RESEARCH BULLETIN 987 APRIL, 1972

UNIVERSITY OF MISSOURI-COLUMBIA
COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION
ELMER R. KIEHL, DIRECTOR

Health Service Patterns in Rural and Urban Areas

A Test Between Availability and Use

Edward W. Hassinger and Daryl J. Hobbs

(Publication authorized March, 1972)

COLUMBIA, MISSOURI

This research was supported in part by Public Health Service Research Grant HS 00015.

CONTENTS

Health Service Patterns in Rural and Urban Areas

A Test Between Availability and Use

Introduction

It is common to divide problems of delivery of health care services by residential areas. A prominent distinction is made between rural and urban areas (another is between inner-city and outer-city). Once this is done, there is a tendency to attribute different values to rural and urban people using professional medical services. Rural communities are often visualized as folk communities with the associated parochialism of the people. There is evidence contrary to this interpretation in many spheres of rural society including the highly developed commercialization of agriculture, educational aspirations of rural youth, and in the use of health services. However, the stereotype of the rural person as a folk-type persists to some degree.

Aside from rural-urban differences in beliefs about professional health care, there are rural-urban organizational differences which could reasonably affect the level and pattern of use of health services. These are most clearly manifest in the lack of services in some rural communities but also include the differences in *types* of services available in different communities. Systematic community context comparisons of health services uses are rare (see the discussion on page 9). It is the purpose of this study to examine the difference in level and pattern of use of health services within the context of availability of services in rural and urban communities.

Frame of Reference

Service Relationships

The frame of reference is based on developing specialization and interdependency of service centers. As recently as the turn of the century, rural communities represented quite discrete social units. Trade centers offered services to a clientele of an immediate and definable hinterland. These services tended to be full-range and unspecialized. Therefore, trade centers tended to be like one another in the types of services they offered and there was little advantage in looking beyond ones own community for services.

The interrelationship of communities has undergone great change. Instead of communities of near equals, perhaps in competition for clientele at the edges of the community area, trade centers have become differentiated and specialized in services that they provide and attract clientele from the very cores of other centers which may or may not have contiguous hinterlands. It is too simple to attribute these changes to the technological revolution which provides rapid transportation and communication over distance, although this is part of the explanation. The explanation is also to be found in the trend in specialization of services and the development of complex and bureaucratic organizations to provide them. The effect of the process which has immediate consequences for trade centers is an extended and specialized range of goods and services with the complementary demand for these services by consumers.

The process of adaptation to this situation by service centers is first one of competition among near equals for domain and then the accommodation of interdependence among unequals which is the outcome of the competition. What tends to

emerge are different types of centers ranging from the most simple to highly complex ones. This division of labor among services results in an interdependent relationship among them. Clientele for services of the more specialized centers are drawn from a wide area and include clients residing in the less specialized centers.

While these interdependencies have been established by working out the service relationships within the context of modern technology, the rationalization process has been carried a step farther by conscious efforts under the auspices of planning. This is a comparatively new development of major importance. It usually starts with "natural patterns" but then applies logical considerations of space, technology, population, and political considerations. The meaning of coordination in this sense is that domain is established by agreement among decision makers. This process operates in decisions about the location of institutional facilities as schools and hospitals. The "natural interdependencies" also form the starting place for area planning under such terms as regionalization, functional economic areas, and growth center areas.

There is a further consequence of the restructuring of communities—changes in community structure may effect clients of different socio-economic levels in different ways. The factors of technology and specialization we have spoken of as affecting the spatial organization of community also affect social organization. The differentiation among the population which most concerns us is of economic position. As one moves from simple to more complex social arrangements the importance of economic ability may increase as a means of access to the "market place." If this is true, we would expect populations in simpler community situations to show less differentiation in use of services on the basis of socio-economic level than would people in more complex social situations.

Application to Medical Services

These considerations have direct application to the location and use of medical services. The general specialization and rationalization of services which we have noted have exquisite example in medical services. Major resources have been allocated by society to combat illness and promote health and in the process a superb technology and a complex system for delivering health services have been developed.

The progression from unspecialized and evenly distributed services to specialized and variably distributed services finds almost exact parallel in the medical services delivery system. The old rural doctor provided the full range of services to a clientele which was close-by. Little use was made of hospitals or other treatment aids outside his office, and referrals to other doctors were uncommon since specialization was rare.

The modern practitioner, on the other hand, works within a system of finely drawn specialities and increased reliance upon care facilities which permits the concentration of the apparatus of medical technology and may bring his clientele from a wide spatial area. Furthermore, the clientele may be recruited selectively to doctor and care facilities on the basis of health conditions and socio-economic differentiation.

As one examines the pattern of medical service centers themselves, it becomes clear they vary in complexity of services offered. This is a specific case of our earlier observation that services are functionally differentiated in the various trade centers. Table 1 indicates the medical service levels of all non-metropolitan incorporated places in Missouri; the map (Figure 1) indicates the level of medical services found in each of the non-metropolitan counties of the state.

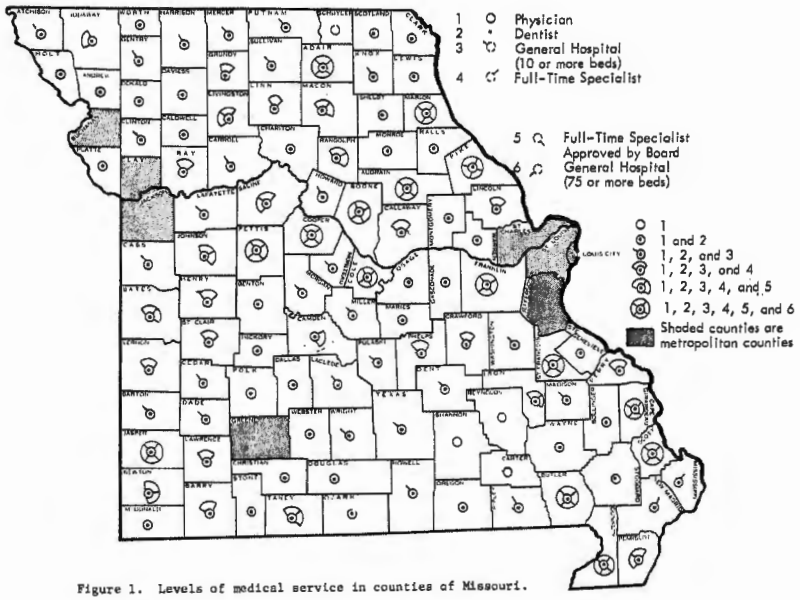

Figure 1. Levels of medical service in counties of Missouri.

Table 1. The Pattern of Professional Health Services in Incorporated Places in Non-Metropolitan Missouri

Type of Center	Number of places	Physician (MD[1] or DO[2])	Dentist[3]	General Hospital 10 Beds or more[4]	Full-Time Spec.(MD[5])	Full-Time Spec.-Brd. Approved(MD[6])	General Hosp. 75 beds or more[7]
I	438	--	--	--	--	--	--
II	118	X	--	--	--	--	--
III	112	X	X	--	--	--	--
	19	--	X	--	--	--	--
III	29	X	X	X	--	--	--
	1	--	X	X	--	--	--
	1	--	--	X	--	--	--
	2	X	--	X	--	--	--
IV	14	X	X	X	X	--	--
	6	X	X	--	X	--	--
	1	X	--	X	X	--	--
	3	X	--	--	X	--	--
V	10	X	X	X	X	X	--
	4	X	X	--	X	X	--
	1	X	--	--	X	X	--
VI	14	X	X	X	X	X	X
	2	X	X	X	X	--	X
	2	X	X	X	--	--	X

Source: 1 - American Medical Directory, 1965
2 - Directory of Osteopathic Physicians, 1966
3 - American Dental Directory, 1966
4 - Division of Health of Missouri, Hospital Directory, 1966

The patterning which is indicated in Table 1 is largely the result of unplanned adjustments of individual practitioners and facilities to technological and organizational imperatives. Also, parallel to more general developments in community planning, there are efforts for planning and coordinating of medical services.*

The overall pattern of the medical delivery system is clear. What is not as apparent are the effects of this pattern on the use of medical services. It is this question which we examine in the following analysis. This is also a general question and one which has received little attention. Anderson (1961) and Pedersen and Peterson (1963) have dealt with the use of multiple trade centers by clientele in the Plains States, and Murdie (1965) has shown that specialized centers are used variably by different local groups. However, as far as we have been able to determine, the question of variable levels of health services available in communities and level of use by community populations has not received much attention.

Models of Use

Various behavorial models of the utilization of medical services tend to incorporate as general dimensions a number of interrelated, interdependent, and interdisciplinary factors. Typical of these is the model employed by Wirick and Barlow (1964) which was basically an economic study of use of a variety of medical services and the model generated by Andersen for use in analyzing health service use of a nation-wide sample. These models converge on a number of general points contending that as a minimum an adequate model of use would include at least the following features:

(1) A need for services and recognition of the need. Although an individual may have an objectively verifiable condition which would most suitably be treated by medical services, he may not, for a variety of reasons, define the condition as being medically significant. The need for services in the absence of physiological data and medical examination is generally predicted by such demographic factors as the age and sex of the individual. In general, people at both extremes of the age distribution have a higher need for medical services. In addition, recognizing a condition as being medically significant is related to such factors as the educational level of both the individual and the family of which he is a part as well as level of physiological knowledge. However, that need is not directly coupled with use is illustrated by the fact that need tends to be negatively related to socioeconomic status while use is positively related.

(2) Assuming that a need for service exists (which at one level it does for all people if for no other reason than periodic examination for the maintenance of health), this need must be coupled with favorable predispositions toward medical practitioners as an effective and suitable means of solving the condition or meeting the need. Favorable predispositions toward the use of medical practitioners could be expected to vary on the basis of various social structural attributes such as community and social class norms, racial and ethnic composition, and level of formal education.

*Among the earliest serious attempts at national area planning of medical services was the instigation of state hospital plans under the Hill-Burton Hospital Construction Act of 1946. The most recent large scale efforts are the Regional Medical Program and Comprehensive Health Planning.

(3) If the individual has a condition which he defines as being one which should be treated medically and if he is favorably disposed toward the use of professional medical practitioners, then differences in level of use might be further influenced by enabling or ability factors including such considerations as the level of income, the degree of physical mobility, and the relative availability (location) of medical services.

Such a model provides at least a dual basis for assuming that differences would exist in the level of utilization of medical services between residents of various communities. One basis would regard community as the locus of medical services with the relative local availability of medical services being an enabling or constraining factor having an influence on level of use. The other basis concerns differences in community definitions of illness and the appropriateness of professional medical practitioners as means of restoring and maintaining health. This latter set of social definitional factors is emphasized as an important influencing factor by Suchman who suggests that there is a casual sequence which links "demographic factors to group structure and both of these to health status and medical care by means of an intervening set of medical orientation factors." (1965:14) Suchman concludes that demographic factors and social group structural variables contribute independently to differences in the extent and type of use of professional medical care.

Contributing to the complexity of models of use of professional medical services is the fact that the use of services is often non-discretionary; that is, they are not sought for their own sake (Wirick and Barlow, 1964). In cases of non-discretionary use of medical services the actual services used may be extensive as well as the most sophisticated. For more serious medical conditions, once the individual enters the formal health care system his medical condition rather than his choice or definition may be the determining factor in the practitioners and services used as well as the location of the service administered. Consequently, some of the individual instances of most frequent and sophisticated use of medical services are predictable only on the basis of physiological conditions and initial entry into the health care system. However, this non-discretionary element can be controlled to a degree if it is assumed that such serious conditions are randomly distributed through the population.

Although the general dimensions of the model described above would tend to lead to the hypothesis that disadvantageous location with regard to medical services would result in a lower level of use, the research literature does not clearly support this hypothesis. Andersen, who included community health resources as one of the enabling variables in his study, found that neither the availability of health facilities, region of the country, or type of residence (urban-rural)influenced the volume of health services families use (1968:42). Similarly, Ellenbogen, Hay and Larson (1957) compared two New York counties with different population/physician ratios at two different time periods. It was their expectation use would be higher in the county with the more favorable health resources. The findings failed to substantiate the hypothesis. In a more recent article reporting findings from a subsequent study of the same general geographic area, Ellenbogen and Lowe (1968) hypothesized that the overall use patterns of eight selected health practices would not be associated with place of residence for male adults (p. 302). Even though there were differences between rural and urban samples on a gross basis, when age and income controls were employed the differences diminished or disappeared (p. 309).

A study of a rural county in Colorado without specialized services or a hospital did not reveal a gross lack of use of services. It did indicate extensive use of specialists in larger places and indicated that older people were likely to use such specialty services to a greater extent than younger people (Sanders *et al.*, 1962). Belcher's study in Oklahoma did not support this finding, however, indicating that older people were less mobile than younger and therefore were less likely to go outside the county for medical services (1956). Belcher's study also failed to find any simple relationship between distance from and use of physicians.

Where only place of residence is the concern, however, statistics provided by the National Center for Health Statistics (No. 19, 1965) reveal a consistent diminution of percent of the population seeing a doctor from SMSA, to rural non-farm, to rural farm for most age groups. The differences, however, are most pronounced for younger persons and diminish in magnitude with age to the point where the age category 75 and over reveals a slightly higher percentage favoring rural farm residents over either rural non-farm or SMSA residents. The difference by residence is maintained even when differences in income are taken into account. The National Health Survey presents a problem of data aggregation in that metropolitan and non-metropolitan are gross categories and the effect of region in relation to residence is not presented nor is race by metropolitan and non-metropolitan categories.

The conclusion from these data is that it is not clear what effect place of residence (and its implied relationship to availability of health services) may have on the extent and type of use of professional health services. From the major elements of the model described above, place or residence can have both a constraining influence in terms of location and may also have a normative influence on definitions of illness and on the predisposition to visit a medical practitioner to treat the condition. Thus the model would predict the differences in use on the basis of location but only in conjunction with other factors influencing use. However, as noted above, the model which was employed in a statistically sophisticated manner by Andersen, failed to disclose any clear relationship between the availability of community health resources and their use.

A feature of the present study which may enable some subsequent further refinement of the relationship between place of residence as a physical constraining factor and place of residence as a normative or predisposing factor is that the survey design involved independent samples from each of five communities in the same geographic and socio-cultural region. The five communities were chosen on the basis of differences in community organization and in the level of professional health services. Differential availability of services was thus operationally defined by the extent of medical services in each of the five communities. Although it is realized use of medical services for people in rural areas is typically not confined to their immediate community, even if services are available, it was assumed that the absence of local practitioners and/or hospitals added an impediment to use.

Community Context

Variable of Community

It is our intention to examine the health behavior of families and individuals in five Missouri communities using the communities themselves as variables. The data collecton was done in two phases; the first was four non-metropolitan communities which were variable as to size and services; the second phase involved the central city

of a metropolitan area. The second phase was added to the design of the study after completion of data collection and partial analysis of the first phase had been completed. In this initial statement we have used the terms metropolitan and non-metropolitan samples in their technical census definition sense. We will revert now to the more comfortable rural-urban designation with the four communities in the first phase referred to collectively as the rural sample and the metropolitan center referred to as the urban community.

Criteria for Selecting Rural Communities

The criteria for selection of the rural communities were as follows:

a. that the communities selected be essentially regarded as pairs with two villages and two larger non-metropolitan trade centers in order to determine what, if any, influence size of place might have on use.
b. that the four communities be characterized by varying degrees of medical services.
c. that the four communities would be included in the same general socio-cultural area to allow some degree of external control of cultural and socio-economic factors.
d. that the communities be located outside commuting range of any metropolitan area to avoid further confounding of availability of services.

Criteria for Selecting the Urban Community

a. the community would have a rather complete range of special medical services and facilities.
b. that it is in the same socio-cultural area as the rural communities.
c. The actual selection of the urban community developed from the rural phase of the study. The urban center selected represented the principal center of orientation for the rural communities of the first phase of the study.

Rural Communities Studied

The four criteria for selecting the rural communities were somewhat difficult to meet and it was only after extensive evaluation of secondary demographic and medical service data and several site visits that the study area was chosen. All of the communities are located in the south central Missouri area generally known as the Ozarks which is characterized by a predominately rural, almost exclusively white, low income, and older population. The communities are referred to as Community A (1960 population 420), Community B (1960 population 266), Community C (1960 population 3,176), and Community D (1960 population 5,836). Of the four communities, Community D was centrally located with each of the other three towns being located approximately 35-45 miles away and in different directions. Community D is something of an area commercial and communications center despite its relatively small population, primarily because of an absence of competing centers. There are no larger towns within 80 miles of Community D.

Another ecological factor of some significance is the location of the study area with regard to Springfield, Mo., a regional center of over 100,000 in population. Although as indicated, one of the criteria employed in choosing the study communities

was that they be outside effective commuting range of a metropolitan area, Springfield was still near enough to the study area to be considered as a realistic alternative for medical services—especially use of specialists. Springfield is located to the west of the study area at a distance ranging from 60 miles from Community C to 110 miles from Community A (Table 1). Major two-lane highways to Springfield run through each of the study communities. There are no other metropolitan areas within 300 miles of any of the four communities.

Two of the four centers (Communities B and D) are seats of county government. All of them have grade and high schools. Each can be regarded as a viable trade center which identifies a hinterland.

The Urban Community Studied

We have already indicated something about the service relationships of Springfield (Community E) to the other communities of this study. Situated on the Ozarks plateau in the southeastern portion of the state, Springfield is the third largest city in Missouri with a population of 95,865 in 1960 and 118,950 in 1970. Springfield has developed major educational, health, transportation, commercial, and industrial services. It is the location of three four-year colleges, has a wide range of health specialty services and treatment facilities, is served by railroads, commercial airlines and an interstate highway, is a commercial center for a wide area of Missouri and extends into Arkansas and Oklahoma, and recently it has attracted considerable new industry.

In many ways, though, Springfield has retained its small town orientation. There is no skyline of distinction, no ghetto as such, and no pall of industrial waste in the air. Furthermore, it seems to be what the Chamber of Commerce advertises—the center of the Ozark Empire comprising a sizable trade and service area. Springfield also tends to be a point of migration for people from the surrounding rural area. One characteristic of Springfield's population that reflects its socio-cultural similarity to the Ozark hinterland is the low number of Negroes. The non-white population for the Springfield metropolitan area in 1960 was less than 3 percent of the total.

Socio-Economic Characteristics of the Samples

Since, as noted in the model, various socio-economic variables are regarded as being closely associated with need, recognition of need, and predisposition toward, and ability to use professional services, any discussion of the relationship between use and location should of necessity take such variables into account. Table 2 reports some relevant socio-economic characteristics of the samples of the individual communities as well as for the aggregate of the rural sample. The data for the rural communities correspond closely with data reported by various secondary sources for the communities and counties in which they are located, leading to the conclusion that the sample of each rural community is representative of the population from which it was drawn.

The rural area is one of relatively low income and older population. Twenty-five percent of all the female heads of households were over 65 years of age; 56 percent were over 50 years of age. Sixteen percent of all the individuals in the households were over 65. Given the age of the population, as might be expected, only 40 percent of the families had children at home. Income for the area and the sample is low—over 50 percent of the families had a family income from all sources of less than $3,000 per year. Only four percent had an income in excess of $10,000. Level of formal educa-

tion was also low—50 percent of the female heads of households had no more than an eigth grade education; less than one-third had graduated from high school.

While the samples in the rural communities were selected to be representative of those areas, the sample in Springfield was selected principally to provide an urban comparison for the rural sample (see section on urban sample p. 15). In order to do this it was weighted with low income families which also affected other variables such as education and age. Even after taking these measures in sample selection, families and individuals in the Springfield sample were economically more affluent, better educated, and younger than those in the rural sample.

Table 2. Size of Sample and Socio-Economic Characteristics by Community

	Comm. A	Comm. B	Comm. C	Comm. D	Total Rural	Comm. E
Households	130	185	300	336	951	501
Female Heads:						
Age						
under 40	30.8%	26.5%	24.7%	27.4%	26.5%	41.1%
40 - 64	49.2	44.3	44.0	52.4	47.7	38.5
65 and over	20.0	29.2	32.4	20.2	25.8	20.4
	100.0	100.0	100.0	100.0	100.0	100.0
Education						
less than 12	70.0%	70.8%	70.0%	63.0%	67.5%	44.5%
Income						
below poverty income *	52.0%	64.3%	60.9%	49.5%	56.4%	29.4%
Individuals:	460	515	850	1,001	2,836	1,404
Age						
0 - 19	44.2%	31.9%	34.2%	34.0%	35.4%	35.3%
20 - 64	44.7	48.1	45.8	52.0	48.2	52.6
65 plus	11.1	20.0	20.0	14.0	16.4	12.1
	100.0	100.0	100.0	100.0	100.0	100.0
Average Family Size:	3.5	2.8	2.8	3.0	3.0	2.8

* $3,000 in rural areas
$4,000 in urban areas

Variable of Medical Services

The extent of professional medical services in each of the five communities is reported in Table 3. Community A shared the services of an osteopathic doctor (D.O.) with a nearby town; Community B had the services of one full-time medical doctor (M.D.) and one full-time D.O.; Community C had two M.D.'s, two D.O.'s and two chiropractors (D.C.); and Community D was the location of six M.D.'s, two D.O.'s and two D.C.'s as well as a 42 bed hospital. None of the physicians in the communities (either D.O.'s or M.D.'s) were classified full-time specialists and none were board certified. There were a few additional general practitioners in other communities in the area, especially in the vicinity of Community A. There was also one additional small hospital in the vicinity located in a town of approximately 1,000 population, fifteen miles from Community A.

Springfield, in contrast, offered a full-range of medical specialization and complex health facilities. Two of its four hospitals had more than 400 beds each. Relatively few osteopathic doctors were in practice in Springfield (195 M.D.'s and 19 D.O.'s), while there were 26 chiropractors. Springfield offered specialization and range of services unavailable in the state outside of St. Louis and Kansas City and perhaps Columbia where the University of Missouri-Columbia Medical Center is located.

Hypothesis: The first hypothesis, generally stated, is that *a direct relationship exists between level of health services in a community and amount of and pattern of services used by families in that community.*

Table 3. Medical Service Characteristics of Five Communities Studied

	Comm. A	Comm. B	Comm. C	Comm. D	Comm. E
Population - 1960	420	266	3,176	5,836	95,865
Medical Doctors	None	1	2	6	195
Osteopathic Doctors	½*	1	2	2	19
Chiropractors	None	None	2	2	26
Hospitals	None	None	None	1	4
Hospital Beds	None	None	None	42	1,177
Distance to Springfield	110	93	60	107	--
Distance to West Plains	37	42	47	--	107

* Divided time between Community A and a neighboring community.

We will look at the rural communities as pairs. Pair I: small centers, Communities A and B; Pair II: larger centers, Communities C and D. The prediction is on the basis of level of services within the communities, Community B residents would have a higher level of use of medical services than Community A residents, and Community D residents would have a higher level of use of medical services than Community C residents. Further, it is predicted Springfield residents will use more services than residents of the other communities. In order to account for the differences in socio-economic characteristics of the communities, age and income will be controlled.

The variables representing level of use are as follows:

1. number of physician visits per individual for a one year period
2. hospital use during the year by individuals
3. use of marginal practitioners, i.e. chiropractors

The variables representing pattern of use are as follows:

1. number of different doctors used
2. use of specialists and general practitioners
3. use of family doctors
4. professional referral

The second general hypothesis is that *as the communities become more complex there will be greater internal differentiation in the use of medical services.* In the test of this hypothesis Community A and Community B represent the simplest communities, followed by Community C and Community D, with Springfield the most complex. Our prediction is there will be greater association between use of services and income in Springfield than in the rural communities and greater differences in Pair II communities than in Pair I communities.

Rural Sample. The rural samples for the study consisted of independent samples of households of each of the four community centers and the open-country around each center drawn with probability proportional to size. The community boundaries for sampling purposes were drawn on the basis of information provided by local informants in each of the four communities. In no case was a person included in the sample who was closer to another community having professional medical practitioners than the communities being surveyed.

The number of households included in the sample for each of the four centers is reported in Table 2. The total number of households in the rural sample was 951 which included 2,826 individuals. In each case the female head of the household was interviewed (if no female head then the male head). The female head was chosen for the interview based on the premise that she would be the most knowledgeable informant regarding family medical use and that she is typically the most influential of family members in decisions regarding use of medical services.

Urban sample. The sampling procedure for Springfield was more complex. It was designed as a two-phase sample. The first phase was a cross-section household sample. The second phase was designed to obtain a higher proportion of low income families by heavy sampling in the low income areas. The inclusion of more low income families also weighted the sample with older families.

The first sampling phase yielded 266 completed interviews; the second phase 235 for a total of 501. There were 1404 individuals in the households interviewed. The interviewing procedure and interviewing instruments were almost identical to those in the rural sample.

By this procedure about 30 percent of the households in the urban sample were classified as below the poverty level (annual income under $4.000). This was a smaller proportion of poverty level households than was present in the rural sample (annual income under $3,000). The number of low income families in the urban sample, however, is sufficient to make comparisons with a comparable economic group in rural areas.

Level and Pattern of Use of Medical Services

In this section we consider the level and pattern of use of services. Level of use is represented by physician visit, hospitalization, and use of chiropractors. Pattern of use is represented by number of different doctors used, mix of the use of specialists and general practitioners, use of family doctors, and professional referral in the use of doctors.

In reporting the data, in some instances we have maintained the identity of the four rural communities. Thus we can compare behavior of persons in the smallest (and most isolated) rural community with those in the metropolitan center. We have also combined the four rural communities into a general rural category. The latter procedure is justified because of the general homogeneity in health behavior among the rural communities. Its advantage is the greater clarity in making rural-urban comparisons.

When data from the five (4 rural and one urban) communities are reported separately, the rural communities are grouped into two pairs with Pair I represented by the smallest communities and Pair II by the two larger communities. Within each Pair the first community has fewer medical services than the second. Therefore, the expectation is that the level of use of medical services would be lower in the first than the second community in each Pair.

Doctor Visits

Respondents were asked to report the number of doctor visits for members of their family for a period of one year prior to the date of the interview. Doctor visits were defined as visits to the doctor's office or the relatively rare visits of doctors to patients' homes. It did not include hospital in-patient physician care, nor were telephone consultations counted as visits.

Table 4 shows the number of visits reported for individuals in the five communities. The communities have been grouped by size and arranged in the table so that the first community in each of the rural size categories has fewer health services than the second. This leads to the expectation that the use of services would be greater in the second of each of the pairs of rural communities. The further expectation is that the metropolitan community (Community E) would show the highest level of use.

Table 4. Number of Visits to Physicians by Individuals in Five Missouri Communities

Number of Visits	Pair I		Pair II		Urban
	Comm. A Percent	Comm. B Percent	Comm. C Percent	Comm. D Percent	Comm. E Percent
	(N=460)	(N=515)	(N=850)	(N=1001)	(N=1391)
None	38.0	38.6	35.9	35.0	29.2
1 - 2	25.9	26.2	26.9	27.0	31.2
3 - 5	14.8	14.8	14.8	17.4	22.8
6 - 9	8.5	7.8	7.2	9.3	8.7
10 +	12.8	12.6	15.2	11.4	8.1

Table 5. Number of Visits to Physicians by Individuals in Five Missouri Communities by Age

Number of Visits	Comm. A Percent	Comm. B Percent	Comm. C Percent	Comm. D Percent	Comm. E Percent
Age: 0 - 19	(N=203)	(N=164)	(N=291)	(N=340)	(N=488)
None	45.3	45.1	42.6	41.5	34.8
1 - 2	30.0	34.8	29.9	32.9	32.8
3 - 5	14.8	14.6	15.5	14.1	23.0
6 - 9	4.9	2.4	4.1	5.9	6.6
10 +	4.9	3.0	7.9	5.6	2.9
Age: 20 - 64	(N=205)	(N=248)	(N=389)	(N=519)	(N=733)
None	32.7	40.3	37.0	33.5	26.9
1 - 2	23.9	27.8	27.2	24.9	31.9
3 - 5	14.6	14.5	14.1	19.8	22.0
6 - 9	11.2	8.9	8.0	10.2	9.5
10 +	17.6	8.5	13.6	11.6	9.7
Age: 65 and over	(N=51)	(N=103)	(N=170)	(N=140)	(N=170)
None	31.4	24.3	21.8	24.3	22.9
1 - 2	17.6	8.7	21.2	20.7	23.5
3 - 5	13.7	15.5	15.3	16.4	25.9
6 - 9	11.8	13.6	10.6	13.6	11.1
10 +	25.5	37.9	31.2	25.0	16.5

From our first observation of the number of visits there appears to be almost identical patterns among the four rural communities and no sharp disjuncture between the rural communities and the urban community. In the four rural communities the range of percentage of individuals who had no doctor visits was narrow—from 35 percent in Community D to 39 percent in Community B—while in the metropolitan area a somewhat lower proportion (29 percent) of the individuals had not seen a physician during the year.* Similarly, for other categories of frequency of doctor visits the percentages by community were very close. However, before we draw conclusions with regard to our hypothesis.we must examine the effects of age and income.

*The proportion not seeing a physician during the year in each of the communities was close to that reported in the National Health Survey for 1969 (30.6 percent).

The number of physician visits by community was examined for three broad age groups—children and youth (0-19 years), adult working years (20-64 years), and the older years (65 years and over). These data are presented in Table 5. As would be expected, there was a general increase in number of visits with increase in age. Again across the five communities use was quite uniform when age was controlled. There was a consistent disjuncture between the four rural communities and the urban community, however, in that in the urban community a smaller proportion had no use of physicians during the year for each age category and there was a general tendency in each age category for higher proportions of the individuals in the rural sample to have 10 or more visits. The use of services in Community A in the oldest category appears to be somewhat different from the other rural communities in that a higher proportion of individuals had no visits to a doctor during the year. This would be in conformity with our hypothesis since Communty A was deficient in health services and at the same time was more isolated from major health centers.

In Table 6, we have combined the four rural communities for comparison with the urban community and at the same time because of larger numbers have been able to make finer breaks in the age categories. The relationship of number of visits with age becomes clear and the difference between rural and urban pattern of using *any* physician service during the year was maintained for each age grouping. The difference in use of any physician service was greatest for the 10-19 year age group where in the rural sample 51 percent of these young people had not used a doctor during the year compared with 38 percent in the urban sample. The greater proportion of individuals in the urban sample in each age category having at least some physician service, however, was not reflected in higher proportions in the highest use category (10 or more visits). Generally speaking, (the exception being the 10-19 year old category) a higher proportion of individuals in the rural sample than in the urban sample had 10 or more visits. Generally, then, when comparing the rural and urban samples it can be seen that the rural people tend somewhat more toward the extremes. That is, they are more likely to have no visits to doctors or 10 or more visits.

Finally, we introduced the variable of income into the consideration of use of physicians. In the rural area, low income was set at a family income of under $3,000; for the urban sample the division was made at $4,000. In both the rural and urban areas the low income category for the oldest families (female head 65 or older) was reduced by $1,000; so it was $2,000 in the rural area and $3,000 in the urban area. This was done primarily to obtain a more even division (high and low) in income in the elderly rural sample. Even then, however, it can be seen in Table 7 that in the rural communities older persons were predominantly in lower income households (-$2,000 income). A problem with using two controls is the small size of cases in some of the cells of the table which makes the results appear erratic in some instances. This is partially remedied by combining the rural communities (Table 8).

Overall we find no clear relationship between income and number of doctor visits within age categories. It appears that in the urban center income makes less difference than it does in the rural communities. This certainly is not what we predicted on the basis of structural differentiation of communities and does not support our second hypothesis. An alternate hypothesis is that in rural areas where services are less numerous income is more of a barrier in getting outside services.

As we look at our distribution of income in the *urban area,* and in spite of our attempt to weight the urban sample with lower income families, it is apparent that the division at $4,000 ($3,000 for those 65 years and over) results in a very uneven division of individuals except in the oldest group. In order to determine if a different income breaking point would alter the relationship between income and use, we have provided a finer income division in the urban community (Table 9). When this is done there are some differences by income within age categories worth noting. Except for the youngest category, individuals in families with lowest incomes are less likely to have any visits to a physician than individuals in the next higher income category. This reaches quite a substantial difference for persons between 45-64 years. However, at the same time, adults in the next to lowest income category ($3,000-$3,999) seem to compare favorably in the number of physician visits with any of the other income categories.

Table 6. Number of Visits to Physicians by Individuals by Age, Rural and Urban Samples

Number of Visits	Rural Percent	Urban Percent
Age: 0 - 9	(N=474)	(N=233)
None	35.0	30.9
1 - 2	35.4	33.5
3 - 5	17.0	29.2
6 - 9	4.8	5.2
10 +	7.5	1.3
Age: 10 - 19	(N=524)	(N=255)
None	50.9	38.4
1 - 2	28.4	32.2
3 - 5	12.5	17.3
6 - 9	4.3	7.8
10 +	4.0	4.3
Age: 20 - 44	(N=676)	(N=453)
None	38.5	27.6
1 - 2	26.0	32.5
3 - 5	17.2	22.7
6 - 9	8.7	9.7
10 +	9.6	7.5
Age: 45 - 64	(N=685)	(N=280)
None	32.8	25.7
1 - 2	25.8	31.1
3 - 5	15.8	20.7
6 - 9	10.2	9.3
10 +	15.3	13.2
Age: 65 +	(N=463)	(N=170)
None	24.1	22.9
1 - 2	17.9	23.5
3 - 5	15.5	25.9
6 - 9	12.3	11.1
10 +	30.0	16.5

Table 7. Number of Visits to Physicians by Individuals in Five Missouri Communities by Age and Income

Number of Visits	Community A Low* Percent	Community A High* Percent	Community B Low* Percent	Community B High* Percent	Community C Low* Percent	Community C High* Percent	Community D Low* Percent	Community D High* Percent	Community E Low** Percent	Community E High** Percent
Age: 0 - 19	(N=60)	(N=142)	(N=48)	(N=116)	(N=85)	(N=193)	(N=76)	(N=257)	(N=83)	(N=410)
None	41.7	47.2	52.1	42.2	31.8	46.6	56.6	36.6	36.1	34.1
1 - 2	33.3	28.9	16.7	36.2	38.8	29.5	25.0	35.4	37.3	31.5
3 and more	25.0	23.9	31.3	21.6	29.4	23.8	18.4	28.0	26.5	34.3
Age: 20 - 44	(N=31)	(N=72)	(N=36)	(N=91)	(N=59)	(N=135)	(N=59)	(N=182)	(N=53)	(N=400)
None	48.4	30.6	44.4	41.8	49.2	34.8	49.2	31.9	26.4	27.8
1 - 2	32.3	30.6	19.4	30.8	22.0	26.7	27.1	25.3	32.1	32.5
3 and more	19.4	38.9	36.1	27.5	28.8	38.5	23.7	42.9	41.5	39.8
Age: 45 - 64	(N=45)	(N=49)	(N=77)	(N=44)	(N=95)	(N=89)	(N=123)	(N=141)	(N=58)	(N=222)
None	20.0	32.7	44.2	27.3	35.8	32.6	39.0	25.5	29.3	24.8
1 - 2	20.0	22.4	24.7	31.8	28.4	31.5	16.3	31.2	22.4	33.3
3 and more	60.0	44.9	31.2	40.9	35.8	36.0	44.7	43.3	48.3	41.9
Age: 65 and over	(N=31)	(N=19)	(N=78)	(N=25)	(N=107)	(N=56)	(N=72)	(N=65)	(N=85)	(N=85)
None	41.9	10.5	23.1	28.0	18.7	26.8	30.6	15.4	20.0	25.9
1 - 2	12.9	26.3	9.0	8.0	20.6	21.4	13.9	29.2	16.5	30.6
3 and more	45.2	63.2	67.9	64.0	60.7	51.8	55.6	55.4	63.5	43.5

* Rural communities
female family head under 65: low family income = -$3,000; high family income = +$3,000
female family head 65 or over: low family income = -$2,000; high family income = +$2,000
** Urban community (Springfield)
female family head under 65: low family income = -$4,000; high family income = +$4,000
female family head 65 or over: low family income = -$3,000; high family income = +$3,000

Table 8. Number of Doctor Visits by Individuals by Age and Income, Rural and Urban Samples

Number of Visits	Rural Low* Percent	Rural High* Percent	Urban Low** Percent	Urban High** Percent
Age: 0 - 19	(N=269)	(N=708)	(N=83)	(N=410)
None	44.6	42.4	36.1	34.1
1 - 2	29.7	32.6	37.3	31.5
3 and over	25.7	25.0	26.5	34.4
Age: 20 - 44	(N=185)	(N=480)	(N=53)	(N=400)
None	48.1	34.4	26.4	27.8
1 - 2	24.9	27.5	32.1	32.5
3 and over	27.0	38.1	41.5	39.8
Age: 45 - 64	(N=340)	(N=323)	(N=58)	(N=222)
None	36.8	28.8	29.3	24.8
1 - 2	22.1	30.0	22.4	33.3
3 and over	41.2	41.2	48.3	41.9
Age: 65 and over	(N=288)	(N=165)	(N=85)	(N=85)
None	25.3	20.6	20.0	25.9
1 - 2	14.9	23.0	16.5	30.6
3 and over	59.7	56.4	63.5	43.5

* See footnote, Table 7

** See footnote, Table 7

Table 9. Number of Doctor Visits by Age and Income in Urban Community

Number of Visits	Income: Under $3,000	$3,000-$3,999	$4,000-$7,999	$8,000 & over
Age: 0 - 19	(N=45)	(N=39)	(N=189)	(N=221)
None	26.7	48.7	38.6	30.3
1 - 2	51.1	20.5	30.2	32.6
3 and more	22.2	30.8	31.2	37.1
Age: 20 - 44	(N=32)	(N=21)	(N=194)	(N=206)
None	32.1	23.8	26.8	28.6
1 - 2	37.5	23.8	31.4	33.5
3 and more	34.4	52.4	41.8	37.9
Age: 45 - 64	(N=32)	(N=26)	(N=76)	(N=146)
None	40.6	15.4	28.9	22.6
1 - 2	18.8	26.9	25.0	37.7
3 and more	40.6	57.7	46.1	39.7
Age: 65 and over	(N=63)	(N=22)	(N=53)	(N=31)
None	23.8	9.1	18.9	38.7
1 - 2	14.3	22.7	39.6	16.1
3 and more	61.9	68.2	41.5	45.2

Hospital Use

One of the selected indicators of use of medical services is hospital experience of persons during the survey year. Only two of the five communities were the location of hospitals. Community D had a small hospital while Springfield was the location of four hospitals, two of which were over 400 beds with a total of 1,177 beds (1968).

Table 10 shows the proportion of individuals in each community who had been hospitalized during the survey year. Generally, it can be observed that the variation among communities is small and there is little evidence which suggests that the level of services available in a community is related to hospital use. If we regard the rural communities as two pairs the results are quite conclusive. In Pair I (Communities A and B), there is no difference in the use of hospitals. In both communities, ten percent of the individuals had been hospitalized during the survey year in spite of the slight difference in the availability of medical services in the two communities.

Table 10. Individuals Hospitalized During Survey Year in Five Missouri Communities

In Hospital During Survey Year	Pair I		Pair II		Urban
	Comm. A Percent	Comm. B Percent	Comm. C Percent	Comm. D Percent	Comm. E Percent
	(N=449)	(N=515)	(N=819)	(N=975)	(N=1396)
Yes	10.0	10.1	9.4	7.7	12.3
No	90.0	89.9	90.6	92.3	87.7

In Pair II (Communities C and D) there was a slight difference in the use of hospitals. However, the difference was in the direction opposite from that expected on the basis of availability of hospital services within the community. Despite the fact that Community D had a hospital and Community C did not, a slightly higher proportion of the people in the latter had hospital experience during the survey year.

Springfield, which is a hospital and medical center for the area, showed higher use than any of the rural communities. The composite percentage of hospital use for the rural communities was 9.1 percent compared with 12.3 for Springfield.*

As would be expected, there was a fairly large difference in hospitalization by age groups. Grossly, this point can be made by comparing the hospitalization for those under twenty years of age with those sixty-five or older. In the former category from three to seven percent of the individuals were hospitalized in the five communities while in the latter age category the percentages ranged from thirteen to twenty-eight (Table 11).

Although there does not seem to be a simple relationship between level and medical service and use of hospitals in the rural communities when age is taken into account, there is some consistency in pattern that is worth noting. In Pair I (Communities A and B) individuals in Community A consistently show a higher level of hospital use in each age category under 65 years. However, for those over 65, Community B showed a substantially higher level of hospital use (Table 11).

In Pair II (Communities C and D) a pattern similar to that in Pair I was present. Community C had a higher level of hospitalization for each age category up to age sixty-five, while for those sixty-five and over Community D had a higher level of use. For both pairs the pattern of use suggests that lack of medical services is more constraining on older people than on younger people.

Springfield, with the highest level of hospital services available, generally demonstrates a higher level of hospital use in each age category. It is interesting, however, that one or another of the rural communities had the highest percentage of use in each age category except for the youngest (Table 11). However, as Table 12 shows, when the four rural communities are combined to form a general rural category, individuals in Springfield were found to have a higher level of hospitalization for each age group.

*The comparable figure for the United States, 1968, was 9.6 (National Center for Health Statistics, Series 10, No. 64, p. 1).

Table 11. Individuals Hospitalized During Survey Year in Five Missouri Communities by Age

In Hospital During Survey Year	Comm. A Percent	Comm. B Percent	Comm. C Percent	Comm. D Percent	Comm. E Percent
Age: - 20	(N=202)	(N=164)	(N=278)	(N=333)	(N=494)
Yes	4.0	3.0	5.8	2.7	6.7
No	96.0	97.0	94.2	97.3	93.3
Age: 20-44	(N=103)	(N=127)	(N=194)	(N=241)	(N=453)
Yes	14.6	6.3	10.3	7.1	13.5
No	85.4	93.7	89.7	92.9	86.5
Age: 45-64	(N=94)	(N=121)	(N=184)	(N=264)	(N=280)
Yes	16.0	8.3	10.3	8.3	14.3
No	84.0	91.7	89.7	91.7	85.7
Age: 65 +	(N=50)	(N=103)	(N=163)	(N=137)	(N=169)
Yes	14.0	28.2	13.5	19.0	21.9
No	86.0	71.8	86.5	81.0	78.1

Table 12. Individuals Hospitalized During Survey Year by Age of Individual and Rural, Urban

In Hospital During Survey Year	Rural Percent	Urban Percent
Age: 0 - 9	(N=474)	(N=238)
Yes	3.4	6.3
No	96.6	93.7
Age: 10 - 19	(N=524)	(N=255)
Yes	3.8	6.7
No	96.2	93.3
Age: 20 - 44	(N=676)	(N=453)
Yes	8.9	11.0
No	91.1	89.0
Age: 45 - 64	(N=685)	(N=290)
Yes	9.8	12.8
No	90.2	87.2
Age: 65 and over	(N=464)	(N=120)
Yes	18.3	25.8
No	81.7	74.2

Finally, income was controlled and data were examined by community (Table 13). Generally, there was no consistent pattern within the age groups by high and low income. In some cases, there was essentially no differences between income categories; in other cases, there were rather substantial percentage differences but considerable inconsistency in direction. In Springfield, with the exception of the youngest group, persons in lower income families were more likely to have hospital experience than were persons in higher income families.

Table 13. Individuals Hospitalized During Survey Year in Five Missouri Communities by Age and Family Income

In Hospital During Survey Year	Community A Family Income		Community B Family Income		Community C Family Income		Community D Family Income		Community E Family Income	
	Low*	High*	Low*	High*	Low*	High*	Low*	High*	Low**	High**
Age: -20	(N=60)	(N=142)	(N=48)	(N=116)	(N=85)	(N=193)	(N=76)	(N=257)	(N=84)	(N=410)
Yes	3.3	4.2	2.1	3.4	5.9	4.7	2.6	2.7	3.5	7.3
No	96.7	95.8	97.9	96.6	94.1	95.3	97.4	97.3	96.5	92.7
Age: 20 - 44	(N=31)	(N=72)	(N=36)	(N=91)	(N=59)	(N=135)	(N=59)	(N=182)	(N=53)	(N=400)
Yes	6.5	18.1	11.1	4.4	10.2	10.4	6.8	7.1	20.7	12.5
No	93.5	81.9	88.9	95.6	89.8	89.6	93.2	92.9	79.3	87.5
Age: 45 - 64	(N=45)	(N=49)	(N=77)	(N=44)	(N=95)	(N=89)	(N=123)	(N=141)	(N=58)	(N=222)
Yes	24.4	8.2	7.8	9.1	13.7	6.7	8.1	8.5	17.2	13.5
No	75.6	91.8	92.2	90.9	86.3	93.3	91.9	91.5	82.2	86.5
Age: 65+	(N=31)	(N=19)	(N=78)	(N=25)	(N=107)	(N=56)	(N=72)	(N=65)	(N=63)	(N=106)
Yes	16.1	10.5	24.4	40.0	13.1	14.3	16.7	21.5	31.7	16.0
No	83.9	89.5	75.6	60.0	86.9	85.7	83.3	78.5	68.3	84.0

* See footnote, Table 7

** See footnote, Table 7

Use of Chiropractors

As we observed in an earlier publication,* there is considerable interest in the use of chiropractors but little information on how their use fits into the overall health care system (Mo. Agricultural Experiment Station Research Bulletin 965, Feb. 1970: 23-27). It was found that chiropractors were only infrequently used as general practitioners or family doctors. They tended to be used for selected self-diagnosed ailments, mostly of a muscular-skeletal or nervous and neurological nature. It was concluded that chiropractors were not often used as alternatives to regular medical practitioners, but were regarded as limited practitioners who were "good for some things" and used selectively on that basis.

The use of chiropractors was relatively small in the five communities although there was considerable variation among the communities in the proportion of individuals using a chiropractor. This ranged from less than one percent to 7.5 percent (Table 14). In the two smallest communities where no chiropractors were in practice, only 13 of 975 persons had used a chiropractor during the survey year. In Mountain Grove, on the other hand, where chiropractors accounted for one-third of the local practitioners, more than 7 percent had used a chiropractor. In Springfield almost 4 percent of the individuals in the sample had used a chiropractor during the survey year. Generally, there is some indication that the use of chiropractors is related to

their local availability. (This is not such an obvious finding as it might appear because we were unable to establish a clear relationship between availability and use for physicians and hospitals.)

When use of chiropractors was examined by age of individuals (combining the rural communities), it was found in both the rural and urban communities that use of chiropractors was confined almost exclusively to adults and that use was higher for young and middle-aged adults than it was for persons 65 or over. Further, there was little difference between the rural and urban samples in use of chiropractors (Table 15).

Table 14. Use of Chiropractors by Individuals in Five Missouri Communities

	Pair I		Pair II		Urban
Use of D.C.	Comm. A Percent	Comm. B Percent	Comm. C Percent	Comm. D Percent	Comm. E Percent
	(N=460)	(N=515)	(N=850)	(N=1001)	(N=1393)
Yes	0.9	1.7	7.5	2.0	3.9
No	99.1	98.3	92.5	98.0	96.1

Table 15. Use of Chiropractors by Individuals by Age, Rural and Urban

Used Chiropractor During Survey Year	Rural Percent	Urban Percent
Age: under 10	(N=474)	(N=238)
Yes	0.2	---
No	99.7	100.00
Age: 10 - 19	(N=524)	(N=256)
Yes	1.0	1.2
No	99.0	98.8
Age: 20 - 64	(N=1361)	(N=731)
Yes	5.4	6.0
No	94.6	94.0
Age: 65 and over	(N=464)	(N=168)
Yes	3.9	4.2
No	96.1	95.8

Although the literature on use of chiropractors might lead one to expect greater use by lower status families (Hartung *et al.,* 1959; Koos, 1954), the data from the rural sample reported earlier sheds considerable doubt on this relationship. Similarly, data from the National Health Survey (National Center for Health Statistics, 1966: 37-45) does not indicate a relationship between income and use of chiropractors. Since the information for the four rural communities has already been reported we will concentrate on the differences in use of chiropractors by families for the rural and urban communities when socio-economic conditions are taken into account.

It should be pointed out that in the following discussion we are reporting use by *families* as a unit whereas the data reported previously were for individuals. When age of household head is related to use of chiropractors by any family member, the largest difference between rural and urban households exists for the middle-aged group with a somewhat higher proportion of the rural families using chiropractors. Otherwise, the proportions are quite similar. In both residential categories the oldest group was least likely to use chiropractors (Table 16).

Data from the Missouri communities do not lend support to the assumption that use of chiropractors is typical lower status behavior. Using family income and education of the household head as indices of status, the opposite conclusion more nearly conforms to the data. For both the rural and urban samples, households of lowest income were least likely to use chiropractors; while families with highest income were most likely to use chiropractors. The distinction was especially marked for urban families. Similarly, for both rural and urban families there was little difference between middle and high income categories in the use of chiropractors. Furthermore, difference between rural and urban families was slight except in the lowest income category (Table 17).

Education of household head and family use of chiropractors also casts doubt on the assumption that use of chiropractors is lower status behavior. In the urban families there is a direct positive relationship between level of education of the household head and use of chiropractors by the family. Among rural families those in which the family head had an elementary school education and those with at least some college were less likely to use a chiropractor than were those families in which the head had a high school education. However, because of the relatively small number with a college education in the rural area, the more meaningful comparison is between those with and without a high school education (Table 18).

Table 16. Use of Chiropractors by Families by Age of Household Head, Rural and Urban

Age of Household Head	Rural			Urban		
	All Families	Families Using D.C.		All Families	Families Using D.C.	
	Number	Number	Percent	Number	Number	Percent
Under 40	252	22	8.7	206	19	9.2
40 - 64	454	50	11.0	193	17	8.8
65 +	245	14	5.7	102	5	4.9

Table 17. Use of Chiropractors by Families by Family Income, Rural and Urban

Family Income	Rural			Urban		
	All Families	Families Using D.C.		All Families	Families Using D.C.	
	Number	Number	Percent	Number	Number	Percent
Low Income	523	42	8.0	140	3	2.1
Middle Income	192	18	9.4	167	10	6.0
High Income	213	24	11.3	178	18	10.1

Table 18. Use of Chiropractors by Families by Education of Household Head, Rural and Urban

Education of Household Head	Rural			Urban		
	All Families	Families Using D.C.		All Families	Families Using D.C.	
	Number	Number	Percent	Number	Number	Percent
Elementary	471	35	7.4	117	6	5.1
High School	407	48	11.8	293	23	7.8
College	70	3	4.3	90	12	13.3

In summary, there was not much difference in use of chiropractors for the rural and urban areas. The greatest differences occurred among rural communities which appears to be a reflection of differences in local availability of chiropractors. Patterns of use by age in rural and urban areas were similar. In each area use was confined almost exclusively to adults; and the elderly were less likely than younger and middle-aged adults to use chiropractors. For neither residential category was there evidence that use of chiropractors was typically lower status behavior.

Number of Different Doctors Used

Respondents were asked to name the different doctors used by each member of the family; included were family doctors or other doctors seen inside or outside of the hospital. The number of different doctors seen by families and individuals provides information on pattern of use of physicians in the rural and urban communities. Because of the larger number of available physicians in the urban community we expected the urban families and individuals to use more different doctors.

For Families. The gross comparison in numbers of different doctors seen for urban and rural families is shown in Table 19. It is apparent that rural families used relatively fewer doctors than their urban counterparts. For example, more than half the urban families had used three or more doctors during the survey year; whereas twenty-

five percent of the rural families had seen three or more doctors. In the rural communities, thirty-five percent of the families used only one doctor compared with 17 percent of the families in the urban community

By Age and Income. For each age category, urban families tended to use more different doctors than rural families did (Table 20). The difference was especially marked for the youngest families where almost two-thirds of the urban families used three or more doctors during the year while fewer than one-third of their rural counterparts used that many different doctors. It should be observed, however, that the younger rural families tended to use more different doctors than the older rural families. Older rural families were especially likely to confine their use of doctors to a single practitioner. Thus over forty percent of the rural families 65 or over used only one doctor during the year (14 percent saw none). This compares with about 28 percent of the older, urban families who saw but one doctor during the year.

When family income is introduced it can be observed that for rural communities the number of different doctors seen did not vary much between families with higher and lower incomes for the various age categories. This can also be said for the urban sample for the oldest and youngest families. However, the middle-aged (40-64 years) families showed a substantial difference by income. For the low income, middle-aged, urban families, 32 percent had used only one doctor (17 percent had used none) and 32 had used three or more. In contrast, among high income, middle-aged, urban families 15 percent had used one doctor (6 percent had used none) and 55 percent had used three or more (Table 20).

For Individuals. While we found some differences between rural and urban families in the pattern of use as measured by number of different doctors seen, the pattern of individual use was more uniform for these residential categories. Table 21 presents the number of doctors seen by individuals for the five communities. There was little variation among the rural communities and relatively small differences between the rural communities and the urban community.

Table 19. Number of Different Physicians Used by Families in the Survey Year, Rural and Urban

Number of Different Physicians Used	Rural Percent	Urban Percent
	(N=950)	(N=500)
None	10.1	7.4
1	34.9	16.6
2	30.9	24.4
3	13.1	18.6
4	7.3	15.0
5 or more	4.6	18.0

By Age of Individuals. There was a greater tendency for older individuals than for younger individuals to use more than one doctor so that for rural individuals, 13 percent of those under 20 years used two or more doctors compared with 30 percent over 65 years and similarly for the urban sample, 20 percent under 20 years compared with 37 percent 65 years or over used two or more doctors (Table 22).

The proportion of individuals using more than one doctor was consistently higher in the urban than the rural community; the greatest difference occurred in the age category, 20-44 years, with 11 percentage points difference. But, on the whole, differences were not large so that there was no great disjuncture in the rural and urban patterns of number of different doctors used by individuals.

Table 20. Number of Different Physicians Used by Families by Age of Household Head and Family Income, Rural and Urban

Number of Different Physicians Used	Family Income			
	Rural		Urban	
	Low* Percent	High* Percent	Low** Percent	High** Percent
Age: under 40	(N=64)	(N=186)	(N=37)	(N=171)
None	4.7	2.7	5.4	4.0
1	35.9	28.0	10.8	8.1
2	29.7	37.1	16.2	26.3
3 +	29.7	32.3	67.5	61.4
Age: 40 - 64	(N=238)	(N=203)	(N=44)	(N=146)
None	17.2	4.9	13.6	6.1
1	34.8	33.0	31.8	15.0
2	27.7	33.9	22.7	23.2
3 +	20.1	28.0	31.8	55.4
Age: 65 and over	(N=172)	(N=64)	(N=47)	(N=52)
None	16.9	4.7	18.7	5.8
1	43.0	37.5	27.0	29.4
2	22.1	29.7	22.9	27.4
3 +	18.0	28.2	31.2	37.2

* See footnote, Table 7

** See footnote, Table 7

Table 21. Number of Different Physicians Used by Individuals in Five Missouri Communities

Number of Different Physicians Used	Communities A Percent	B Percent	C Percent	D Percent	E Percent
	(N=449)	(N=515)	(N=819)	(N=975)	(N=1396)
None	37.6	38.6	35.5	34.9	28.2
1	42.5	38.6	45.5	44.4	44.1
2 or more	19.8	22.7	18.9	20.7	27.7

Table 22. Number of Different Physicians Used by Individuals by Age, Rural and Urban

Number of Different Physicians Used	Rural Percent	Urban Percent
Age: 0 - 19	(N=977)	(N=494)
None	43.0	34.2
1	44.2	46.2
2 or more	12.8	19.6
Age: 20 - 44	(N=665)	(N=453)
None	38.2	26.7
1	41.2	41.9
2 or more	20.6	31.3
Age: 45 - 64	(N=663)	(N=281)
None	32.9	24.6
1	42.5	44.5
2 or more	24.6	31.0
Age: 65 and over	(N=453)	(N=168)
None	23.6	20.2
1	45.9	42.9
2 or more	30.5	36.9

When the consideration of family income is added in Table 23, we find that income was more likely to be a factor in number of doctors used in the rural communities than in the urban community. Although not without exception, individuals in higher income families were more likely to use more than one doctor than were individuals in lower income famlies. In the urban communty there is almost no percentage difference by income in proportions of individuals using more than one physician in the several age categories. There is a consistency in the direction of the difference, however, which is opposite to that in the rural samples in that individuals in lower income families are somewhat more likely in each age category to use more than one doctor.

The above difference in rural and urban behavior, although fairly minor, suggests the possibility of the effect of differences in organization of medical practice on use of services. For low income people in rural areas where public clinics were generally unavailable, use of multiple physicians may indicate ability to seek services outside the area. In urban areas the greater multiple use of doctors among low income individuals may result from use of public services where little control by clients is maintained over particular doctors seen.

Table 23. Number of Different Physicians Used by Individuals in Five Missouri Communities by Age and Family Income

Number of Different Physicians Used	Family Income									
	Community A		Community B		Community C		Community D		Community E	
	Low* Percent	High* Percent	Low* Percent	High* Percent	Low* Percent	High* Percent	Low* Percent	High* Percent	Low** Percent	High** Percent
Age: 0 - 19	(N=60)	(N=142)	(N=48)	(N=116)	(N=85)	(N=193)	(N=76)	(N=257)	(N=84)	(N=410)
None	41.7	47.2	52.1	42.2	31.8	46.6	56.6	36.6	35.7	33.9
1	46.7	35.2	37.5	44.8	55.3	43.5	38.2	48.2	44.0	46.6
2 or more	11.7	17.6	10.4	12.9	12.9	9.8	5.3	15.2	20.2	19.5
Age: 20 - 44	(N=31)	(N=72)	(N=36)	(N=91)	(N=59)	(N=135)	(N=59)	(N=182)	(N=53)	(N=400)
None	48.4	30.6	44.4	41.8	49.2	34.8	49.2	31.9	26.4	26.8
1	38.7	52.8	30.6	38.5	37.3	44.4	32.2	42.3	34.0	43.0
2 or more	12.9	16.7	25.0	19.8	13.6	20.7	18.6	25.8	39.6	30.2
Age: 45 - 64	(N=45)	(N=49)	(N=77)	(N=44)	(N=95)	(N=89)	(N=123)	(N=141)	(N=58)	(N=223)
None	20.0	32.7	44.2	27.3	35.8	32.6	39.0	25.5	27.6	23.8
1	40.0	42.9	35.1	43.2	36.8	43.8	43.9	48.9	39.7	45.7
2 or more	40.0	24.5	20.8	29.5	27.4	23.6	17.1	25.5	32.8	30.5
Age: 65 and over	(N=31)	(N=19)	(N=78)	(N=25)	(N=107)	(N=56)	(N=72)	(N=65)	(N=63)	(N=105)
None	41.9	10.5	23.1	28.0	18.7	26.8	30.6	15.4	19.0	20.9
1	32.3	73.7	39.7	24.0	54.2	50.0	44.4	44.6	39.7	44.8
2 or more	25.8	15.8	37.2	48.0	27.1	23.2	25.0	40.0	41.3	34.3

* See footnote, Table 7

** See footnote, Table 7

When family and individual patterns of use of physicians were examined simultaneously we noticed an apparent inconsistency. It was that for families there was a substantial difference in number of doctors used between the rural and urban samples but that this difference became less when individuals were considered. The apparent

explanation is that different members of the same family tended to use different doctors for primary health care to a greater extent in the urban than the rural areas. An illustration would be that adults would use a family doctor while youngsters would normally use a pediatrician in the urban area while all members of the family would use the same family doctor in the rural areas. The availability of medical services in the respective residential categories could well account for this difference in use. On the other hand, for individuals in both rural and urban samples, most care is received from a single doctor who would represent the source of primary medical care for the individual.

Our conclusion from examining the patterns of use of different physicians in rural and urban areas is that families in the urban community tended to make use of a larger number of different doctors which supports our hypothesis. However, the number of doctors used by individuals was quite similar in the two residential areas indicating a general similarity in pattern in rural and urban communities based on dependence upon a primary source of medical service.

Use of General Practitioners and Specialists

Only Springfield, of the five Missouri communities, was the location of medical specialists.* There specialists outnumbered general practitioners by about 5 to 1. Thus on the basis of availability we would expect residents of Springfield among the communities to have the highest relative use of specialists. Data in Table 24 shows this to be the case. Well over one-half of the rural families confined their use of physicians to general practitioners; whereas only 14 percent of the urban families used only general practitioners. At the same time, urban families were reported to have confined their use to specialists or had used specialists in conjunction with general practitioners much more frequently than did rural families.

Table 24. Use of General Practitioners and Full-time Specialists by Families, Rural and Urban

Type of Physician Used	Rural Percent	Urban Percent
	(N=951)	(N=497)
None used	10.3	6.0
General practitioners only	59.3	13.9
G.P.'s and specialists	24.3	37.8
Specialists only	2.5	35.8
Can't determine	3.6	6.4

*Specialists were identified from the AMA Directory and included all full time specialists whether board certified or not.

In the following discussion we will consider those who used general practitioners only and those who made any use of specialists (included in this category are those who used both general practitioners and specialists). This distinction, then, is between families who used any specialists during the year and those who used only general practitioners.

If we examine the use of general practitioners and specialists for each of the five Missouri communities, the results are much as we would expect (Table 25). Families in each of the four rural communities had a high proportion of use of general practitioners and relatively low use of specialists. Community B and Community C which were somewhat closer to Springfield, had a somewhat relatively higher use of specialists than did the other two rural communities. Springfield exhibited the opposite pattern with a higher relative use of specialists than of general practitioners.

Table 25. Use of Specialists and General Practitioners by Families in Five Missouri Communities

Type of Physician Used	Communities A Percent	B Percent	C Percent	D Percent	E Percent
	(N=121)	(N=181)	(N=285)	(N=328)	(N=465)
None used	9.9	14.9	9.8	9.1	6.5
G. P. only	69.4	53.0	58.6	65.9	14.8
Specialist	20.7	32.0	31.6	25.0	78.7

When age was controlled, the general rural-urban difference remained intact (Table 26). In the rural communities about one in four families had used a specialist during the year for each age grouping. For the urban families, over 80 percent of the families in the two younger age categories and over 60 percent in the oldest age category had used a specialist. The tendency for relatively more older families to confine their use of physicians to general practitioners in Springfield is not apparent in the rural communities.

The essential difference between rural and urban in a family's relative use of specialists and general practitioners was not changed by the introduction of the income factor (Table 27). There was some tendency for a greater proportion of both rural and urban families in the higher income category to use specialists at all age levels. This generally was not reflected in proportionately lower use of general practitioners for higher income families but showed up in the larger proportions among lower income families in each age group with no use of physicians during the year.

In summary, there was a strong rural-urban difference in the relative use of specialists and general practitioners with the urban community having a higher relative use of specialists. Any differences by age or income do not approach the magnitude of the rural-urban difference.

Table 26. Use of Specialists and General Practitioners by Families by Age of Family Head, Rural and Urban

Type of Physician Used	Rural Percent	Urban Percent
Age: 40 years	(N=249)	(N=148)
None used	3.6	3.4
G.P. only	71.1	9.5
Specialist	25.3	87.2
Age: 40 - 64 years	(N=434)	(N=186)
None used	12.4	6.5
G.P. only	56.9	12.9
Specialist	30.6	80.6
Age: 65 years and over	(N=232)	(N=94)
None used	14.7	14.9
G.P. only	59.9	21.3
Specialist	25.4	63.8

Table 27. Use of Specialists and General Practitioners by Families by Age of Household Head and Family Income, Rural and Urban

	Family Income			
	Rural		Urban	
Type of Physician Used	Low* Percent	High* Percent	Low** Percent	High** Percent
Age: under 40	(N=64)	(N=183)	(N=20)	(N=128)
None used	4.7	2.7	5.0	3.1
General practitioners only	71.9	71.0	20.0	7.8
Specialist	23.4	26.2	75.0	89.1
Age: 40 - 64	(N=224)	(N=197)	(N=38)	(N=148)
None used	18.3	5.1	15.8	4.1
General practitioners only	55.4	58.4	13.2	12.8
Specialist	26.3	36.5	71.0	83.1
Age: 65 and over	(N=167)	(N=59)	(N=44)	(N=48)
None used	17.4	5.1	20.5	6.3
General practitioners only	61.7	55.9	18.2	25.0
Specialist	21.0	39.0	61.3	68.7

* See footnote, Table 7

** See footnote, Table 7

Family Doctor

Except for very special groups, there is evidence that most families in American society have a family doctor. All sorts of roles have been attributed to the family doctor from that of being the family's confidant to acting as gatekeeper to the medical care system. At the very least, the acknowledgement of a family doctor relationship means that the respondents perceived a regular and continuing relationship with a physician. Our question is whether there is a difference by rural and urban residents in acknowledging the family doctor relationship and whether there is a difference in the pattern of use of family doctor and other doctors on the basis of residence. We propose that there is less social distance between residents of rural areas and local doctors, and therefore, the acknowledgement of a family doctor relationship would be greater. Similarly, we would expect this relationship to be less dependent upon income in the rural setting. Furthermore, we would expect nonfamily doctors to be used independently of the family doctor to a greater extent in urban than rural areas.

On the gross level, there is little difference between the rural and urban samples in having a family doctor. The relationship was acknowledged by 86 percent of the rural families and 81 percent of the urban families.

Family Doctor

	Rural	Urban
	(N=951)	(N=496)
Yes	85.5%	80.6%
No	14.5%	19.4%

Neither age nor income were factors of importance in determining families which did or did not have a family doctor in either the rural or the urban sample (Table 28). The clear finding is that the simple acknowledgment of a family doctor relationship did not differ by rural and urban residence and the hypothesis that they should is not supported.

The pattern of use of family doctors and other doctors is a different question from that of reporting that the relationship exists. The pattern of use of family doctors is examined in Table 29. There is a slightly greater tendency for rural families than urban families to confine their use of physicians to family doctors and some greater tendency for urban families to use nonfamily doctors in conjunction with family doctors. But what is clear from the table is the similarity in the patterns of use of family doctors in conjunction with other doctors for rural and urban families.

The introduction of age and income controls yields some differences in the pattern of use for the youngest families, but the pattern for middle-aged (40-64) and older (65 and over) families remains essentially the same for rural and urban families (Table 30). Fewer of the youngest families in the urban area used the family doctor exclusively. This was particularly true for the lowest income urban families where only 6 percent of those using a physician confined their use to a family doctor. For

the youngest urban families in the higher income category the proportion was somewhat higher but still appreciably below their rural counterpart. For both high and low income young urban families, a high proportion used a nonfamily doctor as well as a family doctor during the year. The greater use of nonfamily doctors by young families in the urban area is accounted for in part by use of pediatricians for children who provide primary care but are not usually regarded as family doctors.

Our general conclusion is that in establishing family doctor relationships and pattern of use of family doctors in conjunction with other doctors is similar for the rural and urban areas. Thus our hypothesis that people in rural areas would, with greater frequency, establish this relationship and depend exclusively on the family doctor for service is unsupported.

Table 28. Percent of Families with a Family Doctor by Age and Income, Rural and Urban

Age and Income	Have Family Doctor	
	Rural Percent	Urban Percent
Family income		
Low	81.8	76.0
High	87.7	81.6
Age of household head		
under 40 years	86.8	75.0
40 - 64	85.7	85.9
65 and over	83.5	83.0

Table 29. Use of Family Doctor and Other Doctors by Families in the Survey Year, Rural and Urban

	Rural Percent	Urban Percent
	(N=951)	(N=481)
No doctor used	10.2	6.2
Family doctor only	30.0	24.1
Nonfamily doctors only	12.8	13.9
Family doctors and other doctors	47.0	55.7

Table 30. Use of Family Doctor and Other Doctors by Families by Age of Household Head and Family Income, Rural and Urban

	Family Income			
	Rural		Urban	
	Low* Percent	High* Percent	Low** Percent	High** Percent
Age: under 40	(N=59)	(N=181)	(N=35)	(N=155)
Family doctor only	32.2	26.5	5.7	16.1
Nonfamily doctor only	10.2	14.9	20.0	23.2
Family doctor and nonfamily doctor	57.6	58.6	74.3	60.6
Age: 40 - 64	(N=196)	(N=193)	(N=37)	(N=137)
Family doctor only	35.7	27.5	35.1	29.2
Nonfamily doctor only	13.3	15.5	13.5	9.5
Family doctor and nonfamily doctor	51.0	57.0	51.3	61.3
Age: 65 and over	(N=143)	(N=61)	(N=37)	(N=48)
Family doctor only	47.6	27.9	43.2	37.5
Nonfamily doctor only	11.2	21.3	8.1	8.3
Family doctor and nonfamily doctor	41.3	50.8	48.6	54.2

* See footnote, Table 7

** See footnote, Table 7

Referrals to Physicians

In one conceptualization, the family doctor, through a structured referral system, serves as a gatekeeper to the medical care system. If this is the pattern, we would expect use of nonfamily doctors to be on the basis of referral from family doctors except in unusual situations such as emergencies away from the home community. We expected more reliance on family doctors for referral in the rural communities than the urban community because on the face of it the professional position of the physician should be more critical in getting locally unavailable services.

Evidence of referral was obtained in cases where nonfamily doctors were used by asking, "Who suggested you see this doctor?" In the rural communities, 564 families reported the use of nonfamily doctors in 1006 separate instances; while in the urban community, 321 families reported use of nonfamily doctors in 798 instances.

As shown in Table 31, there was little difference in the referral patterns for the rural and urban communities. In the rural communities a somewhat larger proportion of the instances of use of nonfamily doctors were on referral from a family doctor

than was true in the urban community (rural: 17 percent; urban: 10 percent). While this difference may be interpreted as greater dependence of rural families on the family doctor for entrance into the more complex medical care system, the remainder of Table 31 shows strong similarity in pattern of referral to nonfamily doctors. In both the rural and urban communities, the largest single category is "lay referral and reputation" with more than 40 percent in each residential category using this means of selecting nonfamily doctors.

Table 31. Referral to Nonfamily Doctors in All Instances in which Nonfamily Doctors Were Used, Rural and Urban

Source of Referral	Instances in which Nonfamily Doctors Were Used	
	Rural Percent	Urban Percent
	(N=1006)	(N=798)
Family doctor	17.1	9.9
Other doctor	14.6	14.6
Institutional	11.0	12.4
Lay referral and reputation	45.5	42.7
No one	10.1	10.2
No answer and other	1.6	10.0

Table 32 shows referral to nonfamily doctors for families (not instances as in the previous table) by professional and nonprofessional classification (professional includes family doctors and other doctors; nonprofessional includes the other categories listed in Table 31). Relatively few families used other doctors exclusively on the basis of professional referral while about 3 in 5 that used nonfamily doctors did so on the basis of nonprofessional referral.

If we narrow our observations to include only those families who used a family doctor and a nonfamily doctor during the year we might expect a greater proportion of family doctor referrals. However, even in these cases about three-quarters of the families in each residential category made use of nonfamily doctors without referral from the family doctor. Again the pattern for the rural and urban communities is similar (Table 33).

Table 32. Referral to Nonfamily Doctors Used by Families, Rural and Urban

Type of Referral	All Families		Families Using a Nonfamily Doctor	
	Rural Percent	Urban Percent	Rural Percent	Urban Percent
	(N=951)	(N=501)	(N=564)	(N=321)
Used no doctor or only family doctor	40.7	35.9	---	---
Professional referral only	13.2	9.6	22.2	14.9
Professional and nonprofessional referral	11.5	15.6	19.3	24.3
Nonprofessional referral only	34.6	38.9	58.5	60.8

Table 33. Referrals to Nonfamily Doctor by Family Doctors in Families Who Used Both Family and Nonfamily Doctors, Rural and Urban

Referral	Rural Percent	Urban Percent
	(N=449)	(N=223)
At least one nonfamily doctor referred by family doctor	26.9	20.6
No referral by family doctor to nonfamily doctor	73.1	79.4

When age of family head and family income are controlled for families using family doctors and nonfamily doctors, the pattern remains the same with some variation (Table 34). Among the youngest families, low income rural families used family doctors for referral more than did low income urban families. Also, dependence on family doctors for referral increased with age for rural and urban families in each income category.

Generally, our finding in the rural communities that use of nonfamily doctors was to a substantial extent on the basis of lay referral was repeated in the urban community. It suggests a lay referral system of consequence in both areas. It also brings into question the gatekeeper role of the family doctor.

Table 34. Referrals to Nonfamily Doctors by Family Doctors in Families Who Used Both Family and Nonfamily Doctors by Age of Household Head and Family Income, Rural and Urban

Referral to Nonfamily Doctor	Family Income			
	Rural		Urban	
	Low* Percent	High* Percent	Low** Percent	High** Percent
Age: under 40	(N=34)	(N=106)	(N=25)	(N=80)
At least one nonfamily doctor referred by family doctor	26.5	15.1	0.0	23.8
No referral by family doctor to nonfamily doctor	73.5	84.9	100.0	76.2
Age: 40 - 64	(N=100)	(N=110)	(N=18)	(N=62)
At least one nonfamily doctor referred by family doctor	36.0	22.7	16.7	17.7
No referral by family doctor to nonfamily doctor	64.0	77.3	83.3	82.3
Age: 65 and over	(N=59)	(N=31)	(N=17)	(N=21)
At least one nonfamily doctor referred by family doctor	39.0	35.5	35.3	33.3
No referral by family doctor to nonfamily doctor	61.0	64.5	64.7	66.7

* See footnote, Table 7

** See footnote, Table 7

Summary and Interpretation

We have presented the data from this survey within a framework of differential community contexts and corresponding differences in the availability of services. Predictions were made that:

1. A direct relationship would exist between level of health services in a community and level and pattern of use of medical services.
2. As communities become more complex there would be greater internal differentiation in the use of medical services.

With regard to the first hypothesis, on the whole, level and pattern of use among the four rural communities was similar and differences between rural communities and the urban community were relatively small.

This does not mean, of course, that no difference existed on the basis of community context. Concentrating on the total rural sample in comparison with the urban sample, urban people at each age level were more likely to make use of physicians during the year, and also were more likely to have hospital experience. Even though these differences survived age and income controls, however, they were not large. The difference of greatest magnitude involved use of specialists; in which case, people in the urban community were much more likely to utilize specialists. This is easily accounted for by the type of doctors available within each residential context. Families in the urban community tended to use more different doctors than families in the rural area, but this difference diminished substantially when individuals were considered. The interpretation is that in rural communities, all members of the family tended to use the same doctor, while different members of the urban families were more likely to use different doctors. Continuing our examination of difference in pattern of use of physicians, there was little difference in the rural and urban samples in the proportions of families who reported having a family doctor, but some difference in favor of the rural families in confining use to the family doctor. Similarly, professional and lay referral patterns for the rural and urban sample were parallel with some greater dependency on the family doctor in the rural area.

In general, the level and use of services, however, were remarkably similar for the five separate communities and for the combination of rural communities when set against the urban community for comparison. Most differences were reasonably accounted for by more service alternatives available in the urban area leaving the basic pattern of use of services quite uniform.

In terms of the second hypothesis, we expected to find greater differences in level and pattern of use of health services on the basis of income in the urban community than in the rural communities. Our first observation is that income was not as closely related to use in either residential context as we had expected it to be. Furthermore, on the whole, low income was more of a constraint on obtaining services in the rural communities than in the urban communities—a finding which does not support the hypothesis. In rejecting that hypothesis, we may offer the reasonable alternative hypothesis that in rural areas with limited services, economic ability becomes more critical in obtaining outside services.

How do we account for the essential similarity in behavior of people in the rural and urban communities when we expected to find differences of considerable magnitude on the basis of at least two reinforcing conditions? The first was cultural differences (values); the second, differences in availability of services. The results of this study strongly support the existence of a common cultural stance in regard to use of health services in the rural and urban communities studied. This involved uniform definitions in regard to behavior associated with illness. As part of these definitions, professonal health services are regarded as legitimate and necessary in certain common situations. On the basis of this normative-definitional stance, people will make considerable effort and use scarce resources in order to obtain medical services deemed needed in a given situation. This means that people in rural areas will travel some distance for medical services. Such behavior is not unusual because rural people are accustomed to using multiple communities in satisfying their needs for a wide variety of services.

The findings of this research, especially if our interpretation is sound, have far reaching implications for the delivery of services in rural areas. It means, in effect, that considerable latitude may exist in the location of health services without affecting the level of use of services. In this regard, the ratio of physicians or hospital beds by residential designation (for example, metropolitan-nonmetropolitan; urban-rural) is not very informative as to availability of services. Efforts directed toward even distribution of services should take in a much wider area than the rural trade center community. If we can absolve ourselves from perception of rural and urban populations as representing different value systems, then we can direct attention toward considerations of quality of services and access to them.

Our data does not discourage, but rather supports, the feasibility of providing services to wider areas from centrally located health service centers of some complexity and range of services. However, it should be recognized that with centralization distance is a cost which is unevenly distributed among clients. Access mechanisms including transportation or local outreach units of clinics should be a consideration in planning for rural areas.

REFERENCES

Andersen, Ronald. *A Behavioral Model of Families Use of Health Services.* Research Series No. 25. Chicago: University of Chicago Center for Health Administration Studies, 1968.

Anderson, A. H. *The Expanding Rural Community.* Lincoln, Nebraska: Agricultural Experiment Station Bulletin SB464, 1961.

Belcher, John C. *Medical Service Relationships in Harper County Oklahoma.* Stillwater, Oklahoma: Agricultural Experiment Station Bulletin No. B-477, 1956.

Ellenbogen, Bert L., Donald Hay, and Olaf Larson. *Changes in the Availability and Use of Health Resources in Two Central New York Counties—1949 and 1957.* Department of Rural Sociology, Bulletin No. 54. Ithaca: Cornell University, 1957.

Ellenbogen, Bert L. and George D. Lowe. Health care styles in rural and urban areas. *Rural Sociology,* 33 (September, 1968), pp. 300-312.

Hartung, Donald, *et al.* Public health needs and practices in a great plains county. *American Journal of Public Health,* 49 (December, 1959), pp. 1591-1595.

Koos, Earl Lomon. *The Health of Regionville.* New York: Columbia University Press, 1954.

Murdie, Robert A. Cultural differences in consumer travel. *Economic Geography,* 41 (July, 1965), pp. 211-233.

National Center for Health Statistics, Series 10, No. 28, 1966.

Pedersen, Harold A., and Earl B. Peterson. *Market and Trade Center Patronage Patterns in Central Montana.* Bozeman: Montana Agricultural Experiment Station Bulletin 578, 1963.

Sanders, Barkev. "Selected Findings on Health Statistics and Services," *A Health Study in Kit Carson County, Colorado.* Stephen E. Boggs *et al.* Public Health Service Publication No. 844, 1962.

Suchman, Edward A. Social patterns of illness and medical care. *Journal of Health and Human Behavior,* 6 (Spring, 1965), pp. 2-16.

Wirick, Grover, and Robin Barlow. The economic and social determinants of the demand for health services. *Economics of Health and Medical Care.* Proceedings of a conference on Economics of Health and Medical Care. Ann Arbor: University of Michigan, 1964.

Other research bulletins from this study:

Edward W. Hassinger and Daryl J. Hobbs. *Distribution of Health Services in Missouri.* Missouri Agricultural Experiment Station Research Bulletin 917.

Edward W. Hassinger, Daryl J. Hobbs, F. Marian Bishop, and A. Sherwood Baker. *Extent, Type, and Pattern of Use of Medical Services in a Rural Ozark Area.* Missouri Agricultural Experiment Station Research Bulletin 965.

Edward W. Hassinger, Daryl J. Hobbs, F. Marian Bishop, and A. Sherwood Baker. *Perception of Health Practitioners by Respondents in a Rural Area.* Missouri Agricultural Experiment Station Research Bulletin 964.