

# Poverty, Health Services, and Health Status in Rural America

DONALD L. PATRICK,<sup>1</sup> JANE STEIN,<sup>2</sup>  
MIQUEL PORTA,<sup>3</sup> CAROL Q. PORTER,<sup>2</sup> and  
THOMAS C. RICKETTS<sup>2</sup>

<sup>1</sup>*University of Washington, Seattle;*

<sup>2</sup>*University of North Carolina at Chapel Hill;*

<sup>3</sup>*Institut Municipal D'Investigació Mèdica, Barcelona*

**A**CCCESS TO HEALTH SERVICES FOR EVERYONE HAS been a major policy goal in the social and political environment of the United States. Concentration of health policy on availability and access is based on the assumption that decreased access to medical care leads to decreased health status, particularly for low-income groups. This assumed relation between poverty and health status can be illustrated as follows:

Health care      Access to  
Poverty → needs      → services      → Health status

In this simple model, poverty is viewed as a major determinant of the need for health care which, in turn, requires increased access to health services. Decreased access and a low level of health service use are, then, viewed as major reasons for the poor health status outcomes observed among persons below the poverty level. This article addresses the link between poverty and health status in rural communities with subsidized health care, presents a more comprehensive model of the relationship, and outlines changes in policy, practice, and the evaluation of progress in solving problems of inequity.

---

The Milbank Quarterly, Vol. 66, No. 1, 1988  
© 1988 Milbank Memorial Fund

## Poverty and Health

The health status of low-income groups—the working poor, blacks, Hispanics, migrant farm workers, and rural residents—has continued to improve over the last three decades. People in poverty, however, still experience more than their share of the excess ill health and death in the United States. Deaths from cancer, cardiovascular disease and stroke, cirrhosis, diabetes, homicides/accidents, and infant mortality account for 80 percent of the excess mortality experienced by blacks, Hispanics, Asian/Pacific Islanders, and native Americans compared to that of whites, according to the U.S. Department of Health and Human Services (1985). A much higher percentage of American residents with low income (under \$7,000) also report limitations in major activity and more days of disability per year than persons with higher levels of income (over \$7,000) (National Center for Health Statistics 1985a). While there has been considerable debate over whether poverty causes poor health or poor health causes poverty, low income has been linked repeatedly to poor health status (Dutton 1986).

The role of health care in the relation between poverty and health is controversial. It has been argued persuasively that the major advances in general population health over the last century have occurred through improvements in living standards, diet, and sanitation rather than through medical care (McKeown 1976). Medical care has also been charged with creating sickness (Illich 1976) and with producing no beneficial effects (Carlson 1975). Regardless of these claims, medical care and, more broadly, health care and preventive services have been and continue to be regarded as strategies for redressing the effects of poverty on health status independent of economic aid to the poor. A major policy question is, therefore, the extent to which medical care can affect inequalities in health status. This question is particularly important given the lack of or ineffectiveness of efforts outside the health sector to decrease socioeconomic inequalities.

Analyses of the relation between poverty and health that take into account health care needs and access to medical care are sparse. Using data from the National Health Interview Surveys conducted between 1976 and 1979, Kleinman, Gold, and Makuc (1981) found that before adjustment for health status, persons below the poverty level aged 17 to 64 reported more physician visits than their counterparts above the poverty level. No race or income differences were found in the

group aged 65 and above. After adjusting for health status, however, the income differences were reversed: the poor had between 7 percent and 44 percent fewer visits than those with income above twice the poverty level. This finding has been supported by other studies using smaller samples from cross-sectional studies (Davis, Gold, and Makuc 1981; Daniels 1985). In a comprehensive review of the literature, Davis, Gold, and Makuc (1981) concluded: "When the effects of health status are considered, the poor use fewer physician services than those of higher income."

Explanations for this lower use of physician services have varied. Some commentators assume that lower-income persons are not disposed to the use of medical and health services because of alienation or feelings of powerlessness (Bullough 1972). That assumption has been challenged by Davis, Gold, and Makuc (1981) and Sharp, Ross, and Cockerham (1983). These authors found that low-income persons have positive attitudes about the medical system and view a visit to a doctor as a desirable course of action when symptoms are present. Using national data, Crandall and Duncan (1981) found that level of poverty and insurance coverage were strong determinants, in combination with a person's attitude, of the probability of making appropriate physician visits.

## Health Service Use and Health Status in Rural America

It is commonly assumed that persons living in areas with low population density have decreased access to health services and thus decreased health status (Rosenblatt and Moscovice 1982). Early comparisons between rural and urban areas of the country indicated that chronic conditions were more prevalent among the rural population, while the incidence of acute conditions and disability days, including restricted activity, bed disability, and work loss, were slightly lower for the nonmetropolitan population than for the metropolitan population (Rosenblatt and Moscovice 1982). The recent Robert Wood Johnson (1987) *Special Report on Access to Medical Care* reported, however, that rural Americans, on average, appear to be receiving as much medical care as their urban counterparts. Major progress has been made in closing the rural/urban gap in access to health services.

The relation between access to health services and health status in

rural populations is of continuing concern because America's rural population, now accounting for 26 percent of the total American population, has grown at a faster rate than the metropolitan population in the latter half of this century (U.S. Bureau of the Census 1983). This pattern of population growth implies that even more health care will be needed in rural areas. A higher percentage of rural residents rate their health as fair or poor in comparison to urban residents (Robert Wood Johnson Foundation 1987). Equity in availability of health services between rural and urban residents remains a major policy issue.

### Health Care Need

The policy debate on rural health services and health status has focused primarily on the perception of increased need and decreased access to health services in rural communities. "Need" in this policy context refers to comparative need based on the principle of equality corresponding to territorial justice (Daniels 1985). If  $x$  and  $y$  have similar health characteristics and  $y$  receives a good or service not received by  $x$ , then  $x$  is perceived to be in need. Comparative needs are determined by socially defined principles of equity of opportunity and are the basis of equity and rationing decisions for different population groups (Bradshaw 1972).

Groups with lower health status are perceived to have need for more health services and those with less access to care are perceived to need improved access, the implied goal being that all groups in our society should have "equity" in access and health status. The relation between need and health status, however, is not consistent across social groups. People with similar health status do not have similar perceptions nor do they make similar demands for health care because of differences in health beliefs, illness behavior, social networks, willingness or ability to pay for a service, and other sociopsychological, economic, and cultural processes. The assessment of need is not simply a matter of relating health status to resource availability and distribution, but also to the social, economic, and political environment of individuals and populations.

Thus, health care need is best defined in the context of equality of opportunity. Need exists anywhere "normal species functioning"

is impeded; that is, any deviation from the natural functional organization of a typical member of the species (Daniels 1985). Thus, any decrease in health status from the typical of the society in which an individual lives can be considered a need. Using this definition, Daniels (1985) has extended the social-justice principles proposed by Rawls (1971) to health care. In this view, a principal goal of the health care system is to "maintain, restore, or provide functional equivalents (where possible) to normal species functioning" (Daniels 1985, 32).

### Access to Services

The concept of access to medical care has been notoriously difficult to define, although at least five different levels of coverage are implied by the term (Hongvivatana 1984): coverage by availability, accessibility, acceptability, contact, and effectiveness. Availability includes the provision of manpower and facilities, such as the ratio of providers to population or the presence of health care services in a community. Accessibility can be defined in many ways, including the provision of insurance or entitlement to services and the ease of using a service. Insurance status is a major enabling resource affecting the accessibility of health care. Estimates of the size of the uninsured population in the United States under the age of 65 range from 15 to 35 million, or from 7.7 to 17 percent of this population (Bazzoli 1986). Lack of insurance coverage has also been linked to significantly lower rates of ambulatory care utilization (Davis and Rowland 1983). Acceptability involves the perceived value of obtaining care, while contact and effectiveness are equivalent to the process and outcomes of health care utilization.

Equity in access to health care is a substantially different goal than equity in health status. Equal access does not always imply equal health outcomes, since it cannot be assumed that medical care is always effective (Levine, Elinson, and Feldman 1983). The President's Commission for Study of Ethical Problems in Medicine and Biomedical and Behavioral Research (1983) has suggested that equity in health services means equal access to a "sufficient minimum" of services. This notion of equity is substantially different from that suggested by Daniels (1985) in his definition of need. What constitutes an adequate level of services and the social obligation to provide it is

not easy to identify or negotiate. A preferable strategy is to focus on the difference in actual use of services between different population groups in order to assess comparative need. Need for improved access can then be defined by comparing different levels of service use as reported by disadvantaged and nondisadvantaged groups.

## Developments in Rural Primary Care

While health care of the poor has not always been on the national agenda, targeting certain population groups for special programs to improve their health closer to the levels enjoyed by the general population has been a goal of American social policy since the turn of the century. Legislation focusing individually on children and mothers, blind people, the elderly, and poor people was developed in one form or another over the past 60 years. By the end of the 1960s policy makers had become increasingly aware that quality health care was not accessible to all in the United States along at least two important dimensions—geographic and specialty distributions. This maldistribution was expressed in terms of availability of services as well as the comparative outcome of health status. The blame for this situation was placed upon the growth in the proportion of physicians trained as specialists and the reluctance of new physicians to practice in rural communities and deteriorating urban neighborhoods.

Initially, the U.S. Congress thought the problem could be solved by increasing the overall supply of physicians and encouraging the production of family-oriented primary care personnel. At the community level, activists used Office of Economic Opportunity resources to establish neighborhood health centers to provide a combination of services called primary care, and later community-oriented primary care. Neighborhood health centers and their successors, community health centers, had counterparts in the private sector in the form of multispecialty group practices. These practices, in turn, gave rise to new forms of primary care organizations including hospital-based primary care groups and clinics, HMOs, and satellite health stations. This plethora of health care delivery organizational types led to concern over the comparative effectiveness of each type of subsidized primary care in rural settings.

## The National Rural Primary Care Evaluation Project

The National Rural Primary Care Evaluation Project was organized and funded by the Robert Wood Johnson Foundation, the Office of the Assistant Secretary for Health, Department of Health and Human Services, and the Health Services Research Center at the University of North Carolina at Chapel Hill. This project addressed the policy question of which form of primary care organization was most effective in promoting clinic stability, self-sufficiency, productivity, and community health while reducing costs in rural areas (Sheps et al. 1983). Results of this evaluation have been published elsewhere (Sheps et al. 1983). Related policy issues concerning poverty, access, or use and health status in rural America prompted a group of researchers at the University of North Carolina to use this national cross-sectional dataset in an analyses designed to address the following questions:

- Do the rural poor in communities with subsidized health care have the same level of ambulatory health service use as the nonpoor? When controlling for health status, do any differences exist in level of service use between the poor and nonpoor?
- Is the health status of the rural poor worse than that of the nonpoor? Given equal availability of health services and equal use of health services, is the health status of the poor the same, worse, or better than that of the nonpoor?
- What implications do the findings have (a) for future efforts to analyze data on health service use and health status and (b) for modifying health service policy to improve the health status of poor persons in rural communities?

## Cross-sectional Data on the Determinants of Health Status

Cross-sectional data do not allow inferences to be drawn concerning the direction of causality with regard to whether poverty and use of services influence health status or vice versa. Longitudinal data specifically designed to answer these questions, however, are less frequently available than cross-sectional data from many community or special population surveys that are conducted with low-income respondents. Certainly the link between poverty and health is bidirectional, and data analyses should test both possibilities.

This major limitation of cross-sectional data is compounded by the lack of an organizing framework for examining relations between social circumstances, health services, and health outcomes. Classifying concepts and indicators within a comprehensive model can assist repeated efforts to test bidirectional hypotheses across different datasets and different investigations. The generalization of findings across different studies is, in fact, at the heart of quasi-experimentation (Cook and Campbell 1979).

A comprehensive model of the determinants of health status outcomes was developed by the authors to organize the analysis of cross-sectional data (figure 1). In this model, determinants outside the health care system include factors, processes, or structures related to the political, cultural, and economic system and the personal environment of the individual. These determinants range from broad public health and economic policy to the person's genetic environment, residence, and sociocultural world. These broad influences, often thought to be the major determinants of health, also affect the structure of the health care system, including resources, financing, services, education, geographic distribution, and practice standards. Population characteristics influenced by the sociocultural environment include predisposing conditions, enabling resources, and health care needs. Process factors include the five levels of coverage as well as patient behavior and quality/cost determinants. Health outcomes include the indicators of opportunities, perceptions, well-being, impairment, and death influenced by the health care system (Patrick and Erickson 1988). The arrows indicate the current level of knowledge concerning the potential causal and often multidirectional relations among environment, structure, services, and outcomes.

The classification of poverty and access indicators according to this model is straightforward. The distinction between needs and health outcomes, however, is less distinct since health status is often used as an indicator of need for services. One possible solution to this problem is to distinguish between health outcomes at a social level, such as social role limitations and activity restrictions, and health needs at the subjective level of perceptions and reported complaints. Thus, the ability to perform the usual social roles of work, school, and play/recreation defines equality of opportunity as the ultimate objective of the health care system. While the overlap between health needs as a *predictor* and health status as an *outcome* of access to services



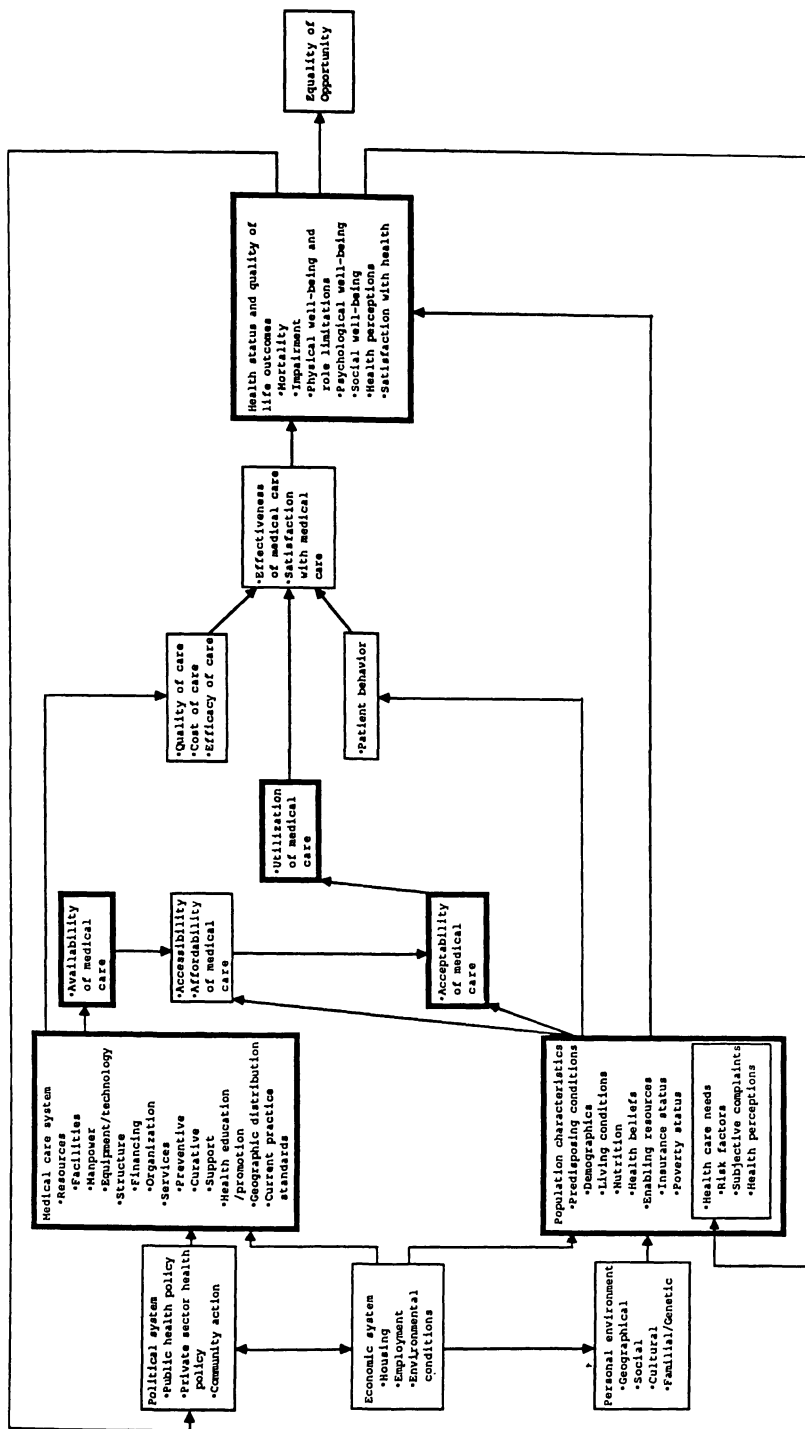


FIG. 1. Determinants of Health.

cannot be eliminated, these conceptual distinctions are useful in the examination of associations between poverty and health using cross-sectional data. When longitudinal measurements are made, the dimension of time and the question at hand distinguish between predictors and outcomes.

## Methods

### *Sampling of Rural Communities*

The National Rural Primary Care Evaluation Project built an inventory of subsidized rural primary care programs from listings maintained by funding agencies, state offices of rural health or primary care, and knowledgeable persons in the field. The inventory contained 1,300 sites and included approximately 90 percent of all potential rural primary care programs that had some form of subsidization during their lifetimes. For the purposes of the evaluation and because of resource constraints, several samples were drawn to take advantage of progressively more precise data collection techniques. Data were collected from the largest sample of programs by telephone and a single, short, mailed survey. At the next level, programs were telephoned several times and sent multiple surveys for collecting secondary data. Site visits were made to a subgroup of programs, and a sample of persons living in the selected communities were then surveyed by telephone. The specifics of the sampling frame are covered elsewhere (Sheps et al. 1983; Ricketts, Wagner, and Konrad 1983).

The final level of the sampling process, the community survey group of 36 sites, provided data for this article. That group of programs represents a subsample of the three other levels, stratified according to organizational form. Organizations that were classified by the project as organized group practices, community health centers, and primary care centers having received some financial subsidy are in the sample. Institutional extensions and other practice configurations, comprising less than 15 percent of the total universe of programs, were excluded. For convenience and program comparability, only programs in the southeast, southwest, and western portions of the country were included. Figure 1 shows a map of the program communities included in the analysis.

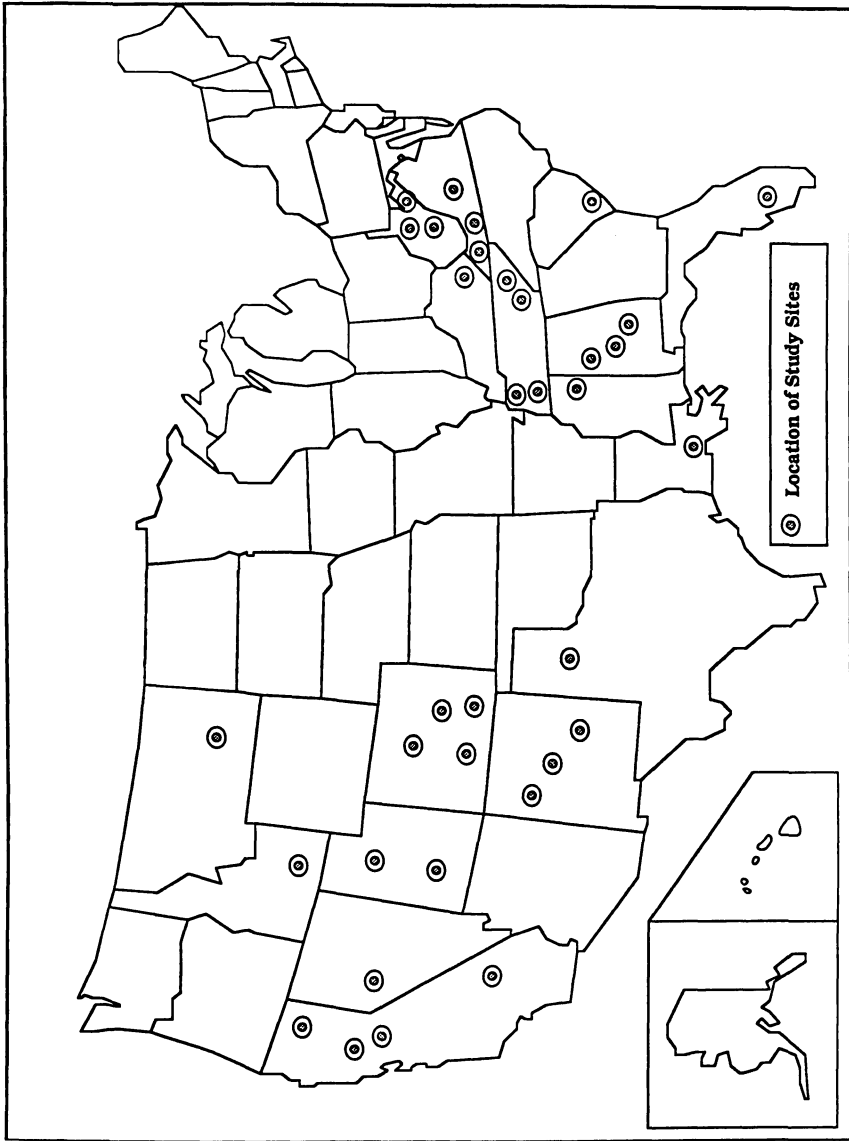


FIG. 2. National evaluation of rural primary health care programs 1978-1983 Community Survey Study Sites.

Random samples were drawn of families living in the service areas of the 36 programs. In each eligible family, one adult and one child (if there were children) were selected for interviewing. In each community, 125 individuals, who reported that they were regular users of the target program, were selected. Another 125 individuals, who reported being nonusers of the program, were also selected. The resulting sample yielded 7,823 usable adult interviews and 2,718 usable child interviews (parents responded on behalf of their children). Analyses reported here are restricted to adult respondents. Interviews were conducted by an independent survey research firm using standardized instruments developed from those used in other surveys of access, utilization, and health status (Aday, Andersen, and Fleming 1980).

### *Measures of Poverty, Health Care Needs, Service Use and Outcomes*

*Poverty.* Each family was asked to report its total family income for the most recent full year in one of six categories. The income figure was then transformed into a percentage of the federal poverty level for that year (1980) for a family of the same size as that of the respondents. Midpoints of the categories were used in the calculation. Percentage of poverty level was also used to divide the sample into two groups: poor, those respondents with incomes at or below 150 percent of the poverty level, and nonpoor, those above the 150 percent poverty level. While self-reported income cannot be used here as a continuous measure, classification of income in poverty categories using federal definitions is sufficient for the modeling of poverty in relation to use and outcomes.

*Health Care Needs.* As noted above, measures of health status can relate both to health care needs and health status outcomes. Need indicators in this study include subjective judgment about symptoms and mobility as well as health perceptions (self-rating of health). These concepts are considered indicators of need because they frequently trigger the use of health services (Rosenstock and Kirsht 1979). Persons were asked to report on their health status on a four-point scale: excellent, good, fair, or poor. They were also asked if they had any of 15 common acute symptoms during the previous 12 months, and whether they contacted a doctor concerning them. Respondents were asked if they were able to perform physical activities ranging from

sensory tasks such as hearing a normal conversation to dressing and walking a quarter of a mile. Items concerning mobility were combined into an index that conformed to a Guttman-like scale (coefficient of reproducibility = .96; coefficient of scalability = .71).

*Utilization.* The number of reported visits to a physician or a clinic, the number of telephone calls to a provider, and the number of nights in a hospital in the previous 12 months were the indicators of utilization. For some analyses, number of visits were categorized into four or more or less than four. The average number of visits for the entire sample was 4.2, slightly less than 4.36, the average number of visits to doctors' offices for the rural American population as a whole in 1980 (National Center for Health Statistics 1980). These self-reported use data are, therefore, within the range from other studies using interview measures.

*Health Outcomes.* Major role limitations, measured through the number of restricted activity and bed disability days, were classified in the proposed model as health status outcomes. Such limitations are socially defined consequences of individual health perceptions as well as illness and sick role behavior and are directly related to equality of opportunity (Parsons 1951). While other health status measures such as health perceptions may also be considered outcomes, developing and maintaining the distinction between the more subjective indicators of need and the more objective indicators of outcome is useful in the analysis of cross-sectional data. Outcomes were operationalized as the number of bed days reported by respondents and the number of restricted activity days. Questions eliciting these outcome measures were similar to those contained in the Health Interview Survey conducted by the National Center for Health Statistics (1985b).

### *Analysis Methods*

The two major dependent variables representing use of health services and health status were visits to a physician and restricted activity days. Most respondents in the sample reported few visits (median = 2) and no days of restricted activity (median = 0). Linear models are not satisfactory for analyzing this type of data. For example, ordinary least squares would eliminate observations with zero visits or would give unreliable estimates of the effects of the dependent variables (Judge et al. 1982).

To overcome these problems, multivariate Tobit regression was used as the method of analysis. Tobit allows analysis of all observations and gives a consistent and unbiased estimate of the relation between the dependent and independent variables. A complete discussion of estimators of this type is beyond the scope of this article and is available elsewhere (Maddala 1983). Tobit regressions were estimated using maximum likelihood techniques.

## Results

### *Availability of Medical Care*

Figure 3 records the distribution of sample respondents by level of poverty, availability of medical providers, and reporting of a usual source of care. The ratio of providers to population and the percentage with no usual source of care were similar across the sample groups. This finding suggests that availability of medical care was similar across these groups and that the goal of providing equal coverage of health services under a subsidized program had been achieved by the rural health care initiative.

### *Demographics and Health Care Needs*

Figure 4 records the sample respondents by percentage of poverty level, age, sex, ethnic group, and insurance status. Respondents in the poor group (at or below 150 percent poverty level) were more likely to be older, female, black, and without health insurance. Figure 5 describes the sample by the indicators of health care needs, including number of symptoms reported, score on the mobility dysfunction index, and self-reported health status. The number of symptoms and the mobility dysfunction index increased with increasing poverty. The percentage of respondents reporting poor health rose from 3 to 14 percent as poverty increased.

### *Use of Services and Health Status*

Figure 6 records sample respondents by their level of poverty and use of services. Respondents in the poor group reported a higher number

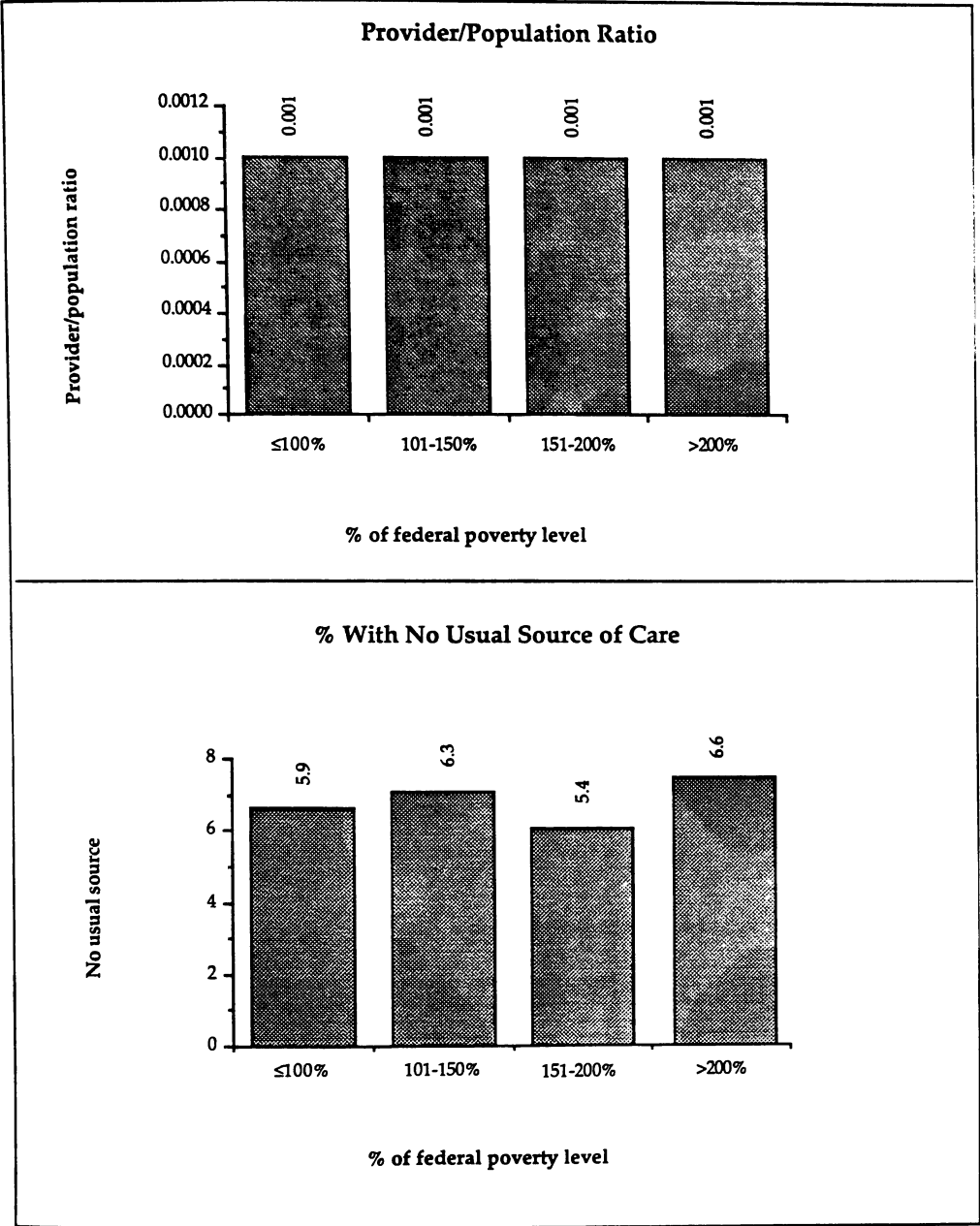


FIG. 3. Description of poverty group by availability of medical providers and usual source of care.

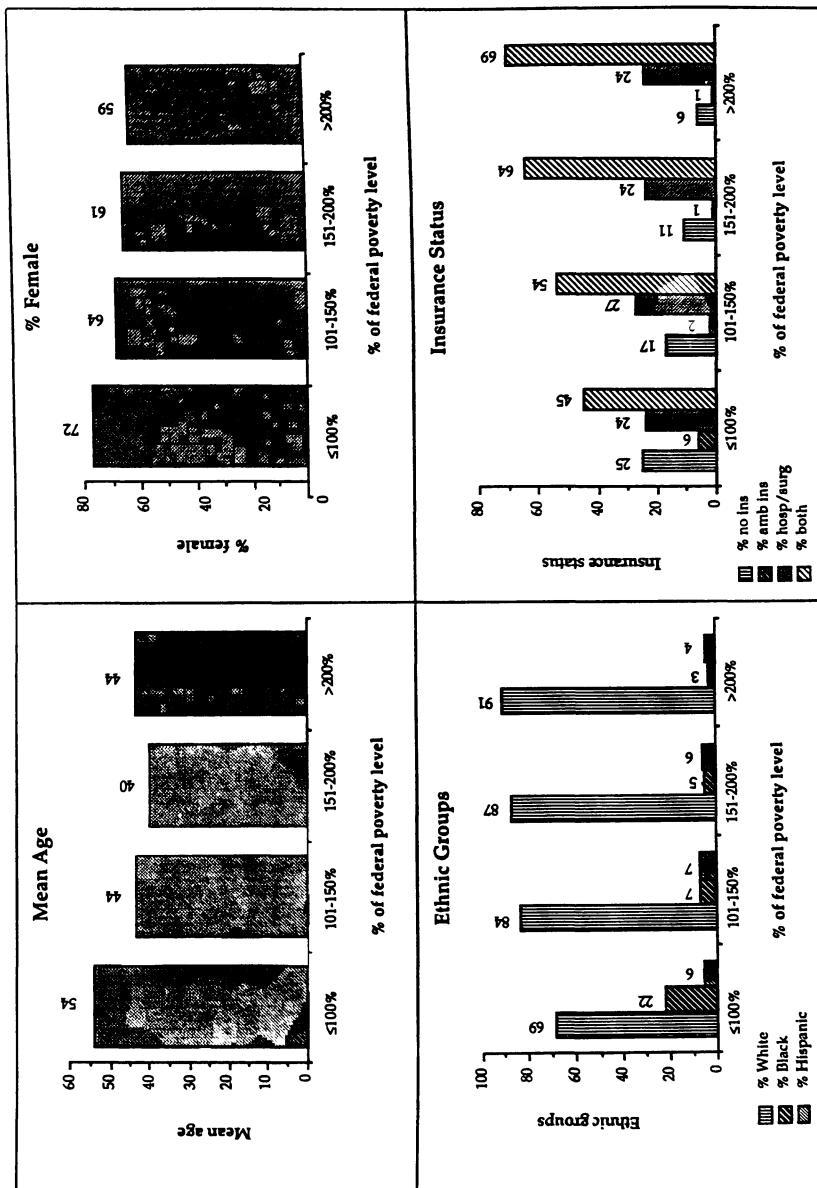


FIG. 4. Description of poverty group by age, sex, ethnic groups, and insurance status.



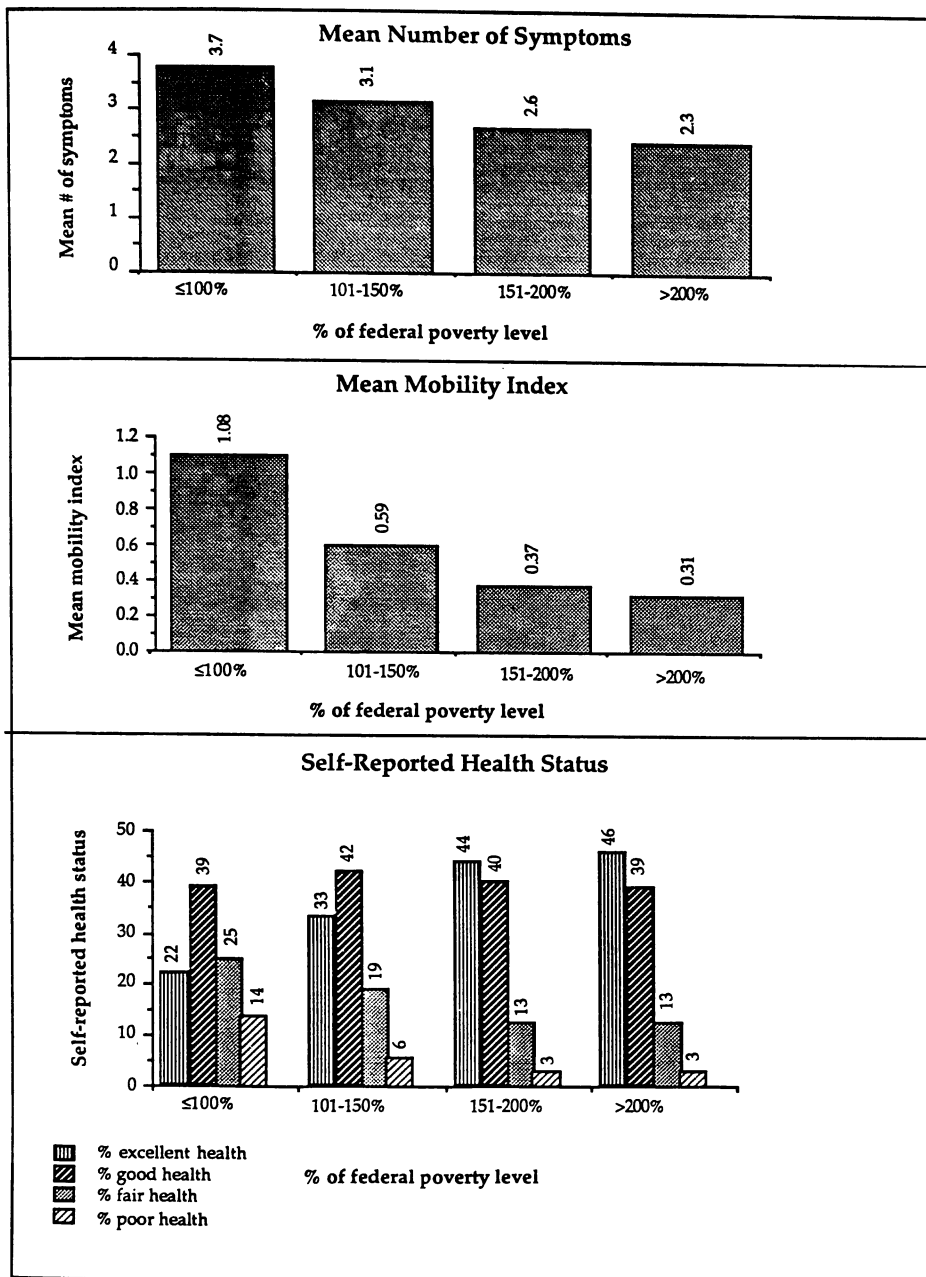


FIG. 5. Description of poverty group by symptoms, mobility index, and self-reported health status.

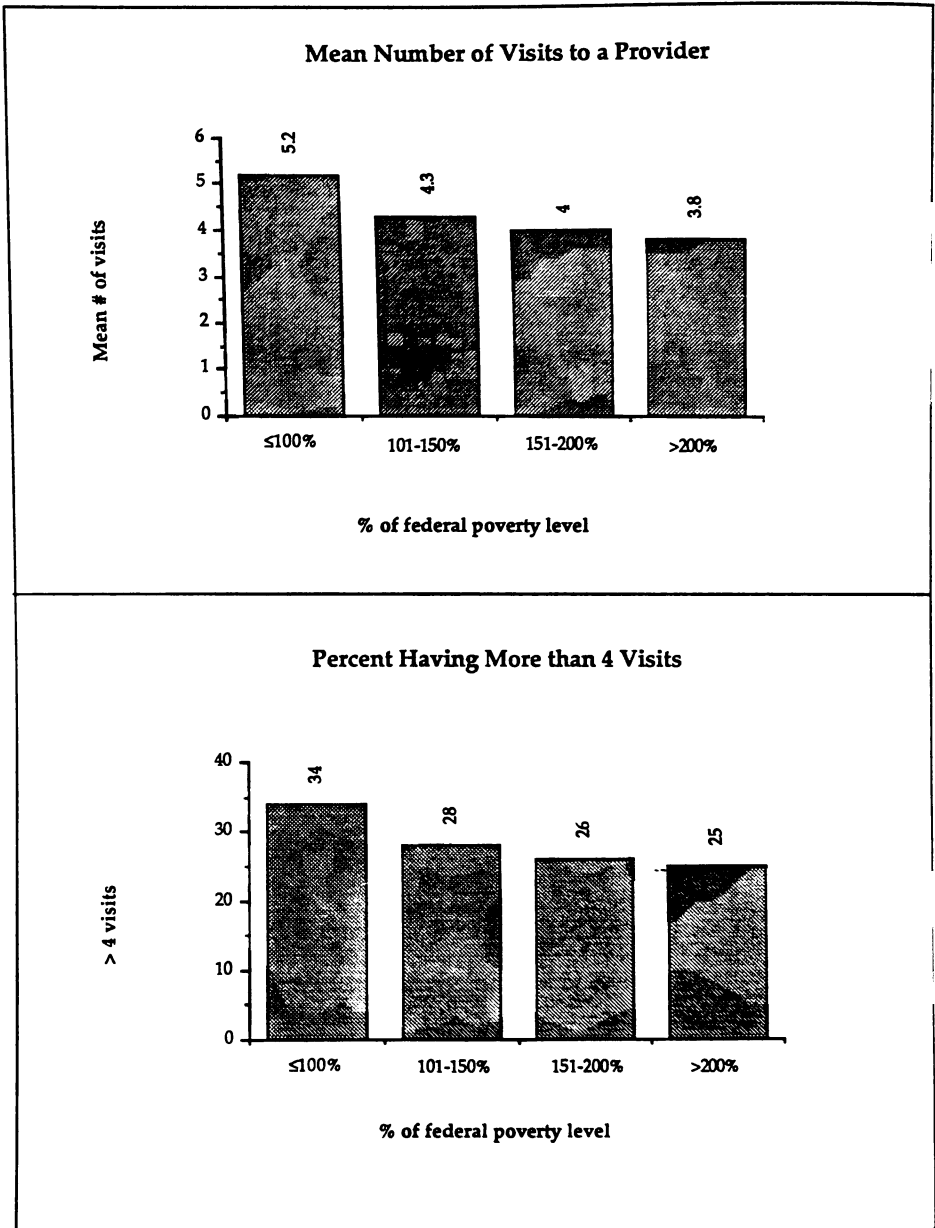


FIG. 6. Description of poverty group by use of services.

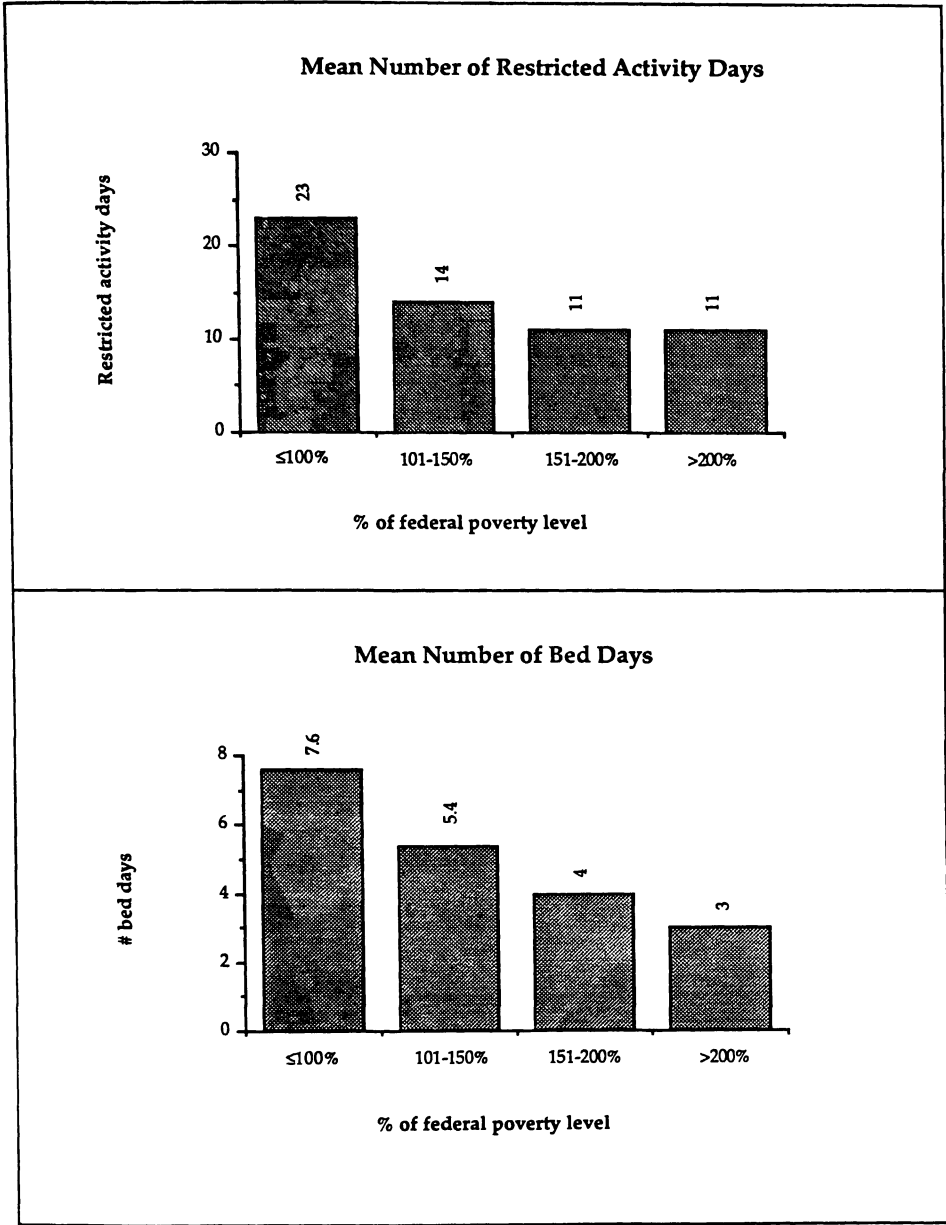


FIG. 7. Description of poverty group by restricted activity and bed days.

of visits to a provider than nonpoor respondents. Figure 7 records the number of restricted activity and bed days reported by the sample by level of poverty. Poor respondents reported a larger number of restricted activity and bed disability days.

### *Insurance Status*

Figure 8 records the mean number of visits reported by respondents according to their level of poverty, insurance status, and self-rating of health. Respondents who rated their health as fair or poor also reported a larger number of visits than those rating their health as good or excellent. Those respondents in the poverty group who were uninsured, however, reported fewer visits than those with insurance. This was not the case for respondents in the nonpoor group. Figure 8 also records the mean number of restricted activity days by poverty group, insurance status, and number of physician visits. Respondents in the poor group reported, on average, more restricted activity days than those in the nonpoor group. Respondents with insurance reported more restricted activity days than those without insurance.

### Tobit Analyses

Table 1 records the results of the Tobit analysis of the relation between poverty status and use of health services, the first major research question. Persons, who were poor, women, and respondents with insurance were more likely to have a greater number of visits to physicians (model 1). When controlling for health care need, however, by including self-rating of health, number of symptoms and the mobility index in the analysis, level of poverty was not a significant predictor of use of physician services in this rural population (model 2).

Table 2 records the results of the Tobit analysis for the relation between poverty and health status, the second major research question. The model indicates that, holding the other variables constant, respondents who were white reported significantly more restricted activity days. Also, the lower the poverty level the greater the probability that restricted activity was reported. This remained true when controlling for the number of physician visits and nights in hospital. Thus, use

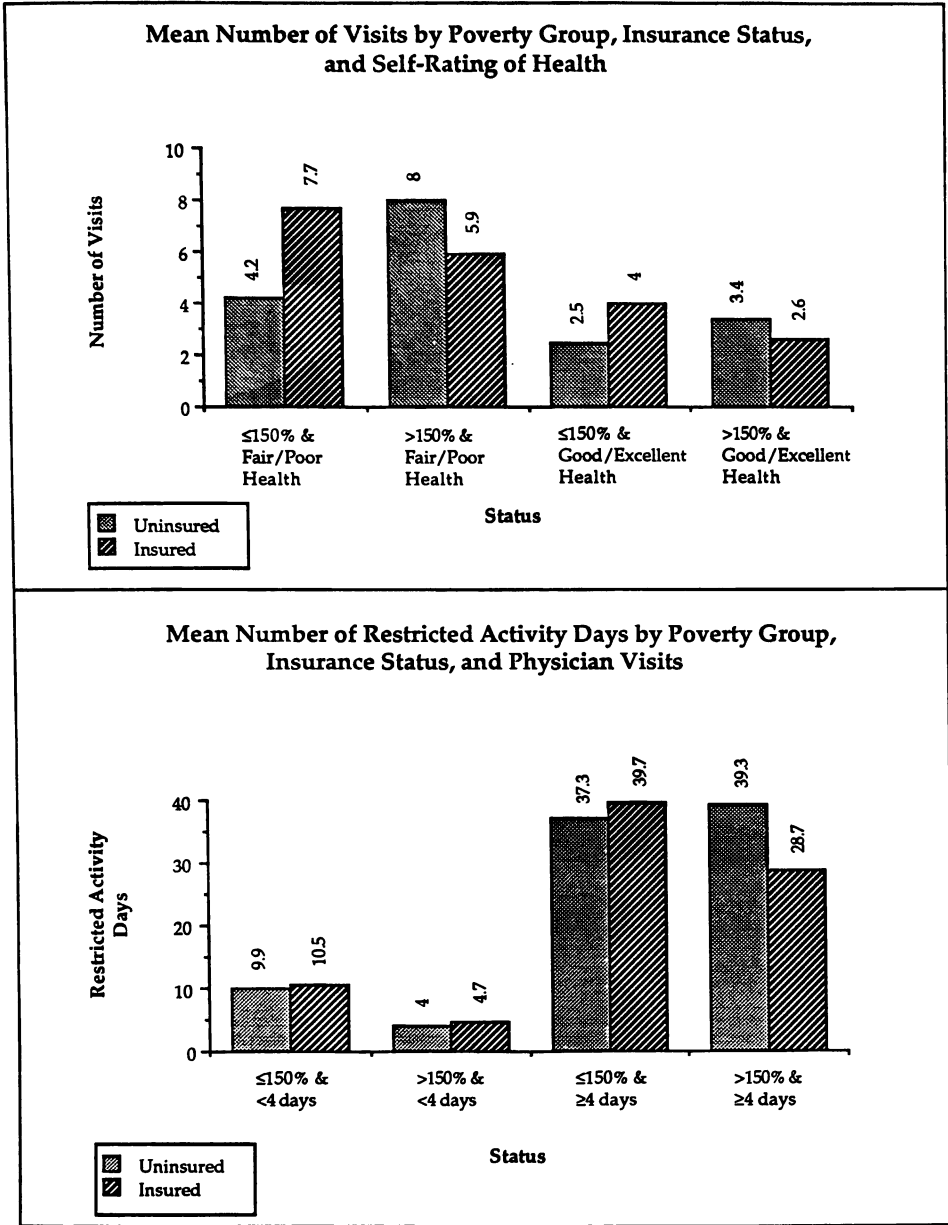


FIG. 8. Poverty, use and poverty, and health status by insurance status.

TABLE 1  
Results of Tobit Analysis  
Relation between Poverty Status and Use of Health Services

Variable	Number of physician visits			
	Model 1		Model 2	
	Sign of coefficient	(Level of significance)	Sign of coefficient	(Level of significance)
Percentage of Poverty	-	(.0001)		(NS)
Age		(NS)	-	(.0001)
Nonwhite		(NS)		(NS)
Female	+	(.0001)	+	(.0001)
No insurance	-	(.0001)	-	(.0001)
Self-rating of health (1-4; 4 = Poor)		(NT)	+	(.0001)
Number of symptoms		(NT)	+	(.0001)
Mobility index (1-4; 4 = Most Difficulty)		(NT)	+	(.0001)
Sigma or Goodness of Fit	7.89	(.0001)	7.35	(.0001)

NS: Not significant

NT: Not tested

of physician services did not mediate effectively the consequences of poverty in this group.

Table 3 records the type of symptoms reported by the 1,857 respondents who rated their health as fair or poor. Persons in the less than 150 percent poverty group were more likely to report weakness, tiredness, shortness of breath, aches in the morning, joint pain, weight loss, heart pain, infections in the ear or eye, high blood pressure, and joint swelling. These are chronic conditions that are associated with restricted activity and bed disability in comparison to the more acute conditions such as headaches, diarrhea, sore throat, or abdominal pain.

## Discussion

### *Service Use by Poor and Nonpoor Rural Residents*

The first question addressed by the analyses concerned whether the rural poor in communities with subsidized health care have the same

TABLE 2  
Results of Tobit Analysis  
Relation between Poverty Status and Health Outcomes

Variable	Number of Restricted Activity Days			
	Model 1		Model 2	
	Sign of coefficient	(Level of significance)	Sign of coefficient	(Level of significance)
Percentage of Poverty	-	(.0001)	-	(.0005)
Age		(NS)		(NS)
Nonwhite	-	(.0001)	-	(.0001)
Female		(NS)		(NS)
No insurance		(NS)		(NS)
Number of physician visits		(NT)	+	(.0001)
Number of nights in hospital		(NT)	+	(.0001)
Sigma or Goodness of Fit	89.76	(.0001)	83.03	(.0001)

NS: Not significant  
NT: Not tested

TABLE 3  
Symptoms by Poverty Group  
For Respondents in Fair or Poor Health Only  
(N = 1,857)

Symptoms reported by a significantly greater percentage of those at less than or equal to 150% of poverty than those at more than 150% of poverty:

- Weakness
- Tired for weeks
- Shortness of breath
- Aches in A.M.
- Joint pain
- Weight loss
- Heart pain
- Ear/Eye infection
- High blood pressure
- Joint swelling

Symptoms for which no significant difference was found:

- Cough
- Headaches
- Diarrhea
- Backaches
- Indigestion
- Sore throat
- Abdominal pain

level of ambulatory health service use as the nonpoor. The results indicate that persons at or below the 150 percent poverty level reported a higher number of visits to a provider. When controlling for health needs such as self-rating of health, number of symptoms, and mobility dysfunction, however, percentage of poverty is not a significant predictor of the number of physician visits. This finding is different from that reported by Kleinman, Gold, and Makuc (1981) using data from the National Health Interview Survey. It is important to make the distinction that this sample of respondents lived in communities with subsidized care targeted to the poor. Their medical service utilization was similar to that of higher-income persons when health status was controlled for. We conclude from this finding that improving access to providers and health care resources in these communities was related to improvement in equity of access or use of services. The three independent national surveys sponsored by the Robert Wood Johnson Foundation (1987) support this finding.

### *Income and Health Status*

The second fundamental question addressed in this analysis concerned the relation between income and health status while controlling for all other individual and health system variables. Poverty level was associated with decreased health status even when number of physician visits and nights in hospital were included in the analysis. This conclusion is not unexpected, but the fact that it persists in targeted communities where significant amounts of resources have been allocated to achieve "higher" levels of access raises questions about whether social and political goals in health care should focus solely on promoting more equal access to the current system.

### *Explaining Inequalities of Health among Poor and Nonpoor*

The results of this study have indicated that providing equal access to medical care is not effective in eradicating the health inequalities experienced by poor people living in rural America. Why do these inequalities persist? Based on our understanding about these inequalities, what changes in health policy and medical practices can be made to improve the health status of these rural poor and reduce the apparent inequality?



Explanations for the persisting inequality in health status between the poor and the nonpoor can be placed into two classes: individual explanations and collective explanations. Individual explanations tend to be “victim-blaming,” in that a person’s situation is explained by his or her personal characteristics and behavior. In this view, the rural poor have worse health status because they don’t take proper care of themselves. Collective explanations, on the other hand, consider the poor as a group; their poor health may be seen as a result of group characteristics and behavior, or they may be seen as victims of adverse economic and political factors. In this view, the health of the poor is seen as a byproduct of their struggle to obtain the more salient needs of life—food, shelter, and self-respect—within their environment.

Oscar Lewis (1966) uses the term “culture of poverty” to define “a conceptual model that describes in positive terms a subculture of western society with its own structure and rationale . . . (which) provides human beings with a design for living.” Explaining the problems of a class of poor people as a means by which they are able to cope with a more privileged world offers a positive alternative to victim blaming. This social causation explanation of the health status gap implicates beliefs, attitudes and values, and behavior as well as economic and political power as potential mechanisms causing inequality. Plans and programs based on this understanding can have real impact by incorporating the way the poor view their own health and the means by which it can be improved—a solution that does not simply depend on increasing resources and access.

The social causation explanation also implies that the environment and its inhabitants require concerted intervention from more than one policy sector. The persistent disparity in health status between the poor and the nonpoor as demonstrated in this study must be a product of social and economic inequality, not just the medical or welfare systems. The first policy sector of importance is that of the political and economic environment. The political economy explanation maintains that living conditions of poor people—such as housing, nutrition, and employment—are the direct causes of their poorer health. These conditions, however, are the result of economic and political realities that cannot be changed without fundamental and highly unlikely system changes. The way in which the political economy operates with regard to the poor is a form of culture in itself. The more privileged world is able to cope with the poor through a system of

philosophies and rationalities that allows for the existence of a persistent link between poverty and poor health.

The second policy sector to which the poor relate is that of medicine and health care: doctors, nurses, social workers, and all other health and social care workers. These actors, too, operate in a culture that determines the ways in which they relate to the poor. The culture of medicine was first described in apposition to its technology by Levine, Norman, and Vlasak (1969). They describe that culture as involving the social aspects of the interactions between provider and patient, including the process of approaching the physician, responding to him or her, and arranging to pay. The culture is recognized by its trappings: the white coat, diplomas on the wall, social status, deference, and power. How that culture, especially physicians, treats the poor has been addressed repeatedly by Duff (1975), Rundall and Wheeler (1979), and most recently David Mechanic (1986) who has written:

Young physicians are trained too often to prefer heroic action in search for a cure. As a consequence, they often lose interest in patients with irreversible diseases, particularly poor patients for whose life circumstances they have less empathy and with whom they communicate more poorly.

Poor people as a culture and their interface with medicine and health care as another culture have not been extensively explored. While the interface has been described by many sociologists and health services researchers, the process of interaction has not been defined in rigorous or agreed-upon terms. Some researchers find that the poor use fewer health care resources because they distrust them; others find that the poor have positive attitudes toward the health care system and a tendency to think that a visit to the doctor is a desirable course of action when symptoms are present. Our results indicate that, given subsidized care and available insurance, the rural poor use more services than the nonpoor. This conclusion is not to argue that health care for the poor should not be tailored to their culture because they might overuse them. Rather, we conclude that the research is focusing on the wrong things—processes rather than outcomes—because we are only able to envision solutions in terms of processes—that is, provide more services, assure access, and encourage “appropriate” usage. Change must be considered because American society continues to demand

that our health care system project a sense of fairness and justice. We try to develop affordable ways to provide care to the medically indigent and to provide caretakers to poor and inaccessible communities. Whether we continue to use incremental approaches within the continually changing system of organizing and financing care, or attempt to establish a more coherent system through national health insurance or a national health system, we need to ensure that we produce something “. . . that is more than a formal and largely vacuous device for achieving equity” (Churchill 1987).

## Changes in Policy and Practice

### *Changes in Measurement*

To design and implement changes that are not “formal and largely vacuous”, policy makers and researchers need above all to be able to evaluate and measure change in that which we wish to change. Health, as described above, is in part defined by the individual. It has many dimensions, and their measurement is both difficult and intrusive. In our view, Daniels (1985) is correct in believing that society is responsible for providing health care that leads to equal opportunity. Thus, attempts must be made to measure the actual outcome: equality of opportunity.

Opportunity has many components; in our society, the primary component is the ability to fulfill one’s major roles—to find and keep a job which supports one (and one’s family) or, if self-support is not required, then the ability to perform activities of choice within one’s natural abilities. The effects of health on opportunity can be measured by outcomes like the ones used in this study: work-loss days, restricted activity days, and bed-disability days. While these measures are not completely unobtrusive, and rely on self-report, they are not difficult to obtain. They can be collected on single patients, on sub-groups of patients, and on communities. They can be looked at over time and comparisons among groups can be made.

### *Changes in Medical Practice*

What, specifically, should medical practitioners do to “maintain, restore, or provide functional equivalents to normal species functioning”?

We would encourage the implementation of community-oriented primary care (COPC) (Mullen 1982; Kark 1981; Madison 1983). As defined by the Institute of Medicine, COPC is "the provision of primary care services to a defined community, coupled with systematic efforts to identify and address the major health problems of that community through effective modifications in both the primary care services and other appropriate community health programs" (Institute of Medicine 1984).

Community-oriented primary care is presented here as an alternative to the medical model. Patients are treated in the context of the environment and the culture in which they live. Community (in its normal sense or as defined by the patient population) needs are identified through surveys, community input, or analyses of records of the primary care practice. Epidemiological techniques are used. Physicians can use their ability to obtain information from people to further the actual health, not just nonillness, of their patients. They will be able to concentrate their own resources and enlist other community resources in addressing those medical and environmental problems which most affect their patients. Programs are designed which target the most prevalent or immediate needs. These programs can include patient education groups, coordination with other services, and community organization. COPC modifies the culture of medicine in that community needs define physician/provider activity rather than the providers doing only those things they are trained to do or prefer to do.

Community-oriented primary care is a description of a horizontal integration of medicine that accepts the cultures of both sides, while trying to modify both, though only slightly. It is not a way to improve access or redistribute resources. Those policy changes, which must come if COPC is to be available to the poor, are dealt with in the interface between the culture of poverty and the political economy. Current practice patterns provide minimal rewards to doctors who treat the poor. The increasing need for cost-effective medical care could lead to less care for the unhealthy poor, since their problems are multifaceted and treatment for a given condition may not respond to "average" treatment for that condition. COPC offers them a better opportunity to incorporate prevention into their practices, to attack the causes of ill health, and to actually measure their impact.

### *Changes in Health Policy*

Finally, how do we decide what changes in health policy are needed to address the continuing and unnecessary divergence in health status between the poor and the nonpoor, given the structural explanations explored here? Solutions that are restricted to health resource distribution and medical care have failed. Obviously redistributive policies must continue, but they must address the culture of poverty. An organized system of financial support for COPC-type practices is needed along with the means to evaluate their effectiveness. It is clear that effective programs and techniques exist. What is lacking is a common measure of "success." The solution to this problem lies in the social goal of equality of opportunity that can be measured by existing metrics.

A forum is lacking for addressing community health. Given the numerous medical and public health organizations, and the voluminous health literature, some resources need to address the determinants of equality of opportunity. Support is needed for research that investigates the complicated pathways displayed in our model of health outcomes shown in figure 1. Measurement techniques need refinement, and consensus is needed on the use of key measures, particularly in the analyses of cross-sectional data. We must learn more about each link, particularly the relation between medical care and health-related quality-of-life outcomes and the effects of changes in health outcomes on equality of opportunity.

### References

- Aday, L., R. Andersen, and G. Fleming. 1980. *Health Care in the U.S.: Equitable for Whom?* Beverly Hills: Sage.
- Bazzoli, G. 1986. Health Care for the Indigent: Overview of Critical Issues. *Health Services Research* 21(3):353-93.
- Bradshaw, J. 1972. A Taxonomy of Social Need. In *Problems and Progress in Medical Care: Essays on Current Research*, seventh series, ed. G. McLachlan, 69-82. Oxford: Oxford University Press for the Nuffield Provincial Hospitals Trust.
- Bullough, B. 1972. Poverty, Ethnic Identity, and Preventive Health Care. *Journal of Health and Social Behavior* 13:347-59.
- Carlson, R. 1975. *The End of Medicine*. New York: Wiley-Interscience.
- Churchill, L.R. 1987. Ethics and Economics: In Search of a Common Language. *Hastings Center Reports* 17(2):39-41.

- Cockerham, W.C., G. Lueschen, G. Kunz, and J.L. Spaeth (1986). Social Stratification and Self-Management of Health. *Journal of Health and Social Behavior* 27:1-14.
- Cook, T.D., and D.T. Campbell. 1979. *Quasi-experimentation: Design and Analysis Issues for Field Settings*. Boston: Houghton Mifflin.
- Cordes, S.M. 1985. Biopsychosocial Imperatives from the Rural Perspective. *Social Science and Medicine* 21(12):1373-1379.
- Crandall, L.A., and P.R. Duncan. 1981. Attitudinal and Situational Factors in the Use of Physician Services by Low-income Persons. *Journal of Health and Social Behavior* 22:64-77.
- Daniels, N. 1985. *Just Health Care*. New York: Cambridge University Press.
- Davis, K., M. Gold, and D. Makuc. 1981. Access to Health Care for the Poor: Does the Gap Remain? *Annual Review Public Health* 2:159-82.
- Davis, K., and D. Rowland 1983. Uninsured and Underserved: Inequities in Health Care in the United States. *Milbank Memorial Fund Quarterly/Health and Society* 61(2):149-76.
- Duff, R. 1975. Patient Care, the Poor, and Medical Education. In *Poverty and Health, a Sociological Analysis*, ed. J. Kosa, and I.K. Zola. Cambridge: Harvard University Press.
- Dutton, D.B. 1986. Social Class, Health, and Illness. In *Applications of Social Science to Clinical Medicine and Health Policy*, ed. L. Aiken and D. Mechanic, 31-62. Rutgers: Rutgers University Press.
- Hongvivitana, T. 1984. Data Analysis: Social Science Perspective. In *Evaluating Primary Health Care in South-East Asia*, 139-50. South-east Asia Regional Office Technical pub. no. 4. New Delhi: World Health Organization.
- Illich, I. 1976. *Medical Nemesis*. New York: Random House.
- Institute of Medicine. 1984. *Community-oriented Primary Care*. Vol. 1: The Committee Report. Washington: National Academy Press.
- Judge, G.S., R.C. Hill, W. Griffiths, H. Lutkepohl, and T.C. Lee. 1982. *Introduction to the Theory and Practice of Econometrics*. New York: John Wiley.
- Kark, S. 1981. *Community-oriented Primary Health Care*. New York: Appleton-Century-Crofts.
- Kleinman, J.C., M. Gold, and D. Makuc. 1981. Use of Ambulatory Medical Care by the Poor: Another Look at Equity. *Medical Care* 19(10):1011-29.
- Levine, S., J. Elinson, and J. Feldman. 1983. Does Medical Care Do Any Good? In *Handbook of Health, Health Care, and the Health Professions*, ed. D. Mechanic, 394-406. New York: Free Press.
- Levine, S., A. Norman, and G.J. Vlasak. 1969. Unravelling Culture

- and Technology in Public Health. *American Journal of Public Health* 59(2):237-44.
- Lewis, O. 1966. The Culture of Poverty. *Scientific American* 21(4):19-25.
- Maddala, G.S. 1983. *Limited-dependent and Qualitative Variables in Econometrics*. New York: Cambridge University Press.
- Madison, D. 1983. The Case for Community-oriented Primary Care. *Journal of the American Medical Association* 249:1279-82.
- McKeown, T. 1976. *The Role of Medicine: Dream, Mirage, or Nemesis*. Princeton: Princeton University Press.
- Mechanic, D. 1986. Health Care for the Poor: Some Policy Alternatives. *Journal of Family Practice* 22:282-89.
- Mullen, F. 1982. Community-oriented Primary Care: An Agenda for the 80's. *New England Journal of Medicine* 307:1076-78.
- National Center for Health Statistics. 1980. *Health: United States, 1980*. DHHS pub. no. (PHS) 81-1232.
- . 1985a. *Health: United States, 1985*. DHHS pub. no. (PHS) 86-1232. Washington.
- . 1985b. The National Health Interview Survey Design, 1973-84, and Procedures, 1975-83, M.G. Kovar and G.S. Poe. *Vital and Health Statistics*, series 1, no. 18. DHHS pub. no. (PHS) 85-1329. Washington.
- Parsons, T. 1951. *The Social System*. Glencoe, Ill.: Free Press.
- Patrick, D.L., and P. Erickson. 1988. Assessing Health-related Quality of Life in General Population Surveys. Series 2 Report. Hyattsville, Md.: National Center for Health Statistics.
- President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research. 1983. *Securing Access to Health Care: A Report on the Ethical Implications of Differences in the Availability of Health Services*. Vol. 1. Washington.
- Rawls, J. 1971. *A Theory of Justice*. Cambridge: Harvard Union Press.
- Ricketts, T.C., E.W. Wagner, and T.R. Konrad. 1983. An Evaluation of Subsidized Rural Primary Care Programs: II. The Environmental Contexts. *American Journal of Public Health* 73:406-13.
- Robert Wood Johnson Foundation. 1987. *Special Report on Access to Medical Care*, No. 2. Princeton.
- Rosenblatt, R.A., and I.S. Moscovice. 1982. *Rural Health Care*. New York: John Wiley.
- Rosenstock, I.M., and J.P. Kirscht. 1979. Why People Seek Health Care. In *Health Psychology: A Handbook*, ed. G. C. Stone, F. Cohen, and N.E. Adler, 161-68. San Francisco: Jossey-Bass.
- Rundall, T.G., and J.R.C. Wheeler. 1979. The Effect of Income on

- Use of Preventive Care: An Evaluation of Alternative Explanations. *Journal of Health and Social Behavior* 20:397-406.
- Sharp, K., C.E. Ross, and W.C. Cockerham. 1983. Symptoms, Beliefs, and the Use of Physician Services among the Disadvantaged. *Journal of Health and Social Behavior* 24:255-63.
- Sheps, C., E.H., Wagner, Schonfeld et al. 1983. An Evaluation of Subsidized Rural Primary Care Programs: I. A Typology of Practice Organizations. *American Journal of Public Health* 73(1):38-49.
- U.S. Bureau of the Census. 1983. *Statistical Abstract of the United States: 1982-83*. 103 ed. Washington.
- U.S. Department of Health and Human Services. 1985. *Report of the Secretary's Task Force on Black and Minority Health: Executive Summary*. Bethesda, Md.

---

*Acknowledgments:* This paper was prepared when all authors were at the Health Services Research Center, University of North Carolina at Chapel Hill. Donald Patrick was also in the Department of Social Medicine. Financial support from the Robert Wood Johnson Foundation is gratefully acknowledged. We also thank Dan Beauchamp, Donald Madison, Glenn Wilson, and the reviewers for their valuable comments on the manuscript.

*Address correspondence to:* Donald L. Patrick, Ph.D., M.S.P.H., Department of Health Services, SC-37, University of Washington, Seattle, WA 98195.