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ABSTRACT

A study assessed the needs of disabled persons living in four rural counties in Arkansas, Texas, and Oklahoma. Using a combination of forced-choice and in-depth probe questions, researchers surveyed a sample of 456 disabled Americans to identify the problems that these people were facing in their day-to-day living, the consequences of their problems, and the techniques they used to cope with their problems. Visual and emotional problems were the most common health conditions of those interviewed. Although some conditions such as allergies affected all ages, overall, the number of health problems increased with age. Sophisticated assistive rehabilitation devices were almost non-existent; no respondent had a modified vehicle. More than half of the respondents reported total family yearly incomes of \$6,000 or less, and the rate of full-time employment among work-age respondents was only .12 percent. Included among the ramifications of disabilities reported were emotional problems, difficulties with home and yard maintenance, and limited mobility both within and outside the home. Few respondents sought or received professional help with their problems. Furthermore, many respondents, especially minorities, were unaware of the service programs that are available to disabled workers. Based on these findings, researchers called for additional efforts to increase service utilization rates and to provide emotional support for disabled individuals and their families. (MN)

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DISABILITY IN RURAL AMERICA:  
A FOUR-COUNTY NEEDS ASSESSMENT

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Final Report

Arkansas Rehabilitation Research and Training Center  
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February 1983

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## Significant Findings

The problems of a sample of 456 disabled persons living in four rural counties in Arkansas, Texas, and Oklahoma were assessed using a combination of forced-choice and in-depth probe questions. Respondents represented four ethnic groups: Ozark whites, Blacks, American Indians, and Mexican Americans. Interview data provided rich information about the problems respondents were facing in their day-to-day living, the consequences of their problems, and the techniques they used for coping with their problems. The results of the study provide empirical data on the felt needs and objective situations facing handicapped persons in rural areas.

Visual and emotional problems were the most common health conditions of those interviewed. Some ailments, especially those affecting vision, hearing, and mobility increased with age, although afflictions such as mental retardation, emotional illnesses, and speech disorders were more common in the younger age groups. Although some conditions such as allergies affected all ages, overall, the number of health problems increased with age.

Sophisticated assistive rehabilitation devices were almost nonexistent. No respondent had a modified vehicle. Those persons who used assistive devices relied on standard aids such as crutches and wheelchairs.

More than half of the respondents reported total family yearly incomes of \$6,000 or less. The rate of full-time employment among work-age respondents was only 12%.

The ramifications of disability were broad. Disabilities were associated with emotional problems, difficulties with home and yard maintenance, and limited mobility both within and outside the home.

Most respondents looked mainly to their families for help with their problems. Few sought or received professional help.

Many respondents, especially minorities, were unaware of the service programs that are available to disabled persons. Only 17% had applied for assistance to DVR, but over 90% of those who did apply received help. Application rates were higher among whites than for minorities.

Vocational assistance tended to be targeted toward the younger worker. Young work-age adults (16-30) were likely to receive both vocational and medical services from DVR, but applicants age 31-64 received mostly medical services.

Efforts are needed to increase service utilization rates and to provide emotional support to disabled individuals and their families.

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## PREFACE

This is the second of two reports of Project R-181, "Rehabilitation Service Needs of the Rural Disabled." The first report, Rural Rehabilitation: A State of the Art (ARR&TC, 1982) surveyed the literature pertaining to the incidence of disability in rural areas, barriers to rural rehabilitation, service delivery approaches in rural rehabilitation, and the needs of disabled persons living in rural areas. From this report, it was learned that little in-depth data currently existed on the status of rural disabled persons, and a research project was designed to identify the most pressing problems faced by disabled people living in rural areas. Moreover, the effect that ethnicity might have on rural rehabilitation was unknown, so the survey included four different rural subcultures. This report describes that pilot study, its methodology and results, and makes suggestions for improvements in service delivery to rural disabled persons.

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## INTRODUCTION

The primary purpose of this assessment survey was to determine the specific problems faced by rural disabled individuals in their day-to-day living and vocational activities. An effort was made to examine these problems as they affect four rural ethnic subpopulations: Ozark Whites, Southern Blacks, Western American Indians, and Mexican Americans. In addition to assessing the problems challenging rural disabled persons, the survey examined the unique adjustments made by persons in a rural community: the resources available, the utilization of those resources, and the development of particular adjustment skills. Finally, the survey served as a pilot model to evaluate the potential of a behavior assessment method and the feasibility of applying it on a broader scale.

Over the past ten years, heightened public recognition of the extent and nature of the problems faced by disabled individuals has resulted in an increase in the amount and kinds of services available to the disabled. Medical, mental health, and vocational services have expanded. Not surprisingly, rehabilitation service efforts have concentrated on providing the most extensive service to the greatest number of individuals. A natural consequence is that the unique needs of

specific groups of individuals are less directly addressed. Individuals with disabilities, however, are not a homogeneous group with identical needs. They differ in age, ethnicity, type of disability, place of residence, education, and employment potential.

One direct result of past service provision patterns is that services have been directed toward urban disabled persons and their needs. Like the general population, most disabled individuals reside in urban areas, and therefore, have relatively easy access to services. Nonetheless, a large portion of our society still lives in a rural environment and many disabled persons are included in that population. Fewer services are available to rural disabled persons, and many of those which exist were developed in response to urban needs and then extended to rural areas, where they may or may not be appropriate.

In addition, individual ethnic populations, such as Blacks, Mexican Americans, American Indians, and Ozark/Appalachian whites are known to differ from the general population--and often from each other--along economic, educational and cultural dimensions. These ethnic distinctions are especially strong in rural areas. Blacks, in the South, and Mexican Americans and American Indians, in the West, comprise a

significant proportion of the nonmetropolitan population, and isolated Ozark/Appalachian whites have developed culturally distinct identities. An increased effort has been made to design and implement urban services in a manner consistent with ethnic influences and attitudes. However, the combined cultural impact of rurality and ethnicity on service intervention has not yet received in-depth analysis.

Leland and Schneider (1982) recently examined the current status of the rural disabled, their needs, and efforts by rehabilitation professionals to meet those needs. Their primary conclusion was that this service area suffers from a lack of empirical data about all aspects of rural disability. In addition, they noted that rehabilitation efforts have been implemented somewhat arbitrarily and with mixed success. The following is a summary of the issues which Leland and Schneider considered in detail.

Defining the Rural Disabled Population. For the purposes of identifying a target population, investigators have defined disability in terms of activity limitations rather than by the presence or absence of a specific health problem. Nagi (1976) provided separate estimates for the percent of the population that was restricted in work activities (11%) and in activities

of daily living (12%). Respondents to a survey by the National Center for Health Statistics (1975) were asked whether their overall activities were limited by some chronic health condition, and the 1970 Census provides information on those persons sufficiently disabled to limit their vocational activities.

Although each of these definitions of disability has a slightly different focus, the estimated rates of disability they provide (9%-12%) are similar. In addition, survey results suggest that the rural disability rate is proportionately larger than the urban disability rate. The survey by the National Center for Health Statistics shows a somewhat higher disability rate in rural areas (12%) than among metropolitan residents (11%), while the 1970 Census figures presented by the President's Committee on Employment of the Handicapped (1977) estimated that a full 9% of the adult (16-64 years) population was disabled. Expected rural disability rates would be much higher, since the rural population includes a proportionately higher number of persons over age 65, the age group with the highest incidence of disability (Blake, 1981).

The size of the United States rural population also varies with definition. A common distinction is that made between persons residing within or outside

of a Standard Metropolitan Statistical Area (SMSA). This is an area composed of one or more contiguous counties having a central city of at least 50,000 inhabitants; or a central city of at least 25,000 inhabitants, if other population criteria are met which suggest that outlying residents have strong economic or social ties with the central city. The State and Metropolitan Data Book (U.S. Bureau of the Census, 1979) reported that 27% of the total U.S. population resides outside of Standard Metropolitan Statistical Areas. A survey conducted by the Bureau of the Census estimated that 25% of the nation's population resides in towns of 2,500 or less and 36% live in cities of less than 50,000 people (Kane & Myers, 1979). Of the respondents to the National Center for Health Statistics Health Interview Survey (1975) who indicated a disability, 35% considered themselves rural residents.

Geographical Distribution. There are a number of regional differences in the size and density of the rural disabled population. A smaller percentage of the general population are rural residents in the Northeast (16%) and West (20%) than in the North Central (30%) and South (36%) (President's Committee on Employment of the Handicapped, 1977). Like the general population, more disabled American adults reside in urbanized

states, but they account for a smaller proportion of these states' population (8-10%) than do those living in the southern rural states, where they comprise 12-14% of the total population. Apparently, disability is proportionately more characteristic of the rural population, particularly in the South.

Income. A disproportionate share of the nation's poor live in rural areas. Figures reported by Hoppe (1980) show that, in 1977, non-metro areas had 33% of the population, but 40% of the persons living on poverty-level incomes. More than half of these lived in minor civil divisions (MCD's) in which more than 20% of the population was poor. In 1975, more than half of all non-metro poor lived in the South, the only region where the rural poor outnumbered the metro poor. About 20% of the rural southern population was poor, compared with 9% in the Northeast, 12% in the West, and 10% in the North Central regions. These figures are particularly significant in light of the proportionately greater numbers of disabled persons living in southern states.

The economic indicators for the total disabled population are also discouraging. Figures released by the President's Committee on Employment of the Handicapped (1977) showed that the mean income for the

disabled was almost \$1,000 lower than that for the general population. Incomes are below poverty level for 36% of the disabled population, compared with 20% for the general population. In addition, only 42% of the nation's disabled are employed; the overall national employment rate is 59%.

Considered together, the above figures on rurality and the economic conditions of disabled people suggest that many of the rural disabled have income levels that are much lower than average. In addition, they have special needs, relative to non-disabled individuals, that must be met with their limited incomes. This problem is probably greatest in the South, where the individual factors of disability, rurality, and poverty are most prevalent.

Education. Poor economic conditions are typically associated with lower levels of education (David, Brazer, Morgan & Cohen, 1961). Recent figures suggest that the rural disabled are not exceptions to this rule. The disabled population in general has fewer years of formal education than the total population, according to the President's Committee on Employment of the Handicapped (1977). They reported that the average handicapped person had attended 1-3 years of high school, while the median for the general population was four years. In the health survey conducted by the National Center for Health Statistics, over half of the rural disabled respondents indicated that

they had completed fewer than 9 years of formal education.

Age. A contributing factor to the apparent lower economic and educational levels of the rural disabled is that a disproportionately large number of the nation's elderly are included in this population. The 1975 Health Survey indicated that almost 50% of the rural disabled are 65 and over, compared to 35 to 40% of their urban and suburban counterparts, respectively. In rural areas, the elderly are also disproportionately represented among the poor. In 1975, persons 65 and over accounted for 12% of the rural population, but 16% of the rural poor (Hoppe, 1980).

Ethnicity. Hoppe (1980) has noted that rural populations with poverty-level incomes show heavy regional concentrations of particular minority groups. More than 90% of all low income rural blacks live in the South, the region with the highest proportion of physical disability and rural poverty. In the West, over half of the American Indian population live in rural areas, and nearly half of these are poor. Persons of Latin origin also constitute a large portion of the Western rural poor: about one-third of American migrant workers are of Latin origin.

Summary. The foregoing figures define an appreciably large rural disabled population that is struggling,

not only to overcome their disabling conditions, but with the triple-threat economic complex of poverty, unemployment, and lack of education. For many, the compounding factor of advanced age not only makes them more probable victims of these factors, but severely limits their outlook in terms of future employment or additional education. Furthermore, the rural West and South have high concentrations of Mexican Americans, American Indians, and blacks, and each of these ethnic groups is characterized by poor economic status in general, apart from the influences of rural residence or disability. The expected status of an elderly disabled black living in the rural South is extremely grim.

#### RURAL SERVICES AND BARRIERS TO SERVICE PROVISION

As a group, disabled persons living in rural areas are apparently more economically and educationally disadvantaged than their urban counterparts. In addition, rural disabled persons do not have easy access to the wide range of services that are readily available in urban areas. Rural services are fewer in number, often of lesser quality, and generally harder to obtain than services in a metropolitan environment.

Health. Although the relative health statuses of rural and urban residents are still under evaluation (Miller, 1982), fewer health services are available in

rural areas, both in terms of raw numbers and in comparisons adjusted for population differences (Human Health Service, 1980). Rural areas have difficulty in attracting health professionals because of lower incomes, professional isolation, limited laboratory and care facilities and a lack of social and cultural opportunities that professionals are likely to desire (Davis & Marshall, 1975). Per 100,000 population, rural residents are served by half as many physicians, two-thirds as many registered nurses, and half as many dentists as metropolitan residents:

PHYSICIANS, NURSES, DENTISTS, AND HOSPITAL BEDS<sup>1</sup>

	<u>Metro</u>	<u>Non-Metro</u>
Non-federal physicians (1979)	179	84
Registered nurses (1977)	520	350
Dentists (1979)	60	30
Hospital beds (1979)	460	425

Specialists account for 85% of all active private urban physicians, but only 65% of rural physicians:

NON-FEDERAL PHYSICIANS IN ACTIVE PATIENT CARE, 1978<sup>1</sup>

	<u>Metro</u>	<u>Non-Metro</u>	<u>Total</u>
Office-Based	71.0%	87.2%	73.4%
General Practice	15.2%	35.7%	18.8%
Specialists	84.8%	64.3%	81.2%
Hospital-Based	29.0%	12.8%	26.6%
	100.0%	100.0%	100.0%
	(N=274,942)	(N=47,475)	(N=322,457)

<sup>1</sup>Unpublished data by the Human Health Service (DHHS), 1980.

Rural hospitals also suffer in comparison to metro facilities. They are older, less likely to be accredited, and have fewer specialized services (Ahearn, 1979).

Hospital-based physicians in urban areas out-number their rural colleagues by a factor of more than 10 to 1, while the urban to rural population ratio is only 2 to 1.

Economic. Rural areas have more difficulties than urban areas in paying for adequate levels of public services (Rainey & Rainey, 1978). Per capita cost of delivering these services is frequently higher in rural areas, because operating expenses must be shared by fewer people. Low population density also contributes to a lower tax base, limiting the amount of funds for social and health-related services, and local governments are seldom able to give priority to providing specialized services when funds are often inadequate to cover generalized services that affect the total rural population.

Education. Rural school systems are less likely to include librarians, guidance counselors, psychologists, audio-visual specialists and teacher aides on their staffs than are either central city or suburban school systems. In addition, pre-kindergartens, kindergartens, and special education programs are far more common in urban than in rural schools:

PUBLIC SCHOOL SYSTEMS WITH SUPPORT PROGRAMS AND STAFF<sup>1</sup>

	<u>Metro</u>		<u>Non-Metro</u>
	City	Suburb	
<b>Programs</b>			
Pre-kindergarten	29.9	2.3	1.3
Kindergarten	87.5	79.8	57.6
Special Education	86.3	62.2	44.9
<b>Staff</b>			
Supervisors	97.5	48.0	27.2
Librarians	98.4	77.1	58.2
Guidance Counselors	93.8	67.2	49.8
Psychologists	75.9	36.7	7.4
Audio-Visual	41.6	14.2	7.2
Teacher Aides	92.5	57.6	50.5

<sup>1</sup>Fratoe, F.A. Rural Education and Rural Labor Force in the Seventies, 1978.

The numbers and kinds of educational services that can be provided in rural areas are restricted by low population density and a lack of economic resources. Rural areas have fewer dollars to spend per pupil, while the per pupil cost of providing special services is usually higher than in metropolitan areas. Rural areas spend more dollars per pupil than metro school systems only in the category of transportation. Administration, instructional, attendance, operation and maintenance, and fixed expenditures are all higher in city and suburban school systems (Fratoe, 1978). The National Rural Research and Personal Preparation Project examined the difficulties that rural communities experienced in

attempting to carry out the mandate of Education for All Handicapped Children's Act of 1975. The predominant difficulties cited were: recruiting and retaining qualified staff, community resistance to change, long distances between schools, suspicion of outside interference, cultural differences, terrain, and low tax bases (Helge, 1981).

Transportation. Although the economic resources of rural areas are generally below metropolitan levels, financial factors might not play so heavy a role in the provision of services were it not for the sparse nature of rural populations. In many cases, the actual cost of the service is small in comparison to transportation costs. It is difficult to find central locations accessible to large numbers of rural clients, and the cost of traveling to individual clients is often prohibitive. Public transportation is virtually non-existent in the rural environment; almost all travel is by private car. Those who cannot afford to own an automobile are entirely dependent on others for transportation to needed services (Auerbach, 1976). In addition, poor roads may combine with inclement weather to temporarily isolate the entire rural population.

Employment. In rural, sparsely populated areas, the existing job market, the willingness of employers, and

the lack of competition in low-level occupations appear more important in successful rehabilitation than do more comprehensive assessments or better classification of jobs (Clark, 1973). Because much of the employment in rural areas is seasonal, underemployment is also a problem (Tamblyn, 1971). The major shift in full-time remunerative employment from rural to urban areas has made the lack of employment opportunities one of the most significant problems faced by rural rehabilitation counselors (Metzler, 1959). In a survey by MacGuffie, Janzen, and McPhee (1969) of rural rehabilitation counselors, it was concluded that the majority of rural clients anticipated the need to move to an urban area to seek employment after rehabilitation.

Rehabilitation. Two distinct strategies have been tested in rural rehabilitation. One approach has been the expansion of traditional service delivery programs; the second has been the development of innovative, non-traditional service delivery systems and methods.

A number of research and demonstration projects have been funded by the Rehabilitation Services Administration to test the effects of traditional rehabilitation methods in predominantly rural areas. Through this type of saturation approach, it was found that traditional services

could improve the employment and health status of rural disabled persons (Wright, 1967; Kentucky Bureau of Rehabilitation Services, 1969). In addition, the numbers of clients, area served, and use of facilities could be increased (Maine's Pine Tree Society for Crippled Children and Adults, 1962). However, many efforts were still plagued by poor employment opportunities in rural communities, lack of referrals, local attitudes and the lack of public transportation (Kentucky Bureau of Rehabilitation Services, 1969; Myers, 1974). In addition, successful programs emphasized adequate community support (Myers, 1974; Saranac Lake Rehabilitation Guild, 1961).

Non-traditional approaches to rural rehabilitation have also been demonstrated with some success. One technique judged as vital throughout the literature (Baney, 1968; Beasley & Parris, 1969; Davis, 1968; Grober & Barber, 1976; Hansen, 1972; Kelley, Gueron, & Rawlings, 1977; Kelso, 1969; Knauff, 1972; Lucas & Wolf, 1968; Mykut, 1979; Nolan & Schwartz, 1973; Reiff & Reissman, 1965; Stewart & Crafton, 1975) is the use of indigenous paraprofessionals, outreach workers, and aides. These and other studies have shown that the use of indigenous volunteers and service providers can often serve as an avenue for overcoming cultural, communication, and fiscal barriers often experienced in rural settings. Another

innovation that has proved effective in certain circumstances is the use of a mobile unit to provide medical diagnostics and vocational and psychological evaluations (Hutchinson, 1970; Oklahoma State Vocational Rehabilitation Division, 1969). Mobile units can decrease client transportation problems and the amount of time needed for rehabilitation evaluation, as well as overcome the lack of facilities and trained personnel in rural areas. Finally, professional teams have been used to decrease the time spent in initial diagnosis of vocational rehabilitation needs (Bolton & Davis, 1979; Golston & Hefley, 1975; Hutchinson, 1971; Reagles, Wright, & Chope, 1975).

#### ETHNIC AND CULTURAL INFLUENCES

The influences of mass communication, technology, and urbanization have blurred, but not erased, the distinctions between rural and suburban cultures. The marked contrast between a metropolitan culture based on liberal, progressive social and political values and a rural society noted for conservatism, independence, and isolationism are extremes on a continuum that includes small town, small-city, and suburban cultures. Nonetheless, these distinctions can be made (Miller & Luloff, 1981). Vocational rehabilitation, for instance,

has been described as an urban, middle-class concept primarily administered by professionals from urban areas (Lowery, 1980). These urban techniques, values and jargon may be so foreign to rural people that they may simply boycott them.

The rural culture is generally characterized as provincial, an orientation which can profoundly affect the success of service interventions. Regional ethnic concentrations can also influence the types of service problems that must be addressed and the response of the clientele to service interventions. Four ethnic subpopulations have been identified as major factors in particular rural regions: Ozark and Appalachian whites, Southern Blacks, and, in the rural West, Mexican Americans and American Indians. Among these ethnic cultures, folk medicine is common, and sickness may be viewed more fatalistically (Ford, 1978).-- The culturally-defined significance of disability, illness, and disease in these subcultures must be understood in order for service intervention to be effective (Cook, 1969).

#### NEEDS OF RURAL DISABLED PERSONS

Although the available data suggest that the rural disabled have critical economic, health, employment, and education needs that are not being adequately met,

little information is available about the tangible consequences of the current status of the rural disabled population. Because of the differences in lifestyles, culture, and attitudes between the rural and urban populations, it may not be appropriate to assume that similar objective or felt needs will arise from the same factors in both areas.

Objective vs. Felt Needs. There is evidence that rural residents do not experience needs in the same situation that an urban resident would. For example, in a survey conducted in the state of Minnesota covering 16 services offered disabled persons, urban dwellers both received more services and indicated a greater need for services than did rural dwellers. Out of the 16 services, 14 had been provided to a greater percentage of the urban than the rural disabled, but urban dwellers indicated a proportionately greater need for services in 15 of the 16 categories (Liu, 1978).

Similarly, a study which compared the needs of the elderly in Chicago with those in a five-county rural area of southern Illinois found that the rural elderly consistently indicated greater satisfaction with their current living status than did the urban elderly, even though the objective needs in the rural area

were far greater. The rural respondents had fewer financial resources (savings, investments, and assistance from relatives), yet only 9% indicated that their incomes were inadequate. In contrast, 53% of the urban respondents said that they had to do without clothing and other necessary items; 26% said that they did not have enough money to meet their basic needs; and 28% felt that they did not have enough for an adequate diet. Only 10% of the rural elderly were dissatisfied because of neighborhood crime, and another 14% because of substandard dwellings. The starkest contrast was in the difference of overall needs: 85% of the rural elderly stated they needed nothing, while 45% of the urban elderly indicated a need for more money, and over 15% indicated needs for better health, more police protection, more legislation for the aged, better transportation and better nutrition. These figures were particularly startling in light of the fact that objective measures indicated that these rural elderly were older, more isolated, had less transportation available, had lower incomes, and lived in poorer quality housing than their Chicago counterparts (Auerbach, 1976).

Needs Assessment. Before rehabilitation services can be effectively provided to disabled individuals living in rural areas, the precise nature of their needs must be understood. A major problem in rural rehabilitation is the lack of empirical data on the characteristics and problems of rural disabled persons. This lack of understanding has limited the effectiveness and feasibility of service intervention. The simple extension of urban-originated interventions has not always proved effective in a rural environment (Jordan, 1966; Kentucky Bureau of Rehabilitation Services, 1969; Myers, 1974). Urban services may not be appropriate to rural needs, may not be provided in a manner consistent with rural lifestyles and attitudes, or, if effective, may not be financially feasible in a rural situation. The first step in adequate rural rehabilitation, then, is to obtain hard information about the current status of rural disabled individuals: their state of health, vocational goals, personal characteristics, awareness of and access to services, and their current problems with daily living and vocational activities.

In recent years, the effectiveness of a behavioral approach to assessment has been recognized (Craighead, Kazdin, & Mahoney, 1976). In contrast to the traditional view of overt behaviors as manifestations of an underlying trait, the behavioral orientation focuses directly on the behaviors. The technique has been described (Goldfried & Sprafkin, 1974) in terms of an A-P-C format in which the problem behaviors (P) are identified. Then, because behavior is a function of situational contingencies, both behavioral antecedents (A) and consequences (C) are also determined. The antecedents make up the context in which the behaviors are observed and the consequences define new situational contingencies created by the behaviors. A major utility of the technique is in the sequencing and correlating of behavioral events and situations. However, because of the wide range and potential complexity of these events, assessment must be as broad and exhaustive as possible. Cataloguing, quantifying, and organizing the resulting large data base requires much time and care.

The present study used the APC technique to survey the disabled populations of four rural counties. Although target counties were selected on the basis of their ethnic concentrations, the scope of the survey included the

general disabled population. The primary purpose of the survey was to obtain pilot data on the specific needs and status of the rural disabled. In addition, the study provided an opportunity to examine the feasibility of conducting this type of assessment on a broader scale, and a chance to explore methods of analyzing and interpreting the results of a behavioral needs assessment.

#### METHODOLOGY

Target Counties. All four counties were characterized by sparse population density and agriculturally based economies. In each county, the county seat was the largest town, with a population of 1,000-4,000 people. Fewer than 40% of the county residents lived within the boundaries of any of the three or four small towns. Economies were based primarily upon crops, livestock, or timber, and were determined by the soil, climate, and geography of each county. Each county had a high concentration of a particular rural ethnic group: Mexican Americans in Bailey (Texas), American Indians in Adair (Oklahoma), Blacks in Lincoln (Arkansas), and Ozark whites in Searcy (Arkansas).

Although two of the counties had hospitals, these were small facilities offering only general care.

Residents of all four counties had to travel 30-70 miles for any specialized medical treatment. Although some types of specialized medical consultation, rehabilitation, and mental health services were accessible through a representative who visited the county once or twice a week, the focus of these visits was primarily evaluative and generally resulted in referral to treatment centers outside the county. Appendix A contains summary descriptive statistics for each of the four counties.

Adair County lies in the Ozark foothills of eastern Oklahoma. Its climate and rainfall are moderate. Agricultural production is diverse, including berries, orchards, and a variety of vegetable produce. In addition, Oklahoma's largest (500+ employees) food processing and freezing plant is located in Adair County. The largest town is the county seat, with a population of some 2,500 people. Health care resources include a 50-bed hospital, a 90-bed nursing home, five physicians, two dentists, an osteopath, optometrist, chiropractor, and two ambulance services. Other resources include three public schools (elementary, junior, senior high), the Indian Capital Area Vo-Tech school, public library, city airport, and several low-income and elderly

housing projects. The nearest urban areas are Tulsa (94 miles) and Fort Smith, Arkansas (56 miles).

In the 1980 Census, one-third of the population of Adair County identified themselves as American Indian. Some one-fourth of these are 'tribal' or 'cultural' Cherokee who maintain the Cherokee language, institutions, and values. Many of the tribal Cherokee live in small, isolated rural communities where most people are related and community resources are pooled for survival. Because these communities are not self-sufficient, Cherokee residents often travel to neighboring cities and towns to work at menial jobs for low wages. A substantial proportion of the tribal community income is from welfare (Hoffman, 1980).

Bailey County is located in the Northwest Texas High Plains in the area commonly known as the Texas 'Panhandle'. The climate is semi-arid and windy, with variable rainfall and temperatures. The principal economic activity is agriculture, equally divided between livestock and crops. Industry includes corn processing, grain elevators, and vegetable produce distribution. Per capita income in 1979 was \$8,355, the highest of the four counties surveyed. Over 30% of the slowly declining population are

Mexican American. The only incorporated city is Muleshoe, the county seat. It has a small hospital, nursing home, four public schools (two elementary, one junior and one senior high), two theatres, two city parks, a public swimming pool, golf course, exhibition center, and coliseum. The closest urban centers are Lubbock (71 miles) and Amarillo (100 miles).

Lincoln County lies in the gulf coastal plains of southeastern Arkansas. The primary agricultural and industrial activity is cotton. One-half of the county's total acreage is used for cotton cultivation; another third is forested. Blacks account for one-third of the population and serve as a primary labor force in the cotton industry. Black migration was a major factor in the 1960's population decline. With some 2,000 residents, the county seat is the largest of several small towns. The county has three small libraries, one weekly newspaper, two physicians, six registered nurses, a 60-bed nursing home, two small medical clinics and a county fairground. Some 40% of the housing is substandard, and one-half of these units are occupied by the elderly. In 1970, the estimated disability rate among work-age (16-64 years) adults was 19%. The closest urban centers are Pine Bluff

(30 miles) and Little Rock (70 miles).

Searcy County lies in the Ozark Mountain region of north central Arkansas. Three-fourths of the land is forested, and the major industry is timber. The remaining land is agricultural; the primary crop is corn. The population decline of the 1960's was reversed in the past decade. Virtually 100% of the county population is white. The county seat is the largest of three small towns and has a population of less than 1,500 residents. County resources include one library, one nursing home, four school districts, and a community center. Half of the housing in Searcy County is substandard. Some 60% of the residents of this substandard housing are elderly. In 1970 the disability rate among work-age adults (16-64) was 23%. The closest urban centers are Little Rock (80 miles) and Springfield, Missouri (90 miles).

Respondents. A total of 456 respondents was interviewed in four counties: Adair - 126, Bailey - 101, Lincoln - 126, and Searcy, 103. Potential respondents were identified through personal contacts of local resident interviewers. In the three counties having a large minority population, an effort was made to

maintain a 2:1 ratio between disabled minority and disabled white respondents. Within each ethnic group, subjects were more or less equally distributed across 5 age groups and sex types (Table 1). Although 400 or more

Table 1

Number of Respondents Interviewed by County, Race, Sex and Age

	<u>ADAIR</u>		<u>BAILEY</u>		<u>LINCOLN</u>		<u>SEARCY</u>
	<u>White</u>	<u>AmInd</u>	<u>White</u>	<u>MexAm</u>	<u>White</u>	<u>Black</u>	<u>White</u>
<u>Male</u>							
0-15	4	7	5	6	5	6	8
16-31	9	5	3	9	2	7	11
32-47	5	7	0	4	4	5	10
48-64	8	6	3	7	8	5	12
65+	4	9	7	7	5	9	11
<u>Female</u>							
0-15	3	9	3	7	4	7	10
16-31	4	10	4	4	7	11	10
32-47	7	8	4	7	3	9	11
48-64	4	6	5	9	3	7	12
65+	5	6	5	2	6	13	8

names of disabled individuals were initially obtained for each county, minor cell inequalities resulted from several factors. Institutionalized persons and duplicate members of the same family living group were excluded. The latter restriction resulted primarily in the exclusion of the siblings of minor respondents and the spouses of elderly respondents. In addition, a few people refused to grant interviews. However, the major problem was an inability

to locate people whose names had been provided: addresses and telephone numbers were either incorrect or out-of-date.

Survey Instrument. Because existing information on the needs of the rural disabled is sparse and sometimes conflicting, an open-ended format was emphasized in questionnaire design. Open-ended questions permitted the respondents to define problems relevant to their situation in terms meaningful to them. It was felt that a more restricted format might reflect a priori conceptions of the investigators rather than the felt needs of the rural disabled.

The survey instrument covered four basic topic areas: (1) needs or problem areas faced by respondents, (2) rehabilitation services, (3) demographics, and (4) health status. The primary emphasis was on specific needs or problems related to the individual's disabling condition, which were assessed through an A-P-C behavioral format (Goldfried & Sprafkin, 1974). This technique determines three critical elements associated with any problem: the antecedents of the problem (A), the problem behavior (P), and the consequences of the problem (C). These components were assessed in terms of specific contexts, durations, intensities, and frequencies. A simple example might involve a person who was unable to drive (P) because of

his or her disability. One consequence (C) might be that he or she would be forced to rely on family or friends for transportation to a regular medical appointment. The antecedents (A) would include frequency (once a week), locale (doctor's office), purpose (medical treatment), etc.

Interviewers were instructed that specific disabilities were not to be included as problems in the needs assessment. The remaining issues addressed by the questionnaire were covered in a more restricted format and reflected a more objective approach to determining the respondent's situation. Several brief questions addressed the person's familiarity, contact, and satisfaction with rehabilitation services. Demographic and health information were obtained through survey questions and interviewer observation. A copy of the survey instrument may be found in Appendix B.

Interview procedure. Interviews were conducted by local residents who had previous experience working with minority handicapped individuals. Interviewer training consisted of an intensive, one-day session covering basic interviewing skills and behavioral assessment techniques.

Whenever possible, interviews were preceded by a telephone contact in which the purpose of the survey was

briefly explained and permission to interview was obtained. Instrument administration time ranged from 20 to 30 minutes. Interviews were usually conducted directly with the disabled person, but in cases where a direct interview was prohibited by the disabled person's health or age, the survey was conducted with a primary caretaker. Sessions were tape-recorded for reliability and quality control.

### RESULTS

Health. Survey respondents reported that they suffered from an average of 2.2 specific health conditions (Table 2). The most common of these was arthritis (45%), followed by heart conditions (29%), kidney ailments (26%), speech disorders (22%), and allergies (21%). The major

Table 2

Percent of Respondents Who Reported Each  
of Fourteen Health Conditions, by Age

	0-15	16-31	43-47	48-64	65+	Σ
Arthritis	.07	.16	.39	.75	.80	.45
Heart Conditions	.05	.16	.23	.47	.51	.29
Kidney Ailments	.11	.17	.22	.27	.49	.26
Speech Disorders	.33	.35	.20	.08	.14	.22
Allergies	.24	.22	.18	.19	.25	.21
Blood Diseases	.05	.06	.13	.16	.37	.16
Respiratory	.07	.06	.18	.18	.26	.15
Diabetes	.00	.07	.07	.21	.27	.14
Stroke	.01	.03	.06	.16	.27	.11
Epilepsy	.12	.16	.07	.04	.01	.08
Cancer	.00	.00	.02	.08	.16	.06
Polio	.04	.03	.11	.02	.01	.04
Cerebral Palsy	.01	.07	.00	.02	.00	.02
Cystic Fibrosis	.01	.00	.00	.00	.00	.00

factor influencing both type and number of health conditions was age. The mean number of conditions reported per person rose steadily from 1.1, for persons 0-15 years of age, to 3.5 for those 65 years of age and over. These figures primarily reflect a strong increase in the incidence of arthritis (7%-80%), heart conditions (5%-51%), and kidney ailments (11%-49%). In contrast, the incidence of speech disorders declined somewhat with age (33%-14%), while allergies affected about 20% of the respondents in each age group. Females reported a slightly higher incidence of heart conditions (32% vs. 26%) and kidney ailments (30% vs. 22%) than did males, and whites were more likely to suffer from allergies than were other ethnic groups (28% vs. 15%). However, this latter difference was due, in large part, to an unusually high number of allergy sufferers among Adair County whites (44%) and a very low number among Bailey County Mexican Americans (6%).

In addition, the average respondent reportedly suffered from 1.7 general health problems, with visual and emotional problems accounting for over half of all those reported (Table 3). As with specific health conditions, age was a prime determinant of the type of general health

Table 3

Percent of Respondents Reporting Each  
of Eight Health Problems, by Age

	<u>0-15</u>	<u>16-31</u>	<u>32-47</u>	<u>48-64</u>	<u>65+</u>	<u>Σ</u>
Vision	.26	.31	.48	.59	.75	.48
Emotional	.54	.52	.40	.28	.36	.41
Limb Impairment	.21	.25	.35	.32	.38	.30
Hearing	.20	.15	.20	.22	.49	.25
Mental Retardation	.35	.43	.22	.04	.05	.21
Limb Loss	.00	.01	.04	.05	.09	.03
Alcohol	.00	.02	.05	.02	.03	.02
Drugs	.01	.02	.00	.00	.01	.01

problem reported. With age, there was a steady rise in the incidence of visual problems (26%-75%) and limb impairment (21%-38%). Hearing problems afflicted some 20% of all age groups except those over 65 years of age, for whom the rate was dramatically higher (49%). On the other hand, mental retardation and emotional disturbances were reported proportionately more often by younger respondents. Some 40% of those under 31 years of age were reported to be mentally retarded, compared to only 5% of those over 48 years old. Over half of the respondents under 31 indicated that they suffered from emotional difficulties. This rate declined with age, except for a moderate upturn among the elderly (36%). Females reported somewhat higher rates of visual problems and mental retardation (50%, and 24%, respectively) than did males

(45% and 19%). Ethnic background had little impact on the type of problem reported, except that white females indicated a somewhat higher rate of limb impairment (38%) than did other groups (27%).

The reported use of assistive devices was low. Wheelchairs, crutches, walkers, and canes accounted for two-thirds of all of the devices reported. Assistive devices were used by fewer than 20% of the respondents, with some respondents using more than one aid. Braces and hearing aids were each reportedly used by another 3% of the sample. Only 1% reported the use of a prosthesis, and none reported having a seeing eye dog. Such low usage rates made it impossible to draw inferences about differences between sample groups.

Economic Status. Only 12% of the disabled persons surveyed were currently employed full-time (Table 4). Another 8% had part-time employment. Almost half of the sample said that they were too disabled to work, while another 9% indicated that, although able to work, they were currently unemployed. One-fifth of the working age adults in the sample were not a part of the potential work force: 12% were homemakers, 8% were students, and

Table 4

Percent of Workage Respondents at One  
of Ten Current Employment Statuses, by County, Race, and Sex

	<u>Adair</u>			<u>Bailey</u>			<u>Lincoln</u>			<u>Searcy</u>	<u>Total</u>		
	<u>White</u>	<u>AmInd</u>	<u>Σ</u>	<u>White</u>	<u>MexAm</u>	<u>Σ</u>	<u>White</u>	<u>Black</u>	<u>Σ</u>	<u>White</u>	<u>White</u>	<u>Other</u>	<u>Σ</u>
<u>Males</u>													
Full-Time	.14	.06	.10	.17	.35	.31	.29	.06	.16	.00	.11	.16	.13
Part-Time	.14	.11	.12	.17	.20	.19	.07	.06	.06	.12	.12	.13	.12
Unemployed	.00	.17	.08	.17	.05	.08	.07	.12	.10	.12	.08	.11	.09
Homemaker	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Student	.05	.06	.05	.00	.05	.04	.00	.18	.10	.03	.03	.09	.05
Student/Pt. Time	.00	.00	.00	.17	.05	.08	.00	.06	.03	.00	.01	.04	.02
Retired	.05	.00	.02	.00	.00	.00	.00	.00	.00	.03	.03	.00	.02
Too Disabled	.59	.56	.58	.17	.30	.27	.50	.47	.48	.67	.57	.44	.52
Ret./Too Dis.	.00	.00	.00	.17	.00	.04	.00	.06	.03	.00	.01	.02	.02
Other	.05	.00	.02	.00	.00	.00	.07	.00	.03	.00	.03	.00	.00
<u>Females</u>													
Full-Time	.07	.08	.08	.23	.25	.24	.15	.04	.08	.03	.09	.11	.10
Part-Time	.13	.00	.05	.08	.00	.03	.00	.07	.05	.00	.04	.03	.03
Unemployed	.07	.08	.08	.00	.05	.03	.08	.04	.05	.21	.12	.05	.09
Homemaker	.00	.29	.18	.08	.55	.36	.23	.11	.15	.24	.16	.30	.22
Student	.07	.08	.08	.15	.05	.09	.08	.11	.10	.12	.11	.08	.09
Student/Pt. Time	.00	.00	.00	.08	.00	.03	.00	.00	.00	.00	.01	.00	.01
Retired	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Too Disabled	.60	.42	.49	.38	.05	.18	.46	.56	.52	.36	.43	.37	.42
Ret./Too Dis.	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Other	.00	.04	.03	.00	.05	.03	.00	.00	.00	.03	.01	.03	.02

1% were retired. Males had a slightly higher rate of full-time employment (13%) than did females (10%) and minorities a slightly higher rate (13%) than whites (10%). However, both of these figures reflect primarily a high employment rate among Mexican American males (35%) and females (25%). Black and American Indian males reported very low rates (both 6%), as did their female counterparts (4% and 8%, respectively). A final result of interest is that white females who were not working were more likely to describe themselves as unemployed than were minority females (12% vs. 5%), who were more likely to see themselves as homemakers (30% vs. 16%).

Consistent with employment rates, only 11% of the respondents indicated that they had worked the previous 12 months for pay, while 69% had not worked at all (Table 5). Another 13% indicated that they had worked for less than 12 full months. More females indicated that they had not worked at all than did males (76% vs. 62%), while minority males reported a high incidence of part-year employment (26%). This result was mediated primarily by Mexican American respondents (40%), while Black and American Indian males reported employment rates which were poorer than those of white males.

Table 5

Percent of Respondents who had Worked 0, 1-6, 7-11, or 12 Months  
during the Previous Year, by County, Race, and Sex

	<u>Adair</u>			<u>Bailey</u>			<u>Lincoln</u>			<u>Searcy</u>	<u>Total</u>		
	<u>White</u>	<u>AmInd</u>	<u>Σ</u>	<u>White</u>	<u>MexAm</u>	<u>Σ</u>	<u>White</u>	<u>Black</u>	<u>Σ</u>	<u>White</u>	<u>White</u>	<u>Other</u>	<u>Σ</u>
<u>Males</u>													
0	.73	.72	.72	.33	.25	.27	.57	.76	.68	.70	.65	.56	.62
1-6	.01	.06	.05	.17	.25	.23	.07	.06	.06	.12	.09	.13	.11
7-11	.01	.12	.08	.17	.15	.15	.00	.12	.06	.00	.03	.14	.07
12	.18	.06	.12	.33	.20	.23	.29	.06	.16	.09	.17	.11	.15
<u>Females</u>													
0	.67	.79	.74	.54	.30	.52	.85	.81	.82	.94	.80	.72	.76
1-6	.20	.04	.10	.08	.10	.09	.00	.07	.05	.03	.06	.06	.07
7-11	.09	.08	.05	.00	.15	.09	.16	.00	.05	.00	.02	.07	.05
12	.07	.08	.08	.38	.05	.18	.00	.04	.02	.03	.09	.06	.08
<u>Total</u>													
0	.70	.76	.73	.47	.38	.41	.70	.80	.76	.82	.72	.65	.69
1-6	.11	.05	.08	.11	.18	.15	.04	.07	.05	.08	.08	.10	.08
7-11	.03	.10	.06	.05	.15	.12	.07	.05	.04	.00	.03	.10	.05
12	.14	.07	.10	.37	.12	.20	.15	.05	.08	.06	.13	.08	.11

Almost 60% of the respondents reported a total family income of less than \$6,000; and 25% reported a family income of less than \$3,000. Only 5% reported an income of over \$15,000. Comparisons between some groups are difficult because of cell size inequalities and a strong reluctance by residents of Bailey County to reveal their income levels (34% not reporting, compared to 1%, 6%, and 2% in Adair, Lincoln, and Searcy). However, for both Black and American Indian respondents, total incomes were higher for the families of disabled males than for those of disabled females. For whites, family incomes of disabled males showed a bimodal difference when compared to those of disabled females: proportionately more male family incomes were at both the higher and lower ends of the scale. Age was also a factor in family income (Table 6). Families of disabled elderly persons were much more likely to have incomes of less than \$6,000 (77%), while families of disabled youths were much less likely to fall in that bracket (34%).

The most commonly reported sources of income were Supplemental Security (SSI 33%), family support (30%), and food stamps (29%). A relatively high percent of Mexican American respondents reported personal (27%) and family support (45%), while American Indian and

Table 6

Percent of Respondents Reporting Total  
Family Incomes of Less than \$6,000, by Race, Sex, and Age

	White			Other			Total			
	M	F	Σ	M	F	Σ	M	F	Σ	
0-15	Adair	.00	.00	.00	.43	.44	.44	.27	.33	.30
	Bailey	.00	.33	.12	.33	.00	.15	.18	.10	.14
	Lincoln	.20	.00	.11	.83	.71	.77	.55	.45	.50
	Searcy	.38	.50	.40	---	---	---	.38	.50	.44
	Total	.17	.35	.26	.53	.39	.45	.34	.35	.32
16-31	Adair	.67	.25	.54	.20	.90	.67	.50	.71	.61
	Bailey	.33	.50	.43	.56	.50	.54	.50	.50	.50
	Lincoln	.00	.29	.22	.43	1.00	.78	.33	.72	.59
	Searcy	.64	.40	.52	---	---	---	.65	.40	.52
	Total	.56	.36	.46	.43	.88	.67	.50	.62	.56
32-47	Adair	1.00	.43	.67	.43	.38	.40	.67	.40	.52
	Bailey	---	.50	.50	.25	.00	.09	.25	.18	.20
	Lincoln	.25	.33	.29	.40	.78	.64	.33	.67	.52
	Searcy	.80	.64	.71	---	---	---	.80	.64	.71
	Total	.74	.52	.61	.38	.42	.40	.57	.47	.51
48-64	Adair	.75	1.00	.83	.50	.83	.67	.64	.90	.75
	Bailey	.00	.00	.00	.14	.33	.25	.10	.21	.17
	Lincoln	.62	.33	.55	.60	.86	.75	.62	.70	.65
	Searcy	.83	.92	.88	---	---	---	.83	.92	.88
	Total	.68	.67	.67	.39	.64	.52	.57	.65	.61
65+	Adair	1.00	1.00	1.00	.78	.83	.80	.85	.91	.88
	Bailey	.29	.80	.50	.29	.50	.33	.29	.71	.43
	Lincoln	.40	.67	.55	.89	1.00	.95	.71	.89	.83
	Searcy	.91	1.00	.95	---	---	---	.91	1.00	.95
	Total	.67	.88	.76	.68	.90	.78	.67	.89	.77
All Ages	Adair	.70	.61	.66	.50	.67	.59	.59	.65	.62
	Bailey	.17	.43	.31	.33	.21	.27	.27	.30	.29
	Lincoln	.38	.35	.36	.66	.89	.80	.54	.71	.63
	Searcy	.73	.69	.71	---	---	---	.73	.69	.71
	Total	.57	.56	.57	.49	.64	.57	.54	.60	.57

Table 7

Percent of Respondents Reporting  
Each of Eight Different Sources of Income, by County and Race

	<u>Adair</u>			<u>Bailey</u>			<u>Lincoln</u>			<u>Searcy</u>		<u>Total</u>		
	<u>White</u>	<u>AmInd</u>	<u>Σ</u>	<u>White</u>	<u>MexAm</u>	<u>Σ</u>	<u>White</u>	<u>Black</u>	<u>Σ</u>	<u>White</u>	<u>White</u>	<u>Other</u>	<u>Σ</u>	
Personal Income	.30 (.19)	.12 (.07)	.20 (.12)	.28 (.15)	.27 (.24)	.28 (.21)	.15 (.09)	.14 (.06)	.14 (.07)	.21 (.16)	.23 (.15)	.17 (.12)	.20 (.13)	
Family	.25 (.25)	.30 (.23)	.28 (.24)	.67 (.49)	.45 (.35)	.53 (.41)	.40 (.30)	.18 (.15)	.26 (.21)	.13 (.09)	.29 (.23)	.30 (.24)	.30 (.23)	
Savings	.00 (.00)	.00 (.00)	.00 (.00)	.38 (.08)	.03 (.00)	.17 (.03)	.11 (.09)	.03 (.00)	.06 (.03)	.03 (.01)	.10 (.03)	.02 (.00)	.06 (.02)	
SSI	.23 (.13)	.44 (.38)	.35 (.28)	.31 (.13)	.18 (.11)	.23 (.12)	.13 (.02)	.38 (.13)	.29 (.09)	.48 (.25)	.33 (.16)	.34 (.21)	.33 (.18)	
SS Disability	.17 (.13)	.08 (.05)	.12 (.09)	.15 (.00)	.16 (.13)	.16 (.08)	.43 (.21)	.22 (.20)	.29 (.21)	.28 (.26)	.26 (.18)	.15 (.13)	.21 (.16)	
SS Old Age	.06 (.04)	.11 (.08)	.09 (.06)	.26 (.05)	.02 (.02)	.11 (.03)	.21 (.15)	.33 (.29)	.29 (.24)	.17 (.14)	.17 (.10)	.16 (.14)	.16 (.12)	
Food Stamps	.09 (.00)	.34 (.00)	.24 (.00)	.05 (.00)	.26 (.03)	.18 (.02)	.23 (.02)	.68 (.08)	.52 (.06)	.18 (.02)	.15 (.01)	.44 (.04)	.29 (.02)	
Other Welfare	.19 (.11)	.41 (.14)	.32 (.13)	.15 (.00)	.10 (.02)	.12 (.01)	.04 (.04)	.19 (.08)	.14 (.07)	.06 (.03)	.10 (.04)	.24 (.08)	.16 (.07)	

<sup>1</sup> Figures in parentheses indicate the percent of respondents reporting that source as their main source of income.

Black respondents were more likely to receive SSI (44 and 38%). In addition, a large proportion of American Indian respondents depended on other forms of public assistance (41%), and blacks on food stamps (68%). Sources of income for whites varied widely (Table 7).

When asked which of these sources of income was their primary one, respondents indicated that they depended on family (23%), SSI (18%) or Social Security Disability (16%) for the major part of their support. Again, many Mexican American respondents reported personal (24%) and family (35%) support as their primary income, while American Indians received the majority of their support from SSI benefits (38%). For Black respondents, Social Security Old Age benefits ranked high (29%). Food stamps, which were common as a general source of income, were seldom reported as a main source of support (2%).

Females reported a wider range of income sources than did males. In particular, minority females were more likely to receive SSI (41 vs. 26%) and food stamps (50 vs. 38%) than were their male counterparts. White females were more likely to receive Social Security Old Age benefits than were white males (22 vs. 11%).

Although age was also an important factor in sources of income, the effects were largely intuitive: children were more likely to be supported by their families, adults by their own income, and the elderly by certain Social Security benefits for the aged and widowed.

Rehabilitation Services. Only 60% of the working age (16-64 years) respondents indicated that they were familiar with the Division of Vocational Rehabilitation (DVR) (Table 8). Minorities were less likely to be familiar with the DVR than were whites (50% vs. 66%). This was dramatically true in Bailey County, where only 32% of the Mexican American respondents were familiar with DVR, compared to 79% of the white respondents. In addition, the females in the survey were somewhat less likely to be familiar with DVR or any other agency. The application rate (Table 9) was somewhat higher among whites than minorities (20% vs. 14%). Again, this tendency was greatest in Bailey County, where less than 5% of the Mexican Americans interviewed had applied for services, compared to over 30% of the whites surveyed. Application rate declined from 22% for 16-31 year-olds to 12% for those between 48 and 64 years of age.

Table 8

Percent of Work Age Respondents Familiar  
with DRS, by Race, Sex, and Age

	<u>White</u>			<u>Other</u>			<u>Total</u>		
	<u>M</u>	<u>F</u>	<u>Σ</u>	<u>M</u>	<u>F</u>	<u>Σ</u>	<u>M</u>	<u>F</u>	<u>Σ</u>
<b>16-31</b>									
Adair	.66	.50	.62	.40	.40	.40	.57	.43	.50
Bailey	1.00	1.00	1.00	.33	.25	.31	.50	.62	.55
Lincoln	1.00	.71	.78	.43	.64	.56	.56	.67	.63
Searcy	.55	.70	.62	--	--	--	.55	.70	.62
Total	.68	.72	.70	.38	.48	.43	.54	.60	.57
<b>32-47</b>									
Adair	1.00	.86	.92	.71	.75	.73	.83	.80	.81
Bailey	--	.75	.75	.50	.29	.36	.50	.45	.47
Lincoln	.75	.00	.43	1.00	.56	.71	.89	.42	.62
Searcy	.60	.64	.62	--	--	--	.60	.64	.62
Total	.74	.64	.68	.75	.54	.62	.74	.59	.65
<b>48-64</b>									
Adair	.50	.50	.50	1.00	.50	.75	.71	.50	.62
Bailey	.66	.60	.62	.29	.33	.31	.40	.43	.42
Lincoln	.88	.66	.82	.20	.43	.33	.62	.50	.57
Searcy	.58	.58	.58	--	--	--	.58	.58	.58
Total	.65	.58	.62	.50	.41	.45	.59	.50	.55
<b>All Ages</b>									
Adair	.68	.66	.68	.72	.54	.62	.70	.59	.65
Bailey	.83	.77	.79	.35	.30	.32	.46	.48	.47
Lincoln	.86	.54	.70	.53	.56	.55	.68	.55	.61
Searcy	.58	.64	.61	--	--	--	.58	.64	.61
Total	.68	.65	.66	.53	.49	.50	.62	.57	.59

Table 9

Percent of Work Age Respondents Who had Applied  
for Rehabilitation Services, by Race, Sex, and Age

	<u>White</u>			<u>Other</u>			<u>Total</u>		
	<u>M</u>	<u>F</u>	<u>Σ</u>	<u>M</u>	<u>F</u>	<u>Σ</u>	<u>M</u>	<u>F</u>	<u>Σ</u>
<b>16-31</b>									
Adair	.22	.50	.31	.20	.10	.13	.21	.21	.21
Bailey	.67	.25	.43	.11	.25	.15	.25	.25	.25
Lincoln	.50	.14	.22	.14	.36	.28	.22	.28	.26
Searcy	.18	.10	.14	--	--	--	.18	.10	.14
Total	.28	.20	.24	.14	.24	.20	.22	.22	.22
<b>32-47</b>									
Adair	.40	.29	.33	.00	.12	.07	.17	.20	.19
Bailey	--	.50	.50	.00	.00	.00	.00	.18	.13
Lincoln	.00	.00	.00	.80	.33	.43	.44	.17	.29
Searcy	.20	.09	.14	--	--	--	.20	.09	.14
Total	.21	.20	.20	.25	.12	.23	.23	.16	.19
<b>48-64</b>									
Adair	.00	.25	.08	.17	.00	.08	.07	.11	.08
Bailey	.33	.00	.12	.00	.00	.00	.10	.00	.04
Lincoln	.25	.00	.18	.00	.14	.08	.15	.10	.13
Searcy	.25	.17	.21	--	--	--	.25	.17	.21
Total	.19	.13	.17	.06	.04	.05	.14	.09	.12
<b>All Ages</b>									
Adair	.18	.36	.25	.11	.08	.10	.15	.18	.16
Bailey	.50	.23	.32	.05	.05	.05	.15	.12	.14
Lincoln	.21	.08	.15	.29	.26	.27	.26	.20	.23
Searcy	.21	.12	.17	--	--	--	.21	.12	.17
Total	.23	.18	.20	.15	.14	.14	.19	.16	.17

Of those who made application, over 90% received some-type of service (Table 10). This rate of service provision appeared more or less consistent across groups, with the possible exception of a lower rate for white males (82%). Of the successful applicants, 38% received

Table 10

Percent of Rehabilitation Service Applicants Receiving Medical, Vocational, Both, or Other Services, by County and Age

	<u>Adair</u>	<u>Bailey</u>	<u>Lincoln</u>	<u>Searcy</u>	<u>Σ</u>
<u>16-31</u>					
Med	.17	.40	.00	.67	.23
Voc	.33	.20	.43	.33	.33
Both	.00	.00	.14	.00	.05
Other	.50	.20 <sup>1</sup>	.14	.00	.23
Σ	1.00	.80 <sup>1</sup>	.71	1.00	.84
<u>32-47</u>					
Med	.20	.50	.50	.00	.33
Voc	.40	.00	.12	.67	.17
Both	.00	.00	.12	.00	.17
Other	.20	.50	.12	.33	.22
Σ	.80	1.00	.86	1.00	.89
<u>48-64</u>					
Med	1.00	.00	1.00	.60	.67
Voc	.00	.00	.00	.00	.00
Both	.00	.00	.00	.20	.11
Other	.00	1.00	.00	.20	.22
Σ	1.00	1.00	1.00	1.00	1.00
<u>All Ages</u>					
Med	.31	.38	.38	.45	.38
Voc	.15	.12	.25	.27	.21
Both	.08	.12	.12	.09	.10
Other	.38	.25	.12	.18	.23
Σ	.92	.87	.87	.99	.92

<sup>1</sup> Because all applicants did not receive services, all columns do not sum to 1.00.

medical services, 21% received vocational services, and 10% received both types of assistance. Over 20% received other miscellaneous services.

Respondents from Adair County were more likely to receive additional types of services (38%) than were those from Bailey, Lincoln, or Searcy Counties (25%, 12%, and 18%, respectively). Bailey County had the lowest rate of vocational service provision (12%). The age of the applicant dramatically influenced the type of service received. Young working age adults (16-31 years) were equally likely to receive vocational (33%) than medical (23%) services. However, the applicants between 32 and 47 years of age were more likely to receive medical (33%) than vocational (17%) services, and over 65% of those over 48 years of age received only medical assistance.

Respondents were generally pleased with the services they received (Table 11). Over 60% indicated that they were satisfied with the assistance provided, while only 23% indicated that they were dissatisfied. Respondents from Adair county indicated the highest rate of satisfaction, while those in Bailey County were the least satisfied (75% and 50%, respectively). Females were more pleased with the services than males

(57% vs. 41%), and minorities more than white respondents (56% vs. 44%).

Table 11

Percent of Rehabilitation Service Recipients Who Indicated Satisfaction or Dissatisfaction with the Services They Received, by Race and Sex

	<u>White</u>			<u>Other</u>			<u>Total</u>		
	<u>M</u>	<u>F</u>	<u>Σ</u>	<u>M</u>	<u>F</u>	<u>Σ</u>	<u>M</u>	<u>F</u>	<u>Σ</u>
<b>Satisfied</b>									
Adair	1.00	.80	.87	.50	.50	.50	.80	.71	.75
Bailey	.00	.67	.40	.00	1.00	.67	.00	.80	.50
Lincoln	.50	1.00	.67	.60	.67	.64	.57	.71	.64
Searcy	.72	.50	.64	---	---	---	.72	.50	.64
Σ	.65	.69	.67	.50	.70	.61	.59	.70	.65
<b>Neither</b>									
Adair	.00	.20	.13	.50	.00	.25	.20	.14	.17
Bailey	.00	.00	.00	.00	.00	.00	.00	.00	.00
Lincoln	.00	.00	.00	.40	.17	.27	.28	.14	.21
Searcy	.00	.25	.09	---	---	---	.00	.25	.09
Σ	.00	.15	.07	.38	.10	.22	.14	.13	.13
<b>Dissatisfied</b>									
Adair	.00	.00	.00	.00	.50	.25	.00	.14	.08
Bailey	1.00	.33	.60	1.00	.00	.33	1.00	.20	.50
Lincoln	.50	.00	.19	.00	.17	.09	.14	.14	.14
Searcy	.28	.25	.27	---	---	---	.28	.25	.27
Σ	.36	.16	.26	.12	.20	.17	.27	.17	.23

Of those that had never applied for rehabilitation services, over 60% indicated an interest in receiving assistance (Table 12). This interest was greater among minorities than whites (68% vs. 57%), and decreased across the three age groups included in this portion of the survey (16-31: 70%, 32-47: 61%, and 48-64: 55%).

Table 12

Percent of Non-applicants Who Expressed an  
Interest in Rehabilitation Services, by Race, Sex, and Age

	<u>White</u>			<u>Other</u>			<u>Total</u>		
	<u>M</u>	<u>F</u>	<u>Σ</u>	<u>M</u>	<u>F</u>	<u>Σ</u>	<u>M</u>	<u>F</u>	<u>Σ</u>
<b>16-31</b>									
Adair	.57	1.00	.67	.67	.50	.56	.60	.62	.61
Bailey	1.00	.67	.75	.88	1.00	.91	.89	.83	.87
Lincoln	1.00	.33	.43	1.00	.71	.85	1.00	.54	.70
Searcy	.67	.67	.67	--	--	--	.67	.67	.67
Total	.67	.60	.63	.88	.69	.79	.77	.64	.61
<b>32-47</b>									
Adair	.67	1.00	.88	.29	.33	.31	.40	.57	.50
Bailey	--	1.00	1.00	1.00	.83	.90	1.00	.88	.92
Lincoln	.67	.33	.50	1.00	.43	.50	.75	.40	.50
Searcy	.57	.70	.65	--	--	--	.57	.70	.65
Total	.62	.75	.70	.58	.50	.53	.60	.62	.61
<b>48-64</b>									
Adair	.88	1.00	.90	.60	.57	.58	.77	.67	.73
Bailey	.00	.20	.14	.86	1.00	.94	.67	.71	.70
Lincoln	.33	.33	.33	.60	.40	.50	.45	.38	.42
Searcy	.33	.30	.32	--	--	--	.33	.30	.32
Total	.48	.35	.42	.71	.71	.71	.57	.54	.55
<b>All Ages</b>									
Adair	.72	1.00	.81	.47	.45	.46	.61	.61	.61
Bailey	.33	.50	.46	.89	.94	.92	.82	.79	.80
Lincoln	.50	.33	.41	.83	.53	.65	.68	.45	.55
Searcy	.52	.55	.54	--	--	--	.52	.55	.54
Total	.57	.57	.57	.80	.63	.68	.65	.60	.62

Overall figures suggest a stronger interest in services among males than among females, but this is mitigated entirely by the strong interest in assistance expressed by minority males (80%).

Miscellaneous Demographics. Survey respondents over 15 years of age had completed an average of 8.3 years of formal education (Table 13). Only 15% had completed high school; only 6% had some college-level training. The average number of years of education declined with age, from 9.8 years for respondents 16-31 years of age to 6.7

Table 13

Mean Number of Years of Education,  
by County, Race, and Age

	<u>16-31</u>	<u>32-47</u>	<u>48-64</u>	<u>65+</u>	<u>Σ</u>
White					
Adair	10.2	9.2	8.6	6.7	8.8
Bailey	11.1	14.0	13.4	10.9	11.9
Lincoln	9.0	10.2	7.2	6.6	8.1
Searcy	10.1	9.0	7.9	6.7	8.4
Σ	10.1	9.6	9.1	7.8	9.0
Other					
Adair	9.5	8.3	6.9	6.9	7.9
Bailey	10.8	6.9	5.1	3.8	7.3
Lincoln	8.5	7.6	6.3	5.0	6.7
Searcy	---	---	---	---	---
Σ	9.5	7.7	6.1	5.5	7.3
Total					
Adair	9.9	8.7	7.8	6.8	8.3
Bailey	10.9	8.8	8.8	8.8	9.4
Lincoln	8.7	8.2	6.6	5.4	7.1
Searcy	10.1	9.6	9.1	7.8	9.0
Σ	9.8	8.6	7.8	6.7	8.3

years for those 65 and over. Minorities reported a lower average educational level (7.3 years) than did whites (9.0), with Blacks reporting the lowest

(6.7). The greatest disparity between ethnic groups in the same county was between Bailey County Mexican Americans (7.3 years) and whites (11.9). A closer examination of the data showed that the dramatic difference between the educational levels of older (49+ years of age) persons in these two Bailey County ethnic populations heavily influenced the overall effects of age and ethnicity. Older Mexican Americans had only completed an average of 4.7 years of school, while older Bailey County whites had completed 11.9 years. There was little overall difference between the educational levels of males and females (8.0 vs. 8.5 years), although Adair County American Indian and Lincoln County white females reported substantially higher averages (8.6 and 9.1 years, respectively) than did their male counterparts (7.3 and 7.2).

Not surprisingly, the most important factor affecting respondents' marital status was their age (Table 14). Only 1 of the 75 persons under 16 years of age who answered this question was married. Those in the 16-31 years-of-age bracket were also predominantly single (77%). However, half of the early middle-aged (32-47) respondents were married, and, of those between the ages of 48 and 64, 63% were married and 16% were widowed. Almost half of the 65-and-over group were married, 35% were widowed,

and only 7% were still single. Males were much more likely to be married than were females (48% vs. 29%). Across all ages, only 5 of 54 widowed respondents were males. Ethnicity was not a major influence overall, although widowhood was much more characteristic of elderly whites (43%) than of elderly respondents in the three other ethnic groups (25-33%).

Table 14

Percent of Respondents Reported as Single, Married Separated, Divorced, or Widowed, by Sex and Age

	<u>0-15</u>	<u>16-31</u>	<u>32-47</u>	<u>48-64</u>	<u>65+</u>	<u>Σ</u>
<b>Males</b>						
Single	1.00	.76	.40	.14	.12	.46
Married	.00	.22	.51	.81	.73	.48
Separated	.00	.02	.00	.02	.02	.01
Divorced	.00	.00	.06	.02	.04	.02
Widowed	.00	.00	.03	.00	.08	.02
<b>Females</b>						
Single	.97	.78	.29	.09	.02	.42
Married	.03	.18	.51	.43	.25	.29
Separated	.00	.02	.06	.02	.02	.03
Divorced	.00	.00	.08	.13	.02	.05
Widowed	.00	.02	.06	.33	.68	.22

Finally, the average respondent lived in a household of 4.0 persons (Table 15). Household size decreased steadily across the five age groups (5.7 - 2.2 persons). Among ethnic groups, Blacks had the largest number of persons living in one household (5.1); whites had the fewest (3.1). The households of young (<32 years)

disabled Blacks were especially large (7.1 persons). Disabled male respondents reported household sizes somewhat larger than those of their female counterparts. Although fairly consistent, this disparity, overall, was moderate (4.3 vs. 3.8 persons).

Table 15

Mean Household Size by  
County, Race, and Age

	<u>0-15</u>	<u>16-31</u>	<u>32-47</u>	<u>48-64</u>	<u>65+</u>	<u>Σ</u>
Adair						
White	4.7	3.5	3.6	2.1	2.1	3.2
American Indian	6.6	4.3	4.1	4.3	2.0	4.3
Bailey						
White	4.5	3.7	2.7	1.9	2.0	2.9
Mexican American	5.1	5.1	5.7	3.4	3.4	4.5
Lincoln						
White	4.6	4.0	3.6	2.1	1.6	3.0
Black	7.9	6.6	5.1	2.6	2.9	5.1
Searcy						
White	5.0	3.9	4.0	2.1	1.5	3.1
Total						
White	4.8	3.8	3.7	2.1	1.8	3.1
Other	6.5	5.4	4.8	3.6	2.7	4.6
Σ	5.7	4.8	4.1	2.6	2.2	4.0

Needs Assessment. Problems, antecedents, and consequences were grouped into content categories for analysis. Problems were sorted according to problem type and antecedents were classified by the location in which the problem was encountered. Consequences were sorted twice,

first on the basis of the emotional consequences of the problem, and then on the basis of the solution to the problem. Emotional consequences were grouped into classes which indicated the individual(s) who experienced the emotional consequence; solutions were classified by the source of attempted solution. Because content classes were developed by subjective criteria, final classifications were checked for reliability by giving two judges a sample of 81 antecedents, 100 problems, and 73 consequences. Sample problems, with their respective antecedents and consequences, were randomly selected with the constraints that each county and content class had to be represented in the sample. Counties were represented by an equal (25) number of sample problems; content categories were represented proportional to the number of items that had originally been sorted into those classes. The two judges were provided definitions of each content class and asked to sort the sample items accordingly. These two sample sorts were then checked for reliability, using a coefficient of agreement for nominal scales (Cohen, 1960). Reliability coefficients for antecedent, problem, and consequence categories were 89.2, 88.9, and 82.3, respectively.

The 1262 problems reported by 443 respondents were grouped into the 14 categories shown in Table 16. The most commonly reported problems were physical/emotional (38%), house and yard work (34%), employment (29%), and limited mobility (27%). Physical and emotional problems were assigned to a common category because of the difficulties in determining the primary cause of these types of problems. Emotional disturbances, nervousness, depression, anxiety, inability to sleep, sleeping too much, and a general lack of energy were included in this category. A substantial number of the respondents expressed anxiety over their conditions, their futures, the effects of their conditions on the futures of their families, and over the possible recurrence of severe medical problems such as cancer, heart attack, and hemorrhage. More physically related problems included in this class were difficulties adjusting to dietary restrictions imposed due to obesity or other health problems, the side effects of prescribed medications, and dissatisfaction with or distrust of their current medical care providers.

Problems with house and yard work included a broad range of household chores such as vacuuming, mopping, washing clothes, ironing, cooking, sweeping, sewing,

gardening, lawn mowing, and minor repairs.) Employment problems included five major types of complaints: difficulty in performing one's work due to the restrictions of disability, being no longer able to perform the type of work done prior to disability, inability to locate employment, inability to work in a regular salaried job,

Table 16

Percent of Respondents Reporting Each of  
Fourteen Problem Types by Age of Respondent

	<u>0-15</u>	<u>16-31</u>	<u>32-47</u>	<u>48-64</u>	<u>65+</u>	<u>Total</u>
Physical/Emotional	.30	.33	.42	.39	.44	.38
House/Yard Work	.07	.09	.45	.57	.51	.34
Employment	.04	.35	.32	.37	.34	.29
Limited Mobility	.09	.20	.35	.31	.38	.27
Attendant Care	.13	.19	.18	.18	.21	.18
Service Accessibility	.14	.15	.16	.12	.18	.15
Social Activity	.30	.21	.10	.05	.06	.14
School	.49	.21	.02	.00	.01	.14
Driving	.02	.13	.15	.14	.14	.12
Communication/Speech	.25	.14	.10	.04	.03	.11
Financial	.06	.10	.04	.18	.11	.10
Inappropriate Behavior	.26	.13	.05	.01	.02	.09
Special Education	.12	.10	.04	.00	.00	.05
Service Availability	.09	.04	.06	.05	.02	.05

and inability to do any type of work whatsoever. Several respondents expressed a desire for some type of training that was not, to their knowledge, available to them.

The major difficulty classified under limited mobility was walking--either the complete inability to walk or an ability that was extremely limited. This class also included general and specific mobility problems of hands, arms, and legs. A common complaint was the inability to lift objects of any substantial weight. Finally, a number of respondents confined to wheelchairs expressed the need for modified housing and equal access, the lack of which appeared to diminish the utility of the wheelchair in almost all cases.

Age was an important factor in the type of problem reported. Social and school problems were a concern for respondents under 31 years of age, including the areas of school (.34), social activity (.25), communication/speech (.19), inappropriate behavior (.19), and special education (.11). In contrast, house and yard work (.51) was a problem afflicting primarily those respondents over 31 years of age. Limited mobility was a problem that increased with age (9-38%), while concern over employment was expressed by a more or less equal percent (32-37%) of all but the under-16 age group. The relationship between sex and problem type was stereotypic: a much higher percentage of males reported problems related to employment (42% vs. 16%) while more females were

concerned with house and yard work (46% vs. 22%):

Antecedents were sorted into six classes indicating the location in which the problem developed (Table 17). Over 40% of the problems reported by survey respondents were encountered in the respondent's home. Another 19% were not bound to any specific locale. Both age and sex were moderate factors in problem antecedents. A greater proportion of the problems faced by female respondents were home-related (52%) than were those of male respondents (34%), while males reported that a higher percentage of their needs were work-related (10% vs. 4%) or not tied to a given locale (22% vs. 15%). In addition, over half of the problems reported by persons over 48 years of age developed at home, and one-fourth of those reported by persons under the age of 31 were encountered in a school setting.

Table 17

Percent of Problems by Antecedent Location and Sex of Respondent

	<u>Male</u>	<u>Female</u>	<u>Total</u>
Home	.34	.52	.43
No Specific Locale	.22	.15	.19
School	.12	.09	.11
Local Community	.10	.10	.10
Other Communities	.08	.08	.08
Work	.10	.04	.07

Emotional consequences were divided into four classes which were defined by the person or persons who experienced the emotional consequence (Table 18). Respondents reported emotional consequences for almost 60% of the problems that they faced. Three-fourths

Table 18

Percent of Problems by Focus of  
Emotional Consequence and Age of Respondent

	<u>0-15</u>	<u>16-31</u>	<u>32-47</u>	<u>48-64</u>	<u>65+</u>	<u>Total</u>
Personal *	.35	.45	.47	.45	.41	.43
None	.36	.40	.38	.47	.48	.42
Personal & Family	.17	.09	.07	.06	.07	.09
Family	.12	.06	.06	.02	.04	.06

of these were reportedly experienced by the disabled individual alone. Responses for the under-16 age group differed considerably from the rest of the sample. This group reported the highest incidence of emotional consequences (64%), and the consequences were reported as being more likely to affect the disabled child's family than were the consequences of disabled adults (29% vs. 12%). In addition, female respondents reported a moderately higher number of emotional consequences for their problems (61%) than did male respondents (54%).

Solutions were classified according to the type of help respondents had turned to in seeking to resolve their problems (Table 19). They relied on their families to deal with one-third of the problems, while another third of the

Table 19

Percent of Problems by  
Source of Solution and Age of Respondent

	<u>0-15</u>	<u>16-31</u>	<u>32-47</u>	<u>48-64</u>	<u>65+</u>	<u>Total</u>
Family	.29	.27	.41	.31	.33	.32
None	.29	.32	.28	.23	.27	.27
Personal	.08	.11	.08	.08	.09	.08
Physician	.09	.07	.04	.12	.06	.08
Friend	.02	.06	.09	.10	.09	.07
Activity Restriction	.04	.05	.02	.10	.04	.05
Employee	.00	.01	.03	.05	.10	.04
School	.15	.05	.01	.00	.00	.04
Specialized Therapy	.03	.04	.04	.02	.02	.03
Psychologist	.01	.01	.00	.00	.00	.01

problems remained unresolved. Only 15% had been addressed through professional help. Problems facing respondents under 16 years of age were the most likely to receive professional attention (28%), primarily at school. Respondents between the ages of 32 and 47 years were the most likely to turn to their families for assistance (41%),

and their problems were the least likely to be treated professionally.

DISCUSSION

A broad range of needs were identified by this pilot survey of disabled residents of four socioeconomically distinct rural counties. These included medical and emotional, limited mobility, employment, transportation, personal care, and educational problems. The majority of these needs were either unresolved or dealt with on a limited basis by the disabled persons themselves and/or their families. Professional services were either not utilized, unknown, or unavailable to most of the respondents. There was virtually no evidence of any impact of rehabilitation technology upon the needs of these rural disabled individuals. Assistive devices were rare, unsophisticated, and often of limited value because of the lack of modified housing and equal access. Furthermore, demographic data provided stark evidence of a lack of personal resources with which disabled individuals could address their own problems. Educational, employment, and economic levels were consistently low.

Health. The poor medical and emotional status of these rural disabled individuals was evident in both the needs assessment and demographic data. In the behavioral



needs assessment, more respondents reported problems in this category than any other. These data suggest that rural disabled individuals are under constant stress. They suffer frustration and anger from the limitations of their disability. They fear for their own futures and those of their families. Many are plagued by problems with sleep, arising either from anxiety, the discomforts of their physical conditions, or the side effects of medication. Those that do not suffer from insomnia are often plagued by oversleep, exhaustion, and a general lack of energy. This, in turn, often compounds feelings of lack of productivity, uselessness, dependency, and low self-worth. A high level of need is contrasted with an absence of professional psychological assistance; only 1% of the problems listed in the needs assessment were reportedly being addressed by counseling or other psychological services.

Emotional problems were also among the most commonly reported health problems in the demographic portion of the survey. In addition, physical conditions that are often associated with the elderly, such as arthritis and visual impairments, were common. Since the survey was designed to include roughly equivalent numbers of persons from all age groups, the data undoubtedly underestimated

the incidence of these health conditions in the general rural disabled population, the majority of which is over 50 years of age. Both limited vision and arthritis are likely to be major factors contributing to the problems of limited mobility, house and yard work, personal care and transportation reported in the needs assessment. In contrast, younger respondents reported relatively high rates of mental retardation, emotional illnesses, and speech disorders. These problems are also reflected in the needs assessment: special education, social activities, and inappropriate social behavior were problems reported primarily by respondents under 32 years of age.

The data suggest that the health problems of younger respondents were somewhat more likely to be receiving professional treatment than were those of their elders. Fewer than 10% of all of the problems reported were said to be under professional medical treatment. However, for respondents who were still in school the outlook was marginally better, since 15% of their problems were being addressed through school services. Nonetheless, overall health services for these rural disabled respondents appeared lacking. The younger respondents received few services, the elderly even less, and the middle-aged adults reported that virtually none of their problems

were being addressed through professional medical, psychological, or other therapeutic services.

Socioeconomic. With the possible exception of whites living in Bailey County, Texas, the socioeconomic levels of the survey respondents were extremely poor. The average adult respondent had little more than an eighth grade education. Almost 60% reported total annual incomes of less than \$6,000 and only 12% were gainfully employed. Little can be added to these stark statistics to more adequately convey the lack of tangible personal resources with which respondents might struggle to meet their individual needs. However, additional survey data also provide some information on the complexity of the situation underlying their poor socioeconomic status. First, although employment problems ranked high in the needs assessment, employment is perceived as a problem almost exclusively by rural disabled males. Rural disabled females, especially those of minority ethnic background, did not appear to view themselves as part of the regular labor force. Their 'employment' problems were usually expressed as problems with house and yard work. Moreover, of the respondents, mostly male, who did perceive themselves

as potentially being part of the labor force, the overwhelming majority considered themselves too disabled for employment. A careful examination of the specific types of employment problems reported in the needs assessment shows that, in a number of cases, this did not mean that they were too disabled to do any type of work whatsoever. Often, the disabled male respondent was unable to do his work as effectively as he once did, or was unable to do the type of work in which he had training and experience prior to his disability, or, because of his unreliable health status, was not able to hold a regular salaried position. It appeared that some of these respondents were self-employed prior to their disability and now continued to struggle with their farming, logging, or similar work, although often unable to achieve productivity levels necessary to support themselves and their families. In other cases, previously employed workers were limited to 'odd jobs' types of income that could be tailored to their fluctuating health status.

The socioeconomic plight of the disabled rural resident is complicated by rural educational and employment factors. Because rural economies include a large number of manual labor jobs, formal education has usually been

less valued in rural society than in urban environments. A healthy rural male has some reasonable expectation of supporting himself and his family even if he has relatively few years of formal schooling. However, the disabled male is left with few employment alternatives in a rural society. His educational background is often inadequate for most positions requiring sophisticated skills and little physical exertion. Furthermore, there is little demand for such skills in sparsely populated areas.

It is unfortunate that there was such a low response rate by Mexican Americans to the questions on family income, because without these data, it is difficult to assess the relationships among ethnicity, income, education, and employment. Presumably, Mexican American incomes benefitted somewhat from the seasonal employment that was reported in the survey, but the extent of this benefit was obscured by the substantial percentage of Mexican Americans who refused to provide income data. As it stands, Black respondents seemed to be the most disadvantaged, while Bailey County whites reported moderately higher levels on all three socioeconomic indicators. Differences in rates of use for some types of public assistance complicate interpreting income figures. For example, Blacks reported the lowest cash incomes but the highest use of

food stamps. Some American Indians received tribal assistance unavailable to other ethnic groups. Whites in the remaining counties and American Indian respondents all reported low levels of income, education, and employment.

Although the survey failed to clearly separate ethnic groups along socioeconomic dimensions, it seems clear that, whatever socioeconomic distinctions do exist, the most important factors determining felt needs are rurality and disability. Problems, antecedents, and consequences were remarkably consistent across all four ethnic groups sampled in this survey. In light of the consistently low socioeconomic standing of the respondents, this is probably to be expected. Regardless of ethnic background, the rural disabled share a common plight of low income, unemployment, and a poor educational background. Economic differences between groups are unlikely to have any real effect on the needs arising from disability. A rural disabled person is no more likely to be able to hire a housekeeper or a personal attendant, or secure private psychological services on an annual family income of \$6,000 than on one of \$4,500. Similarly, a 40-year-old disabled male with nine years of formal education is not realistically more competitive for employment than one with eight.

Rehabilitation Services. Almost all of the respondents who reported that they had applied for rehabilitation services said that they were provided with services with which they were generally satisfied. A possible shortcoming in service provision involved older adult applicants. Younger applicants were more likely to be provided both vocational and medical services, while older applicants were usually provided with only medical services. Results from the needs assessment showed that employment concerns did not decline with age, suggesting that current services may not be adequately responding to the older worker's desire to remain vocationally productive.

The primary problem documented in the survey data was the substantial lack of awareness of rehabilitation services and the extremely low rate of service utilization. The low application rate among those respondents who said that they were familiar with DVR contrasts with a fairly strong interest in these services expressed by persons who said that they were not familiar with DVR. It is possible that those who were aware of rehabilitation services had concluded, without ever having applied, that these services were either not appropriate to their needs or that they were ineligible for services.

Rehabilitation services have historically had a strong vocational emphasis, yet the majority of the needs expressed were for counseling and independent living services. Furthermore, the poor educational backgrounds of many of the respondents would make it difficult for them to qualify for jobs requiring sophisticated skills. In addition, few skilled positions are available in rural areas, and the more available semi-skilled or unskilled work is often so poorly remunerated that the overall benefits of training for this type of work would be limited. Finally, the concept of work for rural disabled persons had a different emphasis than it does for urban disabled persons. For the rural disabled person, being productive does not necessarily mean earning a salary and going to a place of employment outside the home. Respondents often viewed their vocational problems in terms of being unable to get chores accomplished (planting a garden, taking care of livestock, cutting firewood), rather than in terms of being unable to find employment. Many rural disabled people, limited in education and living in areas with severely restricted employment opportunities, may never have seriously entertained the idea of pursuing regular salaried employment or a career.

Low service utilization rates in rural areas have often been attributed to a lack of transportation and the reluctance of rural people to request assistance. Although these two factors undoubtedly contribute to the problem, survey data suggest that they are not overwhelming factors. Transportation needs ranked fairly high in the assessment. Many of the respondents were unable to drive. None reported having a modified vehicle. Public transportation was extremely scarce and often available only to a limited clientele. For example, transportation services for the elderly would not be available to younger disabled persons. On the other hand, most of the respondents felt that they could count on family or friends to provide transportation when necessary. Transportation appeared to be a day-to-day inconvenience--prohibiting a spontaneous trip to the grocery store, restricting the hour of a doctor's visit to suit the schedule of a neighbor or family member, or necessitating finding a co-worker willing to provide a ride to and from work. However, transportation did not appear to prohibit service utilization. Moreover, providing expanded public transportation would probably not remedy many of the needs described in this survey, since the majority of the problems were encountered in the disabled respondents' own homes.

Finally, survey data tended to refute the widespread notion that rural people value self-sufficiency and independence so much that they will not accept social services. The interest respondents expressed in rehabilitation services suggests that effective publicity and outreach efforts might substantially increase participation in rehabilitation programs. Increased service utilization might stretch too far existing agency personnel and resources. If more disabled persons were to use DVR, increases in personnel and service programs would be needed along with increased funding.

A final question is whether or not rehabilitation services are currently offering appropriate kinds of interventions in rural areas. Do vocational programs offer a realistic option for those whose education is limited and employment opportunities severely restricted? Independent living needs, such as equal access, attendant care, modified housing, and counseling services accounted for most of the concerns documented by this assessment. Future rural rehabilitation programs will have to: (1) provide services that address the needs of the rural disabled persons, as they perceive them, (2) be consistent with the realities of rural employment opportunities, (3) be suited to the rural concepts of productivity and self-worth, and

(4) adequately inform potential clients of the appropriateness of their services in meeting client needs. Unless these issues are successfully addressed, low service utilization will continue to be a critical problem in rural areas.

#### Implications for Rural Rehabilitation

Although this assessment was limited to four rural counties in three southern states, a number of results have striking implications for efforts to improve vocational rehabilitation in rural areas:

1. Rural disabled individuals need to be effectively informed of the services currently at their disposal. Some 40% of the working-age survey respondents were not familiar with DVR, although more than 60% of these same individuals were interested in services. Outreach efforts and follow-up visits are needed if service utilization rates are to increase substantially.

2. Further investigation is needed to determine the reasons for the low rate of service application among rural handicapped persons who are aware of available services. Fewer than one-third of the respondents who indicated that they were familiar with DVR had actually applied for services.

3. A careful examination should be conducted to determine the feasibility and benefit of providing more vocational services to older applicants. The likelihood that an applicant had been provided vocational assistance decreased substantially with age, including those provided to 30- and 40-year-olds, compared to those in their twenties and teenagers. Given the relatively high proportion of older individuals in the rural population and the aging of the general population in this country, it would seem wise to encourage service agencies to soften their focus on younger applicants as the primary recipients for vocational assistance.

4. The need for more sophisticated assistive rehabilitation devices in rural areas should be addressed. The majority of devices reported in use by survey respondents (canes, walkers, and crutches) do not reflect even the limited technological advances that have been made in this area. Even wheelchairs and hearing aids were reportedly used by only five and three percent of the sample, respectively. In contrast, substantial numbers of respondents reportedly suffered from arthritis, limb impairment, mobility limitations, and/or hearing disorders, suggesting a great need for these devices.

5. Groups to provide emotional support to individuals with disabilities and their families are needed in rural communities. The problems facing rural disabled people are very similar, and relief from psychological ailments such as depression and anxiety might be provided by such support groups.

6. Community leaders and professionals such as physicians, nurses, psychologists, and social workers should be educated about the needs and problems of rural disabled persons so that they can provide more effective services to disabled persons and their families.

7. Social service agencies which exist in rural areas might improve service availability by sharing resources such as buses, referral lists, and outreach.

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