members of an individual's social network (Pescosolido, 1992). That is to say, the decision to seek care is not simply an individual economic calculation, but an assessment typically made with other individuals in a community context. In this framework, having other people check on a senior, seeing peers go to the doctor, and having someone willing to drive the senior to a medical facility affect health care use net of other resources (Thoits, 2011).

The final explanation emphasizes *culture*. These explanations emphasize the way the symbolic tools and strategies available to seniors influence the ways they manage their bodies as well as their ability to interact with medical institutions (Shim, 2010). Culture is often understood by social scientists as the *meanings, motivations, and repertoires* that underlie both individual action and social structure (Sewell, 1999; Swidler, 2001; Vaisey, 2009). Differences in attitudes, communally validated strategies of action, language, and presentation style would all fall into this category. Language ability and class-based skills for interacting with institutions can affect the ability to get care (Shim, 2010). There is also evidence that African Americans in general, and elders in particular, have a distrust of the medical profession due largely to the legacy of previous medical experiments (e.g. the Tuskegee Experiments) (Doescher, Saver, Franks, & Fiscella, 2000; Freimuth et al., 2001; McBean & Gornick, 1994; Kaplan et al., 2006; Mosby, 2002; Shavers-Hornaday, Lynch, Burmeister, & Torner, 1997; Rooks et al., 2006). Finally, culture is thought to affect whether or not people think they need a health care professional, their attitudes towards illness, and whether they decide to use a folk healer or a western medical care provider when they seek care (Ajzen, 1991; Anderson, 1995; Freidenberg, 2000).<sup>3</sup>

## 2. Methods

### 2.1. Research questions

To examine the plausibility of existing explanations for racial differences in health care use, this article addresses two concrete questions: (1) Does health care use differ between elderly African Americans and white

<sup>3</sup> Schnittker et al. (2005) use data from the general social survey to argue that African Americans are no less disposed to getting care than whites. While it is possible this is true, the population of elderly minorities who viscerally experienced segregation, remembers Tuskegee, etc., may be different than the African American population in aggregate.

Americans living in poverty despite the availability of Medicare and the effects of selective mortality? And, if so, (2) What might explain the difference?

## 2.2. Hypotheses

We begin our inquiry by identifying five hypotheses that can potentially explain racial differences in patterns of having and using a physician among the elderly poor. We then examine how they hold up to the empirical evidence provided by our data. The hypotheses are as follows:

**Hypothesis 0.** There will be no differences between poor white and African American elders in health care use.

**Hypothesis 1.** Any racial differences in health care use can be accounted for by differences in factors that can affect all groups (e.g. aging or illness).

**Hypothesis 2.** Any racial differences in health care use can be accounted for by structural factors that affect non-white populations differently from white populations.

**Hypothesis 3.** Any racial differences in health care use can be accounted for by differences in levels of social connectedness between groups.

**Hypothesis 4.** Any racial differences in health care use can be accounted for by cultural factors related to specific social groups.

## 2.3. Data set

In order to answer the questions posed above, we analyzed the set of surveys that form the Second Longitudinal Studies on Aging (LSOA II). The LSOA II employ a panel data structure to track health, social connectedness, living situation, and service utilization among elderly individuals in the United States. These surveys have extensive health and utilization measures, as well as measures of structural location, social connectedness, and attitudes that allowed us to evaluate probable explanations for observed differences. Data were collected in three waves in 1994, 1997, and 2000.

It is important to reiterate that our focus in this article is on racial variation in health service use among the elderly poor rather than change over time or the aging process per se. Consequently, in this article we are less concerned with the way that the process of selective mortality affects who lives to old age, than

we are with whether, and how, race continues to matter among survivors. Our questions therefore call for charting and explicating baseline racial differences in having and using a physician among the elderly poor. This is a cross-sectional task that is substantively different from investigating the way different independent variables affect the dependent variable over time within a racial group, as in a fixed effects panel analysis. Given this goal of charting and explicating baseline racial differences, we pooled the three panels to provide a larger data set that was treated as having three pooled cross-sections.

For our purposes, it would be preferable to have more distinct individuals rather than a smaller number of individuals observed at multiple points in time. However, since there is intra-individual variation in physician use and its predictors across time, useful, not optimal, information can be had by utilizing multiple time points with the same individuals. Although the number of unique individuals does not expand by combining separate waves of the panel data, the number of unique observations regarding health care use does. This allows us to have more data points where we can compare the effect of changes in key independent time-varying variables, such as health, income, or social connectedness, on key time-varying dependent variables such as health care use. Given the relatively small numbers of the elderly poor who appear in these surveys, pooling data in this manner adds to our number of observations and assists in drawing statistically valid inferences.

The universe for this investigation is the group of elderly poor who identify themselves as white or African American, and live (or lived during the time of data collection) in the continental United States. We excluded other racial groups from the analysis because their numbers in these surveys are too small. We define the elderly as those who were 65 or older at the time of data collection. Measures of individual income for the elderly, who often have left the workforce or may be living with family, are not an adequate measure of socioeconomic status. A retired elderly person may have little monthly income but live in an affluent household. Consequently, we used a measure of household income relative to family size as a proxy for the socioeconomic class and living conditions of the elderly individual (see Shuey & Willson, 2008 for a similar strategy). To do this, we used the LSOA poverty index variable defined as household income divided by the poverty line for a household of that size. Households with a score of one or higher on this index are said to be at or above the poverty line, and have been excluded from our analysis. Elderly individuals living in households with a score of lower than one are said to live

in poor households, and are included in our analysis. Institutionalized elders are excluded from our analysis.

#### 2.4. *Merging and weighting*

We merged the three waves of the LSOA. We recoded variables as necessary to be consistent across years, and ran sensitivity tests to ensure that no key variation was due to differences in the year of data collection or the time of year. The key stratifying variables are race, gender, and age. This makes sample design easy to account for by placing the stratifying variables as parameters in all of our models. This procedure provides results that are equivalent to weighted analysis, but are more readily interpretable (Manski & McFadden, 1983).

#### 2.5. *Dependent variables*

We employed two dependent variables. The first is a binary measure of whether the respondent reports having a “general practitioner, internist, or family doctor”. The second is a count of how many times the respondent reported visiting a doctor in the past 12 months.

#### 2.6. *Independent variables*

Key independent variables include race, gender, and health. Race was self reported. As mentioned above, only whites and African Americans are included in this analysis. We ran separate models for each racial group to account for and better examine the interactions between race and other predictors of health care use. We measured health in several ways, but ultimately used the standard five-point scale of self reported health (SRH) in our models. Since the LSOA has objective measures of the number of conditions and physical limitations experienced by respondents, we compared these to SRH (which ranges from excellent health to poor health) for each group. The objective indicators in the LSOA mapped on to the self-reported measure extremely well in our data. Adding additional measures, including the objective condition indicator in LSOA, did not change the substantive results of the models. Although the SRH indicator used in this study is based on the respondent’s appraisal of their own health, both our own tests and the literature on this metric suggest that it is a valid predictor of objective health conditions, morbidity, and mortality, particularly for those over 65 (Hays, Schoenfeld, Blazer, & Gold, 1996; Idler & Benyamini, 1997; Lynch, 2006; Shi & Starfield, 2000; Shuey & Willson, 2008). Other measures included age, perceived quality of care,

urban/non-urban residence, education (HS graduate or not), family income, a measure of whether the respondent lived alone or with others, marital status, a measure of the respondent’s insurance status, regional location, an index of social connectedness (see below), foreign birth, inability to get health care, and reported delay in care due to cost. Table 1 below provides a list of the variables used in our analysis, their operationalization, numbers, and descriptive statistics. Tables A3–A5 in Appendix A provide additional information about the population via weighted age, health, and social connectedness distributions.

#### 2.7. *Social connectedness index*

To examine the effect of social connectedness on whether seniors had a regular doctor and how often they visited the doctor, we created an index meant to measure the extent to which the respondent was in contact with friends and family. We did this by combining four binary variables: (1) whether the respondent reported talking to friends in the past two weeks on the phone, (2) whether the respondent reported talking to family in the past two weeks on the phone, (3) whether the respondent spent face to face time with friends during the past two weeks, and (4) whether the respondent spent face to face time with family during the past two weeks. We summed these four variables for each individual, then divided by four. The resulting variable, “social connectedness index” has a range from 0 to 1, where a person with a score of 1 would have reported all four types of social interaction, and those with 0 would have reported none. This index had a Cronbach alpha statistic scale reliability coefficient of 0.7447, indicating that it holds together well.

#### 2.8. *Analysis*

We investigate the relationship between race and health care by using logistic regression models for our binary dependent measure and zero-inflated negative binomial regression models for our count dependent measure. We ran models separately by race, to account for and examine the interaction between race and other key independent variables in predicted health care use. Within each racial group, we present three categories of models for each dependent variable: (1) a baseline model that includes stratifying independent variables and health, (2) a model that adds the social connectedness index, and (3) a full model that includes a wide range of controls.

Table 1  
Description of key variables. Longitudinal studies on aging II.  $n = 1847$ .<sup>a</sup>

Variable	Operationalization	Number of observations <sup>a</sup>	Weighted mean/proportion	Standard error
Has Dr	Coded 1 if the respondent has a regular doctor, 0 if otherwise.	1847	.72	.013
Saw Dr	Number of doctor visits in the past 12 months.	1847	18.9	4.0
Male	Coded 1 if the respondent is male, 0 otherwise.	1847	.22	.015
Race	Coded 0 if White, 1 if African American.	1847	White: .78 African American: .22	.024
Age <sup>b</sup>	Continuous measure of respondents' age. Those 99 years old and over are combined into the top category.	1847	81.3	.25
Health <sup>b</sup>	Self reported health. Ranges from 1 (excellent) to 5 (poor).	1639	3.2	.039
Social connectedness index <sup>b</sup>	Continuous scale for social connectedness. The values range from 0 (low level of social connectedness) to 1 (high level of social connectedness). See text for more information.	1847	.62	.011
High school graduate	Coded 1 if the respondent has a high school diploma, 0 otherwise.	1847	.28	.020
Urban	Coded 1 if the respondent lives in a metropolitan area, 0 otherwise.	1847	.59	.045
No insurance	Coded 1 if the respondent has no form of insurance, 0 otherwise.	1847	.02	.0047
Family income	Annual household income (in thousands of dollars).	1847	5.47	.11
Out of the labor force	Coded 1 if respondent is no longer involved in the active labor force, 0 otherwise.	1847	.95	.0084
Married	Coded 1 if the respondent is married, 0 otherwise.	1847	.20	.017
Alone	Coded 1 if the respondent lives alone, 0 otherwise.	1847	.44	.015
Foreign	Coded 1 if the respondent was born outside the U.S., 0 otherwise.	1847	.036	.0084
Unable to get care	Coded 1 if the respondent said they were unable to get needed medical care in the last year, 0 otherwise.	1847	.013	.0036
Delayed care	Coded 1 if the respondent delayed medical care because of the cost, 0 otherwise.	1847	.08	.011
Perceived poor care	Rating of overall care provided by regular care provider. Ranges from 1 (excellent) to 4 (poor)	1490	1.78	.048
Region	Dummy variables for region: Northeast, Midwest, South, West.	1847	NE: .13 MW: .27 S: .50 W: .10	.027 .037 .043 .020

<sup>a</sup> These numbers indicate the total number of observations in the data set. The number of unique eligible individuals at wave one of the LSOA II is 756 (534 Whites and 222 African Americans). The rationale for this is discussed in the methodology section of this article.

<sup>b</sup> More information about the distribution of these key independent variables by race and gender is provided in [Appendix A, Tables A3–A5](#).

We used logistic regression to analyze the binary dependent variable (whether the respondent *has a physician*). The basic logit model takes the form:

$$p(D_i = 1|X_i) = \frac{e^{\text{logit}}}{1 + e^{\text{logit}}} \tag{1}$$

where the logit has the form:

$$\text{logit} = \beta_0 + \beta_1 x_1 + \dots + \beta_i x_i. \tag{2}$$

The odds ratio is given by *eb*. In this study, a positive coefficient or an odds ratio of greater than one means an increase on the independent variable is associated with an increased probability of having a regular physician net of other factors. A negative coefficient or an odds ratio of less than one means an increase on the independent variable is associated with a decreased probability of having a regular physician net of other factors.

We used zero-inflated negative binomial regression analysis to analyze the number of times a respondent saw a doctor in the past twelve months. Poisson (PR), negative binomial (NBR), and zero-inflated negative binomial (ZINBR) regression models are all derived from the generalized linear model. NBR models have the advantage of providing a better fit than PR models for over-dispersed data. NBR better accounts for “unobserved heterogeneity which allows the conditional variance to exceed the conditional mean” (Long, 1997, 249). ZINBR models provide a better fit over standard PR and NBR when there are increased numbers of zeroes. The ZINBR model does this by generating two separate processes. The first a binary (logit) process provides zero counts. The second (NBR) process provides zero and positive counts (Long, 1997). Given the inflated number of zeroes and the over-dispersion that are found in our data, the ZINB model is the logical choice. The fit of a zero-inflated model is often compared to its non zero-inflated counterpart using a Vuong Closeness Test (Vuong, 1989). The Vuong statistics (presented in Appendix A) indicate the ZINB model provides a significant improvement in fit with our data, particularly for models of whites’ doctor use. The ZINB model takes the form:

$$p(Y_i = 0|X_i, Z_i) = F(Z_i \gamma) + [1 - F(Z_i \gamma)]EXP(-EXP[X_i\beta]) \tag{3}$$

$$p(Y_i|X_i, Z_i) = [1 - F(Z_i \gamma)] \frac{\exp(-\exp[X_i\beta]) \exp(X_i\beta)^{Y_i}}{Y_i!} \text{ for } Y_i > 0 \tag{4}$$

Table 2  
Predicted probabilities: having a regular doctor.

	White	African American
Baseline model <sup>a</sup>		
Male	76	72
Female	83	76
Full model <sup>b</sup>		
Male	97	97
Female	96	96

<sup>a</sup> At age = 81 and health = 3.2 (sample means).

<sup>b</sup> At age = 81, health = 3.2, scindex = .61 (sample means), all other values left at means for the model.

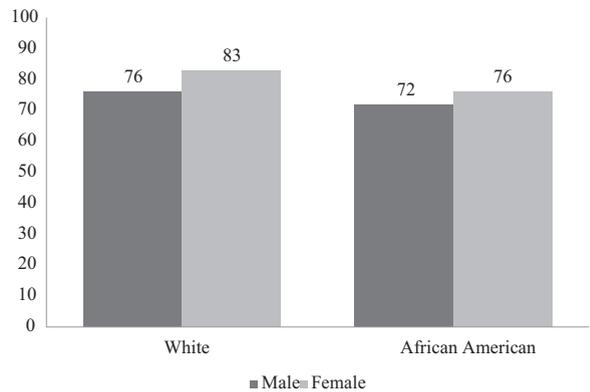


Fig. 1. Predicted probabilities: having a regular doctor (baseline models).

Eq. (3) gives the probability of a zero count. Eq. (4) gives the probability for counts greater than zero. A positive coefficient for the ZINB model using Eq. (4) indicates an increase on the independent variable is associated with an increased number of annual doctor visits net of other factors. A negative coefficient on the independent variable is associated with a decreased number of annual doctor visits net of other factors.

### 3. Results

#### 3.1. Respondent has a regular doctor

We begin our analysis with a look at whether or not poor elders have a physician. Table 2 presents the predicted probabilities from logistic regression models for different racial and gender groups before and after controls. Figs. 1 and 2 represent this graphically. The full logit model output is presented in Appendix A (Table A1). Model I tests Hypothesis 0 which states that there is no difference between racial groups. The results indicate that while there is a generally high probability that poor elders among all racial groups have a regular

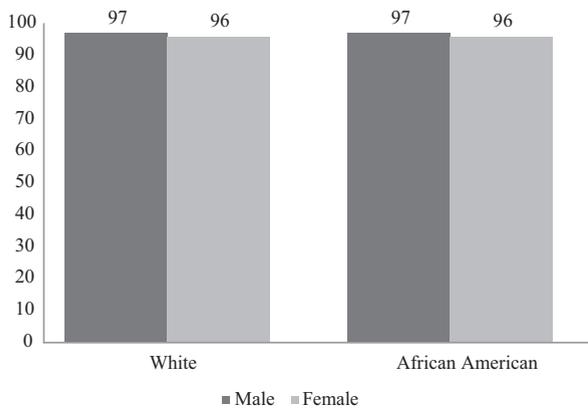


Fig. 2. Predicted probabilities: having a regular doctor (full models).

physician, there are significant differences by race and gender. Whites are more likely to have a doctor than minorities of the same gender. Women are more likely to have a doctor than men of the same race. Before controls, white women are the most likely to have a doctor ( $Pr = .83$ ) and African American men are the least likely ( $Pr = .72$ ), with white men ( $Pr = .76$ ) and African American women ( $Pr = .76$ ) somewhere in between. The models account for health, and the predicted probabilities hold health constant at the population mean. This demonstrates that this finding is not simply the artifact of differences in measured health. *Model I provides evidence that racial differences exist among the elderly poor when it comes to one of the most basic elements of health care use, having a regular doctor to use.*

Model II examines the way social connectedness affects the likelihood of having a doctor. Here we find that the more an elder is in contact with relatives, friends, and neighbors, the more likely they are to have a doctor. Social connectedness is one of the most robust variables in explaining whether a person has a doctor. Looking at the coefficients in our models, we see this effect is even more pronounced among African Americans. The models and post control predicted probabilities demonstrate that after accounting for the varying levels and effects of social connectedness, differences in having a doctor essentially disappear. The probability of having a doctor is high for all groups with white men ( $Pr = .97$ ) and African American men ( $Pr = .97$ ) being slightly more likely to have a doctor than white and African American women ( $Pr = .96$ ). *This supports the notion that differences in having a doctor among poor elders can be accounted for by differences in the levels and effect of social connectedness.*

Model III is a full model that includes controls for age, gender, education, insurance status, labor force

participation, marital status, living situation (alone or living with others), foreign birth, location in an MSA/non-MSA area, region, social connectedness, reported inability to get care in the past, and reported delay in care in the past. This full model includes measures for factors that Bartley (2004) suggests are non-race specific that all individuals face (like age and illness) and some that are associated with race-related structural conditions like income, labor force participation, MSA/non-MSA area, and region. Putting in these additional controls does little to change the results of model II which explained the observed differences in the baseline model by introducing the social connectedness index. Interestingly, education, often a common and powerful explanation for differences in health care use, does not have a strong effect on whites' likelihood of having a doctor, and for African Americans it is indiscernible from chance. The effect of health on the likelihood of having a doctor is also weak. *The key finding here is that while there are observed racial and gender differences in having a regular physician, this effect can be accounted for by variation in the levels and effects of social connectedness. After taking social connectedness into account, the various groups of poor elders look much the same with regards to the likelihood of having a doctor.*

### 3.2. Frequency of doctor use among respondents

Having analyzed which variables affect whether the elderly poor have a physician, we now turn to the frequency with which seniors who have a regular doctor visit the doctor. To analyze doctor use we employed zero-inflated negative binomial regression models to model the number of doctor visits in the last year. The predicted counts are presented in Table 3 (the full ZINB regression results are presented in Appendix A).<sup>4</sup> Figs. 3 and 4 represent this graphically. Model I presents results that we use as a baseline. Here we find that whites and women with regular doctors still make substantially more annual visits to the doctor's office than men or African Americans at the same level of health. White women make the most trips (17), followed by African American women (11), white men (8), and African American men (7). Worse health is associated with a substantially increased number of visits for all groups, although this effect is stronger for whites (Table 3).

<sup>4</sup> The predicted counts can be interpreted as the number of visits the "typical" person in a given category made. For instance, the predicted count presented for African American males provides the estimated number of trips to the doctor for individuals in that category holding variables at their means.

Table 3  
Predicted counts: number of doctor visits in the past 12 months.

	White	African American
Baseline model <sup>a</sup>		
Male	8	7
Female	17	11
Full model <sup>b</sup>		
Male	8	6
Female	14	10

<sup>a</sup> At age = 81 and health = 3.2 (sample means).

<sup>b</sup> At age = 81, health = 3.2, scindex = .61 (sample means), havedr = 1, all other values left at means for the model.

Model II examines whether social connectedness can explain the observed differences in doctor visits. We would expect that social connectedness would have a pronounced impact both because the literature strongly suggests that it does, and because we found that it had an impact on whether the elders in our study had a physician. The data show however that the effect is much

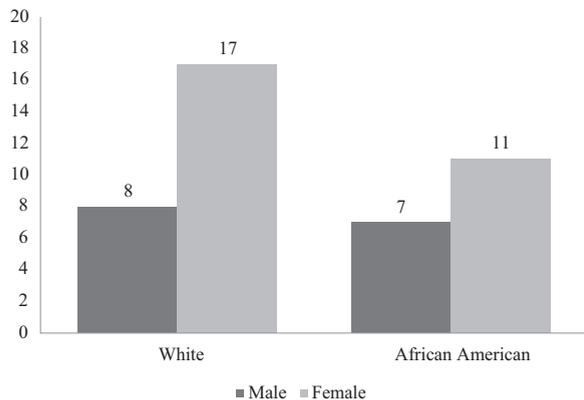


Fig. 3. Predicted counts: number of doctor visits in the past 12 months (baseline models).

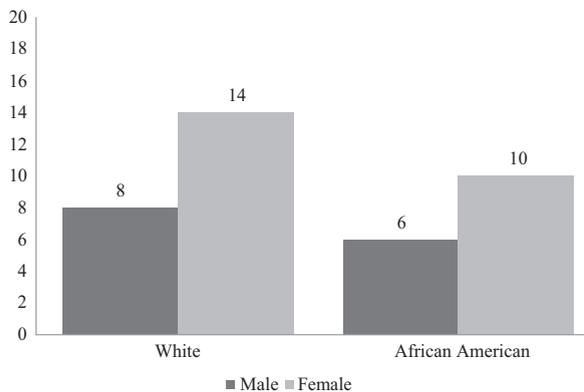


Fig. 4. Predicted counts: number of doctor visits in the past 12 months (full models).

weaker when examining the number of visits made by poor elders within the last year. It is effective in explaining some of the observed gender differences, but does not remove the race or gender effects. In general, increased social connectedness is associated with an increased number of visits to a physician among those who already have one.

Model III is a full model run by health status that includes controls for age, gender, education, insurance status, income, labor force participation, marital status, living situation, foreign birth, MSA/non-MSA, region, social connectedness, inability to get care, and reported delay in getting care. *We find that while racial differences decrease somewhat after introducing controls, they are still noticeable. The race and gender differences are still substantial.* Again white women make the most visits (14), followed by African American women (10), white men (8), and African American men (6).

There are several other findings that are worth noting. First, being older and having poor health are associated with increased numbers of visits for all groups, although the health effect is stronger for whites and the age effect is stronger for African Americans. Not having insurance is strongly associated with fewer visits for all groups, although the numbers with no insurance are very small (only around 2% of poor seniors report having no insurance). Income is a weak predictor for both groups. For whites, perceived poor quality of care is associated with fewer trips to the doctor, whereas for African Americans this effect is reversed. This measure is a powerful predictor of number of doctor visits for both racial groups. For whites, having reported delays in care in the past because of cost is associated with increased numbers of doctor visits. For African Americans, having delayed care in the past is associated with fewer doctor visits. *The key finding is that while social connectedness and assessments of care explain some of the observed racial and gender differences, a noticeable gap exists between women and men, whites and African Americans with regards to the numbers of doctor visits they made in the past 12 months.*

#### 4. Discussion and conclusions

In sum, our analysis of the LSOA II demonstrated the following: (1) Among elders living in poverty, whites and women are more likely to have a regular doctor than men and African Americans. This is true even when comparing individuals at the same reported levels of health; (2) Among those elders who have a doctor, on average whites and women visit the doctor with much greater frequency than other groups even at the same levels of health; (3) After accounting for the varying levels and

effects of social connectedness, race and gender differences in having a doctor essentially disappear.<sup>5</sup> More connected seniors are more likely to have a doctor; and (4) While differences in having a regular doctor can be accounted for using measures of social connectedness, substantial and robust racial and gender differences in how often seniors visit the doctor remain.

What explains the observed patterns of racial differences and how do they relate to the hypotheses we proposed above? First, the data do not support the notion that racial differences in patterns of health care are not present among members of the elderly poor (*Hypothesis 0*) because robust racial differences do exist in health care use. Neither the availability of Medicare, the effect of selective mortality, nor the fact that all of these groups must deal with high levels of illness and scarcity, caused racial differences in health care use to converge in old age among the poor.

Second, the data do not support the hypothesis that differences in health care use can be accounted for by factors that affect all groups independent of race (*Hypothesis 1*). The impact of features like illness and age, while powerful predictors of the number of doctor visits in the past 12 months, cannot explain the observed racial differences. Further, the strength of the effect key variables (like age and health status) have on patterns of having and visiting a doctor varies by racial groups.

Third, the data do suggest that structure matters. People's location in the social world, and the resources available to them, affect when and how they get sick as well as the resources and treatments available to them when they do. This is true even of the "robust" elders living in poverty. Other structural conditions like the region in which people live, rural/urban differences, and whether a senior lives alone, all affect patterns of use. Still, and most importantly for our initial question, none of the structural measures we employed could account for the observed racial differences either independently or as a group. Further, within poverty, gradations in income did not have a large effect on having or visiting a doctor. All of the elders we examined were living in poverty, and we included key controls for other elements of social location and resources. The fact that racial differences persist suggests differences in health care use among the elderly poor are not simply an artifact of different structural locations, making *Hypothesis 2* unlikely.

Fourth, we found strong support for the notion that levels of social connectedness affect health care use among the elderly poor (Bartley, 2004; Berkman, 2004; Pescosolido, 1992). Thus, along with race and gender, levels of social connectedness continually made a predictive contribution to having and using a physician among the elderly poor. Any initial difference in whether or not seniors have a doctor disappears after taking into account differences in the levels and effects of social connectedness. Those groups that were less likely to have a doctor (i.e. men and African Americans) had lower levels of social connectedness. The effect of increased connectedness on the likelihood of having a doctor was also stronger for African Americans. Therefore, when looking at seniors in poverty who are equally in contact with friends and family, race and gender differences in having a doctor become insubstantial. Differences in the number of doctor visits however, while somewhat diminished, remained strong.

What these data do not allow us to discern is how increased contact with friends and family improves the likelihood of having a doctor, or why this effect is more pronounced among African Americans. It is likely that having other individuals invested in their lives and well-being makes these seniors more likely to secure a regular doctor (Thoits, 2011). Further, contact with non-elderly people can serve as a resource that can aid in the logistical demands of securing a regular doctor. Non-elderly people are generally taken more seriously in interactions with organizations and often have greater technological and cultural skills for navigating medical bureaucracies than seniors (Shim, 2010). In this sense, other individuals in a senior's network serve as a resource for both motivating and assisting seniors in their efforts to secure a regular doctor.

Social connectedness as measured did not, however, explain away racial differences in the number of doctor visits, although it did explain some of the gender gap in number of visits. This is consistent with the explanation offered above, but also suggests that differences in patterns of visiting a doctor among the elderly poor are not simply an artifact of different levels of social connectedness. It is possible that other elements of social connectedness, which are not picked up on our index (e.g. the extent to which friends or neighbors actively help) may explain the remaining difference. *Hypothesis 3*, therefore, offers a promising explanation for patterns of having a regular doctor, but is incomplete for explaining patterns of doctor visits using these data.

Fifth, the LSOA II lacks any nuanced cultural measures. The fact that we found strong and consistent racial and gender differences in visiting the doctor, and

<sup>5</sup> Males are still slightly more likely to have a doctor but the effect is sociologically negligible.

Table A1  
Logistic regression models (dependent variable: respondent has a regular doctor).

	Model I	Model II	Model III
	Baseline	Social Connectedness	Full
White			
Age	−0.31 [0.012]***	−0.57 [0.019]***	−.058 [.21]***
Male	−.46 [0.19]*	.44 [0.37]	.45 [.42]
Health	.11 [.06]*	−.22 [.12]*	−.21 [.12]*
Social connectedness index		2.65 [.40]***	2.37 [.42]***
High school grad			−.25 [.31]
Lives in a City			−.022 [.28]
Lives in Midwest			−.95 [.49]*
Lives in South			−.83 [.48]*
Lives in West			.50 [.76]
No insurance			−.86 [.93]
Family income			−.14 [.06]**
Not in the labor force			.89 [.79]
Married			.55 [.41]
Lives alone			1.27 [0.33]***
Foreign birth			.10 [.70]
Unable to get care in past			−.43 [1.46]
Delayed care in the past			.22 [.55]
Constant	3.75 [.99]***	6.48 [1.74]***	6.74 [2.16]***
Number of observations	1180	976	976
Pseudo R <sup>2</sup>	.012	.16	.23
African American			
Age	−0.016 [0.018]	−.28 [.034]	−.046 [.043]
Male	−0.22 [0.25]	.26 [.57]	.90 [.77]
Health	.12 [.09]	.11 [.20]	.017 [.24]
Social connectedness index		4.26 [.79]***	4.55 [.95]***
High school grad			1.049 [1.11]
Lives in a City			.076 [.64]
Lives in Midwest			.85 [1.26]
Lives in South			.60 [1.032]
Lives in West			—
No insurance			(omitted)
Family income			−.15 [.12]
Not in the labor force			.93 [.93]
Married			−.70 [.84]
Lives alone			.49 [.67]
Foreign birth			(omitted)
Unable to get care in past			−3.54(1.49)**
Delayed care in the past			(omitted)
Constant	−.55 [1.41]	2.20 [2.94]	3.82 [1.70]**
Number of observations	459	329	277
Pseudo R <sup>2</sup>	.0072	.23	.33

Standard errors given in parentheses.

\* *P* values = .10.

\*\* *P* values = .05.

\*\*\* *P* values = .01.

that attitudinal measures and need factors are not only strong predictors but work differently for different racial groups, open the possibility that cultural strategies for dealing with aging and scarcity may influence health care use. This is consistent with a body of work that

shows how notions of masculinity explain the lower rates of care sought by men (e.g. Springer & Mouzon, 2011), as well as the ethnographic literature demonstrating cultural variation in how communities deal with the challenges of aging (Freidenberg, 2000; Hochschild,

Table A2

Zero inflated negative binomial models (dependent variable: number of doctor visits in the last 12 months).<sup>a</sup>

	Model I	Model II	Model III
	Baseline	Social connectedness	Full
White			
Age	.020 [.0085]**	.034 [.0085]***	.017 [.0089]**
Male	-.74 [.13]***	-.68 [.14]***	-.34 [.15]**
Health	.46 [.045]***	.50 [.046]***	.44 [.047]***
Social connectedness index		.88 [.19]***	.48 [.19]**
Perceived poor care			-.36 [.08]***
High school grad			.33 [.12]***
Lives in a City			-.44 [.12]***
Lives in Midwest			.035 [.17]
Lives in South			-.45 [.17]***
Lives in West			-.46 [.21]**
No insurance			-.87 [.40]**
Family income			-.019 [.024]
Not in the labor force			.54 [.35]
Married			-.42 [.15]***
Lives alone			-.04 [.12]
Foreign birth			.19 [.27]
Unable to get care in past			.13 [.61]
Delayed care in the past			1.40 [.21]***
Constant	-.36 [.73]	-1.55 [.78]**	.095 [.89]
Number of observations	964	901	901
Nonzero observations	873	829	829
Zero observations	91	72	72
/lnalpha	.83 [.42]***	.79 [.043]***	.66 [.044]***
Alpha	2.29 [.096]	2.21 [.095]	1.94 [.085]
Vuong test of zero-inflated model versus standard negative binomial model (Z-value)	15.51***	3.07***	4.07***
African American			
Age	.045 [.0097]***	.046 [.26]***	.033 [.011]***
Male	-.50 [.17]***	-.41 [.18]**	.074 [.19]
Health	.22 [.061]***	.23 [.064]***	.19 [.066]***
Social connectedness index		.46 [.26]*	.51 [.25]**
Perceived poor care			.31 [.14]**
High school grad			.13 [.21]
Lives in a City			-.074 [.18]
Lives in Midwest			.013 [.28]
Lives in South			.55 [.25]**
Lives in West			.74 [.35]**
No insurance			-.90 [.44]**
Family income			.011 [.037]
Not in the labor force			.20 [.27]
Married			-.79 [.23]***
Lives alone			.27 [.16]*
Foreign birth			-.87 [.50*]
Unable to get care in past			-.40 [.52]
Delayed care in the past			-.67 [.29]**
Constant	-1.94 [.80]**	-2.28 [.88]***	-2.36 [1.01]**
Number of observations	342	305	305
Nonzero observations	316	290	290
Zero observations	26	15	15
/lnalpha	.35 [.075]***	.32 [.078]***	.13 [.080]
Alpha	1.43 [.11]	1.38 [.078]	1.13 [.091]
Vuong test of zero-inflated model versus standard negative binomial model (Z-value)	.81	2.61***	3.33***

Standard errors given in parentheses.

\* *P* values = .10.\*\* *P* values = .05.\*\*\* *P* values = .01.<sup>a</sup> For those who have a regular doctor. All predictor variables were included as potential inflation parameters in these models.

Table A3  
Weighted age distribution by race and gender.

	70–74	75–79	80–84	85–89	90+	Total
Whites						
Female	.14	.24	.27	.21	.14	1 (n = 1073)
Male	.195	.33	.255	.13	.09	1 (n = 255)
<i>Total</i>	.15	.26	.27	.19	.13	1 (n = 1328)
African Americans						
Female	.215	.30	.24	.135	.11	1 (n = 398)
Male	.27	.32	.24	.09	.08	1 (n = 121)
<i>Total</i>	.23	.31	.24	.12	.10	1 (n = 519)

Table A4  
Weighted health distribution by race and gender.

	Excellent	Very good	Good	Fair	Poor	Total
Whites						
Female	.08	.22	.30	.25	.15	1 (n = 962)
Male	.06	.22	.25	.25	.22	1 (n = 218)
<i>Total</i>	.08	.22	.29	.25	.16	1 (n = 1180)
African Americans						
Female	.07	.16	.27	.32	.18	1 (n = 354)
Male	.13	.18	.22	.39	.08	1 (n = 105)
<i>Total</i>	.09	.165	.26	.335	.15	1 (n = 459)

1973; Myerhoff, 1980). Unfortunately our data do not allow us to pursue this further.<sup>6</sup>

Finally, it is important to point out that our study includes a number of limitations which should be addressed in future research: First, the small number of respondents forced us to drop the analysis of other racial groups such as Asian Americans, Latinos, and Native-Americans. Second, our questions and analysis are cross-sectional and say nothing about changes over time. Third, the available data limit our ability to completely rule out important pathways such as culture and the differential use of existing social networks.

## 5. Conclusion

While it is widely acknowledged that the elderly are the nation's greatest consumers of health care services (Lum et al., 1999; Wan, 1989; Wolinsky & Arnold,

1988), the effect of race on patterns of health care use is still not fully understood (Fiscella et al., 2002; Lum et al., 1999). In this article, we have documented that there are large and notable racial differences in health care use among the elderly poor. Even though seniors living in poverty compose a population where racial differences would be expected to decline due to selective mortality, structural similarities, and availability of social insurance in the way of Medicare, there are robust differences in patterns of having and visiting the doctor. In examining the persistence of race, we showed that the observed difference in the likelihood of having a doctor can be explained by differences in the levels and influence of social connectedness, while different levels of social connection are only a partial explanation of number of annual visits. We also demonstrated that gender effects are essential to understanding the remaining differences. Existing literatures on the way communities and individuals manage the body, the role of culture, and the differential deployment of social connectedness, may provide the answer to the remaining variation. Future research including both qualitative and quantitative inquiries, as well as better measures of social networks and cultural resources on surveys examining

<sup>6</sup> This issue is not endemic to the LSOA but is a common issue in health care use surveys. "Culture" is typically reduced to a sparse set of attitudinal measures that does little to look at the diverse repertoires, cultural resources, and strategies that are key to cultural explanations in contemporary sociology.

Table A5

Weighted social connectedness index distribution by race and gender.

	0 (Low SC)	.25	.5	.75	1 (High SC)	Total
<b>Whites</b>						
Female	.16	.09	.155	.255	.34	1 (n = 1073)
Male	.21	.12	.19	.24	.24	1 (n = 255)
<i>Total</i>	.17	.10	.16	.25	.32	1 (n = 1180)
<b>African Americans</b>						
Female	.16	.07	.19	.27	.31	1 (n = 398)
Male	.165	.12	.185	.205	.325	1 (n = 121)
<i>Total</i>	.16	.08	.19	.255	.315	1 (n = 519)

health care use, are needed in order to better understand why these differences persist and how they work in practice.

### Acknowledgments

We would like to thank Mike Hout, Claude Fischer, Trond Petersen, Leo Goodman, Arlie Hochschild, Gregor Mattson, Phillip Fucella, Darren Modzelewski, and the anonymous reviewers from *Research in Social Stratification and Mobility* for helpful comments on previous versions of this article.

### Appendix A.

#### A.1. Model results

##### Tables A1–A5

### References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.
- Anderson, R. M. (1995). Revisiting the behavioral model and access to medical care: Does it matter? *Journal of Health and Social Behavior*, 36, 1–10.
- Bartley, M. (2004). *Health inequality*. Cambridge: Polity Press.
- Berkman, L. F. (2004). The health divide. *Contexts*, 3, 38–51.
- Cox, C. (1986). Physician utilization by three groups of ethnic elderly. *Medical Care*, 24(8), 667–676.
- Doescher, M. P., Saver, B. G., Franks, P., & Fiscella, K. (2000). Racial and ethnic disparities in perceptions of physician style and trust. *Archives of Family Medicine*, 9, 1156–1163.
- Dupre, M. E. (2007). Educational differences in age-related patterns of disease: Reconsidering the cumulative disadvantage and age-as-leveler hypotheses. *Journal of Health and Social Behavior*, 48, 1–15.
- Escarce, J. J., Epstein, K. R., Colby, D. C., & Schwartz, J. S. (1993). Racial differences in the Elderly's use of medical procedures and diagnostic tests. *American Journal of Public Health*, 83(7), 947–954.
- Farmer, P. (1999). *Infections and inequalities: The modern plague*. Berkeley: University of California Press.
- Fiscella, K., Franks, P., Doescher, M. P., & Saver, B. G. (2002). Disparities in health care by race, ethnicity, and language among the insured—findings from a national sample. *Medical Care*, 40, 52–59.
- Fischer, C. S., Hout, M., Jankowski, M. S., Lucas, S. R., Swidler, A., & Voss, K. (1996). *Inequality by design: Cracking the bell curve myth*. Princeton: Princeton University Press.
- Freidenberg, J. N. (2000). *Growing old in El Barrio*. New York: New York University Press.
- Freimuth, V. S., Quinn, S. C., Thomas, S. B., Cole, G., Zook, E., & Duncan, T. (2001). African Americans' views on research and the Tuskegee syphilis study. *Social Science and Medicine*, 52, 797–808.
- Hart, J. T. (1971). The inverse care law. *The Lancet*, 297(7696), 405–412.
- Hayes-Bautista, D. E., Hsu, P., Perez, A., & Gamboa, C. (2002). The 'Browning' of the graying of America: Diversity in the elderly population and policy implications. *Generations*, 26(3), 15–24.
- Hays, J. C., Schoenfeld, D., Blazer, D. G., & Gold, D. T. (1996). Global self-ratings of health and mortality: Hazard in the North Carolina piedmont. *Journal of Clinical Epidemiology*, 49, 969–979.
- Hendryx, M. S., Ahern, M. M., Lovrich, N. P., & McCurdy, A. H. (2002). Access to health care and community social capital. *Health Services Research*, 37, 87–103.
- Hochschild, A. R. (1973). *The unexpected community*. Englewood Cliffs, NJ: Prentice-Hall.
- House, J. S., Lepkowski, J. M., Kinney, A. M., Mero, R. P., Kessler, R. C., & Herzog, A. R. (1994). The social stratification of aging and health. *Journal of Health and Social Behavior*, 35, 213–234.
- Idler, E. L., & Benyamini, Y. (1997). Self-rated health and mortality: A review of twenty-seven community studies. *Journal of Health and Social Behavior*, 38, 21–37.
- Kaplan, S. A., Calman, N. S., Golub, M., Davis, J. H., Ruddock, C., & Billings, J. (2006). Racial and ethnic disparities in health: A view from the South Bronx. *Journal of Health Care for the Poor and Underserved*, 17(1), 116–127.
- Knesebeck, O. V. D., Lüschen, G., Cockerham, W. C., & Siegrist, J. (2003). Socioeconomic status and health among the aged in the United States and Germany: A comparative cross-sectional study. *Social Science and Medicine*, 57, 1643–1652.
- Long, J. S. (1997). *Regression models for categorical and limited dependent variables*. Thousand Oaks: Sage.
- Lum, Y. S., Chang, H. J., & Ozawa, M. N. (1999). The effects of race and ethnicity on use of health services by older Americans. *Journal of Social Service Research*, 25, 15–42.

- Lynch, S. M. (2006). Explaining life course and cohort variation in the relationship between education and health: The role of income. *Journal of Health and Social Behavior*, 47, 324–338.
- Manski, C. F., & McFadden, D. (1983). Alternative estimators and sample designs for discrete choice analysis. In C. F. Manski, & D. McFadden (Eds.), *Structural analysis of discrete data with econometric applications*. Cambridge, MA: MIT.
- Massey, D. S. (2007). *Categorically unequal: The American Stratification System*. New York: Russell Sage Foundation.
- McBean, A. M., & Gornick, M. (1994). Differences by race in the rates of procedures performed in hospitals for Medicare beneficiaries. *Health Financing Review*, 15, 77–90.
- Mosby, L. (2002). Older African American women's discussion on barriers to mammography: A focus group approach. *Michigan Sociological Review*, 16, 132–146.
- Myerhoff, B. (1980). *Number our days*. New York: Touchstone.
- Noar, S. M., & Zimmerman, R. S. (2005). Health behavior theory and cumulative knowledge regarding health behaviors: Are we moving in the right direction? *Health Education Research*, 20, 275–290.
- Pescosolido, B. A. (1992). Beyond rational choice: The social dynamics of how people seek help. *The American Journal of Sociology*, 97, 1096–1138.
- Preston, S. H., & Taubman, P. (1994). Socioeconomic differences in adult mortality and health status. In L. G. Martin, & H. Preston (Eds.), *Demography of aging* (pp. 279–318). Washington, DC: National Academy Press.
- Rathore, S. S., & Krumholz, H. M. (2004). Differences, disparities, and biases: Clarifying racial variations in health care use. *Annals of Internal Medicine*, 141, 635–638.
- Rooks, R. N., Brown, D., & Myers, W. (2006). Perceived discrimination and mistrust among older African Americans and Whites in the U.S. health care system: The cancer attitudes and awareness study. Durban, South Africa: International Sociological Association.
- Schnittker, J., Pescosolido, B. A., & Croghan, T. W. (2005). Are African Americans really less willing to use health care? *Social Problems*, 52(2), 255–271.
- Sen, A. (1984). *Resources, values, and development*. Cambridge: Harvard University Press.
- Sewell, W. H., Jr. (1999). The concept(s) of culture. In V. E. Bonnell, & L. Hunt (Eds.), *Beyond the cultural turn: New directions in the study of society and culture*. Berkeley: University of California Press.
- Shavers-Hornaday, V. L., Lynch, C. F., Burmeister, L. F., & Torner, J. C. (1997). Why are African Americans under-represented in medical research studies? Impediments to participation. *Ethnicity & Health*, 2(1–2), 31–45.
- Shi, L., & Starfield, B. (2000). Primary care, income inequality, and self-rated health in the United States: A mixed-level analysis. *International Journal of Health Services*, 30(3), 541–555.
- Shim, J. K. (2010). Cultural health capital: A theoretical approach to understanding health care interactions and the dynamics of unequal treatment. *Journal of Health and Social Behavior*, 51(1), 1–15.
- Shuey, K. M., & Willson, A. E. (2008). Cumulative disadvantage and Black–White disparities in life-course health trajectories. *Research on Aging*, 30, 200–225.
- Smedley, B. D., Stith, A. Y., & Nelson, A. R. (Eds.). (2002). *Unequal treatment: Confronting racial and ethnic disparities in health care*. Washington, DC: National Academies Press.
- Spalter-Roth, R., Lowenthal, T. A., & Rubio, M. (2005). Race, ethnicity, and the health of Americans. In R. Spalter-Roth (Ed.), *ASA series on how race and ethnicity matter*. American Sociological Association.
- Springer, K. W., & Mouzon, D. M. (2011). Macho Men<sup>™</sup> and preventative health care. *Journal of Health and Social Behavior*, 52(2), 212–227.
- Thoits, P. A. (2011). Mechanisms linking social ties and support to physical and mental health. *Journal of Health and Social Behavior*, 52(2), 145–161.
- Swidler, A. (2001). *Talk of love: How culture matters*. London and Chicago: University of Chicago Press.
- U.S. Census Bureau. (2009). *Table 6: People with income below specified ratios of their poverty thresholds by selected characteristics: 2009*.
- U.S. Dept. of Health and Human Services. (2003). *Health, United States, 2003*. Washington, D.C.: U.S. Government Printing Office.
- Vaisey, S. (2009). Motivation and justification: Towards a dual-process theory of culture in action. *American Journal of Sociology*, 114(6), 1675–1715.
- Vuong, Q. H. (1989). Likelihood Ratio Tests for Model Selection and non-nested. *Hypotheses Econometrica*, 57(2), 307–333.
- Wan, T. T. H. (1982). Use of health services by the elderly in low-income communities, the Milbank Memorial Fund quarterly. *Health and Society*, 60(1), 82–107.
- Wan, T. T. H. (1989). The behavioral model of health care utilization by older people. In M. Ory, & K. Bond (Eds.), *Aging and the use of formal health services*. New York: Routledge.
- Williams, D. R., & Collins, C. (1995). US socioeconomic and racial differences in health: Patterns and explanations. *Annual Review of Sociology*, 21, 349–386.
- Williams, D. R. (2005). The health of U.S. racial and ethnic populations. *Journal of Gerontology*, 60, S53–S62.
- Wilson, W. J. (1987). *The truly disadvantaged: The inner city, the underclass, and public policy*. Chicago: University of Chicago Press.
- Wolinsky, F. D., & Arnold, C. L. (1988). A different perspective on health and health services utilization. *Annual Review of Gerontology and Geriatrics*, 8, 71–101.