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FACTORS INFLUENCING THE UTILIZATION OF HEALTH SERVICES
AMONG THE AGED OF KNOX COUNTY

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ABSTRACT

The purpose of this study was to determine how sources of information dissemination, knowledge of services, need for services, and selected demographic variables influence the utilization of health services by those 65 years of age or older in the Knoxville-Knox County area. With the help of a representative from the Office on Aging a questionnaire was developed to measure need, knowledge, source of information, use, and demographic variables. A jury of experts then reviewed the questionnaire and revisions were made to increase validity. Next a pilot study was conducted on 25 randomly selected aged within different geographic areas in Knox County. The questionnaire was administered verbally by the interviewer with the interviewer recording the responses.

After the pilot study was completed, 269 aged were selected using Goodrow's technique of sample selection. The aged interviewed could not reside in convalescent homes, nursing homes, mental hospitals, or any other similar type of institution.

Chi-square tests were used to determine differences between use of services and demographic variables; use of services and source of information; source of information and demographic variables; knowledge of services and source of information; knowledge of services and demographic variables; and need for services and demographic variables. Regression analyses were calculated for prediction of need for services and utilization; and prediction of knowledge of services and utilization.

Significant relationships were found between need and demographic variables; knowledge and source of information; knowledge and demographic variables; and utilization and source of information (family).

The aged in this study appeared to feel a high degree of need for health services yet lacked knowledge of services available and made little use of the same. Possible reasons for the above are that the aged could not afford care, were too independent to ask for help, were ignorant of services, or were unable to relate service to need for care. Further study should be done to determine the relationship of morbidity to utilization of health services.

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CHAPTER 1

INTRODUCTION

The United States during the decade of the 1970s was experiencing a "demographic" revolution according to Reinhardt and Quinn (1979, p. xi). From the mid 1900s, both the number and the proportion of the aged increased dramatically (Bureau of Census, 1984). This growth rate could be attributed to the high birth rate of the late nineteenth and twentieth centuries, the high immigration rate prior to World War I, and the dramatic increase in life expectancy rates (Futrell, Brovender, McKinnon-Mullett, & Brower, 1980). Life expectancy increased as medical discoveries, improved nutrition, technological improvements, better sanitation, surgical advances, and new diagnostic and treatment methods were developed. Due to these factors those persons who were 65 and over became the fastest growing segment of the population (Birchenall & Streight, 1982).

For instance, in 1900 the United States Census showed that approximately 4% of the population was 65 and over (Coe, Cape, & Rossman, 1983). In 1983, the census reported the estimate to be 27,384,000, or almost 12% of the total population (Bureau of Census, 1984). This was expected to rise even further to 16% of the total population in 2020 (Coe et al., 1983).

This increase was not just among the young old (65-74) but among the very old (75 and over) as well. In 1900, 29% of the 65-and-over population was 75 and over; by 1970 it was 38%. The

proportionate size of the 75-and-over group was expected to rise to 44% by the year 2000 (Kovar, 1977).

This sudden surge in numbers among the aged placed new demands and stresses upon health care services. An indication of this need was the fact that in 1979 the aged used 29% of the nation's total health expenditures despite the fact that they comprised only 11% of the total population (Kane & Kane, 1978).

However, most aged were not in poor health. Ninety-five percent lived in their own homes and only 5% were confined to institutions (Futrell et al., 1980). According to Fowles (1983), chronic conditions affected four out of every five aged citizens and limited the activity of 9% of all noninstitutionalized aged (Fowles, 1983).

Due to the preponderance of chronic conditions among the non-institutionalized aged, it was obvious at the time of this writing that they had substantial needs for adequate community health services. These services were needed to provide many chronically ill, aged persons with an alternative to the dependency that institutionalization provides (Wilson, 1978). In a study by Hoffman and Ridley (1984) the aged were asked to determine the type of supportive living arrangement they desired if they found it difficult to care for their own needs. The findings showed that 57% of the respondents desired to stay at home with community services providing assistance instead of moving to service-enriched housing.

Unfortunately, many resources that could assist the aged in maintaining independence were unused because many consumers and

providers were unaware of their existence (Futrell et al., 1980). Snider (1980) found that awareness of an available health related service was the strongest predictor of the use of a service. Awareness of services may arise from the formal network (governmental and voluntary agencies), the media, or the informal network (family, friends, and neighbors) (Gress, Rose, & Bahr, 1984).

However, even when a need exists awareness of a service does not mean use of a service. The underutilization of mental health services has been well documented. Even though 10 to 30% of the aged from a 1984 study had mental health problems only 4 to 5% sought help from community health centers. Variables other than lack of information about services available accounted for this underutilization (Waxman, Carner, & Klein, 1984).

In the literature, many different sociodemographic variables were found to be related to the utilization or underutilization of health services. While this study focused on the role of information on utilization of health services other sociodemographic variables were assessed as well.

Purpose of the Study

The purpose of the study was to determine how sources of information dissemination, awareness of services, need for services, and selected demographic variables influence the utilization of health services by those 65 years of age or older in the Knoxville-Knox County area.

Statement of the Problem

The literature indicates that knowledge about and utilization of health services is reported to be a problem among the aged. In many cases information does not get to those who need it most, thus under-utilization of services exist.

Many sources of information dissemination are available to the aged to help them become aware of needed services. The study sought to determine what effect the various factors would have upon the utilization of health services. Answers to the following questions were sought:

1. Was there a relationship between the utilization of health services and the source of information?
2. Was there a relationship between the utilization of health services and selected* demographic variables?
3. Was there a relationship between the source of information and selected* demographic variables?
4. Was there a relationship between a knowledge of health services and the source of information?
5. Was there a relationship between a knowledge of health services and selected* demographic variables?
6. Was there a relationship between a need for health services and selected* demographic variables?

*sex, race, age, marital status, education, income, employment status, transportation available, type of residents in home, significant other, health status, and method of health care payment.

7. Was there a relationship between the need for health services and the utilization of health services?
8. Was there a relationship between a knowledge of health services and the utilization of health services?

Hypotheses

Several null hypotheses were derived from the research questions posed in the statement of the problem. They were as follows:

1. There is no relationship between the utilization of health services and the source of information.
2. There is no relationship between the utilization of health services and selected* demographic variables.
3. There is no relationship between the source of information and selected* demographic variables.
4. There is no relationship between a knowledge of health services and the source of information.
5. There is no relationship between a knowledge of health services and selected* demographic variables.
6. There is no relationship between a need for health services and selected* demographic variables.
7. There is no relationship between the need for health services and the utilization of health services.

*sex, race, age, marital status, education, income, employment status, transportation available, type of residents in home, significant other, health status, and method of health care payment.

8. There is no relationship between a knowledge of health services and the utilization of health services.

Need for the Study

Information provides a link between a need for health services and utilization of those services. "Without adequate information, the aged and those around them are in a disadvantaged position to respond to life crises as well as to the events of daily living" (Silverstein, 1980, p. 17). In a study by Schooler and Sherman (1980) the importance of perceived community support in crises was directly related to the health of the aged.

The aged must be made aware of available support in times of need. The aged, of all the age groups, have less support available within the community setting from family members and friends, but are more impaired in the areas of mental health and social resources (Smyer, 1980).

Smyer's research is supported in Knox County by a 1984 Knoxville-Knox County Community Action Committee report (Ambler, 1984). Thirty-five percent of Knox County's aged live alone or with nonrelatives. Besides social isolation these aged also suffer from high rates of poverty. In Knox County one out of every five aged persons is poor. With the projected increase in Knox County's aged population from 35,755 in 1980 to 59,608 in 2000, an effort must be initiated to inform these elderly about health services. This information will provide them with the support they need to allow them to remain in

their own home instead of having to enter long-term care facilities where the quality of life, contentment, and satisfaction are less (Billings, 1982).

Research to determine that the aged are made aware of health services has been mandated by Section 704 of the Older Americans Act of 1984 (U.S. Cong., House, 98th Cong., p. 26). However, due to budget reductions no research could be found related to awareness or utilization of health services in Knox County. With only one out of every four poor persons receiving any kind of welfare assistance it was determined that a study related to awareness and utilization of health services was needed (Amber, 1984).

Delimitations

This study dealt with a specific population and area of residence. Interviews were conducted exclusively with those Knox County residents who were at least 65 years of age or older. The aged interviewed could not reside in convalescent homes, nursing homes, mental hospitals, or any other similar type of institution.

Limitations

This study was limited in that any conclusions drawn from this study may be generalized only to the study populations. Responses were limited to those elderly persons willing to participate in the study.

Basic Assumptions

The following assumptions were made:

1. The interview technique utilized elicited valid responses.
2. The elderly responded accurately and truthfully.
3. The elderly were concerned about the availability of health services.
4. Existing services are underutilized.

Definitions of Terms

The following terms are defined and/or interpreted as they are specifically used by the investigator in this study.

Access. A means of approach used by the aged to acquire health services. The extent of income, insurance proximity, transportation, and sources for information can all affect access to health care.

Affluent. Those aged in Knox County who had an annual income over \$25,000.

Community health services. Neighborhood resources which support healthy living and the aged person's endeavor to remain in their own homes as long as possible before seeking institutionalization. The skills of doctors, nurses, social workers, speech and occupational therapists, homemakers, housekeepers, home health aides, and dieticians would be used to assess the individual's needs and implement care. Some examples of these services include: meals on wheels, hospice care, information and referral centers, and outpatient clinics.

Elderly, aged, old. A person who is 65 years of age or older.

Enabling characteristics. A condition that permits a family or person to act on a value or satisfy a need regarding health service use. These conditions can be measured by such family resources as income, insurance coverage, information, regular source of care, geographic location, transportation, etc. (Lehrer, 1982).

Formal support systems network. Mechanisms that provide goods and services through governmental and voluntary agencies (Gress et al., 1984).

Home health services. Services developed in response to the needs of people who wish to remain at home and out of an institution. The four basic services usually provided are: case management, home maintenance/chore service, homemaker service, and information and referral (Flaherty, 1980).

Impoverished. Those aged who had an annual income below \$5,000.

Informal support systems network. Informal bonds of social support composed of family, friends, and neighbors (Gress et al., 1984).

Long-term care. Support for a chronic condition over an extended period of time in institutions or at home.

Old-old. Those aged over 75 years of age.

Predisposing characteristics. Those characteristics which exist prior to the onset of an illness or to the use of a health service. These include demographic, social structural, and attitudinal-belief variables (Lehrer, 1982).

Utilization. The consumption of health services by the needy aged. This consumption can be influenced by societal (technology, norms) and individual (need, awareness, demographics) determinants.

Young-old. Those aged between 65 and 74 years of age.

This concludes the introduction to the study. The next chapter discusses the review of related literature.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

Until the twentieth century little research could be found in the literature about the problems of the aged (Reynolds, 1963). This was mainly because the life expectancy was only 47.3 years in 1900 and individuals were not surviving long enough to acquire many of the characteristic conditions and problems of old age. However, since 1900, the number of aged increased drastically and the problems and needs of the aged began to surface and become more apparent (Woodruff & Birren, 1975).

Since the 1950s a great deal of attention has been focused on the needs and problems of the aged by the federal, state, and local groups. Many problems and needs were defined and the government, state, and community provided assistance through various health care services (Strecker, 1965).

However, many times the elderly did not utilize these very services which had the capacity to improve the quality of their life (Long, Anderson, Burd, Mathes, & Todd, 1971).

This chapter focuses on the research surrounding the question of underutilization of health care services by the aged. The overview utilizes Anderson's model as a framework for discussion. A description of Anderson's model is initially given and then a discussion of determinants of health care utilization follows.

Research Related to Content

Many models have been developed for researching health care utilization. According to Buczko (1980) the most accepted of these has been the Anderson-Newman model. This model takes into account both societal and individual determinants. Figure 1 shows the relationships between the major framework components. Societal determinants influence individual determinants both directly and indirectly (health services system).

The focus for this discussion is on the individual determinants. See Figure 2 for a diagram of individual determinants (Lehrer, 1982).

Individual Determinants of Health Care Service Utilization

Predisposing Characteristics

Predisposing characteristics are those characteristics which exist prior to the onset of an illness or need for a health service (Lehrer, 1982). These characteristics can determine the use of health care services.

Age. As people age they suffer from more chronic diseases and their vulnerability to further decreases in functioning heightens. Moreover, the effects of chronic disease are exacerbated by psychological, socioeconomic, and environmental handicaps. It is estimated that in the 1980s one-fourth of all the aged required home care services (Brody, 1980). Older persons also had a higher rate of physician

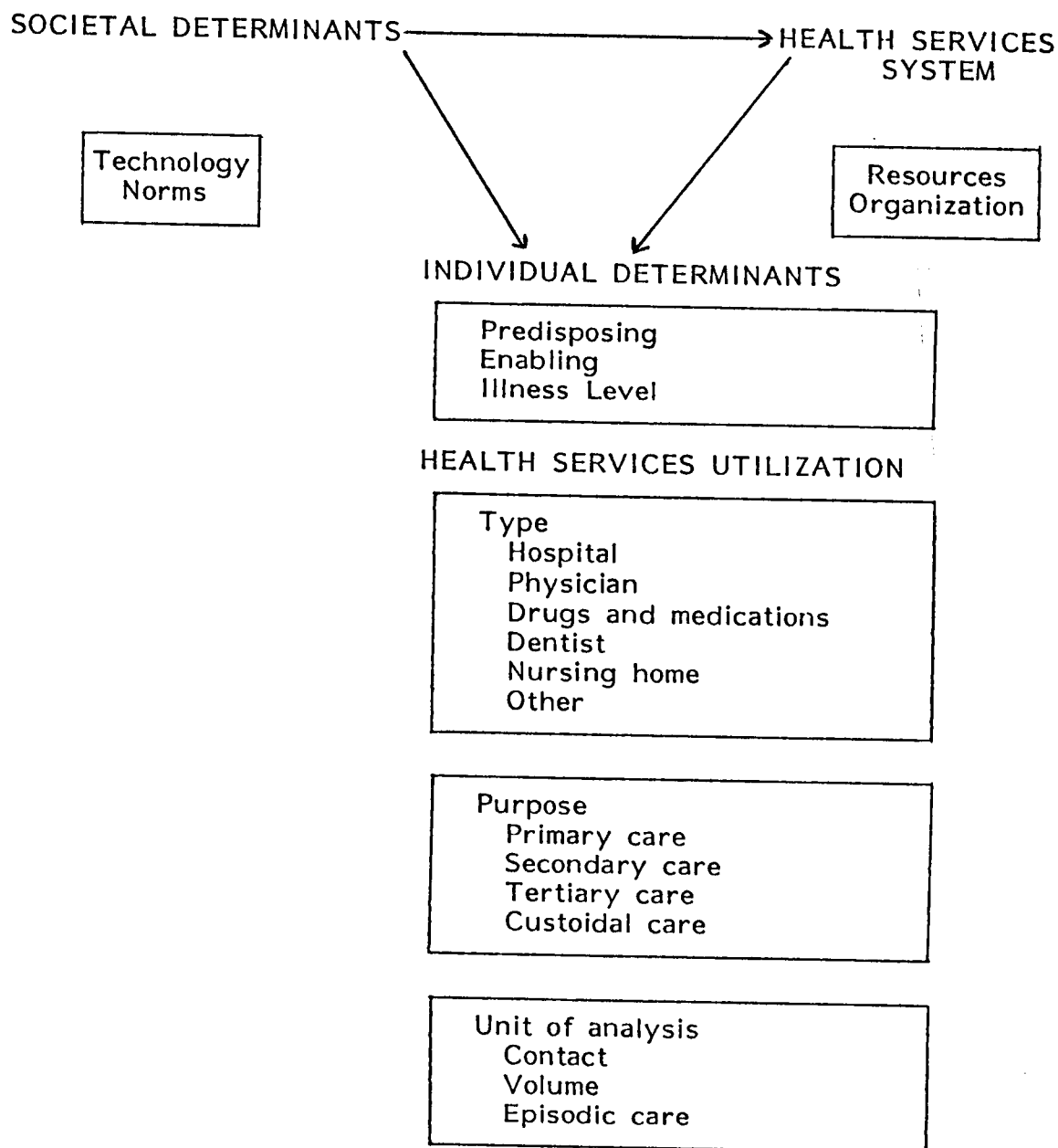


Figure 1. Determinants of Health Care Utilization.

Note. From Utilization of Health and Social Services by Elderly Population: A Multivariate Analysis of Predisposing, Enabling, and Need Factors Based Upon clusters of Services Used (p. 8) by Susan Lehrer, 1982, Massachusetts: Grandeis University.

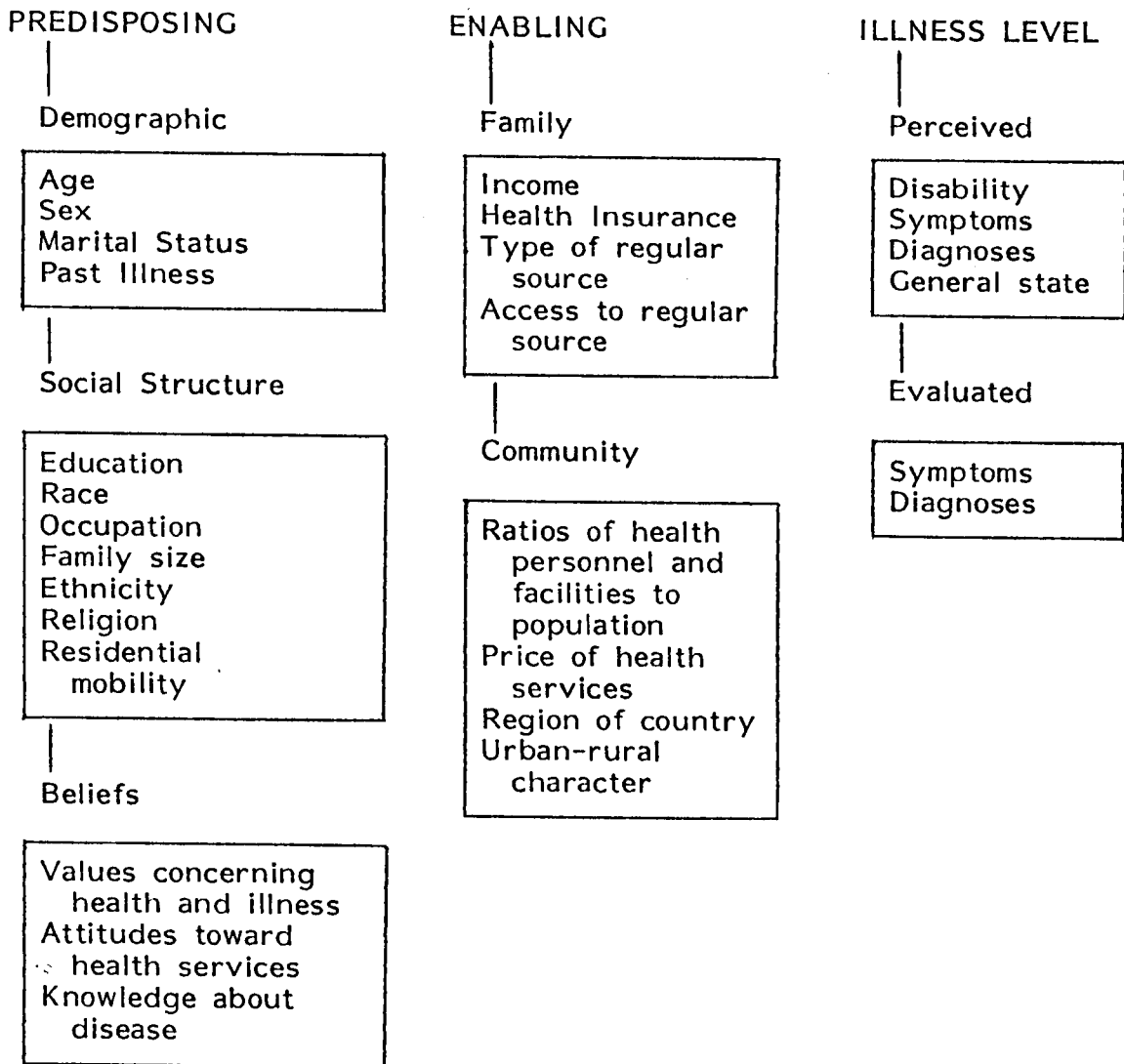


Figure 2. Individual Determinants of Health Care Utilization.

Note. From Utilization of Health and Social Services by Elderly Population: A Multivariate Analysis of Predisposing, Enabling, and Need Factors Based Upon Clusters of Services Used (p. 9) by Susan Lehrer, 1982, Massachusetts: Brandeis University.

visits, hospitalization, and drug usage (Stanford, 1979). Krout's study of correlates of service utilization among the rural aged found that advancing age was directly related to health care service use (Krout, 1983). A Connecticut study showed that only 30% of apartment dwellers under 71 utilized the ambulatory clinic while utilization was 70% for those over 71 years of age (Ingman & Lawson, 1982). Hurtado, Greenlick, McCabe, & Saward (1972) also established that home care program admissions were higher for those over 65 years of age.

However, some studies indicated a negative correlation between age and service utilization. Snider (1981) discovered that there was a zero correlation between the use of health services by the young-old and the old-old. Nye, Bell, Kara, and Joy (1977) also found that the aged were less likely to use disaster assistance than their younger counterparts. Trager's study (1976) concluded that much of the disuse of services by the aged was due to the fact that these services were either unavailable or not widely used in the elder's youth.

Gender. At the time of this research women not only outnumbered men but they tended to live longer than men. This was exemplified by the fact that widows outnumbered widowers five to one (Futrell et al., 1980). By the year 2000 it was estimated that there would be 154 women to every 100 men, and 191 women to every 100 men for those over 75 (Ebersole & Hess, 1981). How did women compare to men in health service utilization? There were conflicting reports.

In Haug's study (1980) of 1,509 aged, differences between men and women in use of health services declined among those 60 or older. Women were found to be no more likely than men to overutilize or underutilize care despite the fact that women had more chronic problems.

Other studies indicated that the sex of an individual did account for variation in the use of health services. Sindelar (1980) reported that women spent about 50% more on medical care than did men. For instance, women (66%) also were discovered to be the major users of an ambulatory clinic (Ingman & Lawson, 1982), and psychiatric outpatient service (Simson & Wilson, 1982; Parkhurst, 1976). Finally, of those over 74, women were also twice as likely as men to be institutionalized in nursing homes (U.S. Dept. of Health, Education, and Welfare, 1976-77).

Marital status. What was the marital status of the aged? In the late 1970s most older men were married (77%) and most older women were widows (52%). As the old aged 70% of all women over 75 were widows and were eight times less likely to marry than were widowers (Brody, 1980).

This decrease in marriage among aged women seemed to affect their utilization of health care services. This effect became especially evident among the old-old (age 80 or more). Married men over age 80 used fewer home services than single men presumably due to the fact that their younger wives helped them. Married women, on the other hand, used more services than single women, probably on behalf of

their even older husbands. Therefore, men used more services when they were single and women used more services when they were married. Finally, when both sexes were single men tended to use more services (Daatland, 1983).

Throughout the literature marital status seemed to be a significant predictor of health services utilization. In a study of follow-up home care by hospital discharge nurses the population of aged seen consisted of 43% widowed and 22% married (Victor & Vetter, 1984). Daatland (1983) and Krout (1983) also found that the single aged used more services than the married.

Education. Educational attainment has been cited as having varying roles in the utilization of health care services. In her study comparing aged in nursing homes with ambulatory aged using community resources, Rosenzweig (1975) reported that the ambulatory aged were more likely to be less educated. Setting a low value on individual capacities, they were less likely to be threatened by illness and therefore less likely to be institutionalized. Krout (1983) and Harris (1978) also found education to be inversely related to health service utilization.

However, as can be expected, some studies reported a link between education and utilization of health care services. Fowler (1970) in a comprehensive study of the participation of the urban aged in a wide range of programs, reported that greater use of services occurred among the aged who had more formal education. Feldman (1966) discovered that those who had more education were better able

to process new information about health and then to utilize that information to meet their own needs through available community resources. In a 1984 paper, Krout agreed with Feldman and Fowler and stated that awareness of network services was positively related to education. Therefore, it was not just a lack of money but a lack of education which handicapped the poor in acquiring adequate health care (Palmore, 1971).

Occupation. In terms of employment in 1970 one-third of aged males (65-69) were employed while 11% of the men over 75 were employed. Employment among females (65-69) was reported to be four times as high as it was among those 75 and over (Haber, 1973).

What a person does for a living can have an impact upon service utilization. Studies have shown that people in lower white collar and upper blue collar occupations were more likely to use services than those in the highest or lowest occupational groups (Bice & White, 1969). Of course preretirement counseling and pension programs might prompt some employees to use outside services (Silverstein, 1980).

What about those outside of the labor market? Katz (1975) found that those who were homemakers were less knowledgeable about government services than those in the labor force and therefore less likely to use health care services.

Race. Racial and ethnic population composition has been shown to be strongly related to health care utilization. In general whites tend to utilize health services more often than nonwhites (Anderson, 1973;

Eve & Friedsam, 1978; Rosenstock, 1966; Steel, Markson, Crescenzi, Hoffman, & Bissonnette, 1982). This was in spite of the fact that blacks tended to have poorer health than whites but consistently utilized fewer medical services (Weiss, 1975). Black females were reported to have the highest unmet health care need rate while blacks in general reported greater levels of disability (Newby, 1977). Part of this underrepresentation was due to a larger mortality rate for blacks prior to the age of 60 (Lehrer, 1982).

Long (1980) studied racial utilization patterns to determine if they varied across specific service areas. She found that blacks tended to underutilize Home Delivered Meals and Congregate Meals while utilizing Chore Services.

Weiss (1975) also studied utilization patterns and found that whites above the poverty level with a regular source of medical care and confident of their physician tended to utilize needed services. For blacks utilization patterns increased for those who were educated, below the poverty level, or lacked confidence in their physician.

Not all studies showed lower utilization patterns by blacks. McCaslin and Calvert (1975) established that whites, instead of blacks, were not utilizing services due to a reluctance to admit the need for services.

Ethnicity. Ethnicity as a factor in the use of health services has been a topic of research for many years. For many groups their tie to the ethnic community, the availability of social support, and the

expectations and knowledge of services influenced health services utilization (Cox, 1984).

Several studies have been carried out on Mexican Americans. In three of these studies ethnicity proved to be an unimportant predictor of utilization (Angel, 1981; Eribes & Rawls, 1974; Hersey, Luft, & Gianaris, 1975). However some studies did show that Mexican Americans tended to underutilize the service system and to rely on their family more than formal resources (Orleans & Kwowski, 1978). Even when mentally ill, they tended to problem solve with the family or chaplain rather than a counselor (Van Vranken, 1973). Chicanos also seemed to be integrated into social networks and therefore needed less formal services support (Crawford, 1979).

Hispanics and American Indians have been studied with regard to health services. Gonzales (1983) found that a lack of awareness of available services had caused both Hispanics and Native Americans to underutilize Medicaid services. Lopez, Kemp, Staples, and Brummel-Smith (1984) reported that underutilization of mental health service by Hispanics was due to language barriers and a lack of health insurance.

In studying Indians, Miller (1978) discovered that cultural factors were related to underutilization. The Indians displayed passivity and shyness when interacting with health professionals. Other barriers to utilization were cost, policy confusion, transportation problems, agency delays, and child care difficulties.

The Japanese were also found to suffer from cultural barriers to health service use. Aged Japanese felt reluctant to discuss their

problems with outsiders and tended to turn to daughters or spouses for help (Fugii, 1976).

Family size/structure. An aged person's social structure has a substantial effect on the future of that person. In a previous section under marital status the effect of a loss of social support was discussed. Suffice it to say here that living alone often leads to inadequacies in the aged's dietary habits, housing accommodations, transportation, and social interaction (Palmore, 1971). Murdock and Schwartz (1978) found that levels of use and awareness of services were increased by living in a couple or extended family setting. Without this knowledge and help many lonely elderly succumbed to institutionalization.

Family members were cited most often as the persons providing the most support for the noninstitutionalized elderly. The daughter was mentioned 14.3% of the time, followed by spouse, son in-laws, and grandchildren (Hughes & Lindsey, 1980).

The effect of a nearby daughter was determined by the area of the country. In town the daughter seemed to be instrumental in acquiring social services while in the country the daughter provided the care herself (Daatland, 1983). Fortunately most aged had at least one person who could help them to meet their needs. In the majority of the cases it was the nuclear family who helped, in 8% of the time it was a nonrelative, and in 5% of the time it was a formal provider (Meyers, Master, Kirk, Jorgenson, & Mucatel, 1983).

Health status. How an individual perceives his health is one of the most powerful predictors of the use of health services among the elderly (Wolinsky, Miller, Prendergast, & Creel, 1983). The aged formulate their own definitions of health. One man felt that as long as he stayed healthy there was no sense in engaging in preventive screening measures. Another felt that it was not appropriate to seek health care until something went wrong (Elwood & Oakes, 1975).

Zola (1966) noted that individuals typically sought care when a crisis or a significant other called attention to the symptoms. Often-times these symptoms began to interfere with social or vocational activities.

These triggers to seeking care varied with each ethnic group. Chicanos sought medical attention as their number of symptoms increased while Anglos were influenced almost entirely by the number of restricted days (Crawford, 1979).

Attitude toward health services. Although the literature was not unanimous, generally the aged were favorably disposed toward the use of services. Kutner, Fanshel, Togo, and Langren (1956) gained a favorable response from two-thirds of their sample when they asked whether they would consider using an aged medical center. Males and aged individuals who were not isolated, younger, married, or in poor health viewed use more favorably.

However, in no area of utilization was there a more serious void than in the area of mental health services. The aged continued to remain biased against mental health professionals (Waxman et al.,

1984). Even the various ethnic groups chose a family member rather than a mental health worker to help with a problem (Coe & Wesson, 1965).

Other research presented a somewhat ambivalent or negative picture. Powers and Bultena (1974) found that the aged did not use services because they did not want to be perceived as old or as receiving charity. There seemed to be a strong tendency among the aged to strive for independence with a reluctance to accept help or even to deny use (Moen, 1978). This was especially true for the rural aged (Coward, 1979).

Enabling Characteristics

Even though some aged might be predisposed to use health services they still needed some means to do so. That means or enabling condition makes health service resources available to the individual. Enabling conditions are measured by income, health insurance, regular source of care, access to health care services, geographic location (urban/rural), and information (informal network, formal network, or media) (Lehrer, 1982).

Income/health insurance. For many aged retirement meant surviving on half of their working income. For 22% of the aged this meant that they would fall below the poverty line of \$4,952 for a single person or \$6,246 for a family. The majority of these poor would be women and minorities (Brody, 1980; "Cuts may push," 1985).

What happens to those with lower socioeconomic status with regard to health service utilization? The research strongly supported the

notion that lower socioeconomic aged utilized health services less (Buczko, 1980; Eve & Friedsam, 1978; Gonzales, 1983; Levitz, 1979; Hickey, 1975; Krout, 1983; Tush, 1977). However, with the advent of the Medicaid and Medicare programs in 1965, some narrowing of differences occurred between poor and nonpoor use of services (U.S. Dept. of Health and Human Services, 1980).

Auerbach studied health care among the urban aged of New York and reported that 89% of the sample relied upon Medicare to help offset expenses while 43% had additional medical insurance. Seventy percent of those not receiving Medicaid payments reported difficulties in meeting costs (Auerbach, Gordon, Ultmann, & Weisel, 1977).

The poor as a whole tended to have more physical problems or chronic ailments. Dunlop (1974) stated that due to these multiple ailments the poor were often unable to care for themselves and were less able to purchase in-home services. He asserted that this was the reason for the higher rate of institutionalization among the aged. The welfare agencies were unable to coordinate care of the aged so that they could remain in their own homes.

Hicks found that by designing a program for the aged based upon need rather than availability of financing utilization would shift from more expensive institutional and physician services to less expensive home and community services (Hicks, Doherty, & Raisz, 1977).

Geography/transportation. A lack of transportation can certainly be a barrier to health care. McCaslin and Calvert (1975) found that 46% of their sample and 37% of Blazier and Maddox's (1982) sample

listed need for transportation as the most common presenting problem. The aged tended to have more transportation problems because they often lived alone and had multiple chronic conditions that prevented them from using public transportation (Palmore, 1971). It was noteworthy that the aged with personal transportation available for their use also tended to have greater life satisfaction scores (Cutler, 1972). Not only was their life satisfaction improved but also the number of medical contacts was especially increased for nonwhites (Steel et al., 1982).

Transportation is certainly an asset for those living in rural areas because distance can act as a deterrent to use of health services in small towns (Windley & Scheidt, 1983). According to Lind (1978), when physical mobility is combined with propinquity, it became irrelevant where a service was located.

However rural areas tended to have older, more poorly educated populations with lower incomes and less health services available. Metropolitan areas tended to have greater quantity and variety of services within a reasonable distance (Lehrer, 1982).

Greater access that is afforded by closeness seems to have its effect. For instance, minorities and low-income groups have been notable in their decreased access to regular providers of care. This one factor was believed by many to account for some of the higher rates of morbidity and mortality and shorter life spans for groups (Stotts, 1984). A regular source of care was found to be a significant predictor of preventive dental and medical care consumption (Lehrer, 1982).

Some researchers chose to disagree. McKinlay (1973) stated that there was little evidence to support the theory that geographic proximity of services, in itself, has the effect of increased rates of use.

Knowledge and use of services. For some researchers (Ward, Sherman, & LaGory, 1984) knowledge of services was considered one of the most important of the enabling factors. Snider (1981) and Lind (1978) found that knowledge of available services was the factor most clearly related to the use of health services.

Without adequate information the aged are ill-prepared to deal with life's crises and daily events. Unfortunately individuals who have been deprived of information about aging over their life spans have also been deprived of resources as well. Many have not received information about aging until they were old themselves (Silverstein, 1980). Some did not even know of existing services then (Kent & Matson, 1972; Lehrer, 1982). Katz, Cutch, Kahn, and Barton (1975) and Cantor and Mayer (1975) found that even those who were aware of services may not be able to relate them to their own needs.

The influence of social networks and the media. Around every individual exists a formal and an informal information network that serves to provide knowledge about services available. Members of the formal network include professional individuals or organizations while members of the informal network include everyday acquaintances (Silverstein, 1980). In one study there was considerable evidence that networks influenced the aged's actions. Over one thousand persons 60

and over were surveyed regarding their link between their informal ties and service knowledge. The most common sources of information cited were relatively formal: media sources (57%), senior citizens clubs (13%), social agencies (8%), and clergy (5%). The informal network was not a major source of information with only 10% of the population naming friends and neighbors and 4% naming relatives (Ward et al., 1984).

While the informal network had minimal influence in Ward's study, Murdock and Schwartz (1978) discovered that it had a major effect in the families of Native Americans. Children living with their aged parents assisted the aged not only by creating an awareness of the needs for available services but also by directly obtaining these services for the aged. The informal system of family, friends, and neighbors seemed to assist the aged to remain in the community (Cantor & Mayer, 1975). Unfortunately, at the same time the children's role might have made it less important for the aged themselves to master that information (Murdock & Schwartz, 1978).

Informal services might, in fact, block access by the aged to formal services by providing aid that is inadequate for the situation. The informal network is seen as best able to handle unpredictable, nontechnical, and diffuse tasks, whereas the formal network is seen as best able to handle predictable, technical, and specific tasks. Ideally family and friends recognize their limitations and make referrals to the formal network when appropriate (Ward, 1984). Windley and Scheidt (1983) agree with O'Brien's and Wagner's (1980) statement that the

extent to which informal networks are useful or damaging depends upon the qualitative characteristics and skills of individuals in the network.

No effective mechanism for service delivery was evident for the aged who of necessity lived alone. For them, their severe needs, their lack of awareness of needs and of a means to address those needs, were coupled with isolation and lack of enough support to sustain them. This situation required concern and action (Murdock & Schwartz, 1978).

One method of reaching this group was through the mass media or through paraprofessionals who were trained as support specialists to link individuals with support services (Tolsdorf, 1978). With wider publicity there was good reason to believe that several times the existing number of persons would avail themselves of these programs (Bild & Havighurst, 1976).

This was particularly the case where in large cities knowledge of services were derived primarily from secondary sources such as outreach programs, mass media, and information and referral services. However, such knowledge in the rural areas was mostly from direct experience (Taletz, 1976).

One method of increasing awareness of services was through the public service announcements on television. This was found to be effective in increasing the number of service inquiries from nonclients (McAbee & Cafferty, 1982).

Newspapers and magazines, however, were not found to be the main method to educate the aged in South Carolina. Due to low

educational level and inability to read, encounters by qualified health educators were needed (Folawiyo, 1975).

In summary it seemed that respondents who learned of services through the media or through informal sources had a greater overall knowledge of services than the aged who learned of services primarily through formal sources. Although formal sources were the best linkages to formal services, many individuals who were in need of services were not in contact with formal sources (Silverstein, 1980). Certainly a lack of contact with information for whatever reason was a major reason for underutilization of services (Lind, 1978). This dissertation suggests that the demographic characteristics and process of information acquisition will impact service utilization. The model (Lehrer, 1982) in Table 1 shows how these variables are organized and related.

Need or Illness Characteristics

The final discussion centers around the concept that service utilization is directly related to need or the state of one's health. The rates of unmet need became greater as health status decreased (Newby, 1977). In general, aged persons tended to have more physical problems and therefore a greater need for care.

Need is one of the most important components of the Anderson model (Aday & Anderson, 1974). It was the basic and direct stimulus for the use of health services when appropriate predisposing and enabling characteristics existed (Wolinsky et al., 1983). For many aged with higher levels of frailty and chronic illness, need for care primarily explained the use of health services (Branch, 1977).

Table 1

Variables Influencing Health Care Utilization

Independent variables	Intervening variable	Dependent variables
Education	Access to information from:	Knowledge of services
Income	1. Formal network	Utilization of services
Race	2. Media	
Age	3. Informal	
Marital status	network	Consideration of future service use
Sex		
Fraility		
Number of household members		

Note. From Utilization of Health and Social Services by Elderly Population: A Multivariate Analysis of Predisposing, Enabling, and Need Factors Based Upon Clusters of Services Used (p. 33) by Susan Lehrer, 1982, Massachusetts: Brandeis University.

Disability seemed to be a more accurate predictor of need in the aged, according to Butler and Newacheck (1980). This was defined as the inability or limitation in performing one's social roles and activities. Disabilities tended to increase with age from 40% of 65-74 year olds to 63% of those 85 and above.

While disability was higher among the very old, home based services (formal or informal) could often delay or eliminate a need for institutionalization (Lehrer, 1982).

Summary

This review has discussed the literature on the utilization of health care services by the aged by utilizing Anderson's framework for health care utilization.

Oftentimes differences in the research focus, methodology, or population produced study findings which were inconsistent in direction or strength. The examinations of various dependent and independent variables also produced different results.

Despite these conflicts among studies there were some common areas of agreement. Some generalizable phenomena include:

- morbidity does not translate into service utilization
- women due to longer life spans are more likely to lose a spouse and social supports
- lower class are more likely to have chronic conditions
- the high incidence of chronic conditions among the aged distinguishes their use of services from the young's use of services
- chronicity or disability does not automatically lead to institutionalization if support systems are operable
- there is a strong tendency for utilization to increase with advancing age. (Lehrer, 1982)

Research Related to Methodology

The methodology for this research study was based upon the work of many previous researchers. This section will review those studies.

The procedure used for sample selection utilized the technique employed by Goodrow. In 1974, he studied 268 elderly Knox Countians to determine their perceived learning needs and interests. The sampling scheme he devised ensured both geographic representation and random selection and therefore was considered desirable for this study. To determine the actual number of elderly subjects to be used in his study he applied the small sample technique used by the National Education Association. After the total sample size was obtained, he used data from the 1970 Census to acquire the census tract boundaries for Knox County. He then plotted these boundaries upon a street map of Knox County, thereby identifying streets and neighborhoods within each census tract area. Following the identification of geographic areas within each census tract, the number of elderly subjects within each census tract was determined by use of the census. The percentage of elderly living within each tract area was then divided by the total number of elderly in Knox County to determine a proportional allotment for sample selection. The next step of the sample selection determined the actual number of elderly needed within each census tract by multiplying the percentage of elderly found in each census tract by the total number of subjects needed for the sample. Once this was completed, sample blocks were identified

for each census tract and 30% of the blocks were identified for each census tract and 30% of the blocks were randomly selected for the sampling frame. From these selected blocks a 30% random sample of housing units were selected for interviews for the research study.

The major findings of Goodrow's study indicated that 57.8% of the elderly were willing to participate in older adult learning experiences if personal limiting factors could be circumvented. Limiting factors included unavailability of preferred courses, poor eyesight, and home responsibilities. The only comment related to Goodrow's methodology was that the sampling technique had produced a valid racial representation of the elderly.

In 1978, Wilson employed Goodrow's sampling technique to assist in her sample selection. The purpose of her study was to determine the need for home health care as perceived by the elderly and health professionals. She interviewed 269 elderly persons and 80 health professionals. She found that there were significant differences between the needs perceived by both groups. These differences were especially obvious in the areas of physical activities, home assistance, food preparation ability, number of days sick, health conditions, site of medical care, payment mechanisms for medical care, transportation, and lack of companionship. Both groups agreed that cost and lack of transportation were two leading barriers which inhibited the elderly from seeking health and/or social services. With regard to sample methodology, the Goodrow technique had produced valid age, sex, and race representations among the elderly.

In 1982, Griffin studied 271 Knox Countians to determine the life satisfaction, self-concept, and perceived health status of congregate and noncongregate elderly dwellers. She also utilized Goodrow's technique for sample selection. In her study she found that congregate and noncongregate dwellers exhibited a high degree of similarity except for the identity scale of self-concept. Congregate dwellers seemed to have no internalized idea of themselves. Positive correlations were found between health status and self-esteem, behavior, moral worth, worth as a family member, and sense of worth in the social milieu. Negative associations were found between health status and happiness, defensiveness, self-satisfaction, views of physical appearance, and personal worth.

Two studies were utilized with regard to the instrumentation for this study. The instrumentation in this study contains two basic categories of items: (1) demographic and socioeconomic characteristics, and (2) need, knowledge, source of knowledge, and use of service. Assistance with the second category was obtained from Strecker (1965) and Silverstein (1980).

In 1965, Strecker studied 20 active members of Senior Citizens in Nashville, Tennessee. The purpose of her study was to determine how the elderly viewed the problems with which existing social agencies were able to help; to discuss whether the elderly would turn to the family or community to find help with these problems; to determine what knowledge the elderly had of available resources; and finally, to identify some of the reasons for use or nonuse of community resources.

Her instrument categorized the areas of service of community agencies and then asked each respondent if they had heard of the service; if they would or would not use the service; and their reason for not using the service. She found that the presence of a nuclear family led to more knowledge of community agencies, but that the willingness of the elderly to use the agencies was based more on the problems of the sample rather than on the knowledge of the agencies.

In 1980, Silverstein examined the relationship between how the elderly obtained access to information and how that related to their awareness and use of services. The study was designed to obtain information on the aged's utilization of 17 Boston public services. Respondents were asked the following questions: (1) did you know the service was available?, (2) how did you first hear about the service?, (3) did you ever use the service during the last 12 months?, and (4) would you ever consider using this service if you thought you needed it?

The results of her study showed that less than 25% of the aged exhibited a high level of service awareness. Those who had learned of the services through formal sources were more likely to use the service, while those who had learned of services through informal or media sources had a greater awareness of services. Young-old were more likely to consider future service use than the old-old. The major recommendation arising out of this study was that Information and Referral should increase its outreach target to include members of the informal network.

This concludes the discussion related to content and methodology.
The next chapter discusses methodology related to this study.

CHAPTER 3

METHODOLOGY AND DESIGN

The related methodology, the sampling procedures, and the research design are presented in this chapter. The methods that were used to solve the problem were divided into the following categories: (1) sample selection, (2) instrument development, (3) interview procedures, and (4) statistical treatment and analysis of data.

Sample Selection

The sample for the study was obtained through the use of the 1980 Census data and information obtained from the Knox County Metropolitan Planning Commission. However, locating a representative sample of aged proved difficult as no directory existed for those 65 and over.

To assist the researchers in sample selection a technique used by Goodrow, Wilson, and Griffin was employed. To insure adequate geographic representation and random selection the National Education Association's Small Sample Technique was applied (Hausken, 1963).

A .10 level of significance was selected to reduce the cost and time required for the study. To determine the minimum number of subjects required for the study the calculations were performed as follows:

$$n = \frac{x^2 N \emptyset (1 - \emptyset)}{d^2 [n - 1] + x^2 \emptyset [1 - \emptyset]}$$

1. n = sample size required
2. χ^2 = Chi-square table value for 1 degree of freedom and .90 confidence interval
3. N = total aged population
4. $\emptyset$ = population proportion
5. d = the degree of accuracy expressed as a proportion

$$n = \frac{2.71 \times 35,755 \times .5 \times .5}{[.05]^2 \times 35,755 + [2.71 \times .5 \times .5]}$$

The sample size of aged subjects was calculated to be 269. This was determined by the following:

1. 2.71 = Chi-square valued for one degree of freedom and the .90% confidence level.
2. 35,755 = total population of aged residents in Knox County.
3. .5 = the population proportion estimated.
4. .05 = proportion of the degree of accuracy.

Once the sample size was determined a method was needed to provide geographic representation and random selection. Representation was achieved with the use of the census tract data compiled by the United States Census. The census tracts are presented in Appendix A. The 65 census tract boundaries were plotted on a street map of Knoxville to help determine the streets and neighborhoods within each census tract area.

Initially to acquire a proportional stratified sample the number of aged in each census tract was determined from the metropolitan

Planning Commission of Knox County statistics. Table 2 shows the census tract areas and the number of aged living in each tract. Then a procedure was used to determine what percent of the aged lived within each census tract when compared with the total number of aged in Knox County. This procedure is presented below:

1. 35,755 = total aged population in Knox County

2. 619 = total number of aged in census tract 65

3. Aged residents in census tract 65

total aged population in Knox County

4.
$$\frac{\quad}{\quad} = \frac{619}{35,755}$$

5. .0173 = proportion of aged residents in tract 65 of the total aged population in Knox County. Table 3 shows how each of the census tracts were examined with this proportional procedure.

To obtain the geographic stratification of the sampling procedure the total sample size needed for this study was multiplied by the computed proportions for each census tract. This method is illustrated below:

1. .0173 = percentage of total aged in Knox County in census tract 65

2. 269 = total sample size needed for study

3. $269 \times .0173 = 4.65$

Therefore 4.65 = the number of persons needed for sample selection from census tract 65.

Table 2

Number of Residents Age 65 and Above Within Each Knox County
Census Tract*

Census tract number	Number of residents over 65	Census tract number	Number of residents over 65
1	260	34	685
2	343	35	508
3	633	36	218
4	170	37	788
5	729	38	357
6	633	39	568
7	283	40	345
8	385	41	622
9	37	42	738
10	295	43	416
11	120	44	1,239
12	295	45	836
13	390	46	852
14	435	47	243
15	950	48	464
16	1,095	49	258
17	550	50	526
18	415	51	326
19	391	52	1,020
20	687	53	663
21	340	54	775
22	638	55	546
23	578	56	831
24	613	57	869
25	907	58	568
26	346	59	676
27	438	60	499
28	454	61	724
29	520	62	1,048
30	627	63	426
31	312	64	533
32	647	65	619
33	454		

*1980 Census Data from the Metropolitan Planning Commission of Knox County, Tennessee.

Table 3

Proportion of Residents Aged 65 and Over per Census Tract*

Census tract number	Proportion of total elderly population in each tract	Census tract number	Proportion of total elderly population in each tract
1	.0073	34	.0192
2	.0096	35	.0142
3	.0177	36	.0061
4	.0048	37	.0220
5	.0204	38	.0100
6	.0177	39	.0159
7	.0079	40	.0096
8	.0108	41	.0074
9	.0010	42	.0206
10	.0083	43	.0116
11	.0034	44	.0347
12	.0083	45	.0234
13	.0109	46	.0238
14	.0122	47	.0068
15	.0266	48	.0130
16	.0306	49	.0072
17	.0154	50	.0147
18	.0116	51	.0091
19	.0109	52	.0285
20	.0192	53	.0185
21	.0095	54	.0217
22	.0178	55	.0153
23	.0162	56	.0232
24	.0171	57	.0243
25	.0254	58	.0159
26	.0097	59	.0189
27	.0123	60	.0140
28	.0127	61	.0202
29	.0145	62	.0293
30	.0175	63	.0119
31	.0087	64	.0149
32	.0181	65	.0173
33	.0127		

*1980 Census Data from the Metropolitan Planning Commission of Knox County, Tennessee.

4. All numbers were rounded to the nearest whole number if the percentage computed to at least .5 or above. In this example 4.65 was computed to 5. Table 4 gives the number of subjects needed from each census tract.

After determining the number of subjects from each census tract, the next step was to randomly select the individual households to be interviewed. A 30% sampling percentage was chosen because it had been successfully used by Goodrow. Therefore within each census tract 30% of the blocks were identified for use in the study.

Utilizing a Knox County street map each block was consecutively numbered starting with number one at the northeast corner. Then to select 30% of the blocks within each census tract a table of random numbers was used. For example, if census tract one had 20 blocks then a 30% sample would require that 6 blocks be selected. Drawing from a table of random numbers if the first number was 4, then block 4 would be included for sample selection.

After a 30% selection of blocks was accomplished, then the actual number of sample household units to be used had to be identified. Using the northeast corner of the block as a reference point the first house on the right was designated unit number one. Continuing in a clockwise manner each succeeding house on the right was assigned a consecutive number. Then using a table of random numbers and 30% as a guideline the housing units to be sampled per block were chosen. All of this was done in the same fashion as the selection for sample blocks.

Table 4

Number of Subjects Needed per Census Tract*

Census tract number	Number of subjects needed	Census tract number	Number of subjects needed
1	2	34	5
2	3	35	4
3	5	36	2
4	1	37	6
5	5	38	3
6	5	39	4
7	2	40	3
8	3	41	5
9	1	42	6
10	2	43	3
11	1	44	9
12	2	45	6
13	3	46	6
14	3	47	2
15	7	48	3
16	8	49	2
17	4	50	4
18	3	51	2
19	3	52	8
20	5	53	5
21	3	54	6
22	5	55	4
23	4	56	6
24	5	57	7
25	7	58	4
26	3	59	5
27	3	60	4
28	3	61	5
29	4	62	8
30	5	63	3
31	2	64	4
32	5	65	5
33	3		

*1980 Census Data from the Metropolitan Planning Commission of Knox County, Tennessee.

Once this was done the interviewer proceeded to determine if an aged subject resided in the first housing unit selected; if so then an interview was completed or a refusal was recorded. The interviewer proceeded to the next unit if no aged person was found in the first unit. This pattern continued until an interview was obtained within the sample block. To ensure geographic stratification only one interview was completed per sample block. Once an interview was obtained, a new randomized block was identified and the procedure was reinitiated.

Instrumentation

The survey instrument was designed to obtain information about two basic categories of items. The first major category of items included the dependent variables. This section examined the need, knowledge, source of knowledge, and use of services. The source of knowledge of health services consisted of the following three categories: informal, formal, and media.

The second category of items contained questions regarding the demographic characteristics. They were the independent variables in the study.

The instrument items were developed utilizing two separate approaches. The construction of the demographic variables occurred after an extensive review of the literature. Therefore, each demographic variable chosen to be used in the questionnaire was supported by its prior use in research dealing with utilization of health services.

The construction of items related to knowledge and use of health services was based upon a review of dissertations (Lehrer, 1982; Silverstein, 1980; and Strecker, 1965).

Next a representative from the Office on Aging and the Directory of Services for Older Citizens of Knox County (Office on Aging, 1984) assisted the researcher in constructing a comprehensive list of health services for the aged in Knox County. This list was then divided into eight clusters of services. (See Appendix B for a listing of services.)

The instrument was then presented to a jury of experts in the area of aging. (See Appendix C for a list of jurors.) After the jury contributed their opinions the instrument was modified to improve validity.

The instrument was then pretested on a small group of twenty-five randomly selected aged within different geographic areas in Knox County. The basic principle underlying Goodrow's sample selection was utilized to collect a representative sample of the aged. By using a table of random numbers the researcher chose one census tract and one block from within that tract for each of the twenty-five respondents. Then using the northeast corner of the block as a reference point, the first house on the right was designated unit number one. Each succeeding house on the right was assigned a consecutive number. Then using a table of random numbers a housing unit was chosen. If no aged person was found in the first unit then the researcher proceeded to the next unit. Once an interview was obtained, a new randomized census tract was selected. None of the respondents utilized in the pretest were utilized in the study.

Data Collection/Interview Procedures

The collection of data took place between April 24, 1985 and June 10, 1985. The interviews were conducted by the researcher and her trained assistant. Each interview was recorded on a separate sheet as the interviewee supplied the answers.

The interviewer began by explaining the objectives of the research study. The interviewee was told of the need for reliable information to help determine what factors influence the utilization of health services for the aged of Knox County. Although the interviewee was told he/she had a right to refuse to answer any or all of the questions the researcher encouraged the completion of all the items by the aged person. After completion of the interview, the data were prepared for computer analysis.

Statistical Treatment and Data Analysis

Various methods of statistical treatment and data analysis were utilized in this study to address the eight major research questions under consideration. While attempting to answer these research questions, five primary sources of data were collected. These sources included information related to demographic variables, need for services, knowledge of services, sources of health service information, and health service utilization patterns.

The data collected concerning demographic characteristics were recorded per respondent and the resulting data were tabulated into a frequency table. Percentages for each characteristic were determined

from the frequency table. Elaborations were then made in the text with regard to significant trends or unusual occurrences.

A similar treatment was also given to the specific health services listed under the major clusters of services surveyed. The data collected for each individual service were recorded in a frequency table so scores could be visualized quickly by the reader. Extraordinary findings were expounded upon within the text.

To test the first six null hypotheses the chi-square statistic was applied to the data collected. The chi-square test was used to determine if there was any departure from what would be expected under the theoretical model of the null hypotheses.

To test the null hypotheses that there was no relationship between the utilization of health services and the source of information a 2×3 contingency table was constructed with a .05 level of significance. The three independent variables were the three sources on information (formal, informal, and media) and the two dependent variables were the utilization variables (use and nonuse).

The second null hypothesis was that there was no relationship between the utilization of health services and selected demographic variables. Applying a chi-square test to this hypothesis resulted in 2×2 , 2×3 , and 2×4 contingency tables with a .05 level of significance. The variables of utilization were dependent upon the influence of the twelve independent demographic variables.

The third null hypothesis stated that there was no relationship between the source of information and selected demographic variables.

This chi-square test resulted in 3×2 , 3×3 , and 3×4 contingency tables with a .05 level of significance.

The fourth null hypothesis stated that there was no relationship between a knowledge of health services and the source of information. This chi-square test resulted in a 2×3 contingency table with a .05 level of significance.

The fifth null hypothesis stated that there was no relationship between a knowledge of health services and selected demographic variables. This chi-square test resulted in 2×2 , 2×3 , and 2×4 contingency tables with a .05 level of significance.

The sixth null hypothesis stated that there was no relationship between a need for health services and selected demographic variables. This chi-square test resulted in 2×2 , 2×3 , and 2×4 contingency tables with a .05 level of significance.

When testing each of the six null hypotheses a chi-square test was conducted for each of the services and also for the total group of health services.

Although the chi-square test is an excellent test for determining if the observations are different from chance it cannot determine the size of the relationships between variables. The measure of association that was used for this purpose was the linear regression technique. Regression equations were calculated for each of the services and for the total group of services.

To address the seventh null hypothesis, regression equations were calculated for the prediction of the need for health services as a primary source of health service utilization.

The eighth null hypothesis was addressed by regression equations which were calculated for the prediction of the knowledge of health services as forecasters for health service utilization. For the regression analysis only the F scores that were significant at or beyond the .05 level of chance were reported. Where the findings were significant additional descriptive material can be found in the text.

Summary

This chapter contained a description of the sample selection, instrument development, data collection, and statistical treatment and analysis of data.

CHAPTER 4

ANALYSIS AND INTERPRETATION OF DATA

Previous chapters have delineated the parameters of the study by an introduction of the topic, review of related literature, and presentation of research methodology. This chapter presents the analysis of data compiled from 269 interviews with randomly selected individuals who were 65 years of age or older. The findings are presented under the following five headings: (1) demographic and socioeconomic characteristics, (2) description of individual health service scores on assessed variables, (3) analysis of individual health services, (4) comprehensive analysis of health services, and (5) summary.

Demographic and Socioeconomic Characteristics

There were 12 demographic and socioeconomic variables that were obtained for the study. A summary of these variables can be found in Table 5.

Sex and Race

Of the total sample 63% were female and 37% were male. There were 12% black and 88% white respondents. Between the ages of 65 and 74 there were 100 females compared to 64 males. There were 69 females and 36 males 75 years of age or older. There were 13% more females than males in each group.

Table 5

Demographic Variable Distribution

Variable	Frequency	%
Sex		
Female	169	63
Male	100	37
Race		
Black	33	12
White	236	88
Age		
65-74 years	164	61
75 years and over	105	39
Marital status		
Yes	145	54
No	124	46
Education		
Less than 12 years	135	50
High school graduate	94	35
College graduate	40	15
Income		
Less than \$5,000	92	34
\$5,000-\$25,000	129	48
Over \$25,000	48	18
Employment status		
Yes	27	10
No	242	90
Transportation available		
Yes	223	83
No	46	17
Type of residents in home		
Extended family	32	12
No one	89	33
Nuclear family	145	54
Other	3	1
Significant other		
Formal provider	5	2
Nonrelative	19	7
Relative	245	91
Health status		
Excellent	62	23
Good	108	40
Fair	75	28
Poor	24	9
Method of health care payment		
Medicaid/Medicare	70	26
Private insurance	186	69
Self	13	5
Other	0	0

Age and Marital Status

An analysis of age and marital status showed that of those under 75 years of age, 68% were married and living with their spouse. After 75 years of age only 33% of the aged were married and living with their spouse. Thirty-nine percent of the aged had lived to be 75 years of age or older.

Significant Other

Once married the spouse assumed the role of the most significant other in the life of the aged person. Relatives were chosen 91% of the time as important persons to the aged. For a summary of the order of importance relatives hold in the lives of the aged in this study see Table 6.

Type of House Resident

When the aged were asked who lived with them 54% lived with a member of their nuclear family while a third lived with no one. Only 12% were in an extended family setting.

Transportation and Employment

Most of the aged (83%) said that they had an adequate means of transportation. Ten percent of that group were still driving to work.

Income and Education

Income and education tended to be strongly correlated in this study. Thirty-four percent of the aged were impoverished as compared to 18% who were affluent. Half of the sample had not graduated from high school while 15% were college graduates.

Table 6

A Summary of Relatives Named by the Aged as Significant Others

Significant Other	Number	%
Brother	4	1.49
Cousin	2	0.74
Daughter	27	10.04
Granddaughter	6	2.23
Grandson	2	0.74
Mother	3	1.12
Nephew	1	0.37
Niece	1	0.37
Sister	12	4.46
Son/stepson	23	8.55
Son-in-law	1	0.37
Spouse	123	45.73

Health Status

Almost one-fourth of the aged claimed to be in excellent health. However over one-third of the sample suffered from an assortment of disease conditions. A list of their health problems is presented in Table 7.

Method of Health Care Payment

When they were sick 69% of the aged had private insurance to care for their needs. One-fourth of the aged used federal assistance.

Description of Individual Health Service Scores on Assessed Variables

A description of health service scores can be found in Table 8. Scores were computed on the need, knowledge, use, and source of information for each of the individual services.

Of the total cluster of health services, medical services registered the highest frequency of need (199) while hospice services recorded the lowest amount of need (12).

Even though there was a large need for medical services they were poorly utilized. The aged seemed to be the most familiar with those services which were advertised in the newspaper or on television. Services which frequently solicited for funds were also well known. The most frequently utilized service was the Knoxville Area Diabetes Association, while the aged were most aware of Alcoholics Anonymous.

Table 7

Summary of Health Problems as Stated by the Aged

Health problem	Frequency	% response
Alcoholism	1	0.37
Alzheimer's	1	0.37
Arterial occlusion	2	0.74
Arthritis	135	50.19
Back conditions	3	1.12
Cancer	18	6.69
Cataract	5	1.86
Diabetes	25	9.29
Glaucoma	2	0.74
Gout	1	0.37
Heart disease	80	29.74
Hiatal hernia	1	0.37
Hypertension	45	16.73
Inner ear	2	0.74
Kidney disease	23	8.55
Liver disease	1	0.37
Lung disease	29	10.78
Lupus	1	0.37
Nerves	4	1.49
Osteoporosis	1	0.37
Parkinson's disease	1	0.37
Pernicious anemia	2	0.74
Phlebitis	3	1.12
Spastic colon	2	0.74
Stroke	17	6.32
Thyroid	5	1.86
Ulcer	1	0.37

Table 8

Frequency of Need, Awareness, Use, and Source of Information of Individual Health Services

Service	Need	Awareness	Source			Use
			Family	Media	Agency	
Information and referral						
Contact	99	9	2	6	1	0
FISH	99	16	8	6	2	0
Office on Aging	99	10	2	5	3	2
Senior Citizen's Information and Referral	99	28	8	11	9	8
Senior Citizens Home Aide Service	99	11	7	3	1	2
Other	99	12	4	2	6	3
Nutritional services						
ETHRA Homemakers	20	1	1	0	0	0
Federal Surplus Commodities	20	27	17	5	5	10
Food Stamp Office	20	28	13	10	5	6
Golden Diners	20	21	10	6	5	2
Green Thumb/Community Garden	20	5	3	1	1	1
Mobile Meals	20	93	56	20	17	5
Senior Citizen's Home Aide Service	20	11	6	3	2	2
Other	20	9	4	0	5	0
Telephone reassurance and electronic warning services						
Contact	14	7	3	4	-	0
Ft. Sanders Emergency Care Call	14	10	1	6	3	1
Lifeline	14	12	3	7	2	1
Telecare	14	45	5	30	10	1
Other	14	5	2	2	1	0

Table 8 (continued).

Service	Need	Awareness	Source			Use
			Family	Media	Agency	
Home health services						
Baptist Home Health	27	1	0	1	0	0
Ft. Sander's Home Health	27	7	1	1	5	1
Home Health Care of East Tennessee	27	19	10	4	5	2
Knox County Home Health Agency	27	27	14	9	4	6
Medical Personnel Pool	27	2	1	0	1	0
National Home Health Services	27	3	0	2	1	3
River Valley Home Health Agency, Inc.	27	1	0	1	0	0
St. Mary's Home Health	27	11	7	1	3	4
U.T. Home Health	27	6	2	1	3	1
Upjohn Health Care Services	27	16	6	8	2	2
VIP Home Nursing and Rehabilitation	27	2	1	0	1	0
Your Home Visiting Nursing Service	27	7	3	3	1	1
Other	27	5	0	0	5	0
Hospice services						
East Tennessee Baptist Hospice	12	23	9	8	6	1
Ft. Sander's Hospice	12	53	18	25	10	0
St. Mary's Hospice	12	56	15	33	8	3
U.T. Hospice	12	16	3	11	2	0
Other	12	0	0	0	0	0
Handicapped services						
A.T.&T. Phone Adaptation	77	11	5	4	2	3
Communication Center for Deaf	77	7	3	3	1	0

Table 8 (continued).

Service	Need	Awareness	Source			Use
			Family	Media	Agency	
Daniel Arthur Rehabilitation Center	77	3	2	0	1	0
Knox County Association for Retarded Citizens	77	22	9	6	7	0
Knoxville O.I.C.	77	5	4	0	1	1
Mayor's Office (Education and Human Services)	77	3	2	1	0	0
O'Connor Senior Citizens Center	77	14	5	4	5	0
Vocational Rehabilitation	77	8	3	3	2	1
Knoxville Association for Blind/Lyon's Club	77	22	8	2	12	3
Medical services						
Alcohol Counseling and Recovery Program	199	10	1	8	1	0
Alcoholics Anonymous	199	60	16	38	6	3
Alcoholism Treatment Unit	199	47	4	39	4	0
Alzheimer's Disease (U.T.)	199	26	3	22	1	1
Alzheimer's Group (Child and Family)	199	17	3	13	1	0
American Cancer Society	199	56	6	20	30	0
American Health Association	199	56	4	17	35	1
Arthritis Foundation	199	44	7	29	8	3
Better Breather's Club	199	2	0	0	2	1
Cancer Information Services	199	3	1	1	1	0
Daniel Arthur Rehabilitation Center	199	3	0	0	3	0
Dialysis Clinic, Inc.	199	14	3	11	0	0
E.M. Jellinck Center	199	0	0	0	0	0
Ft. Sander's Dialysis Clinic	199	12	2	8	2	0

Table 8 (continued).

Service	Need	Awareness	Source			Use
			Family	Media	Agency	
Kidney Foundation	199	42	4	30	8	1
Knoxville Area Diabetes Association	199	28	9	14	5	4
Midway Center	199	0	0	0	0	0
North Knoxville Dialysis Clinic	199	3	0	2	1	0
Pacesetter Club	199	1	0	0	1	0
Sight Impaired	199	1	0	1	0	0
Stroke Club	199	3	0	2	1	0
Other	199	16	3	11	2	0
Counseling services						
Catholic Social Services	13	3	2	0	1	0
Child and Family Services	13	12	2	9	1	0
Contact	13	5	2	1	2	1
Helen Ross McNabb Center	13	22	11	7	4	2
Daily Living Center	13	10	6	3	1	0
O'Connor Senior Citizen Center	13	15	6	5	4	1
Overlook Mental Health Center	13	14	4	6	4	0
Samaritan Counseling Services	13	0	0	0	0	0
Other	13	22	6	5	11	3

The aged added several medical services under the "other" category. They were: Patricia Neal Rehabilitation Center, Lupus Foundation, Eastern Star, Masons, and St. Mary's Arthritis Club.

The second largest number of aged (99) expressed a need for more knowledge of community health services. All of the services were known to some of the aged and some were added to the "other" category. The services added included: Knox County Health Department, Department of Human Services, libraries, churches, and the American Association of Retired Persons.

The third cluster of services in order of need expressed was the handicapped services. Most of the aged became aware of these services from family members. The majority of the aged needed these services due to vision or hearing disorders. Therefore, the aged often added the services of the Knoxville Association for the Blind or the Lyon's Club to the list of handicapped services.

Twenty-seven of the aged voiced a need for home health services. The aged were most aware of the Knox County Home Health Agency and it was utilized by six individuals. Professional Register of Nursing Services, Inc. was the only service added by the aged. Most of the interviewees knew of these services through a family member that had needed this type of care.

With regard to nutritional services 16 respondents had received assistance from Federal Surplus Commodities and the Food Stamp Office. A large number of the aged had seen neighbors or family members receive help from Mobile Meals or the Senior Citizens Home

Aide Service. Nine people were aware that the Union Rescue Mission and the churches also provided meals to the needy.

Churches were once again added as a type of service for the Telephone Reassurance category. The media had assisted most of the aged to become aware of this type service. The aged as a whole thought that this was an excellent service but most had no need for the service at the present time.

Finally, counseling services were utilized by only seven aged. Most of the aged interviewed tended to discuss their problems with God, a spouse, or a minister. Therefore, church was added to the list of services. The Peninsula Center was also mentioned by 12 of the aged. The most frequently used source of information was the family, and the aged were most aware of the Helen Ross McNabb Center.

Analysis of Individual Health Services

The individual health services that were surveyed in this research study can be found in Appendix B. The chi-square test and general linear model were utilized to test the relationships between the variables. Fisher's exact test was utilized when 2×2 tables had cells for which the expected frequencies were less than 5. Due to a low usage of health services many of the tests proved to be invalid for statistical analysis.

Comparison of Utilization of Health Services and the Source of Information

Hypothesis one: There is no relationship between the utilization of health services and the source of information.

Largely due to low cell counts in the chi squares performed, the first hypothesis did not prove to be significant. No relationship could be found to exist between the use of health services and the source of information. Therefore, the null hypothesis was not rejected.

Comparison of Utilization of Health Services and Selected Demographic Variables

Hypothesis two: There is no relationship between the utilization of health services and selected demographic variables.

Low frequency counts also contributed to a lack of significant relationships in the second hypothesis. Comparisons between the use of health services and selected demographic variables resulted in no relationships at the .05 level of significance. Therefore, the second null hypothesis was not rejected.

Comparison of Source of Information and Selected Demographic Variables

Hypothesis three: There is no relationship between the source of information and selected demographic variables.

Gender was found to be significantly related to the type of source of information utilized for the Ft. Sander's Hospice Program. The chi-square value was 6.830 and the level of significance was .0329. None of the males had learned of the service from the agency but 21% had heard of the service from the media. Fifty-four percent of the

females were equally divided between the family and the media as sources for information. For Ft. Sander's Hospice Program the null hypothesis was rejected, but for the majority of services the third hypothesis was not rejected.

Comparison of Knowledge of Health Services and the Source of Information

Hypothesis four: There is no relationship between a knowledge of health services and the source of information.

Testing of the fourth hypothesis also proved impossible due mainly to the sparsity of the cells in the chi-square tests. Over 20% of the cells often contained less than five frequencies. Therefore, no significant chi-square tests could be found to prove that a relationship exists between a knowledge of health services and the source of information. Therefore, the fourth null hypothesis was not rejected.

Comparison of Knowledge of Health Services and Selected Demographic Variables

Hypothesis five: There is no relationship between a knowledge of health services and selected demographic variables.

There were many significant relationships between knowledge of health services and selected demographic variables. They are displayed in Table 9. The percentages for awareness of each service are found in Tables 10 and 11. Due to the large number of significant tests and the multiplicity of characteristics, the discussion of this section dealt with general patterns of frequency counts. Uniqueness, if it existed, was addressed. The percentages that are cited are averages of general trends unless specific services are identified.

Table 9

Significant Relationships Between Knowledge of Health Services and Demographic Variables

Health services	Demographic variables								
	Sex	Race	Age	Marital status	Education	Income	Employment status	Transportation available	Health status
Federal Surplus Commodities									11.127 .0038
Food Stamp Office									8.472 .0145
Golden Diners			4.964* .0182						
Mobile Meals			7.906* .0041	4.555* .0297	21.718 .0001	21.188** .0001		4.032* .0405	13.122 .0014
Telecare	4.178* .0315		11.613* .0003		13.474 .0012	8.582 .0137			6.097 .0474
Upjohn Health Care Services	3.824* .0352				7.830 .0199				
East Tennessee Baptist Hospice			4.742* .0164		11.101 .0039				6.602 .0369
Ft. Sanders Hospice		3.670* .0348	10.002* .0010	4.431* .0329	49.176 .0001	36.293 .0001	3.806* .0388	5.494* .0109	13.395 .0039
St. Marys Hospice		5.670* .0052	10.002* .0010		21.596 .0001	9.256 .0098		3.764* .0322	18.918 .0003
U.T. Hospice			9.414* .0003		16.823 .0002	11.081 .0039			
Knox County Association for Retarded Citizens			8.622* .0013		13.477 .0012				8.549 .0139
Other (handicapped)				4.548* .0209	9.687 .0079				
Alcohol Counseling and Recovery Program			4.464* .0180						
Alcoholics Anonymous			5.597* .0121	5.646* .0134	30.488 .0001	19.922 .0001	6.500* .0134	3.724* .0341	22.138 .0001
Alcoholism Treatment Unit			6.445* .0072	5.474* .0134		7.948 .0183	7.075* .0083		5.638 .0445
Alcoholism Treatment Unit			6.445* .0072	5.474* .0134		7.948 .0183	7.075* .0083	3.140* .0618	5.638 .0445
Alzheimers Disease and Related Disorders				4.121* .0266	18.404 .0001	10.245 .0060			10.686 .0048
Alzheimers Group			3.242* .0465						
American Cancer Society	5.641* .0143		7.043* .0040	8.384* .0029	24.149 .0001	21.352 .0001	7.539* .0057		9.779 .0075
American Heart Association	3.563* .0463		8.145* .0024	7.704* .0044	27.074 .0001	25.939 .0001	5.378* .0229	4.427* .0277	14.598 .0007
Arthritis Foundation			8.964* .0013	8.572* .0026	32.674 .0001	10.471 .0053			10.210 .0061
Kidney Foundation			10.421* .0006	7.843* .0041	26.347 .0001	9.387 .0092	5.147* .0029	9.058* .0002	
Knoxville Area Diabetes Association						7.890 .0193		3.417* .0369	6.886 .0108
Other (medical services)				4.728* .0214	7.825 .0200	6.498 .0388			
Helen Ross McNabb Center					8.947 .0114	6.037 .0489			
O'Connor Senior Citizen Center					7.257 .0266				
Overlook Mental Health Center			5.116* .0104						
Other (counseling services)					15.336 .0005	11.798 .0027		7.858 .0490	8.549 .0028

*Fisher's exact test utilized.

Table 10

Awareness of Health Services as Compared to Seven Demographic Variables: Sex, Race, Age, Marital Status, Education, Income, and Employment Status

	Sex		Race		Age		Marital status		Education		Income		Employment status			
	Female	Male	Black	White	65-74 years	75+ years	Married	Unmarried	Less than 12 years	High school graduate	College graduate	Under \$5,000	\$5,000-\$25,000	Over \$25,000	Employed	Unemployed
A1	1.88	1.50	.38	3.01	2.63	.75	2.26	1.13	.75	1.50	1.13	.83	2.07	.41	.38	3.02
A2	3.38	2.63	1.13	4.87	4.14	1.88	3.76	2.26	2.26	2.63	1.13	1.65	4.13	.41	.38	5.66
A3	2.26	1.50	1.50	2.26	2.63	1.13	2.26	1.50	1.13	1.50	1.13	1.83	2.48	.83	.75	3.02
A4	6.39	4.14	1.88	7.52	7.52	3.01	6.02	4.51	4.14	5.26	1.13	2.89	6.20	1.65	1.89	8.68
A5	3.38	.75	1.32	3.76	3.01	1.13	1.88	2.26	1.50	1.88	.75	.41	2.18	1.24	.38	3.77
A6	3.38	2.26	1.88	3.76	4.14	1.50	3.01	2.63	1.88	2.63	1.13	.83	3.72	.83	1.13	4.53
A7	4.14	.75	1.50	3.88	3.76	1.13	2.63	2.26	1.13	1.88	1.88	.83	2.07	2.07	1.13	3.77
A8	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38	.41	.41	.41	.38	.38
A9	6.02	4.51	4.89	5.64	6.39	4.14	4.14	6.39	7.14	1.88	1.50	4.55	4.96	1.65	2.26	7.92
A10	6.02	4.51	3.38	7.14	7.89	2.63	5.64	4.89	3.76	3.76	3.01	2.07	5.37	2.48	3.40	7.17
A11	5.64	2.26	1.13	6.77	6.77	1.13	4.51	3.38	3.76	3.01	1.13	1.65	3.31	2.48	1.51	6.42
A12	.75	1.13	.75	1.13	1.50	.38	.75	1.13	.38	1.13	.38	.83	.83	.41	.38	1.51
A13	23.68	12.78	4.89	36.58	26.32	10.15	22.93	13.53	12.03	15.04	9.40	6.20	20.66	9.92	5.28	31.32
A14	2.26	1.88	1.50	2.63	2.63	1.50	1.13	3.01	1.50	1.88	.75	1.24	2.07	.83	.38	3.77
A15	3.82	3.88	4.20	2.29	2.29	1.91	1.91	2.29	.76	2.29	1.15	.41	2.10	1.26	.77	3.45
A16	1.13	1.50	.38	2.63	2.26	.38	1.13	1.50	1.88	1.88	.75	.41	1.65	1.65	1.13	1.51
A17	2.63	1.50	.38	3.76	3.76	.38	3.01	1.13	1.88	1.88	.75	.83	2.07	1.65	1.13	3.02
A18	3.38	1.50	1.13	3.76	3.76	1.13	2.26	2.63	1.50	2.63	.75	.41	4.13	.83	.75	4.15
A19	13.91	4.14	.75	17.29	15.04	3.01	12.03	6.02	4.89	8.27	4.89	3.31	9.92	5.37	2.64	15.47
A20	1.15	.76	.38	1.91	1.53	.38	1.15	.76	.38	.38	1.15	.42	.42	.42	.38	1.92
A21	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38	.41	.41	.41	.38	.38
A22	1.50	1.13	1.50	2.63	2.63	.38	1.33	1.50	.38	1.13	1.13	1.24	1.24	1.05	1.51	1.13
A23	4.51	2.63	1.50	5.64	5.64	1.50	3.76	3.38	3.01	2.26	1.88	1.65	4.13	1.65	1.89	5.28
A24	5.64	5.26	2.63	8.27	6.39	4.51	7.14	3.76	5.26	4.14	1.50	2.89	5.79	2.89	2.26	8.30
A25	.38	.38	.38	.75	.75	.38	.38	.38	.38	.75	.38	.41	.41	.41	.75	.75
A26	.75	.38	.38	1.13	.38	.38	.75	.38	.38	.75	.38	.83	.83	.41	.38	.75
A27	.38	.38	.38	3.76	2.26	.38	1.88	.38	.75	1.13	1.88	.41	2.48	.83	.38	3.40
A28	3.01	.75	.75	2.26	1.88	1.13	1.50	1.50	.75	1.13	.75	1.24	1.24	.83	.38	2.26
A29	1.50	1.88	.75	2.26	1.88	1.13	1.50	1.50	1.13	1.13	1.88	1.24	1.24	.83	.75	2.26
A30	5.64	.75	.38	6.02	4.51	1.88	3.38	3.01	1.13	3.38	1.88	1.24	3.31	1.65	1.13	5.28
A31	.38	.38	.38	.75	.38	.38	.38	.38	.38	.38	.38	.41	.41	.41	.75	.75
A32	1.50	1.13	.38	2.63	2.63	.38	1.88	.75	.38	1.88	.38	.41	2.07	.83	.38	2.26
A33	4.89	4.14	.38	1.88	1.88	1.50	1.50	.38	.38	.75	.75	.41	.83	.83	.38	1.13
A34	15.04	5.64	.75	9.02	7.52	1.50	6.39	2.63	1.88	4.14	3.01	.83	5.37	3.72	2.26	6.42
A35	13.53	7.14	.38	19.92	16.54	4.14	13.91	6.77	1.88	11.65	7.14	2.48	9.50	9.50	3.77	16.98
A36	2.63	3.38	.38	20.30	16.54	4.14	13.16	7.52	4.51	11.65	4.51	3.72	12.81	5.37	2.26	18.49
A37	2.63	3.38	.38	6.02	6.02	4.51	4.51	1.50	.38	3.01	2.63	.41	2.89	2.89	1.51	4.53
A38	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38	.38	.41	.41	.41	.38	.38
A39	2.26	1.88	.75	3.38	1.88	2.26	2.63	1.50	.75	2.63	.75	1.24	3.31	1.65	.38	3.77
A40	.38	.38	.38	2.26	2.26	.38	2.26	.38	.38	.75	1.50	1.24	1.24	1.65	1.13	1.51
A41	.75	.38	.38	1.13	.75	.38	.38	.75	.38	.75	1.13	.41	.41	.83	.75	.38
A42	6.39	2.26	.38	8.65	7.89	.75	4.89	3.76	1.13	5.26	2.26	1.24	5.37	2.07	.75	7.92
A43	1.13	1.13	1.13	1.13	.75	1.05	.75	1.50	1.13	.75	.38	.83	.42	.42	.75	1.51
A44	.38	.75	.38	1.13	1.13	.38	.75	.38	.75	.75	.38	.83	.83	.42	.38	.75

Table 10 (continued).

	Sex		Race		Age		Marital status		Education			Income		Employment status		
	Female	Male	Black	White	65-74 years	75+ years	Married	Unmarried	Less than 12 years	High school graduate	College graduate	Under \$5,000	\$5,000-\$25,000	Over \$25,000	Employed	Unemployed
A45	3.01	2.26	1.13	4.14	4.51	1.75	3.38	1.88	1.50	3.01	.75	.41	3.31	.41	1.13	4.15
A46	1.50	1.50	1.13	1.88	1.50	1.50	1.50	1.50	1.13	1.13	.75	.83	2.07	.41	1.13	1.89
A47	5.26	4.14	.38	9.02	7.14	2.26	7.14	2.26	1.88	5.26	2.26	1.65	4.96	3.31	1.51	7.55
A48	2.63	2.26	.38	4.51	4.51	.38	3.01	1.88	.75	3.76	.38	1.24	2.89	.83	1.13	3.77
A49	12.41	10.90	1.50	21.80	17.29	6.02	15.79	7.52	4.51	12.41	6.39	3.31	14.05	7.85	4.53	18.49
A50	10.53	9.02	1.88	17.67	15.04	4.51	13.53	6.02	8.27	8.27	3.01	4.55	10.33	6.20	4.15	15.47
A51	5.64	4.51	.75	9.40	7.52	2.63	7.52	2.63	1.50	4.89	3.76	.83	7.02	3.31	1.89	7.92
A52	3.76	3.01		6.77	5.64	1.13	4.51	2.26	1.50	3.76	1.50	1.24	4.13	2.07	1.51	4.91
A53	10.90	11.28	1.88	20.30	16.92	5.26	15.79	6.39	4.89	11.28	6.02	2.89	12.81	7.85	4.52	17.36
A54	11.28	10.53	2.26	19.55	16.92	4.89	15.41	6.39	4.51	10.90	6.39	2.89	11.98	8.68	4.15	17.36
A55	10.15	6.39	1.13	15.41	13.53	3.01	12.41	4.14	1.86	11.28	3.38	2.48	10.33	4.96	1.89	14.34
A56	1.13	1.13		1.13	1.13		.75	.38	.75	.75	.38	.41	.83	.83	.38	.75
A57	.75	.75		1.50	1.50	.38	1.50	.75	.38	.75	.75	.41	.83	.83	.75	.75
A58	1.50	1.50		1.50	1.13	1.50	4.51	1.13	1.50	2.63	1.50	.41	4.13	1.65	.38	4.91
A59	2.26	3.38		5.64	4.14	1.50		1.13	.38			.41				
A60	.38			.38	.38		.38									
A61	2.26	2.26	.38	4.14	3.38	1.13	3.01	1.50	1.13	1.88	1.50		2.89	2.07	1.13	3.02
A62	8.27	7.89	1.88	14.29	13.53	2.63	12.03	4.14	2.26	9.40	4.51	2.48	10.33	4.55	3.40	12.83
A63	5.64	5.64	1.50	9.77	8.65	2.63	7.89	3.38	1.13	7.89	2.26	1.65	8.68	2.07	1.51	9.81
A64																
A65	.75	.38		1.13	1.13		.75	.38	.38	.38	.75			1.24	.38	.75
A66	.38	.38	.38	.38	.38	.38		.38	.38	.38	.38	.41		.41	.38	.38
A67	.38															
A68	.75		.38	.38	.75	.38	.38	.38		.38	.38			.41	.38	.38
A69	4.18	2.28	.38	6.08	5.32	1.14	5.32	1.14	1.14	3.42	1.90	.42	4.18	2.09	2.29	4.20
A70	.38	.75	.75	.38	.38	.75	.38	.75	.75		.38	.41	.83	.41	.75	.38
A71	3.01	1.50	1.13	3.38	3.38	1.13	2.63	1.88	.75	3.01	.75	.83	3.31	.41	.75	3.77
A72	1.50	.38		1.88	1.88		1.13	.75	1.13	.75	1.13		.41	.83	.75	1.13
A73	4.89	3.01	1.88	6.02	6.02	1.88	4.51	3.38	1.50	4.14	2.26	.83	4.55	2.48	2.26	5.66
A74	2.26	1.50	1.50	2.26	2.63	1.13	1.88	1.88	1.3	2.26	.38	.83	2.48	.41	.75	3.02
A75	3.38	2.26	1.88	3.76	4.51	1.13	3.38	2.26	1.13	3.76	.75	.83	3.31	1.65	.75	4.91
A76	3.38	1.88	.38	4.89	4.89	.38	4.14	1.3	.75	1.88	2.63		2.48	2.07	1.13	4.15
A77												.83	4.55	3.72	2.64	6.04

A = Awareness of health services.

1-78 = Health services corresponding to numbers on questionnaire.

Table 11

Awareness of Health Services as Compared to Five Demographic Variables: Transportation Need, Type of Resident, Significant Other, Health Status, and Health Care Payment

	Transportation available		Type of resident				Significant other			Health status			Health care payment		
	Yes	No	Extended	No one	Nuclear	Other	Formal providers	Nonrelative	Relatives	Excellent	Good	Fair	Poor	Medicaid/Medicare	Private insurance
A1	3.38		.38	.38	2.26	.38	.38		3.01	1.13	1.13	.75	.38	.38	3.02
A2	5.26	.75	.38	1.13	4.14	.38	.75		5.26	1.13	1.88	2.63	.38	1.89	4.15
A3	3.76		.75	.75	2.26	.75	.75		3.01	1.13	1.13	1.50	.38	1.13	2.26
A4	8.65	1.88	.38	3.38	6.39	.38	.75	.75	9.02	2.26	4.14	3.76	.38	3.02	7.17
A5	4.14		.38	2.26	1.88	.38	.38		3.76	.75	1.88	1.13	.38	1.13	3.02
A6	5.26	.38	.38	1.88	3.38	.38	.75	.38	4.51	1.50	2.63	1.88	.38	2.26	2.64
A7	4.51	.38	.38	2.26	2.63		.75	.38	4.51	1.50	2.26	1.13	.38	1.13	3.02
A8	.38		.38	.38			.38							.38	
A9	7.89	2.63	1.50	4.14	4.89		.75	1.13	8.65	2.26	3.76	3.76	.75	5.28	4.91
A10	8.65	1.88	1.13	3.76	5.64		1.50	1.13	7.89	1.88	4.51	3.01	1.13	4.91	5.28
A11	6.77	1.13	.75	2.26	4.89		.38		7.52	1.88	2.26	3.01	.75	3.02	4.53
A12	1.88			1.13	.75			.38		1.50	.38	.75	.38	.38	.75
A13	32.71	3.76	4.51	9.40	22.18	.38	1.13	1.88	33.46	10.15	15.79	7.89	2.63	7.17	29.06
A14	3.76	.38	.75	2.63	.75			1.50	2.63	1.53	.76	1.15	.76	.77	7.92
A15	3.44	.76		2.29	1.91		.38	.38	4.20	1.13	.75	.75	.38	.38	3.07
A16	2.63			1.50	1.13		.38		1.88	1.13	1.50	1.13	.38	1.13	3.02
A17	3.76	.38	.38	.75	3.01		.38		3.76	1.13	2.26	1.50	.75	.75	3.07
A18	4.89		.75	1.50	2.63		.75	.38	4.51	1.13	2.26	1.50	.75	3.77	3.89
A19	17.29	.75	1.50	4.89	11.65		.75	.38	16.92	4.14	8.27	4.89	.75	2.26	15.09
A20	1.53	.38		.76	1.15				1.91	.38	.76	.76	.38	.38	1.53
A21	.38		.38	.38			.38	.38	2.26	1.50	.75	.75	.38	.38	2.26
A22	2.63	.75	.38	1.13	1.13		.38	.75	6.02	3.01	1.50	2.26	.38	.75	6.04
A23	6.39		1.50	2.26	4.14	.38	.75	.38	9.77	2.26	4.89	3.38	.38	2.26	7.92
A24	8.65	2.26	.38	1.88	7.52		.38		.75	.38	.38	.38	.38	.75	.75
A25	.38		.38	.38	.38		.38		1.13	.38	.38	.38	.38	.38	.75
A26	1.13	.38	.38	.38	.38		.38		1.13	.38	.38	.38	.38	.38	.75
A27	.38		.38	.38	.38		.38		3.76	1.50	1.13	1.13	.38	.38	3.77
A28	3.76	.38	.75	1.13	1.88		.38	.38	2.63	.38	1.88	.38	.38	.75	1.51
A29	2.63	.38		1.13	1.88		.38	.38	6.01	1.13	3.38	1.50	.38	1.13	5.28
A30	6.02	.38	1.13	1.88	3.38		.38		.75	.75	.57	.75	.38	.38	.75
A31	.75			.38	.38		.38		2.63	1.88	1.88	.75		.38	2.26
A32	2.63			.75	1.88		.38		1.88	.38	1.13	.38	.38	.75	1.51
A33	1.88			.38	1.50		.38		8.65	2.26	4.51	1.88	.38	.75	8.30
A34	7.52	1.50	.75	2.26	5.64		.38	.75	19.92	7.14	9.77	3.76	.38	1.13	18.87
A35	19.55	1.13	1.88	5.14	12.78	.38	.38		20.30	5.64	8.27	5.64	1.13	1.51	18.87
A36	19.17	1.50	2.26	6.02	12.03	.38	.38		6.02	1.50	3.01	1.50	.38	.75	5.28
A37	6.02		.38	1.50	4.14		.38							.75	
A38			.38				.38		3.76	.38	2.26	1.13	.38	.75	3.40
A39	4.14	.38	.38	1.13	2.63		.38	.38	2.26	.38	1.88	.75	.38	.75	1.89
A40	2.26	.38			2.26	.38	.38	.38	.75	.38	.38	.38	.38	.75	1.13
A41	1.13	1.13		.38	.38	.38	.38		8.65	2.63	4.14	1.88	.38	.38	8.30
A42	7.89	.75	1.13	3.01	4.14	.38	.38		1.88	.38	1.13	.38	.38	.75	1.13
A43	.38			1.13	1.13		.38		1.13	.38	.38	.38	.38	.75	1.13
A44	1.88	1.13			1.13				1.13	.38	.38	.38	.38	.75	1.13

Table 11 (continued).

	Transportation available		Type of resident			Significant other			Health status			Health care payment				
	Yes	No	Extended	No one	Nuclear	Other	Formal providers	Nonrelative	Relatives	Excellent	Good	Fair	Poor	Medicaid/Medicare	Private insurance	Self
A45	5.26		.38	1.13	3.76		.75		4.51	1.13	2.26	1.88	2.26	2.64		
A46	3.01			1.13	1.88		.38		2.26	.38	1.50	.75	.38	1.13	1.51	
A47	8.27	1.13	.75	1.50	7.14			.75	8.65	3.38	4.51	1.13	.38	1.51	7.92	
A48	4.51	.38	1.50	.75	2.63			.38	4.51	.75	3.01	1.13		1.13	3.77	
A49	21.43	1.88	3.38	4.51	15.41				21.80	6.30	11.28	4.51	1.13	2.26	20.75	
A50	18.05	1.50	3.01	3.76	12.41	.38	.38	1.13	18.80	4.51	7.52	6.77	.75	3.02	15.85	.38
A51	9.02	1.13	1.88	1.88	6.39			.38	9.77	3.38	5.26	1.50		.38	9.81	
A52	6.02	.75	.75	1.88	4.14				6.77	2.26	3.76	.75		.38	6.42	
A53	19.55	2.63	1.50	4.51	15.79	.38	1.13	1.13	19.92	6.02	10.53	5.26	.38	3.40	18.49	
A54	20.30	1.50	3.01	3.76	15.04		1.13	.38	20.30	4.89	10.90	5.26	.75	1.89	19.25	.38
A55	15.04	1.50	1.13	2.63	12.41	.38	.38	.38	15.79	4.14	7.89	3.76	.75	1.89	14.72	
A56	1.13		.38		1.75				1.13	.38	.38		.38		1.13	
A57	1.50				1.50				1.50	.75	1.50			.38	1.51	
A58	1.50		.38	.38	.75				1.50	.75	.75	.75		.38	1.13	
A59	4.51	1.13	.75	.75	4.14				5.64	1.13	3.76			.38	5.28	
A60	.38				.38				.38	.38				.38		
A61	3.38	1.13	1.13	.38	3.01			.38	4.14	.75	3.38	.38		.38	4.15	
A62	16.17		1.50	3.38	11.28		1.13	.38	14.66	4.14	8.65	2.63	.75	2.26	13.58	.38
A63	10.90	.38	1.13	2.63	7.52		.38	.38	10.53	2.26	5.64	2.63	.75	1.13	9.81	
A64																
A65	1.13		.38		.75				1.13	.38	.38	.38			1.13	
A66	.38		.38				.38		.38	.38			.38	.38	.38	
A67	.38			.38						.75						
A68	.75		.38		.38				.75	.75	3.80	.38	.38	.76	5.34	.38
A69	6.46		1.14	.76	4.56				6.46	1.90	.38	.38	.38	.38	.38	
A70	1.13			.38	.75		.38		1.13	.38	1.50	1.13	.38	1.51	2.64	
A71	4.51		.75	1.13	2.63		.38		4.14	1.50	1.50	1.13	.38	1.51	2.64	
A72	1.88		.38	.38	1.13				1.88	1.13	.38	.38	.38	1.51	2.64	
A73	7.52	.38	.75	1.88	4.89	.38	1.13	.38	6.39	1.50	3.38	2.63	.38	1.89	5.28	.38
A74	3.76		.38	1.13	2.26				3.01	.75	1.13	1.50	.38	1.89	1.51	
A75	5.64		.38	1.50	3.76		.75		4.89	1.88	1.88	1.50	.38	1.89	3.40	
A76	5.26		.38	.75	4.14				5.26	1.13	3.76	.38		.75	4.53	
A77																
A78	7.89	.75	1.50	2.26	4.51	.38		.75	7.89	1.88	5.64	.75	.38	.38	8.30	

A = Awareness of health services.

1-78 = Health services corresponding to numbers on questionnaire.

Gender

Females (3.8%) tended to be aware of services more than males (2.5%). This pattern held true with the exception of the services of the American Heart Association and the American Cancer Society. With these two services males (11.3%) outnumbered females (10.9%) slightly.

Race

Racial patterns showed whites (5.6%) being more aware of services than blacks (0.8%). This was especially true with regard to the Ft. Sander's Hospice program and the St. Mary's Hospice program where blacks had scores of .75 and .38 respectively.

Age

The young-old (4.9%) were more aware of services than the old-old (1.5%). This fact held constant with regard to all the health services.

Marital Status

No unique variations were found with regard to awareness and marital status. Four percent of those who were married and living with their spouse knew of services compared to 2% of those not presently living with a spouse.

Education

Education had an influence on the awareness of health services. High school graduates (3.1%) tended to be more aware than the college graduate (1.7%) or the individual with less than 12 years of education

(1.6%). The college graduate when compared with someone with less than 12 years of education seemed to know considerably less about the O'Connor Senior Citizen's Center, but seemed equally knowledgeable about St. Mary's Hospice program.

Income

The person with an income of \$5,000-\$25,000 (3.6%) was more aware of health services than any person of another category of income. The least aware was the individual making less than \$5,000 (1.1%). The two categories of individuals making above \$5,000 were equally aware (9.5%) of the Ft. Sander's Hospice Program.

Employment

Eighty-five percent of the aged who were unemployed were unaware of health services. In the case of Ft. Sander's Home Health the discrepancy between awareness and whether someone was employed was slight. Those working registered 1.5% for awareness while those unemployed registered 1.1%.

Transportation

The aged with transportation needs (.5%) were less aware of services than those with adequate transportation (5.8%). Transportation was seen by almost 17% of the aged as not being adequate.

Health Status

With respect to health status and awareness, those in poor health were deprived of information regarding health services while those

aged that ranked their health as excellent or good were the most aware of health services. Comparable to this relationship is the fact that those with private insurance were also the most aware of health services.

Significant Other/Type House Resident

The importance of a significant other and the type of resident played no major role in assisting the individual to become more informed regarding health care and therefore they were omitted from Table 9 as demographic variables. Therefore, the fifth null hypothesis was rejected for the majority of services.

Comparison of Need for Health Services and Selected Demographic Variables

Hypothesis six: There is no relationship between a need for health services and selected demographic variables.

The test for the relationship between a need for health services and selected demographic variables provided five significant relationships. See Table 12 for a summary of the chi-squares of all the demographic variables and their relationship to the clusters of services. See Table 13 and 14 for the percentages of expressed need for health services by demographic variables.

Race was found to be significantly related to a need for information and referral services. Thirty percent of the white aged expressed a need for this service compared to 7% of the black aged. Age was also related to a need for these services. Twice as many

Table 12

A Summary of the Relationship Between Need for Clusters of Health Services and Selected Demographic Variables

	Information and referral services	Nutritional services	Telephone reassurance	Home health services	Hospice services	Handicapped services	Medical services	Counseling services
Sex	.441** .5065	.175 .6327	.584 .3937	.035 .8340	1.621* .1326	.770 .3287	.003 .8844	.029 .7732
Race	6.603 .0102	4.890* .0213*	.028* 1.000	2.942* .0863	.003* 1.000	.264 .5335	.036 1.000	11.840 .0018
Age	7.536 .0044	.035 1.000	2.890 .0528	2.547 .0956	.020* .7689	1.289 .2155	4.030 .0426	.046 1.000
Marital status	.005 .8990	1.103 .2458	.000 .7900	.171 .5489	.001 .7772	1.762 .1751	.019 .8874	6.555 .0077
Education	.693 .7073	11.451 .0033	.849* .6540	1.760 .4148	1.210* .5461	1.413 .4933	4.886 .0869	2.131* .3446
Income	8.002 .0183	7.692 .0245	.506* .7763	3.957 1.383	.766* .6817	3.203 .2016	2.921 .2321	4.407* .1104
Employment status	.042 1.000	.171* .7038	.004* 1.000	.253* .4967	.073* 1.000	.362 .5060	1.560 .1612	.027* .6289
Transportation	.351 .4996	6.518* .0093	.687* .2660	.255* .4223	.137* 1.000	.282 .4755	3.318 .0583	.974* .2441
Resident in home	2.045* .5631	2.200* .5320	2.159 .5402	2.979* .3948	.877* .8309	3.544* .3151	1.465* .6904	12.638* .0055
Significant other	1.132* .5678	6.732* .0345	10.399* .0055	.576* .7496	.262* .8773	1.879* .3909	.615* .7353	20.328* .0001
Health status	1.307 .7276	8.438* .0378	4.425* .2191	21.049 .0001	3.501* .3206	31.538 .0001	22.678 .0001	11.685* .0085
Method of health care payment	3.580 .1669	9.563 .0084	3.068* .2157	1.157 .5607	.928* .6286	.379 .8275	3.209 .2010	4.461* .1075

*Table too sparse for a valid chi-square test.

**Chi-square value = .441; significance level = .5065.

Table 13

Percentages of Expressed Need for Health Services by Seven Demographic Variables: Sex, Race, Age, Marital Status, Education, Income, and Employment Status

Need	Sex		Race		Age		Marital status		Education			Income		Employment status		
	Female	Male	Black	White	65-74 years	75+ years	Married	Unmarried	Less than 12 years	High school graduate	College graduate	Under \$5,000	\$5,000-\$25,000	Over \$25,000	Employed	Unemployed
Information and referral services	22.56	14.66	7.14	30.08	26.69	10.53	20.30	16.92	19.55	12.78	4.89	10.74	22.31	4.55	3.77	33.21
Nutritional services	5.26	2.26	2.26	5.26	4.51	3.01	3.01	4.51	6.39	.38	.75	4.55	2.07	.41	.38	7.17
Telephone reassurance	2.63	2.63	.38	4.89	4.51	.75	2.63	2.63	2.63	2.26	.38	1.65	3.31	.83	.38	4.91
Home health services	6.77	3.38		10.15	4.51	5.64	4.89	5.26	6.02	3.38	.75	2.48	6.61	.83	1.51	8.68
Hospice services	1.88	2.63	.38	4.14	3.01	1.50	2.63	1.88	2.26	1.13	1.13	1.24	2.07	1.24	.38	4.15
Handicapped services	16.92	12.03	4.14	24.81	15.79	13.16	13.53	15.41	15.79	9.77	3.38	11.56	14.46	3.31	2.26	26.79
Medical services	46.99	27.82	9.02	65.79	42.48	32.33	39.85	34.96	39.47	25.94	9.40	26.86	36.78	11.57	6.42	68.30
Counseling services	3.38	1.50	2.26	2.63	3.01	1.88	.75	4.14	3.38	1.13	.38	2.89	1.24	.41	.75	4.15

Table 14

Awareness of Health Services as Compared to Five Demographic Variables: Transportation Available, Type of Resident, Significant Other, Health Status, and Health Care Payment

Services	Transportation available		Type of resident				Significant other			Health status				Health care payment		
	Yes	No	Extended	No one	Nuclear	Other	Formal providers	Nonrelative	Relatives	Excellent	Good	Fair	Poor	Medicaid/Medicare	Private insurance	Self
Information and referral services	30.08*	7.14	4.51	11.65	21.05		1.13	2.63	33.46	9.77	15.04	9.40	3.01	11.70	24.15	1.13
Nutritional services	4.51	3.01	1.13	3.38	3.01		.38	1.50	5.64	.75	2.63	2.26	1.88	4.15	3.02	.38
Telephone reassurance	3.76	1.50	.38	2.63	2.26			1.50	3.76	.38	2.26	1.5	1.13	.75	3.77	.75
Home health services	7.89	2.26	1.88	4.14	4.14			.75	9.40	3.38	2.26	1.50	3.01	1.89	7.92	.38
Hospice services	3.76	.75	.38	1.13	3.01			.38	4.14	1.13	.75	1.88	.75	1.51	3.02	
Handicapped services	23.31	5.64	4.51	10.53	13.91		.38	3.01	25.56	3.01	9.02	10.90	6.02	7.17	20.00	1.89
Medical services	60.15	14.66	9.40	23.68	40.60	1.13	1.13	5.26	68.42	13.53	28.20	24.44	8.65	17.36	53.21	4.15
Counseling services	3.38	1.50	1.88	2.26	.75			1.88	3.01		1.5	1.88	1.50	1.89	2.26	.75

*Percentages.

under 75 years of age verbalized this need as compared to the older adult.

The need for medical services was dependent upon the adult's age. The young-old (43%) had a greater need than the old-old (32%).

A desire for counseling services was connected to one's marital status. Being married decidedly reduced one's need for outside help. Less than 1% of the married sample expressed a need for this service compared to 4% of those not living with a spouse. Ninety-six percent of all those interviewed expressed no need for this service.

There was a significant relationship between the amount of education acquired and a need for nutritional services. Less than 1% of the college graduates expressed a need for this service compared to 6.4% of those who had not graduated from high school. Income was also related to a need for nutritional services. The poor (4.6%) tended to use nutritional services more than those aged with incomes over \$5,000. Finally, method of payment was related to nutritional services. Those using federal assistance needed more help with obtaining meals and food.

The relationship between health status and the need for home health services was interesting. Individuals who rated themselves to be in fair to poor health had a greater need for home health and handicapped services. However, those in good health (28.2%) demonstrated a greater need for medical services.

The last significant relationship involves information and referral services and income. Surprisingly, those in the \$5,000-\$25,000 income level had the greatest percentage (22.3) of needs tabulated.

The majority of demographic variables and clusters of services were not shown to be significant so for these the null hypothesis could not be rejected.

Comparison of Need for Health Services and Utilization fo Health Services

Hypothesis seven: There is no relationship between the need for health services and selected demographic variables.

To address the seventh hypothesis a linear regression was performed on the eight different needs for health services and the 78 different health service utilization scores (see Table 15 for the regression analysis). No significant F test was found that would show a relationship between a need for health services and utilization of health services. Therefore, the null hypothesis could not be rejected.

Comparison of Knowledge of Health Services and Health Service Utilization

Hypothesis eight: There is no relationship between a knowledge of health services and the utilization of health services.

The last hypothesis to be tested by a linear regression equation sought to determine if knowledge of health services could be a fore-caster for health service utilization (see Tables 16, 17, 18, and 19 for the regression analysis). None of the analyses carried a significant F score and therefore no significant relationship existed between use and knowledge of services. Therefore, the null hypothesis could not be rejected.

Table 15

General Linear Model Procedure for Use and Need for All 78 Health Services

	N1	N2	N3	N4	N5	N6	N7	N8
U1								
U2								
U3	.14*							
	.00							
U4	2.29							
	.01							
U5	3.44							
	.01							
U6								
U7	5.10							
	.02							
U8								
U9		30.21						
		.10						
U10		35.14						
		.12						
U11		5.37						
		.02						
U12		13.01						
		.05						
U13		45.25						
		.14						
U14		5.37						
		.02						
U15		.08						
		.00						
U16								
U17			19.47					
			.07					
U18			19.47					
			.07					
U19			19.47					
			.07					
U20								
U21								
U22				9.24				
				.03				
U23				3.58				
				.01				
U24				41.93				
				.14				
U25								
U26								
U27								
U28				20.27				
				.07				

Table 15 (continued).

	N1	N2	N3	N4	N5	N6	N7	N8
U29				9.24 .03				
U30				3.58 .01				
U31								
U32				9.24 .03				
U33								
U34					21.17 .07			
U35								
U36					27.62 .09			
U37								
U38								
U39					2.24 .01			
U40								
U41								
U42								
U43						.40 .00		
U44								
U45								
U46						2.51 .01		
U47						.03 .00		
U48								
U49							.11 .00	
U50								
U51							.33 .00	
U52								
U53								
U54							.33 .00	
U55							1.01 .00	
U56							.33 .00	
U57								
U58								
U59								
U60								

Table 15 (continued).

	N1	N2	N3	N4	N5	N6	N7	N8
U61								
U62							.33 .00	
U63							1.34 .00	
U64								
U65								
U66								
U67								
U68								
U69								
U70								
U71								
U72								.05 .00
U73								9.18 .03
U74								
U75								.05 .00
U76								
U77								
U78								.15 .00

U = Use score for services listed on the questionnaire and numbered 1-78.

N1 = Need score for information and referral services.

N2 = Need score for nutritional services.

N3 = Need score for telephone reassurance.

N4 = Need score for home health services.

N5 = Need score for hospice services.

N6 = Need score for handicapped services.

N7 = Need score for medical services.

N8 = Need score for counseling services.

DF = Degrees of freedom are equal to 1 for the numerator and 1 for the denominator.

*Top number is the F value; bottom number is the R-square.

Table 16

General Linear Model Procedure for Use and Knowledge of 1-20 of the 78 Health Services

	U1**	U2	U3	U4	U5	U6	U7	U8	U9	U10	U11	U12	U13	U14	U15	U16	U17	U18	U19	U20
A1***																				
A2																				
A3			63.77*	.19																
A4				94.88	.26															
A5					56.46	.18														
A6																				
A7							76.23	.22												
A8																				
A9									132.89	.33										
A10										65.24	.20									
A11											25.91	.09								
A12												65.51	.20							
A13													9.13	.03						
A14														56.91	.18					
A15															25.21	.09				
A16																				
A17																				
A18																25.61	.09			
A19																		21.17	.07	
A20																			4.55	.017

*Top number is the F value; bottom number is the R-square.

**U = Use score for services listed on the questionnaire and number 1-78.

***A = Aware score for services listed on the questionnaire and numbered 1-78.

Df = Degrees of freedom are equal to 1 for the numerator and 1 for the denominator.

Table 17

General Linear Model Procedure for Use and Knowledge of 21-40 of the 78 Health Services

	U21**	U22	U23	U24	U25	U26	U27	U28	U29	U30	U31	U32	U33	U34	U35	U36	U37	U38	U39	U40
A21***																				
A22		43.34*																		
		.14																		
A23			29.19																	
			.10																	
A24				62.14																
				.19																
A25																				
A26																				
A27																				
A28								146.33												
								.35												
A29									37.01											
									.12											
A30										33.35										
										.11										
A31																				
A32												43.34								
												.14								
A33																				
A34																10.57				
																.04				
A35																				
A36																				
																	11.97			
A37																	.43			
A38																				
A39																			95.28	
																			.26	
A40																				

*Top number is the F value; bottom number is the R-square.

**U = Use score for services listed on the questionnaire and number 1-78.

***A = Aware score for services listed on the questionnaire and numbered 1-78.

Df = Degrees of freedom are equal to 1 for the numerator and 1 for the denominator.

Table 18

General Linear Model Procedure for Use and Knowledge of 41-60 of the 78 Health Services

	U41**	U42	U43	U44	U45	U46	U47	U48	U49	U50	U51	U52	U53	U54	U55	U56	U57	U58	U59	U60
A41***																				
A42																				
A43			43.34*																	
			.14																	
A44																				
A45																				
A46						37.01														
						.12														
A47							33.03													
							.11													
A48																				
A49								9.91												
								.04												
A50																				
A51										9.16										
										.033										
A52																				
A53																				
A54																				
														3.64						
														.01						
A55															15.74					
															.06					
A56																131.01				
																.33				
A57																				
A58																				
A59																				
A60																				

*Top number is the F value; bottom number is the R-square.

**U = Use score for services listed on the questionnaire and number 1-78.

***A = Aware score for services listed on the questionnaire and numbered 1-78.

Df = Degrees of freedom are equal to 1 for the numerator and 1 for the denominator.

Comprehensive Analysis of Health Services

Each of the five major classifications of variables is observed in Table 20 where the overall percentages for need, knowledge, use, and source of information are compared with the demographic variables. Table 21 provides a summary of the relationships between the total variable scores. The discussion of the significant relationships will begin with the variable need.

Comparison of Need with Demographic Variables and Utilization of Health Services

Due to a low utilization of services need did not show a significant relationship with use. Therefore, the null hypothesis relating to need and use was not rejected. Nevertheless, five significant relationships were found with need and several demographic variables. For the majority of these relationships between need and demographic variables the null hypothesis could not be rejected.

However, some of the relationships proved to be significant. For instance, good health (8%) was associated with a high level of need as was having an adequate means of transportation (17%). Two other relationships involved the aged's income and significant other. It was not the poor but the middle income adult (11%) with the greatest need. When relatives were listed as the most important person (19%) the need scores rose. Finally, the less education the individual had, the greater was the need.

Table 20

Composite Percentages of Need, Awareness, Use, and Source of Information of Health Services

	Need for health services		Awareness of health services		Source of information for health services			Use of health services	
	Yes	No	Yes	No	Family	Media	Agency	Yes	No
Sex									
Female	13.30	49.86	3.87	59.29	19.51	23.16	17.46	.29	62.87
Male	8.36	28.48	2.50	34.34	10.25	23.39	6.23	.17	36.67
Race									
Black	3.01	9.39	.82	11.59	6.75	4.11	2.05	.23	12.21
White	18.65	68.95	5.55	82.04	23.01	42.44	21.64	.23	87.33
Age									
65-74 years	13.06	47.46	4.89	55.64	20.73	37.51	18.30	.28	60.25
75 or over	8.60	30.88	1.48	37.99	9.03	9.04	5.39	.18	39.29
Marital status									
Yes	10.95	42.81	4.06	49.71	15.56	33.94	13.82	.18	53.57
No	10.71	35.53	2.31	43.92	14.20	12.61	9.87	.28	45.97
Education									
Less than 12 years	11.94	37.69	1.58	48.07	10.02	10.40	4.40	.21	49.34
High school graduate	7.10	28.24	3.13	32.20	12.22	25.97	10.63	.18	35.21
College graduate	2.62	12.41	1.66	13.36	7.52	10.18	8.66	.07	14.99
Income									
Less than \$5,000	7.75	26.55	1.07	33.23	6.82	6.66	2.81	.17	34.24
\$5,000-\$25,000	11.11	36.82	3.64	44.30	16.53	28.65	9.07	.24	47.55
Over \$25,000	2.89	14.88	1.92	15.84	5.70	11.96	11.80	.06	17.74
Employment status									
Yes	1.98	8.20	1.29	8.90	6.54	5.29	8.20	.09	10.13
No	19.68	70.14	5.08	84.73	23.22	41.26	15.49	.37	89.41
Transportation available									
Yes	17.10	65.98	5.85	77.23	26.88	43.13	21.94	.38	82.78
No	4.56	12.36	.52	16.40	2.88	3.42	1.75	.08	16.76
Type of residents in home									
Extended family	3.01	9.02	.70	11.32	2.89	3.26	4.32	.08	11.99
No one	7.42	25.28	1.62	31.08	10.93	10.56	4.56	.18	32.49
Nuclear	11.09	43.05	3.98	50.17	15.64	32.27	14.43	.20	53.93
Other	.14	.99	.07	1.06	.30	.46	.38	.0	1.13
Type of residents in home									
Extended family	3.01	9.02	.70	11.32	2.89	3.26	4.32	.08	11.99
No one	7.42	25.28	1.62	31.08	10.93	10.56	4.56	.18	32.49
Nuclear	11.09	43.05	3.98	50.17	15.64	32.27	14.43	.20	53.93
Other	.14	.99	.07	1.06	.30	.46	.38	.0	1.13
Significant other									
Formal	.38	1.51	.30	1.57	2.35	2.58	.08	.03	1.85
Nonrelative	2.11	5.03	.24	6.90	1.82	.99	.91	.06	7.10
Relative	19.17	71.80	5.83	85.16	25.59	42.98	22.70	.37	90.59
Health status									
Excellent	3.99	18.94	1.63	21.30	6.68	8.43	10.17	.10	22.86
Good	7.71	32.52	2.92	37.32	12.53	23.54	9.26	.16	40.04
Fair	6.72	21.48	1.51	26.68	7.59	12.76	3.88	.13	28.06
Poor	3.24	5.40	.31	8.33	2.96	1.82	.38	.07	8.58
Method of health care									
Medicare/Medicaid	5.80	20.23	1.21	24.84	7.68	8.08	2.47	.17	25.86
Private insurance	14.68	54.01	5.07	63.60	21.69	37.85	20.98	.29	68.44
Self	1.18	4.10	.09	5.19	.39	.62	.24	.0	5.24
Other	0								

Table 21

Summary of Relationships Between Total Variable Scores

	Need	Knowledge	Source	Use
Need	--	--	--	F 25.73
Knowledge	--	--	22.622* .0001	F 30.25
Source	--	22.622* .0001	--	73.742* .0001
Use	F 25.73	F 30.25	73.742 .0001	--
Sex	.792 .3735	3.410 .0648	56.376* .0001	.629 .7303
Race	.166 .7851	.101 .4778	9.08* .0098	1.59 .4441
Age	.012 .9120	154.272* .0001	16.062* .0003	.663 .7177
Marital status	2.450 .1175	55.625* .0001	48.179* .0001	8.116** .0173
Education	7.933* .0189	367.688* .0001	47.840* .0001	6.191 .1853
Income	7.423* .0244	234.507* .0001	92.412* .0001	6.449 .1680
Employment status	.690 .4061	147.619* .0001	69.805* .0001	8.046** .0179
Transportation	7.121* .0076	75.532* .0001	2.042 .3603	.278 .8704
Resident in home	4.249 .2358	42.323* .0001	62.467* .0001	7.423 .2835
Significant other	6.110* .0471	86.595* .0001	32.917* .0001	15.109** .0045
Health status	37.204* .0001	47.361* .0001	97.250* .0001	7.863 .2483
Method of health care payment	.232 .8904	103.846* .0001	31.841 .0001	8.472** .0757

F = F value for general linear model.

*Significant relationship.

**Over 20% of the cells had counts less than 5 so chi-square value may not be a valid test.

Comparison of Knowledge of Health Services
with Utilization of Health Services, Source
of Information, and Demographic Variables

For this research knowledge of health services was not significantly related to use but instead awareness was related to source and demographic variables. The null hypothesis for the relationship of knowledge to use was not rejected. Those null hypotheses dealing with a relationship between awareness and source; and awareness and most of the demographic variables were rejected.

The media (47%) was almost twice as effective as agencies (24%) in helping people to become aware of health services. Males (23%) and females (23%) were equally as likely to rely on the media as were college graduates (10%) and those with less than 12 years of school (10%).

Home ties tended to increase the use of the media. Nuclear families (32%), unemployed individuals (41%), married persons (34%), and relatives (43%) cited as significant others increased the use of television, newspapers, and radio to help the aged stay abreast of new services.

For some demographic variables large variances were found. White families (42%) tended to rely upon the media for information 10 times more often than black families (4%). Thirty-eight percent of the young-old tended to use the media four times more often than did those over 75 years of age. And a four times larger usage could be found for the middle income family (29%) as compared to the impoverished family (7%).

There were ten significant demographic variables related to knowledge. All of these variables had a .0001 level of significance. These variables were almost the identical ones that were influential when examining source in relation to demographic variables. The null hypothesis for the relationship of source to demographic variables was rejected for the majority of variables. Sex and race were the only ones that were deleted from the knowledge group but included in the source group. Method of payment for health care was added to the awareness group with those with private insurance (5%) being the most aware of services.

The aged who were under 75 years of age (5%) and living with their spouse (4%) seemed to be the most aware of services. Awareness was also related to living in a nuclear family (4%). Familiarity with services was significant among 6% of the aged who felt that relatives were the most important persons in their lives.

Some of the demographic variables that were significant for source of information continued to be significant for awareness. For instance, high school graduates (3%) were more knowledgeable about services than were college graduates (2%). Those in good health (3%) tended to know more services than those in poor health (.3%). Finally, middle-income (4%) aged knew more about services than did the impoverished (1%).

Being employed (1%) did not assist the aged in this study to become familiar with services. Over 5% of those who were unemployed were aware. However, those with an adequate means of transportation (6%) were more aware than those without transportation (.5%).

Comparison of Utilization of Health Services with Source of Information

In comparing use with source, utilization was more favorably influenced when the source used was the family (5%). The use of media (.5%) and agencies (2%) as sources proved to be less influential. Therefore, the null hypothesis related to source and use was rejected.

Finally, the null hypothesis was not rejected for the relationship of use to demographic variables, as no significant relationships could be found. Low utilization scores accounted for this findings.

Summary

This chapter was concerned with the analysis and interpretation of data and was divided into five parts. The first section describes the demographic and socioeconomic characteristics of the aged. The demographic variable distribution, type of relative important to the aged, and health problems of the aged were listed in tables.

The second section described the individual health service scores on the frequency of need for health services, knowledge of health services, use of health services, and source of information for health services.

The third section consisted of an analysis of the individual health services to determine if relationships existed between the many variables. No relationships could be found between five different pairs of primary variables due to low frequency counts. Five null hypotheses were unable to be rejected.

The fourth section was designed to reveal any significant relationship between the total scores on the five primary data sources--need, knowledge, source, use, and demographic variables. Several variables proved to be significant and were plotted on a table with chi-square values and levels of significance.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SummaryPurpose of the Study

The purpose of the study was to determine how sources of information dissemination, awareness of services, need for services, and selected demographic variables influenced the utilization of health services by those 65 years of age or older in the Knoxville-Knox County area. Answers to the following questions were sought:

1. Was there a relationship between the utilization of health services and the source of information?
2. Was there a relationship between the utilization of health services and selected demographic variables?
3. Was there a relationship between the source of information and selected demographic variables?
4. Was there a relationship between a knowledge of health services and the source of information?
5. Was there a relationship between a knowledge of health services and selected demographic variables?
6. Was there a relationship between a need for health services and selected demographic variables?
7. Was there a relationship between the need for health services and the utilization of health services?

8. Was there a relationship between a knowledge of health services and the utilization of health services?

Importance of the Study

Since the mid-1900s both the number and the proportion of the aged have increased dramatically. This rapid increase in the number of aged in the population, as well as the many health and social problems related to aging, demands that the aged have optimal support in times of need. Without this support the aged might be forced to enter long-term care facilities rather than remain in their own homes.

Due to the fact that, at the time of this research, 35% of Knox County's aged lived alone it was important that they be made aware of available health services. Besides social isolation these aged also suffered from high rates of poverty (20%).

Research to determine that the aged are made aware of health services was mandated by the Older Americans Act; however, due to budget reductions no research could be found related to awareness or utilization of health services in Knox County. With only one out of every four poor persons receiving welfare assistance it was determined that a study related to awareness and utilization was needed.

Procedure

A total of 269 personal interviews were obtained from a randomly selected sample of individuals age 65 years of age or older. The aged interviewed did not reside in convalescent homes, nursing homes, or mental hospitals, or any other similar type of institution. Sample

selection was proportionate to the geographic distribution of the total elderly population within the study area. Interviews were conducted by the interviewer and her trained assistant. Interviewing began on April 24, 1985, and was completed by June 10, 1985. Data obtained from the interviews were compiled and analyzed by the chi-square and general linear regression model using the Statistical Analysis System.

Findings

The findings of this research are summarized as follows:

A. Demographic and Socioeconomic Data

1. The sample methodology produced valid age, race, and sex representations of the elderly population residing in Knoxville, Knox County, Tennessee.
2. Over half of the aged were married while one-third of them lived alone.
3. Females outnumbered males by 26%.
4. Thirty-nine percent of the aged had lived to be 75 years of age or older.
5. Fifty percent of those interviewed had not graduated from high school.
6. Ten percent of the aged had continued to work for wages.
7. Seventeen percent of the respondents had a need for transportation.
8. There were 12% black and 88% white aged in this study.

9. Fifty-four percent of the families surveyed were nuclear families.
10. The most important person in the aged's life was a relative.
11. After spouse (46%), daughter (10%) and son (9%) were named by the aged as the most significant persons in their life.
12. Almost half of the sample had an income of \$5000-25,000.
13. Almost 70% of the respondents had private insurance while 26% used federal insurance benefits.
14. The major health problems stated by the aged included arthritis (50%), heart disease (30%), and hypertension (17%).

B. Relationship Between the Utilization of Health Services and the Source of Information

1. Use of the family (5%) proved to be more influential in the utilization of health services than did use of the media (.5%).
2. A relationship existed at the .0001 level of significance between utilization of health services and the source of information.

C. Relationship Between the Utilization of Health Services and Selected Demographic Variables

1. A relationship did not exist between the utilization of health services and selected demographic variables.

D. Relationship Between the Source of Information and Selected Demographic Variables

1. Males (23%) and females (23%) were equally as likely to rely on the media as were college graduates (10%) and those with less than 12 years of school.
2. White aged, those under 75 years of age, and middle income individuals tended to use the media as a source of information.
3. Transportation and method of payment scores were not significantly related to source scores.
4. Nuclear families, unemployed individuals, married persons, and those who chose relatives as significant others tended to use the media as a source for information.
5. A significant relationship existed for the majority of selected demographic variables and the source of information.

E. Relationship Between a Knowledge of Health Services and the Source of Information

1. The media (43%) was much more effective than agencies (24%) or families (30%) in helping people to become aware of health services.
2. A relationship existed at the .0001 level of significance for awareness of health services and the source of information.

F. Relationship Between a Knowledge of Health Services and Selected Demographic Variables

1. The following individual characteristics were found to be related to awareness of health services: age below 75 years, married, nuclear family members, high school graduate, good health status, middle income, unemployed, relative most important to them, and adequate means of transportation.
2. Scores on sex and race did not show a significant relationship with knowledge of health services.
3. Those middle income aged who were under 75 years of age, married, high school graduates, health, unemployed, covered by private health insurance, living in nuclear families, and mobile with good transportation were more aware of health services.
4. A relationship existed for the majority of selected demographic variables and an awareness of health services.

G. Relationship Between a Need for Health Services and Selected Demographic Variables

1. Good health, an income between \$5,000-\$25,000, an adequate means of transportation, a lower educational level (less than 12 years), and relatives as significant others were all individually related to increased need for health services.

2. A significant relationship existed for a minority of selected demographic variables and a need for health services.

H. Relationship Between the Need for Health Services and the Utilization of Health Services

1. There was a much greater need (21.66%) for services than there was a level of awareness (6.37) or use (.46).
2. No significant relationship existed for need for health services and the utilization of health services.

I. Relationship Between a Knowledge of Health Services and the Utilization of Health Services

1. There was a much higher level of awareness (6.37) than use (.46).
2. No significant relationship existed between a knowledge of health services and the utilization of health services.

Conclusions

The conclusions are based on the findings from 269 interviews of aged individuals 65 years of age or older. The following conclusions were drawn:

1. The media appeared to be the best source for the dissemination of information.
2. The felt needs of the aged for health services were not being met adequately due to the aged's lack of awareness and low utilization of health services.

3. The aged who depended on the family as a source of information used health services more than those who obtained their information from other sources. Therefore, the aged's utilization of health services could be increased by making family members more aware of health services.

4. Research conducted on the demographic variables, need for service, or knowledge of service could not be significantly related to utilization of services due to low utilization scores.

5. Need was best determined by an assessment of an aged's educational level, income, transportation need, significant other, and health status.

6. Age, marital status, education, income, employment, type of house resident, significant other, and health status influenced the source of information used by the aged.

7. Age, marital status, education, income, type of house resident, significant other, and health status were directly related to the degree of awareness the aged had of health services.

Recommendations

The following recommendations resulted from the findings, the conclusions, the review of the literature, and the researcher's insight into the problem:

1. Assist the elderly to better locate services in the phone book with the help of a separate section, the silver pages, where they could find health services, senior citizen discounts, physicians who take consignment, etc.

2. Increase the media coverage of health services by placing public service announcements around news time. Have health programs near news time.

3. Place pamphlets about health services in physician's offices.

4. Agencies should hold workshops/seminars for ministers and physicians to increase their awareness of health services.

5. A follow up study similar to this study needs to be done after the installation of the silver pages.

6. A study should be done to determine why morbidity did not translate into utilization of health services.

CHAPTER 6

EPILOGUE

Since the 1900s the number and proportion of aged has continued to increase dramatically. Since the aged are often afflicted with chronic diseases, disabling conditions, and complex problems, a priority of health care providers and society as a whole should be to maintain an optimal quality of life for these individuals. One way to achieve this goal is to be sure that the aged are made aware of all their possible social support systems. Everything should be done to allow aged persons to remain in their own homes.

In an attempt to uncover possible barriers or patterns of health service utilization, 269 elderly residents of Knox County were interviewed to determine their needs, knowledge of services, use of services, and sources of information. These were then compared with the demographic variables.

In previous studies need and awareness were shown to be related to the utilization of health services; however, the study showed source of information to be the most significant variable. The most common source of information used was the family. An often heard comment by the aged was, "I haven't really needed to know about that yet, but when I do my daughter/son will get help for me." Murdock (1978) found that when children assist their parents, the parents were unlikely to be motivated to master the information. East Tennessee heritage may account for these close ties to the family. Typically, it

was the family that validated the need, informed the family member of the presence of an appropriate resource, and compelled the aged to seek assistance "before it is too late."

Even with the family's assistance the aged in this study had a much greater need for services than there was a level of awareness or use. For those over 75 years of age many of the services were not available during most of their adult years and they had been unable to keep up with the progress in health care. For an example, many of the old-old were unfamiliar with terms such as hospice or home health care. Most of those over 75 had not finished high school and might have lacked financial resources to maintain cars to get out in the community and become aware of services. People with less than a high school education also tended to have more children which could have depleted their financial resources. The loss of a spouse also deprived these old-old of a second opinion and a source of information.

The information source that assisted the majority to increase their awareness of health services was the media, with television being the most informative. This might explain why the unemployed were most aware of services--they had more time to watch television! This explains why those 65 through 74 years of age were aware. But what about those over 75? The old-old were not in the lifelong habit of watching television and might very well not have been able to see or hear it. This could account for their lack of awareness. Finally, with the change in social habits, visiting on the front porch had somewhat diminished and watching television had become more commonplace.

Having good health was also seen as increasing both the need for services and the knowledge of services. It is easier to understand how the healthy might be more aware of services, but a little more difficult to understand how health relates to increased need. Due to their ability to travel to social events and talk with others, including family members, the healthy learn what their needs are and what services are available. Finally, because they are in the habit of seeking help and information to care for their health they are able to maintain it into old age.

Therefore, morbidity did not translate into utilization of services. This could be accounted for by the fact that many of those of East Tennessee heritage were reluctant to seek medical care. Many of the aged interviewed could not afford care, were too independent or proud to ask for help, were ignorant of services, or were unable to relate services to need for care.

Due to the uniqueness of the East Tennessee region and cultural heritage, the findings from the study varied somewhat from other studies. It is hoped that the information from the study may assist those delivering health services to be able to better understand Knox County's aged and the variables that influence the utilization of health services.

Because of the low utilization of services the health agencies of Knox County might want to attempt to increase their visibility and accessibility. First of all, they need to continue their participation in health fairs. There are other methods that they might try as well.

They could wage a mass public awareness program by declaring one week of the year health services awareness week. During this week they could introduce a help line (SRS-INFO) which would dispense information regarding all the health services available to help the aged. Bumper stickers could be distributed with the number on the sticker. Physician's offices, churches, and public health departments could be approached to display pamphlets from the various services. Some well known public figure might be asked to help publicize the event. Volunteers who would go to the aged's home to assess needs and explain services could be procured during this week of awareness. Public service announcements as well as spots on television talk shows could be increased to make the aged aware of the help line.

The health service agencies could also make sure that they had an advisory board that would assist them in two ways. First, the board members should be able to provide feedback from the aged so the services would be aware of needs or requests. Second, the board members should be in positions where they could disseminate information to the aged. An example of a good board member might be someone who was a member of the American Association of Retired Persons. Awareness of services could also be increased by developing a directory of senior citizens so information dissemination would not be an impossible task.

Finally, the services should increase an awareness of their facilities through a "ground roots" effort. They should establish a

speaker's bureau so that garden clubs, churches, senior citizen's centers, and the like, would have a choice of free speakers for their meetings. If this would not be possible then maybe each group could produce a short film on their agency that could be loaned to schools, churches, or organizations.

The results of these efforts would be easy to determine. The agencies could merely look at the frequencies of use and determine if there was a significant increase with the installation of the new public relations techniques. It is hoped that these suggestions will be tried and evaluated. Utilization must increase if needs are to be met.

REFERENCES

REFERENCES

- Aday, L., & Andersen, R. (1974). A framework for the study of access to medical care. Health Services Research, 9(3), 208-220.
- Ambler, S. (1976). Knox county profile: The elderly in 1975. Knoxville, Tennessee: Knoxville/Knox County Office on Aging.
- Anderson, J. (1973). Health services utilization framework and review. Health Services Research, 8(3), 184.
- Anderson, R., & Newman, J. (1973). Societal and individual determinants of medical care utilization in the United States. Milbank Memorial Fund Quarterly, 51(1), 98, 107.
- Angel, R. (1981/1982). Health and health care utilization: A comparison of the impact of race and Hispanic utilization. (Doctoral dissertation, University of Wisconsin, 1981). Dissertation Abstracts International, 42, 5252-A.
- Auerbach, M., Gordon, D., Ullman, A., & Weisel, M. (1977). Health care in a selected urban elderly population. The Gerontologist, 17(4), 341-346.
- Bice, T., & White, K. (1969). Factors related to the use of health services: An international comparative study. Medical Care, 7(2), 130-132.
- Bild, B., & Havighurst, R. (1976). Knowledge and use of services. The Gerontologist, 16(1), 76-79.
- Billings, G. (1982). Alternatives to nursing home care: An update. Aging, Nos. 325-326, 2-11.
- Birchenall, J., & Streight, M. (1982). Care of the older adult. Philadelphia: J. B. Lippincott.
- Blazier, D., & Maddox, G. (1982). Using epidemiologic survey data to plan geriatric mental health services. Hospital and Community Psychiatry, 33(1), 42-45.
- Branch, L. G. (1977). Understanding the health and social service needs of people over age 65. University of Massachusetts, Center for Survey Research.
- Brody, S. (1980). The graying of America. Hospitals, 54(10), 63, 66.

- Buczko, W. (1980, November). Utilization of social services for the elderly: A multivariate analysis. Paper presented at the meeting of the Gerontological Society of America, San Diego, California.
- Bureau of Census. (1984). Current population reports (Department of Commerce No. 951 Series P-25). Washington, D.C.: U.S. Government Printing Office.
- Butler, L. H., & Newacheck, P. W. (1980, June). Health and social factors relevant to long term care policy. Paper presented at the Symposium on Long Term Care Policy, Williamsburg, Virginia.
- Cantor, M. H., & Mayer, M. (1975, October). Factors in differential utilization of services by urban elderly. Paper presented at the 28th Annual Gerontological Society, Louisville, Kentucky.
- Coe, R. (1983). Comprehensive care of the elderly. In R. Coe, R. Cape, & I. Rossman (Eds.), Fundamentals of geriatric medicine (p. 3). New York: Raven Press.
- Coe, R., & Wessen, A. (1965). Social-psychological factors influencing the use of community health resources. American Journal of Public Health, 60(7), 1026.
- Coward, R. (1979). Planning community services for the rural elderly: Implications for research. The Gerontologist, 19, 275-282.
- Cox, C. (1984, November). Determinants of the use of health care services by three groups of ethnic elderly. Paper presented at the meeting of the Gerontological Society of America, San Antonio, Texas.
- Crawford, J. (1979/1980). Older Chicanos and use of health services: A case study of sociocultural aspects of health care utilization. (Doctoral dissertation, University of California, 1979). Dissertation Abstract International, 40, 6011-A.
- Cutler, S. (1972). The availability of personal transportation, residential location, and life satisfaction among the aged. Journal of Gerontology, 27(3), 383-389.
- Cuts may push elderly into poverty. (1985, January). The Knoxville Journal, p. 1.
- Daatland, S. (1983). Use of public services for the aged and the role of the family. The Gerontologist, 23(6), 650-656.
- Dunlop, B. (1974). Long-term care: Need versus utilization (Working Paper 963-35). Washington, D.C.: The Urban Institute.

- Ebersole, P., & Hess, P. (1981). Toward healthy aging human needs and nursing response. St. Louis, Missouri: C. V. Mosby.
- Elwood, T., & Oakes, T. (1975). Failure by a group of elderly men to use a preventive health service. Journal of the American Geriatrics Society, 23(2), 74-76.
- Eribes, R., & Rawls, M. (1978). The underutilization of nursing home facilities by Mexican American elderly in the Southwest. The Gerontologist, 18(4), 363-371.
- Eve, S., & Friedsam, H. (1978). Multivariate analysis of health service utilization among elderly Texans. Paper presented at the meeting of the Gerontological Society of America, Dallas, Texas.
- Feldman, J. (1966). The dissemination of health information: A case study of adult learning. Chicago: Aldine.
- Flaherty, M. (1980). The care of the elderly person (3rd ed.). St. Louis, Missouri: C. V. Mosby.
- Folawiyo, A. (1975/1976). Health knowledge, needs, and attitudes related to the utilization of medical facilities on Five Sea Islands of Charleston County, South Carolina. (Doctoral dissertation, University of Tennessee, 1975). Dissertation Abstracts International, 36, 7883-7884-A.
- Fowler, F. J. (1970). Knowledge, need, and use of services among the aged. In C. C. Osterbind (Ed.), Health care services for the aged: Problems in effective delivery and use. Gainesville, Florida: University of Florida Press.
- Fowles, D. (1983). The changing older population. Aging, No. 339, 6-11.
- Fujii, S. (1976). Elderly Asian Americans and use of public services. Social Casework, 57(3), 202-207.
- Futrell, M., Brovender, S., McKinnon-Mullett, & Brower, T. (1980). Primary health care of the older adult. Belmont, California: Wadsworth.
- Gonzales, A. (1983). Access to medical care services: A study of utilization and satisfaction of medical care services financed through the New Mexico Medicaid programs. (Doctoral dissertation, Brandeis University, 1983). Dissertation Abstracts International, 44, 884-A.
- Goodrow, B. (1974). The perceived learning needs and interests of the elderly in Knox County, Tennessee. Unpublished doctoral dissertation, The University of Tennessee, Knoxville.

- Gress, L., Rose, S., & Bahr, T. (1984). The aging person a holistic perspective. St. Louis, Missouri: C. V. Mosby.
- Griffin, T. (1982). Life satisfaction and self concept of an elderly population living in congregate and noncongregate housing in Knox County, Tennessee. Unpublished doctoral dissertation, The University of Tennessee, Knoxville.
- Haber, L. (1973). Disabling effects of chronic disease and impairment--Functional capacity limitations. Journal of Chronic Diseases, 26, 127-151.
- Harris, L. (1977). The myth and reality of aging. Washington, D.C.: The National Council on Aging.
- Haug, M. (1980, November). Sex differences in elderly medical care utilization. Paper presented at the meeting of Gerontological Society of America, San Diego, California.
- Hausken, C. (1963). Estimating sample size. Journal of Research Sciences, 1, 3-4.
- Helwig, J. (1978). SAS introductory guide. Raleigh, North Carolina: Kingsport Press.
- Hersey, J., Luft, H., & Gianaris, J. (1975). Making sense out of utilization data. Medical Care, 13(10), 838-854.
- Hickey, A. (1975). Inequality and service delivery: The utilization of medical services. (Doctoral dissertation, Cornell University, 1975). Dissertation Abstracts International, 36, 3163-A.
- Hicks, B., Doherty, N., & Raisz, H. (1977, November). Effects of comprehensive medicare coverage on health service utilization. Paper presented at the meeting of the Gerontological Society of America, San Francisco, California.
- Hoffman, A., & Ridley, M. (1984, November). Factors associated with supportive living preferences of elderly persons in Ontario. Paper presented at the meeting of the Gerontological Society of America, San Antonio, Texas.
- Hughes, E., & Lindsey, A. (1980). A geriatric evaluation service follow up survey. Journal of the American Geriatrics Society, 28(7), 320-324.
- Hurtado, A., Greenlick, M., McCabe, M., & Saward, E. (1972). The utilization and cost of home care and extended care facility services in a comprehensive prepaid group practice program. Medical Care, 10(1), 8-16.

- Ingman, S., & Lawson, I. (1982). Utilization of specialized ambulatory care by the elderly: A study of a clinic. Medical Care, 20(3), 331-338.
- Jacobsen, J., & Hastings, D. (1983). Population projections for Tennessee Counties by age and sex 1990 and 2000. (Report No. 2090). Nashville, Tennessee: The Tennessee State Planning Office.
- Kane, R., & Kane, R. (1978). Care of the aged: Old problems in need of new solutions. Science, 200, 913-919.
- Katz, D., Gutch, B., Kahn, R., & Barton, E. (1975). Bureaucratic encounters: A pilot study in the evaluation of government services. Ann Arbor: University of Michigan, Institute for Social Research.
- Kent, D., & Matson, M. (1972). The impact of health on the aged family. Family Coordinator, 21, 29-36.
- Kovar, M. (1977). Health of the elderly and the use of health services. Public Health Reports, 92(1), 9-19.
- Krout, J. (1983). Correlates of service utilization among the rural elderly. The Gerontologist, 23(5), 500-504.
- Krout, J. (1983). Knowledge and use of services by the elderly: A critical review of the literature. International Journal Aging Human Development, 17(2), 153-167.
- Kutner, B., Fanshel, D., Togo, A., & Langren, T. (1956). Five hundred over sixty: A community survey on aging. New York: Russell Sage Foundation.
- Lehrer, S. (1982). Utilization of health and social services by elderly population: A multivariate analysis of predisposing, enabling, and need factors based upon clusters of services used. Unpublished doctoral dissertation, Brandeis University, Massachusetts.
- Levitz, G. (1979). Utilization of medical services by the impaired and disabled. (Doctoral dissertation, University of Michigan, 1979). Dissertation Abstracts International, 40, 2933-2934-A.
- Lind, S. (1978). Social service utilization: Application of a behavioral model of demand to an elderly population. (Doctoral dissertation, Brandeis University, 1978). Dissertation Abstracts International, 39, 3146-A.

- Long, N., Anderson, J., Burd, R., Mathis, M., & Todd, S. (1971). Information and referral centers: A functional analysis. Washington, D.C.: U.S. Government Printing Office.
- Long, S. (1980/1981). Select factors related to social service utilization by black and white elderly in Pennsylvania. (Doctoral dissertation, Washington University, 1980). Dissertation Abstracts International, 42, 387-A.
- Lopez, W., Kemp, B., Staples, F., & Brummel-Smith, K. (1984). Use of health care services by older Hispanics. Journal of the American Geriatrics Society, 32(6), 435-440.
- McAbee, T., & Cafferty, T. (1982). Television public service announcements as outreach for potential clients. American Journal of Community Psychology, 10(6), 723.
- McCaslin, R., & Calvert, W. (1975). Social indications in Black and White: Some ethnic considerations in delivery of service to the elderly. Journal of Gerontology, 30(1), 60-66.
- McKinlay, J. (1973). Social networks, lay consultation, and help-seeking behavior. Social Forces, 51, 290.
- Meyers, A., Master, R., Kirk, E., Jorgenson, C., & Mucatel, M. (1983). Integrated care for the terminally ill: Variations in the utilization of formal services. The Gerontologist, 23(1), 71-74.
- Miller, N. (1978). Utilization of services for the developmentally disabled by American Indian families in Los Angeles. (Doctoral dissertation, University of California, 1978). Dissertation Abstracts International, 39, 3016-A.
- Moen, E. (1978). The reluctance of the elderly to accept help. Social Problems, 25, 293-303.
- Murdock, S., & Schwartz, D. (1978). Family structure and the use of agency services: An examination of patterns among elderly Native Americans. The Gerontologist, 18(5), 475-481.
- Newby, L. (1977/1978). Residual health care needs: Relationships of health status and health services utilization. (Doctoral dissertation, Ohio State University, 1977). Dissertation Abstracts International, 38, 5083-A.
- Nye, J., Bell, B., Kara, G., & Joy, C. (1977). Service utilization and adjustment patterns of elderly tornado victims. Paper presented at the meeting of the Gerontological Society of America, San Francisco, California.

- O'Brien, J., & Wagner, D. (1980). Help seeking by the frail elderly: Problems in network analysis. The Gerontologist, 20(1), 78-83.
- Orleans, M., & Kwowski, B. (1977, November). An assessment of needs and resources of Mexican-American elderly in three Colorado communities. (Grant number R01 HS 02181). Denver: University of Colorado Medical Center.
- Palmore, E. (1971). Variables related to needs among the aged poor. Journal of Gerontology, 26(4), 524-531.
- Parkhurst, G. (1976/1977). Community mental health: An examination of consumer utilization in a nonpublic transportation community. (Doctoral dissertation, Boston University School, 1976). Dissertation Abstracts International, 37, 4999A-5000A.
- Powers, E., & Bultena, G. (1974). Correspondence between anticipated and actual uses of public services by the aged. Social Service Review, 48, 245-254.
- Reinhardt, A., & Quinn, M. (Eds.). (1979). Current practices in gerontological nursing. St. Louis, Missouri: C. V. Mosby.
- Reynolds, P. (1963). Some factors affecting the expressed satisfaction of retired couples in a rural area in Tennessee. Unpublished master's thesis, The University of Tennessee, Knoxville.
- Rosenstock, I. M. (1966). Why people use health services. The Milbank Memorial Fund Quarterly, 44, 94-127.
- Rosenzweig, N. (1975). Some differences between elderly people who use community resources and those who do not. Journal of the American Geriatrics Society, 23(5), 224-233.
- Schooler, K., & Sherman, S. (1980, November). Service availability, environmental permeability and response to stress. Paper presented at the meeting of Gerontological Society of America, San Diego, California.
- Silverstein, N. (1980). Informing the elderly about public services: The relationship between access to information and service utilization. Unpublished doctoral dissertation, Brandeis University, Massachusetts.
- Silverstein, N. (1984). Informing the elderly about public service: The relationship between sources of knowledge and service utilization. The Gerontologist, 24(1), 3-40.
- Simson, S., & Wilson, T. (1982). Meeting the mental health needs of the aged: The role of psychiatric emergency services. Hospital Community Psychiatry, 33(10), 833-836.

- Sindelar, J. (1980, November). Differential utilization of medical care by sex: A theoretical and empirical study. (Doctoral dissertation, Stanford University, 1980). Dissertation Abstracts International, 41, 739-740-A.
- Smyer, M. (1980). The differential usage of services by impaired elderly. Journal of Gerontology, 35(2), 249-255.
- Snider, E. (1980). Awareness and use of health services by the elderly: A Canadian study. Medical Care, 18, 1177-1182.
- Snider, E. (1981). Young-old versus old-old and the use of health services. Does the difference make a difference? Journal of the American Geriatric Society, 29(8), 354-358.
- Stanford, P. (1979). The politics of providing health and mental health care for the aged. In A. Reinhardt & M. Quinn (Eds.), Current practice in gerontological nursing (pp. 18-35). St. Louis, Missouri: C. V. Mosby.
- Stanhope, M., & Lancaster, J. (1984). Community health nursing process and practice for promoting health. St. Louis, Missouri: C. V. Mosby.
- Steel, K., Markson, E., Crescenzi, C., Hoffman, S., & Bissonnette, A. (1982). An analysis of types and costs of health care services provided to an elderly inner-city population. Medical Care, 20(11), 1090-1100.
- Stotts, C. (1984). Mexican American elderly: Access to health care. Paper presented at the meeting of the Gerontological Society of America, San Antonio, Texas.
- Strecker, J. (1965). A study of twenty older people and their knowledge of community resources. Unpublished master's thesis, The University of Tennessee, Knoxville.
- Taietz, P. (1976). Community complexity and knowledge of facilities. Journal of Gerontology, 30(3), 357-362.
- Tolsdorf, C. (1978, August). The multiproblem family: Stress, support, and coping in the social network. Paper presented at the 86th annual meeting of the American Psychological Association, Toronto, Canada.
- Trager, N. P. (1976). Available communication networks for the aged in the community. In H. J. Oyer and E. J. Oyer (Eds.), Aging and communication. Baltimore: University Park Press.

- Tush, G. (1977/1978). Effects of client socioeconomic characteristics and institutional variables on utilization of community mental health care: A case study. (Doctoral dissertation, University of Nebraska, 1977). Dissertation Abstracts International, 38, 6228-A.
- U.S. Cong. House. (1984). Older Americans Act Amendments of 1984. 98th Cong., 2nd session, 19 September 1984. Report 98-T037. Washington, D.C.: Government Printing Office.
- U.S. Department of Health and Human Services. (1980). Health United States, 1980 (Publication No. (PHS) 1980). Washington, D.C.: Government Printing Office.
- U.S. Department of Health, Education, and Welfare. (1977). Health United States, 1976-77 (Publication No. (HRA) 1977). Washington, D.C.: U.S. Government Printing Office.
- Van Vranken, E. (1973/1974). Utilization of mental health services by Mexican Americans in a military community. (Doctoral dissertation, University of Denver, 1973). Dissertation Abstracts International, 34, 4419-4420-A.
- Victor, C., & Vetter, N. (1984). Discharge nurses and the elderly after hospital discharge. Nursing Times, 80(32), 61-62.
- Ward, R., Sherman, S., & LaGory, M. (1984). Informal networks and knowledge of services for older persons. Journal of Gerontology, 39(2), 216-223.
- Waxman, H., Carner, E., & Klein, M. (1984). Underutilization of mental health professionals by community elderly. The Gerontologist, 24(1), 23-30.
- Weiss, G. (1975/1976). The utilization of needed medical services by Blacks and Whites: An evaluation of structural models. (Doctoral dissertation, Purdue University, 1975). Dissertation Abstracts International, 36, 4782-4783-A.
- Wilson, C. (1978). The perceived need for home health care of the elderly as stated by both the elderly and health professionals. Unpublished doctoral dissertation, The University of Tennessee, Knoxville.
- Windley, P. (1983). Community services in small rural towns: Patterns of use by older residents. The Gerontologist, 23(2), 180-184.
- Windley, P., & Scheidt, R. (1983). Service utilization and activity participation among psychologically vulnerable and well elderly in rural small towns. The Gerontologist, 23(3), 283-287.

- Wolinsky, F. Miller, D., Prendergast, J., & Creel, M. (1983). Health services utilization among the noninstitutionalized elderly. Journal of Health and Social Behavior, 24, 325-337.
- Woodruff, D., & Birren, J. (1975). Aging scientific perspectives and social issues. New York: D. Van Nostrand.
- Zola, I. (1966). Culture and symptoms: An analysis of patients' presenting complaints. American Sociological Review, 31, 615-628.

APPENDICES

APPENDIX A

CENSUS TRACTS

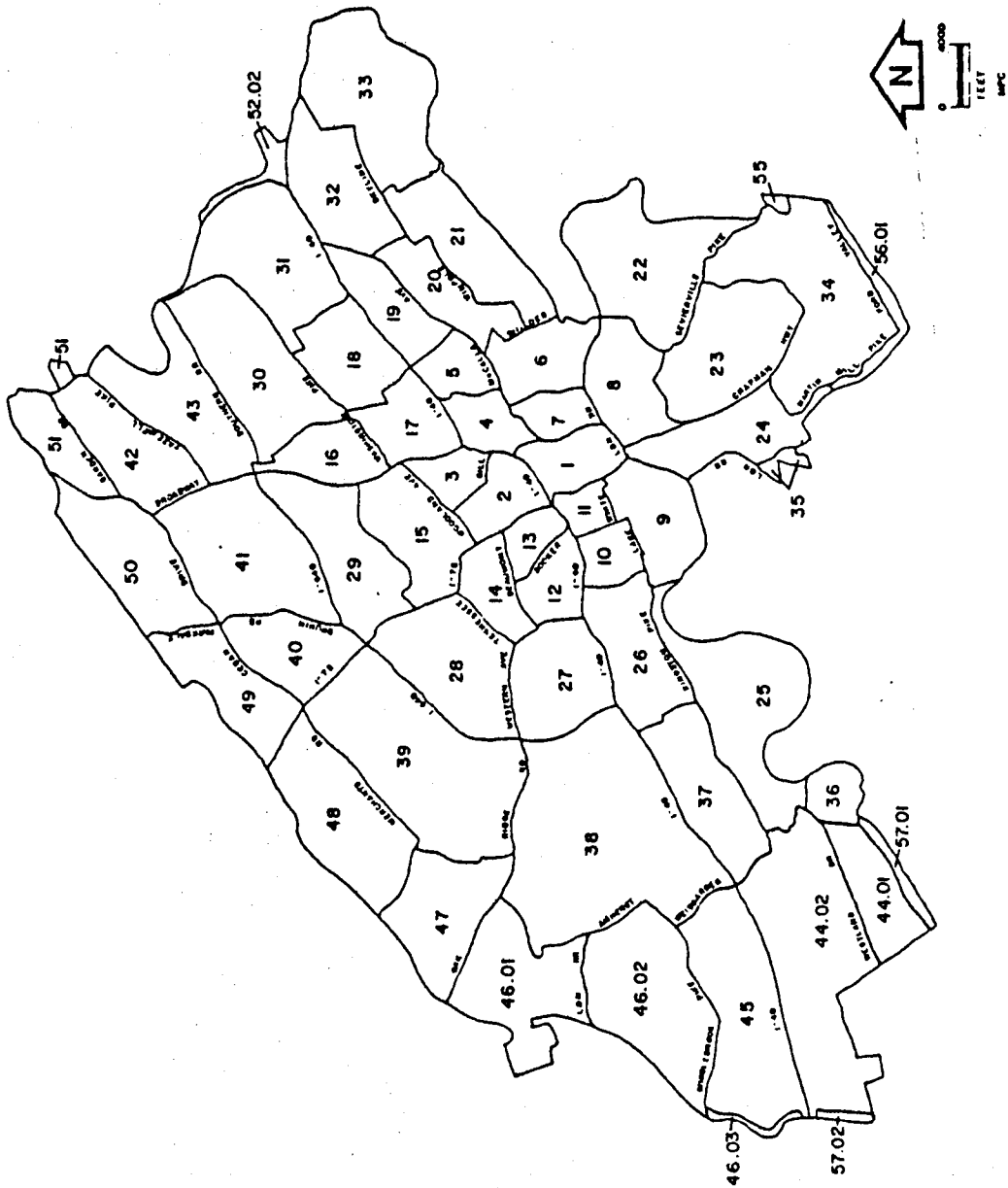


Figure A-1. City of Knoxville 1980 Census Tracts.

Figure A-2. Knox County 1980 Census Tracts.

APPENDIX B

HEALTH SERVICES

Alcohol Counseling and Recovery program	Kidney Foundation
Alcoholics Anonymous	Knox County Home Health Agency
Alcoholism Treatment Unit	Knox County Association for Retarded Citizens
Alzheimer's Disease and Related Disorders (University of Tennessee)	Knoxville Area Diabetes Association
Alzheimer's Group (Child and Family)	Knoxville O.I.C. Lifeline
American Cancer Society	Mayor's Office (Education and Human Services)
American Heart Association	Medical Personnel Pool
American Telephone and Telegraph (phone adaptation)	Midway Center
Arthritis Foundation	Mobile Meals
Baptist Home Health	National Home Health Services
Better Breather's Club	North Knoxville Dialysis Clinic
Cancer Information Services	O'Connor Senior Citizens Center
Catholic Social Services	Office on Aging
Child and Family Services	Overlook Mental Health Center
Communication Center for Deaf	Pacesetter Club
Community Garden	River Valley Home Health Agency, Agency, Inc.
Contact	St. Mary's Home Health Care
Daily Living Center (Knoxville Community Development Council)	St. Mary's Hospice
Daniel Arthur Rehabilitation Center	Samaritan Counseling Services
Dialysis Clinic, Inc.	Senior Citizens Home Aide Service
E. M. Jellinek Center	Senior Citizens Information and Referral
East Tennessee Baptist Hospice	Sight Impaired
ETHRA Homemakers	Stroke Club
Federal Surplus Commodities	Tele-Care
Fish	United Way
Food Stamp Office	University of Tennessee Home Health
Ft. Sanders Dialysis Clinic	University of Tennessee Hospice
Ft. Sanders Emergency Care Call	Upjohn Home Care Services
Ft. Sanders Home Health	V.I.P. Home Nursing and Rehabilitation
Ft. Sanders Hospice	Vocational Rehabilitation
Golden Diners	Your Home Visiting Nursing Service
Green Thumb	
Helen Ross McNabb Center	
Home Health Care of East Tennessee	

APPENDIX C

LIST OF JURY MEMBERS USED TO DETERMINE CONTENT VALIDITY

Aran Bradley
 Director Area Agency on Aging
 East Tennessee Human Resource
 Agency
 6712 Deane Hill Drive
 Knoxville, Tennessee 37939

Phyllis Brock
 Human Services Supervisor
 Department of Human Services
 Information and Referral Center
 4105 Holston Drive
 Knoxville, Tennessee 37914

Kathy Buckingham
 Geriatrics Coordinator
 St. Mary's Medical Center
 E. Oak Hill Avenue
 Knoxville, Tennessee 37917

Alva Connelly
 Social Counselor
 Department of Human Services
 Information and Referral Center
 4105 Holston Drive
 Knoxville, Tennessee 37914

Jeanie Fox
 Social Worker
 Senior Citizens Information
 and Referral Service
 611 Winona Street
 Knoxville, Tennessee 37917

Mary Sue Grady
 Director of Senior Nutrition
 Program
 2918 E. Magnolia Avenue
 Knoxville, Tennessee 37914

Ludell Kennedy
 Executive Director
 Senior Citizens Home Aide
 Service
 813 N. Broadway
 Knoxville, Tennessee 37927

Ruth Martin
 Community Development Manager
 2918 E. Magnolia Avenue
 Knoxville, Tennessee 37914

Ruth Petersen
 Program Coordinator
 John T. O'Connor Center
 611 Winona
 Knoxville, Tennessee 37917

Elizabeth Prather
 Manager Project Live
 Office on Aging
 2918 E. Magnolia Avenue
 Knoxville, Tennessee 37914

Dee Roberts
 Social Counselor
 Department of Human Services
 Information and Referral
 Center
 4105 Holston Drive
 Knoxville, Tennessee 37914

Connie Russell
 Social Counselor
 Department of Human Services
 Information and Referral
 Center
 4105 Holston Drive
 Knoxville, Tennessee 37914

APPENDIX D

UTILIZATION SURVEY OF HEALTH SERVICES
AMONG KNOX COUNTY AGED

Date _____ Census Tract _____ Block _____ Interview # _____

Purpose: "Hello, I am _____ and I am doing a study of the use of health services in Knox County. From the results of the study I hope to determine what factors influence the use of health services among those 65 years of age and over.

I would appreciate it if you would help me by answering all of the following questions. Your name will not appear on the answer sheet and what you say will be kept confidential. You may refuse to answer any or all of the questions but it is hoped that you will complete all of the questionnaire.

Directions: The first part of the questionnaire will deal with the available health services in Knox County. I will be trying to find out your need for services, your knowledge of services, and your utilization of services. I will begin by asking you questions about information and referral services.

Information and Referral Services

- A. Do you need information about available community health services? Yes = 1 No = 2
- B. Have you heard any sources of information? Name them.
(Place Yes = 1 or No = 2 by each service)
- C. From whom did you hear of the service?
Family, friends, relative = 1
Media (newspaper, television, radio) = 2
Agencies, clubs, organizations = 3
- D. Do you presently use any of these services to obtain information?
(Place Yes = 1 or No = 2 by each service)

1. Contact	B	C	D
2. FISH	B	C	D
3. Office on Aging	B	C	D
4. Senior Citizens Information and Referral	B	C	D
5. Senior Citizens Home Aide Service	B	C	D
6. United Way	B	C	D
7. Other	B	C	D

Nutritional Services

- A. Do you need help in obtaining food or meals?
Yes = 1 No = 2
- B. Have you heard of any nutritional programs? Name them.
(Place Yes = 1 or No = 2 by each service)
- C. From whom did you hear of the service?
Family, friends, relatives = 1
Media (newspaper, television, radio) = 2
Agencies, clubs, organizations = 3
- D. Do you presently use any nutritional services?
(Place Yes = 1 or No = 2 by each service)

8. ETHRA Homemakers	B	C	D
9. Federal Surplus Commodities	B	C	D
10. Food Stamp Office	B	C	D
11. Golden Diners	B	C	D
12. Green Thumb/Community Garden	B	C	D
13. Mobile Meals	B	C	D
14. Senior Citizens Home Aide Service	B	C	D
15. Other	B	C	D

Telephone Reassurance and Electronic Warning Services

- A. Do you need someone to check on you every day?
Yes = 1 No = 2

- B. Have you heard of any services which provide daily contact with someone over the phone or which provide direct connections with the emergency room? Name Them.
(Place Yes = 1 or No = 2 by each service)
- C. From whom did you hear of the service?
Family, friends, relatives = 1
Media (newspaper, television, radio) = 2
Agencies, clubs, organizations = 3
- D. Do you presently use any of these services?
(Place Yes = 1 or No = 2 by each service)

16. Contact	B	C	D
17. Ft. Sanders Emergency Care Call	B	C	D
18. Lifeline (Baptist)	B	C	D
19. TeleCare (St. Mary's)	B	C	D
20. Other	B	C	D

Home Health Services

- A. Are you homebound and have a need for nursing care or therapy (physical, speech, occupational, social services)?
Yes = 1 No = 2
- B. Have you heard of any home health services? Name them.
(Place Yes = 1 or No = 2 by each service)
- C. From whom did you hear of the service?
Family, friends, relatives = 1
Media (newspaper, television, radio) = 2
Agencies, clubs, organizations = 3
- D. Do you presently use any home health services?
(Place Yes = 1 or No = 2 by each service)

21. Baptist Home Health	B	C	D
22. Ft. Sanders Home Health	B	C	D
23. Home Health Care of East Tennessee	B	C	D
24. Knox County Home Health Agency (Health Dept.)	B	C	D
25. Medical Personnel Pool	B	C	D
26. National Home Health Services	B	C	D
27. River Valley Home Health Agency, Inc.	B	C	D
28. St. Mary's Home Health	B	C	D
29. U.T. Home Health	B	C	D
30. Upjohn Health Care Services	B	C	D
31. VIP Home Nursing and Rehabilitation	B	C	D
32. Your Home Visiting Nursing Service	B	C	D
33. Other	B	C	D

Hospice Services

- A. Do you need home care for a terminal illness?
Yes = 1 No = 2
- B. Have you heard of any hospice programs? Name them.
(Place Yes = 1 or No = 2 by each service)
- C. From whom did you hear of the service?
Family, friends, relatives = 1
Media (newspaper, television, radio) = 2
Agencies, clubs, organizations = 3
- D. Do you presently use any hospice services?
(Place Yes = 1 or No = 2 by each service)
- | | | | |
|--|---|---|---|
| 39. A.T.&T. phone adaptation | B | C | D |
| 40. Communication Center for Deaf | B | C | D |
| 41. Daniel Arthur Rehabilitation Center | B | C | D |
| 42. Knox County Association for Retarded Citizens (Ind. Training Center) | B | C | D |
| 43. Knoxville O.I.C | B | C | D |
| 44. Mayor's Office (Education and Human Services) | B | C | D |
| 45. O'Connor Senior Citizens Center | B | C | D |
| 46. Vocational Rehabilitation | B | C | D |
| 47. Other | B | C | D |

Medical Services

- A. Do you have any medical problems which require care such as kidney disease, arthritis, alzheimers, cancer, heart disease, lung disease, stroke, alcoholism, diabetes, etc. Any I did not mention?
- B. Have you heard of any community services that help persons with medical conditions? Name them.
(Place Yes = 1 or No = 2 by each service)
- C. From whom did you hear of the service?
Family, friends, relatives = 1
Media (newspaper, television, radio) = 2
Agencies, clubs, organizations = 2
- D. Do you presently use any services for medical conditions?
(Place Yes = 1 or No = 2 by each service used)
- | | | | |
|---|---|---|---|
| 48. Alcohol Counseling and Recovery Program | B | C | D |
| 49. Alcoholics Anonymous | B | C | D |
| 50. Alcoholism Treatment Unit | B | C | D |
| 51. Alzheimers Disease and Related Disorders (U.T.) | B | C | D |

52. Alzheimers Group (Child and Family)	B	C	D
53. American Cancer Society	B	C	D
54. American Heart Association	B	C	D
55. Arthritis Foundation	B	C	D
56. Better Breather's Club	B	C	D
57. Cancer Information Services	B	C	D
58. Daniel Arthur Rehabilitation Center	B	C	D
59. Dialysis Clinic, Inc.	B	C	D
60. E.M. Jellinek Center	B	C	D
61. Ft. Sanders Dialysis Clinic	B	C	D
62. Kidney Foundation	B	C	D
63. Knoxville Area Diabetes Association	B	C	D
64. Midway Center	B	C	D
65. North Knoxville Dialysis Clinic	B	C	D
66. Pacesetter Club	B	C	D
67. Sight Impaired	B	C	D
68. Stroke Club	B	C	D
69. Other	B	C	D

Counseling Services

- A. Do you need help with problem solving or personal problems?
Yes = 1 No = 2
- B. Have you heard of any counseling services? Name them.
(Place Yes = 1 or No = 2 by each service)
- C. From whom did you hear of the service?
Family, friends, relatives = 1
Media (newspaper, television, radio) = 2
Agencies, clubs, organizations = 3
- D. Do you presently use any counseling services?
(Place Yes = 2 or No = 2 by each service)

70. Catholic Social Services	B	C	D
71. Child and Family Services	B	C	D
72. Contact	B	C	D
73. Helen Ross McNabb Center	B	C	D
74. K.C.D.C. (Daily Living Center)	B	C	D
75. O'Connor Senior Citizen Center	B	C	D
76. Overlook Mental Health Center	B	C	D
77. Samaritan Counseling Services	B	C	D
78. Other	B	C	D

The next section of the questionnaire deals with information about you. Please give me only one answer to each question.

79. Sex
Female = 1
Male = 2
80. Race/ethnicity
Black = 1
White = 2
Other = 3
81. How old are you?
65-74 years = 1
75+ years = 2
82. Are you married and living with your spouse?
Yes = 1
No = 2
83. What is the highest grade level you completed in school?
Less than 12 years = 1
High School Graduate = 2
College Graduate = 3
84. What was your total household income for 1984 before taxes?
Under \$5,000 = 1
\$5,001-\$25,000 = 2
\$25,000+ = 3
85. Are you currently employed?
Yes = 1
No = 3
86. Do you have an adequate means of transportation when you need it?
Yes = 1
No = 2
87. Who lives with you?
Extended family (grandchildren, parents, siblings, aunts, etc.) = 1
No one = 2
Nuclear family (spouse, children) = 3
Other = 4
88. Who do you consider to be of prime importance in your day to day life?
Formal providers = 1
Nonrelatives = 2
Relatives = 3

89. In general, would you say that your health now is:

Excellent = 1

Good = 2

Fair = 3

Poor = 4

90. How do you primarily pay for your health care?

Medicaid/Medicare = 1

Private insurance = 2

Self = 3

Other = 4

VITA

Jo-Ann Summitt Marrs was born in Linz, Austria, on the sixth of May in 1948. She graduated from high school in 1966 and enrolled at St. Mary's School of Nursing in Knoxville, Tennessee, in the fall of 1966. In 1969, she graduated from St. Mary's School of Nursing and was employed at Hiwassee College as a school nurse. In 1970, she married John Baxter Marrs and accepted employment as a staff/charge nurse at East Tennessee Children's Hospital.

In 1972, she graduated from the University of Tennessee, Knoxville, with a Bachelor of Science degree in Industrial Education. In that same year she joined the faculty at St. Mary's School of Nursing where she is presently an instructor in Pediatrics. She then began work toward a Master of Science degree in Industrial Education and completed that degree in 1977.

In 1979, she enrolled at the University of Tennessee in Knoxville, Tennessee, to begin work on the Doctor of Education degree. She received the Doctor of Education degree with a major in Health Education in August of 1985.