

## **Ethnic Differences in Predictors of Health Care Use among Low-income, Rural Women**

Researchers found that predisposing, enabling, and need factors all played a role in racial/ethnic differences in use of medical services among low-income rural families. The results suggest that ethnic groups have unique health care visitation patterns and needs. Age of mother, her use of transportation assistance, type of medical insurance, number of chronic conditions, and having a recent illness or injury were significantly related to number of doctor visits. Findings extend past research on ethnic differences to a rural population.

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### **Introduction**

Access to health care services and health insurance coverage have been linked to geographic location, income, employment opportunities, gender, and ethnicity, but low-income rural families typically have not been studied. African Americans and Hispanics were less likely to have health insurance coverage than whites and more likely to report lower health status (Kass, Weinick, & Monheit, 1999; Shi, 1999). Whites have had more positive experience with the health care system have African Americans or Hispanics. Examples are shorter wait times, better first-contact experiences, and more regular sources of care (Fichtenbaum & Gyimah-Brempong 1997; Kass, Weinick, & Monheit 1999; Shi 1999). Whites had better access to health care services and had higher health care use among the younger people, but lower use among the elderly (Derose & Baker 2000; Fichtenbaum & Gyimah-Brempong 1997; Hubbell et al. 1991).

Rural residence has significantly influenced health care access and health status. Urban residents consistently reported better health status than rural residents and greater satisfaction with their health care (Edelman & Menz 1996). Rural residents were more often uninsured (Amey, Seccombe, & Duncan 1995; Ormond, Wallin, & Goldenson 2000), had greater distances to travel for their health care needs (Edelman & Menz 1996), and were more often plagued by resource inaccessibility (Hayward, Bernard, Freeman, and Corey 1991). Thus, urban residents have had an advantage in utilization of health care (Leclere, Jensen, & Biddlecom 1994). Fichtenbaum and Gyimah-Brempong (1997) found that although white urban residents used health care services more often than white rural residents, African Americans living in urban areas showed the reverse.

Few studies have looked at ethnic differences in health care visits among rural residents. One exception is Baxter, Bryant, Scarbro, and Shetterly (2001). They compared Hispanics and non-Hispanic whites among rural elderly people. No differences were found in outpatient visits, but Hispanics used more home nursing care. Probst, Samuels, and Moore (2003) examined working-age adults from both rural and urban communities, using the 1997-1998 National Health Interview Survey (NHIS). They found that living in a rural area increased the likelihood of seeing a physician. Racial disparities were found for urban, but not for rural, residents. These studies highlight the complexity of interaction between individuals and the health care system and point to the need to look more deeply at particular variables. Given the robust nature of ethnic disparity in health status and health care use found in the literature, such disparity may be relevant for the rural population with respect to visitation rates.

### **Conceptual Framework: The Andersen Model**

Exploring ethnic differences is not just a matter of measuring the differences in number of physician visits between groups; it also should examine contributing factors. To aid in this exploration, Andersen's Behavioral Model of Health Services Use (Andersen 1995) was used as a conceptual framework. Andersen's model posits that utilization of health services is contingent upon: a person's predisposition to use such services, the ability or means to use these services, and the need for health care (Andersen 1995; Baxter, Bryant, Scarbro, & Shetterly 2001).

## Hypotheses

Given the inconclusiveness of studies examining ethnicity and rural health care use, the first hypothesis is that women in rural areas will show an ethnic disparity in number of doctor visits. The second hypothesis is that predisposing, enabling, and need factors will each contribute to overall health care use. The third hypothesis involves an interaction of ethnicity and Andersen's model. Given the trend for ethnic groups to differ on many of these factors (Baxter, Bryant, Scarbro, & Shetterly 2001; Mueller, Patil, & Boilesen 1998; Probst, Samuels, & Moore 2003), it is hypothesized that rural Hispanic, African American, and white women will not only differ on these variables but will also have different significant predictors for health care use.

## **Methodology**

Data are from the USDA-funded, longitudinal study NC223-NC1011 "Rural Low-Income Families: Monitoring Their Well-Being and Functioning in the Context of Welfare Reform." Please refer to Sharon Seiling's session introduction (titled: Health Care Use, Insurance Coverage & Employment of Low-Income Rural Families) for a description of the project methodology. Participants were included in the present study if they reported they were non-Hispanic white (N=265), African American (N=35), or Hispanic/Latina (N=72).

## Variables

The dependent variable was number of visits made to a health care provider during the past year. The independent variables were organized according to Andersen's Behavioral Model. Individual studies guided by this model vary in their analyses and choice of variables. Choice of variables was guided by the literature, suggestions by Andersen (1995), and the structure of the research agenda of the project from which the data were drawn.

Predisposing factors. Traditional predisposing variables from in the literature included in our analyses were age and education. Rather than including ethnicity as a variable, separate analyses were run for each ethnic group, and only females were sampled. Level of depression also was included per Andersen (1995). Education was coded into three dummy variables: less than high school, high school (used as the reference group), and had education beyond high school. Risk for depression was measured by the Center for Epidemiology Studies-Depression scale (CES-D) (Radloff, 1977). Scores were separated into two groups: 0 = scored below 16, 1 = scored 16 or higher. A score of 16 or above indicates risk for clinical depression (Radloff, 1977).

Enabling factors. Enabling factors included type of insurance, the income/poverty ratio, use of transportation assistance, and knowledge of community resources. The following insurance types were coded as dummies (0,1) for the analyses: private/HMO, Medicaid (or insurance equivalent to Medicaid), state health plan, other, no insurance (reference group). Family income was calculated by adding wages, tips/commissions/overtime, Social Security disability, Social Security retirement/pensions, Supplemental Security Income (SSI), Temporary Assistance for Needy Families (TANF), unemployment compensation, worker's disability compensation, veterans' benefits, child or spousal support, foster child assistance, children's wages, regular gifts from family/friends, and other. Percent of the poverty line was calculated based on this number and the criterion from the federal poverty guidelines for the year of data collection.

Andersen (1995) posited that an important aspect of enabling the use of services is knowledge of *how* to make use of these services. Participants' scores on a scale measuring familiarity with the services in the community, including those outside of the scope of this paper, were included in the data set. It can be hypothesized, that the higher the score received on this scale (high scores indicate a greater knowledge of resources) the more "know-how" they have to make use of health services as well. Scores on this scale were continuous and ranged from 0-22.

Need factors. Two measures of need for health services were included: number of chronic conditions, and whether the participant had had an injury or illness in the past year. Participants reported whether they had experienced a set of health problems during the past three years. An index of 19 (score of 0-19) serious, chronic conditions was created. Need was also ascertained by asking the participants if they had any injuries or serious illnesses in the year preceding the study. Responses were coded as 1 = yes and 0 = no.

## **Analysis**

Pairwise comparisons were tested between white/African American, white non-Hispanic/Hispanic, and African American/Hispanic scores. Significant differences ( $p < .05$ ) were found for age, education, income, knowledge of community resources, use of transportation assistance, having health insurance, and type of health insurance, and number of chronic health conditions.

Doctor visits were analyzed by multiple regression analysis. First, a regression was run on the entire sample. Second, the same regression was run for each of the ethnic groups. This permitted a more illuminating examination of the differences among the ethnic groups. Similar analyses have been conducted in the literature.

Table 1  
Overall and Ethnic Least-Squares Analyses of the Number of Doctor Visits

Factors	All	White	Hispanic	Black
Intercept	8.82 <sup>††</sup>	14.80*	1.87	9.71
<u>Predisposing Factors</u>				
Age	-.24*	-.36*	-.10	-.31
Risk for depression	-1.07	-1.01	-1.74	2.23
<u>Education</u>				
Less than high school	1.43	.46	4.98	2.13
More than high school	-.70	.39	-1.62	1.31
<u>Enabling Factors</u>				
Income/Poverty	.009	.004	.01	.008
Knowledge of community	.01	-.06	-.16	
Transportation assistance	7.09**	4.10	58.25***	-2.75
<u>Insurance type</u>				
Private	2.61	.38	9.94 <sup>†</sup>	-2.38
Medicaid	1.51	.12	2.98	5.79
State	5.93	8.07 <sup>††</sup>	7.10	2.37
Other	1.11	-5.89	2.38	15.02 <sup>†</sup>
<u>Need Factors</u>				
# Chronic health conditions	1.14**	1.63**	.29	.66
Injury in last year	7.07***	7.32**	10.36 <sup>††</sup>	-3.22
F	3.58***	2.55**	4.62***	.95
Adjusted R <sup>2</sup>	.10	.09	.45	-.02

Note. Unstandardized coefficients are given. For the analysis of black participants, knowledge of the community was excluded as a variable due to missing data).

<sup>†</sup> $p = .09$ , <sup>††</sup> $p < .08$ , \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

### Regression analysis

**Overall.** Results are presented in Table 1. In the overall regression age, use of transportation assistance, number of chronic conditions, and presence of an illness or injury in the past year were predictors of doctor visitation were significant. More specifically, younger participants and those who used transportation assistance had increased doctor visits. Doctor visitation also was positively associated with number of chronic conditions, and those who had an injury/illness in the past year. A marginal association was found for use of state insurance.

**White.** Results indicate that among non-Hispanic whites increased visitation was inversely related to age, but positively associated with number of chronic conditions, and having had an injury/illness. A positive, marginally significant effect was also found for having state-sponsored insurance.

**Hispanic.** For this group, the model also was significant. However, only one variable, transportation assistance, predicted doctor visitation. Marginally significant effects were also found for private insurance and for having had an illness/injury.

**Black.** The regression analysis for this group was not significant. A marginal effect for “other” insurance was noted.

### Discussion and Conclusions

Overall, the findings in this study demonstrate the variation in predictors of health care use by ethnicity. The first hypothesis was not supported. The second hypothesis, that enabling, predisposing, and need variables would each contribute to predicting visitation rates, was supported in the regression analysis that included the full sample. This model showed significance for one predisposing factor (age), one enabling factor (use of transportation assistance) and two need factors (number of chronic conditions and presence of an illness/injury). These were the only predictors of health care use, yet they demonstrate that all three types of factors played a role.

Most importantly, the third hypothesis was supported. The results showed different patterns of predictors of health care use in the regression analyses when ethnic groups were examined separately. In fact, the results from the first model are reflected in different ways among the analyses by ethnicity. Younger white participants were more likely to see the doctor. Transportation assistance was significant only in the Hispanic analysis, and was the only significant predictor in that model. Hispanic women who used transportation assistance had more doctor visits, suggesting that lack of transportation is an important issue for them. Finally, the overall model and the white model showed that both of the need factors were positively related to number of doctor visits. Each predictor was significant for only one ethnic group. It should be noted that the black participants showed no significant predictors; however, this is most likely an issue of sample size. Further contributions of this study lie in its separation of ethnic sub-samples into separate equations. Though sample size was an issue, analyzing ethnicities separately provided the opportunity to see whether ethnic subgroups warranted special attention.

**Limitations.** Because the sample of rural low-income mothers was not a random sample, the results of this study cannot be generalized to the population of rural low-income families. Given that caveat, the study does point to ethnic differences for rural populations in predictors of doctor visitation. Replication of this study with large, nationally-representative data sets is recommended as a necessary step in advancing theory and policy concerning low-income rural ethnic groups. Due to the sample size of 363, much statistical power was lost when the participants were separated into ethnic groups. This particularly affected the African American group as none of the variables was statistically significant.

**Conclusion.** In conclusion, the current study provides an important look at health care use among the diverse, low-income population living in rural America. The findings demonstrate that, although the ethnic groups examined had comparable visitation rates, they differed in underlying predictors. Given limitations imposed by the sample, this analysis should be replicated with both quantitative and qualitative data to address rural health care issues and create policy that will be effective for and applicable to rural families.

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