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THE INFLUENCE OF SOCIOECONOMIC STATUS ON THE UTILIZATION OF COMMUNITY HEALTH SERVICES OF INDIVIDUALS DIAGNOSED WITH LUNG CANCER.

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THE INFLUENCE OF SOCIOECONOMIC STATUS ON THE UTILIZATION OF COMMUNITY HEALTH SERVICES OF INDIVIDUALS DIAGNOSED WITH LUNG CANCER

BY

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ABSTRACT

THE INFLUENCE OF SOCIOECONOMIC STATUS ON THE UTILIZATION OF FORMAL COMMUNITY HEALTH SERVICES OF INDIVIDUALS DIAGNOSED WITH LUNG CANCER

By

Jane Lermont Smallwood

The purpose of this study was to examine the influence of socioeconomic status on the utilization of formal community health services of individuals diagnosed with lung cancer. This was a correlational study, using secondary data analysis of the Community Based Cancer Study. A connivance sample of 196 individuals, ages 66-90 with a recent diagnosis of lung cancer were enlisted from participating cancer sites in Michigan. Data was obtained by telephone interviews at six and twelve weeks post diagnosis. The framework for this study focused on predisposing, enabling, and need factors which influence the use of formal community health services. Implication for APNs in primary care who care for cancer patients, as well as, implications for further research were identified.

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Chapter I

INTRODUCTION

According to the American Cancer Society (1997) eight million Americans alive today have been diagnosed with cancer, and it is estimated that an additional 1,382,400 new cases of invasive cancer will be diagnosed in 1997. Statistics have proven that one of ever five deaths in the United States is due to cancer. Predictions suggest that roughly 560,000 people may die of Cancer this year, this equals more than 1,500 people each day. Lung cancer is reported to be the leading cause of cancer deaths among both women and men. Even though the number of people being diagnosed with lung cancer is increasing, the available resources to help meet the needs of these individuals may not be.

Individuals diagnosed with cancer have many needs. In a hospital setting these needs are readily met by professionals aware of how to access available resources. Once the individual is out of the acute care setting and into the community it can be very difficult to meet some of their most basic needs (Reddall, 1994). Several characteristics of the health care system including accessibility, availability, affordability may have a tremendous influence on whether an individual with the diagnosis of cancer is able to have their needs met. Failure of formal as well as informal support systems to meet cancer patients needs can lead to decline in outlook and functioning as well as unfavorable decisions regarding treatment (Goudagnoli, Rice, & Mor, 1991). The use of community health services is one way in which cancer patients can attempt to help get their needs met.

Formal community health services can play a vital role in meeting the needs of cancer patients, unfortunately they are not always available to all persons diagnosed with cancer. A large percentage of individuals diagnosed with cancer are elderly, less economically advantaged and have a lower level of education, which may lead to difficulties in access to formal community health services (Given, Given & Harlan 1994). The socioeconomically disadvantaged may be the population with the greatest need for community services, yet have the least means in obtaining such assistance. Therefore, it is crucial to determine what factors influence the use of formal community health services in order to help facilitate access by the persons with the greatest needs.

Problem Statement

The social and economic environment in which individuals diagnosed with cancer reside has a great impact on survival duration as well as quality of survival (Randall, 1994). The socioeconomically disadvantage have a high level of ineffective coping with their physical and social environment, secondary to ignorance and poverty (Freeman, 1989). Data has concluded that persons living below the poverty level have a much greater rate of death from cancer than do persons who are above the poverty level (Underwood, & Hoskins, 1994). According to Freeman (1989) the 5 year survival rate for poor individuals diagnosed with cancer, is estimated to be 10% to 15% lower then middle and upper class individuals.

According to the United States Department of Commerce, Bureau of Census in (1993) there were 39.3 million persons living below the official government poverty level. These statistics indicate that the poverty level in the United States is worsening. The United States Department of Education (1994) reports that only 71.8 percent of persons 60-65 years of age have attained a high school diploma. Given these statistics it may be accurate to assume there are a significant number of individuals who have been diagnosed with cancer that are under educated and living in poverty.

In order to promote more favorable outcomes, health care professionals must develop the expertise needed, to assist socioeconomically disadvantaged individuals with cancer to access and utilize formal community health services available to them. Formal community health services play a vital link in meeting the needs of individuals who are in the chronic stages of the cancer. Such services help to meet the physical and psychological needs of individuals that social support systems may be unable to fulfill.

In order for individuals to utilize community services they must be aware of the services available to them, and the way in which to access such services. Therefore, it is imperative that Advanced Practice Nurses in primary care, educate individuals and develop interventions that encourage the use of community health services by cancer patients, in order to promote more favorable outcomes.

Purpose and Research Question

There is a great need for more insight into why and when cancer patients do, or do not utilize formal community health services. It is also important to determine whether socioeconomic factors influence the use of such services, since the socioeconomically disadvantaged appear to be at greatest risk for poor outcomes of cancer. The purpose of this study is to determine if differences in socioeconomic status and functional status have an influences the use of community health services by individuals diagnosed with lung cancer. Therefore the questions to be answered in this study are:

Is there a difference in socioeconomic status of individuals diagnosed with lung cancer that utilize formal community health services and those who do not use services?

Is there a difference in functional status of individuals diagnosed with lung cancer that utilize formal community health services and those who do not use services?

Chapter II

Conceptual Framework

Conceptual Definitions of the Variables

The variables identified for this study are: 1) use of formal community services as the dependent variable; 2) socioeconomic factors as the independent variable; 3) functional status of an individual as the control variable.

Formal community services

Formal community health services are service available by formally organized agencies in local communities, designed to help meet the needs of individuals diagnosed with cancer. Formal community services are designed to help decrease the physical and psychological distress of an individual. Such services may provide an opportunity to meet needs that the social support system of an individual is unable to fulfill (James, 1994). Services that are identified for the current study include: Visiting Nurses, home health aides, home companions, sitters, case management services, chore or housekeeping services, and meals on wheels.

Socioeconomic status

Socioeconomic status can be measured by variables that determine the status of an individual within their community, the ability to utilize resources to deal with problems, and how healthy the physical environment is

(Andersen, 1995). Andersen(1995) found that measures to determine social structure include occupation, ethnicity and level of education. Economic status can be determined by assessing an individuals household income according to the governmental poverty level. Governmental standards are in accordance with the minimum income to maintain an adequate food budget.

Household income and educational level are only two of the many factors that play a role in determining an individuals socioeconomic status. When looking at socioeconomic status one must also take into consideration type of, or lack of insurance, as well. The socioeconomic factors which will be included in this study are level of education, level of household income, and insurance coverage.

Functional Status

Functional status is the ability to perform biological, psychological, and social activities that individuals do throughout their lives to meet their basic needs. These activities are necessary to carry out expectations associated with individuals roles in life. Such activities are thought to preserve, regain, or achieve well-being. Individuals are said to have limitations in functional status if they are unable to perform biological, psychological, or social activities in a normal manner

Table 1.

Proposed Variables for this study

DEPENDENT VARIABLES - FORMAL COMMUNITY SERVICES

1. Visiting Nurses Services
2. Home Health Aides or Home Companion Services
3. Home Case Management
4. Chore or Housekeeping Services
5. Meals on Wheels

INDEPENDENT VARIABLES - SOCIOECONOMIC FACTORS

1. Level of Household Income
2. Level of Education
3. Insurance Coverage

CONTROL VARIABLE - NEEDS

1. Current Functional Status

(Fawcett, Tulman, & Samarel, 1995). Functional status was selected as a control variable for the study since it has been identified as a powerful predictor of the use or non-use of formal community services in previous research (Andersen, 1995; Guadagnoli, Rice, & Mor, 1991; Given, Given, & Harlan, 1994). For the current study functional status of an individual will be determined by determining deficits in their physical functioning alone.

Lung cancer

Lung cancer is defined as carcinoma of the lung, which may include the bronchus, peribronchial lymph nodes, intrapulmonary lymph nodes, mediastinal lymph nodes and chest wall (American Cancer Society, 1995). Individuals with all four stages of lung cancer are eligible for inclusion in this study.

Theoretical Framework

The Behavior Model of Health Service Use was developed in 1968 by Ronald M. Andersen (1995) to gain a better understanding of why families utilize health services, as well as to define, measure and promote equitable access to health care. Andersen's (1968) original work is based on a three stage model consisting of predisposing, enabling, and need components. The model suggests that a sequence of conditions contribute to health service utilization by families (See Figure 1).

Predisposing factors are described as family characteristics which influence the likelihood of service use. The predisposing component of Andersen's (1968) model is further broken down into subcomponents of family composition, social structure, and health beliefs. The family composition variables chosen for the original study included: age, sex, marital status of the head of the family, family size, as well as the age of youngest and oldest family member. Each variable in itself is not a reason to seek health care, although considering them together can help to predict patterns of health care needs within a family.

Social structure reflects the location of a family within society as measured by characteristics of the families main wage earner. These characteristics include employment status, occupation, social class, educational level, race, and ethnicity of the main earner. Such variables help to determine the physical as well as the social environment of a family and behavior patterns which may be reflected in the families use of health services.

Health Beliefs is the third subcomponent of predisposing characteristics, which takes into consideration beliefs about disease, health care, and persons who provide care. What a family believes about health care, plays a vital role in determining whether health services are utilized or not. Andersen(1968) used seven scales to determine the beliefs of the family concerning health care. These scales included: value of health, physicians, and health services; attitudes toward service use, and physician use; and lastly knowledge of disease.

The second component of Andersen's (1968) model is the enabling resources. Health care systems characteristics of accessibility, availability and affordability would be considered enabling factors within the Anderson (1968) model. Although families may be predisposed to use health services, resources must be available to make this possible. Andersen (1968) defines enabling as "a condition which permits a family to act upon a value or satisfy a need regarding health service use" (p. 16). Both, family means to attain services and geographic accessibility of services must be present before services can be utilized.

Family resources are considered the families ability to obtain health services for its members. Assessment of family resources includes the family; income, savings, health insurance, welfare care, and sources of primary care. Community resources includes characteristics of the community in which a family lives that can enable service use. The most important characteristic is availability of services. Included in the community resource characteristics is; physician-population ratio, hospital size-population ratio, region, and residence.

The third component of Andersen's(1968) model is the need component, which represents the most likely determinant of health service use. Illness or the possibility of it, must be perceived in order for health service utilization to take place. Need is measure by perceived illness by the family, as well as, how they respond to such perceptions.

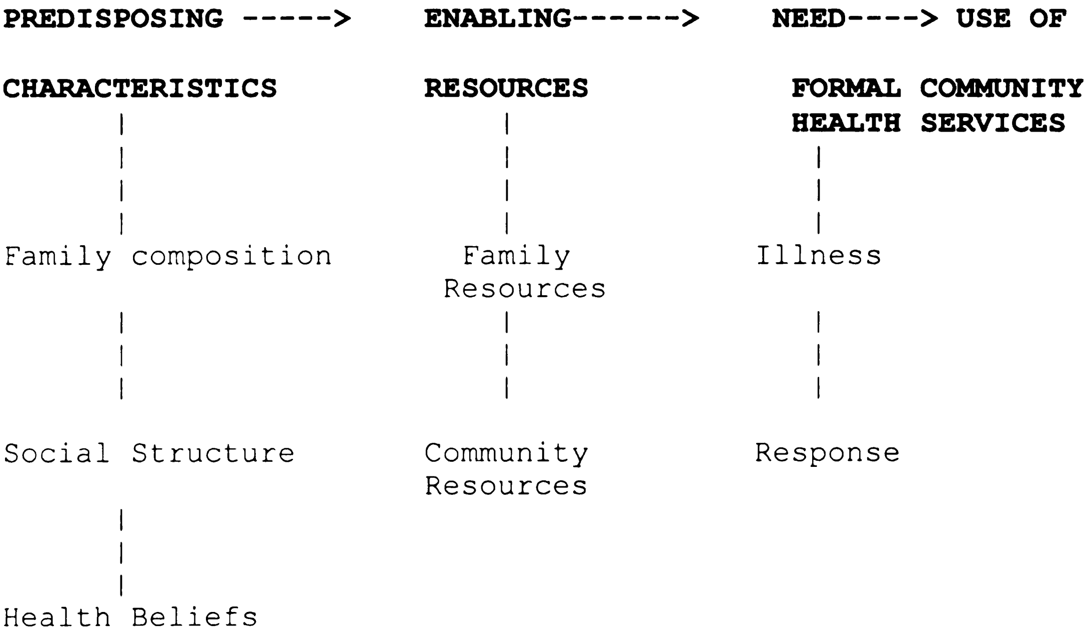

Figure 1: The Initial Behavior Model of Families Use of Health Services By Andersen (1968)

The final component of the model is the utilization of health services. The use of health services is considered to be either discretionary or non-discretionary. Discretionary use of health services involves considerable choice, whereas non-discretionary use of services is usually dictated either by the physical condition itself or by service providers such as physicians.

Andersen's (1968) model for health service use is modified for the current study. Predisposing characteristics, enabling resources and needs are the components which are included in this study as well. Each of the components are further divided into additional subcomponents, which include level of education, level of income, and insurance coverage as indicators of health service use. Since need has been identified as having such a strong influence on health service utilization, it will be included as a control variable. For the purpose of this study functional status of an individual, as determined by deficits in physical functioning, will be examined to determine that individuals level of need (See Figure 2).

Predisposing characteristics are factors that predict the use of community health services prior to an episode of illness or the onset of disease. Level of education is one predisposing characteristic that can influence the use of community health services in a positive way. Individuals with higher education levels, many times have the knowledge needed to accessing available resources within the community. Also, social skills obtained in higher education can serve as a great asset when attempting to secure formal community services. To the contrary, individuals with lower levels of education may have a difficult time in accessing services due to poor social skills and difficulty understanding information that is available to them.

Enabling resources are economic means available which make utilization of community health services feasible. Level of income and insurance coverage are two enabling resources that may have the greatest impact on whether an individual uses services or not. Individuals with insurance coverage that assists with the cost of formal community health services and those individuals who have a higher income to pay for services may be more likely to use them , persons who have low income levels and pay out of pocket.

Needs are present when an individual must seek assistance in performing their physical functions of daily living. Individuals with the greatest number of deficits in physical functioning have greater needs and therefore, are more likely to use the most formal community services. In order to determine an individuals deficits in physical functioning, limits in moderate and vigorous activities are examined. Also, limitations in lifting, climbing, bending, and walking are important determinants when considering deficits in physical functioning.

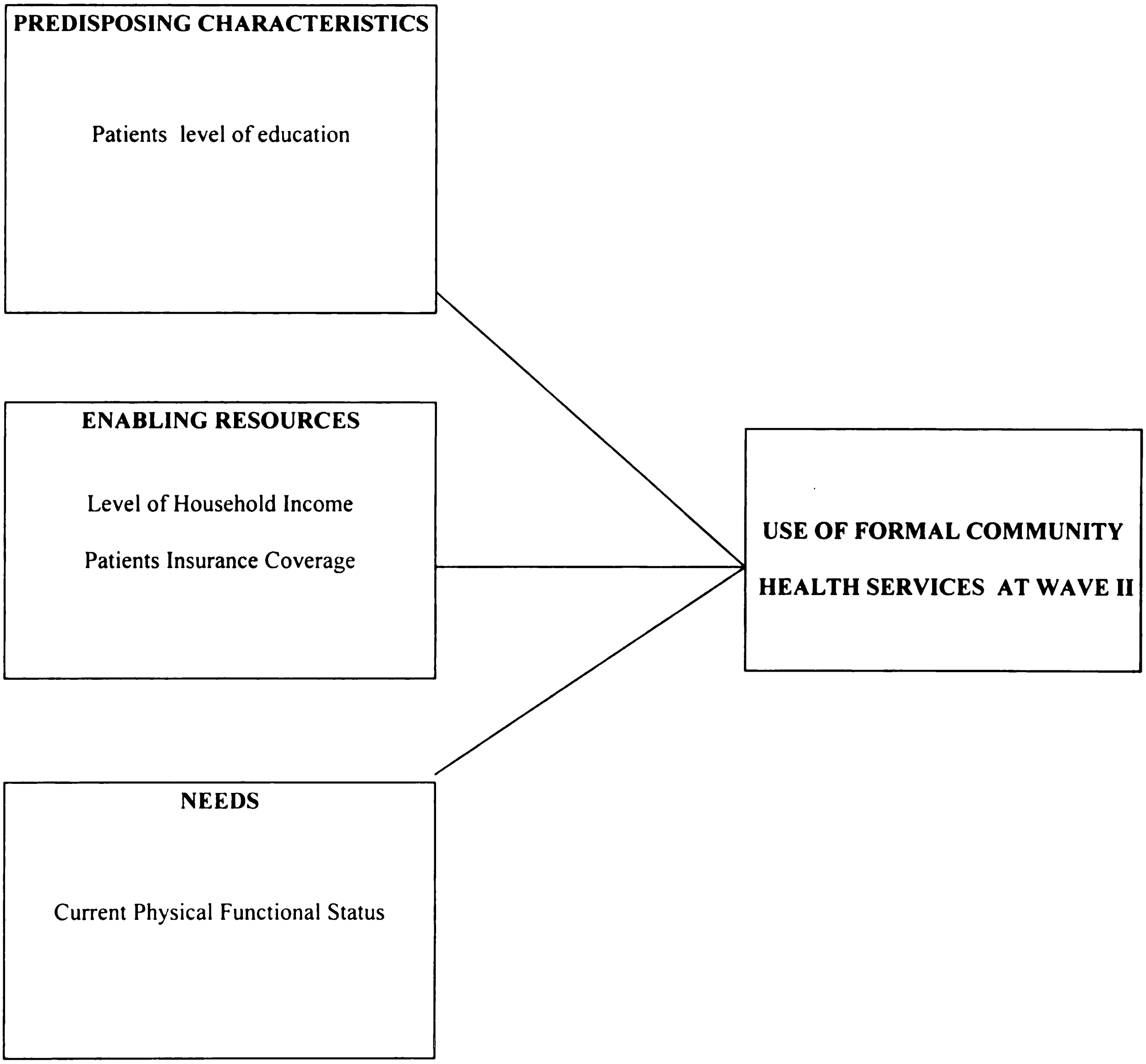

Figure 2: Study model adapted from The Behavioral Model of Families Use of Health Services developed by Andersen(1968).

CHAPTER III

REVIEW OF LITERATURE

There is a great paucity in the literature regarding the influence of socioeconomic factors on the utilization of formal community services by cancer patients. Most of the available literature focuses on the utilization of formal health care services such as hospitals and physicians offices, rather than community services. Also a great percentage of the literature regarding utilization of services deals with the acute or terminal phase of the disease instead of the chronic phase of cancer (Mor, Masterson, Houts, & Siegel, 1992); Siegel, Raveis, Houts, & Mor (1991). The focus of this review will be to examine what is known about use of formal community health services by individuals with and without the diagnosis of cancer, and how socioeconomic status might influence use.

Socioeconomic status

What has been determined by the small amount of current literature is the fact that socioeconomic status have a crucial impact on the outcome of individuals diagnosed with cancer. Schrijver and Mackenbach (1994), Kagawa-Singer (1995), Michielutte, Bahnson, and Beal (1990), as well as Boquet, Horm, Gibbs, and Greenwald (1991) found there to be higher mortality rates of individuals diagnosed with cancer in the low socioeconomic group. Freeman (1989) as well found the social, physical, political, and economic environment in which an individual resides largely determines the morbidity and mortality of the disease. Freeman (1989) identifies the five year survival rate for the socioeconomically disadvantaged with cancer as being approximately 15 percent lower than persons in the middle and upper classes, regardless of their race. The higher mortality rates of under privileged individuals may in part be a result of the fatalistic attitude and struggle for day-to-day survival of the socioeconomically disadvantaged.

Freeman(1989) identified late detection of cancer to be one of the main determinants of higher mortality rates among the socioeconomically disadvantaged. Several reasons of late detection, delayed treatment and lower survival rates include; unemployment, inadequate education, substandard living conditions, chronic malnutrition, and diminished access to health care primarily due to lack of insurance coverage.

In a study conducted by Mandelblatt, Andrews, Kerner, Zauber, and Burnett(1991) it was determined that low income and lack of education were positively correlated to late detection of breast and cervical cancer. Lack of access to health care, forces disadvantaged individuals to use emergency rooms as their primary source of health care. Subsequently, individuals are often triaged negatively back into the community and seek help only after their cancer becomes incurable (Freeman, 1989; Given, Given, & Harlan, 1994).

Given, Given and Harlan (1994) found that the rural poor are diagnosed after their cancer has progressed to late stages of the disease. Poverty as well as lack of education contribute to the late diagnosis of cancer among the rural population, due to the limited knowledge of early signs and symptoms of the disease. The combination of poverty and late diagnosis may limit the treatment choices available for these individuals. Baldiwn (1994) found lack of education and poverty as well as increasing age contributed to late diagnosis of cancer. It is estimated that fifty-seven percent of all cancer is diagnosed in those over the age of 65.

Freeman (1989) as well as Baldwin (1994) found poverty to be a proxy for other circumstances of living such as unemployment, poor education, poor living situations, high risk behaviors and lifestyles, and lack of access to health care. In explaining the differences in incidences and mortality rates of cancer among racial/ethnic populations, Kagawa-Singer(1995) found socioeconomic status to have a tremendous impact on outcomes, irregardless of race. Given, Given, & Harlan (1994) found poverty to be a significant barrier to cancer care among the rural population. The rural poor have less access to cancer treatment centers as well as more difficulty paying for health care services, therefore leading to the higher mortality and morbidity seen among poverty stricken rural cancer patients. Baldwin (1994) identified there to be 35.7 million Americans suffering from poverty and 35.4 million Americans who are uninsured. There are 50 million Americans who have inadequate insurance coverage for major medical expenses. If insurance is available it may be to costly for the working poor, also these individuals many times do not qualify for public assistance.

Baldwin (1994) also found that since 1965 when Medicare and Medicaid were initiated access for the elderly and poor have improved. Although in the last several years the percentage of individuals eligible for Medicaid has dramatically declined. In 1985 only 41 percent of poor were eligible for Medicaid. Although lack of insurance seems to be prevalent among the poor there is a significant number of Americans in the mid to upper socio-economic status that are uninsured as well. Improved access to health care coverage for individuals of all economic backgrounds may significantly improve the outcomes of lung cancer patients.

Functional Status

The definition of an individuals functioning is defined by Fawcett, Tulman, and Samarel (1995) as a term that includes biological, psychological and social activities which one does to meet their basic needs. These activities help individuals to fulfill their roles in life and maintain well-being. Functional status, refers to the individuals actual performance of such biological, psychological, and social activities. When there is a incongruiency in the individuals performance from that which is expected, a deficit in functional status is identified (Fawcett, Tulman, & Samarel, 1995).

Sarna and McCorkle (1996) identified individuals to have deficits in physical functioning when there was a disruption in their capacity to engage in a variety of activities of daily living. They concluded that individuals with physical compromise can become a significant burden to themselves as well as their families.

Use of Services

According to Andersen (1995) needs of an individual, is the strongest determinant of health service utilization. Needs are determined by how an individual views their own general health and functional status. How an individual experiences symptoms of illness, discomforts of illness, and worries about their health all influences their perception of need. Perceived needs are social circumstances which can be explained not only by social structure, but health beliefs as well. Needs are biological imperatives that

explain individuals help-seeking behaviors and use of health services. Guadagnoli, Rice, and Mor (1991) found, although socioeconomic status influenced the use of community service by cancer patients, the greatest determinant of utilization was need.

Guadagnoli, Rice, and Mor (1991); determined, among the socioeconomic factors which influenced utilization of services, education and income seemed to be the strongest predictors. They found that better educated individuals and those in the higher SES classification were more aware of available services than persons with less education and lower income. Individuals with a bachelors or masters level education were nine times more likely to utilize available service than persons with no high school diploma.

Varricchio (1994) identified several socioeconomic factors which influence the availability and use of community support services as well. The socioeconomic factors which are felt to have the greatest impact on the use of service include: income, educational level, type of insurance coverage, location in which a individual lives rural vs. urban, family resources, and financial and social resources. The presence of anxiety, depression, guilt, denial, and anger were also identified as factors which influence use of community health services.

According to Given, Given, and Harlan (1994)individuals with lower levels of education often lack the social skills needed to access the resources available to them. A large number of rural poor are unaware of the needed care of individuals diagnosed with cancer, therefore community health services that are available are not utilized. Also many individuals have no expectations of assistance with care so they are not willing to ask for help from community resources. Families as well as individuals afflicted by cancer would benefit from use of community health services to assist with coping of physical as well as emotional needs.

Guadagnoli, Rice, and Mor (1991) found that persons in the low to middle SES were five times more likely to use services than individuals in the poverty category. Although, persons in the high SES group were just as likely to use services as their poverty level counterparts. Several sources report that among those most likely to use formal community services were, women, older patients, well educated individuals, persons living alone, and persons with the greatest number of needs (Given, Given, & Harlen, 1994; Guadagnoli, Rice, & Mor, 1991). Individuals who reach a critical level of need are more willing to utilize formal community services independent of socioeconomic status.

In another study conducted by Andersen, Giachello, and Aday (1986) which investigated access of Hispanics with any medical diagnosis to health care, it was determined that education was a strong factor which influenced utilization of health services. The proposed reason for lesser educated individuals in not using services, was correlated to these persons having high levels of distrust, set beliefs about health practices and lack of information about available services. Kagawa-Singer (1995), identified the fatalistic attitude that often accompanies low educational attainment and lower socioeconomic status, a reason for lack of health service use among the ethnic populations.

Guadagnoli, Rice, and Mor (1991) conducted a study on the utilization of agency-based services and found, access and knowledge to be two of the main deterrents to the use of such services. Of the 596 subjects that participated in the study, two-thirds had never used a community resource, and nearly half were unaware of available resources. This study concluded that cancer patients are unaware of resources available to them or are not clear about how to access services. It is suggested that health care professionals must gain a better understanding of patients awareness of available services and their willingness to use such services. The acquisition of knowledge of services does not insure that individuals will utilize them, therefore it is of great importance to also determine factors which influence the decision to use services. Also, the individual must view services as acceptable before they may be willing to use them.

Andersen and Newman (1973) identified several societal and individual determinants that influence the use of community health services. Technology and norms were considered societal determinants of health service utilization. Predisposing factors, enabling factors and illness level are the individual determinants of health service use.

The structure of the health care system itself is identified by Andersen and Newman (1973) as a strong determinant of health service use. The health service system is responsible for the distribution of resources of goods and services. Andersen and Newman (1973) determined that if the resource/population ratio is not equitable then under utilization of health services may occur due to lack of access.

There is sparse literature available which discusses the relationship between insurance coverage and service use by cancer patients. Andersen and Newman (1973) however, found health insurance coverage to have a strong influence on health service utilization in general. Medicare and Medicaid coverage facilitate the utilization of community health services by decreasing the out of pocket expenditures and increasing access to health services for the elderly and socioeconomically disadvantaged. Although Medicare and Medicaid cover portions of out patient services, many private insurance's do not. Therefore, many individuals with private insurance are unable or unwilling to use service available to them.

Anderson and Bartkus (1973) in another study found persons with insurance coverage that pays for outpatient services much more likely to utilize such services then those without. Unfortunately, all of the available literature regarding insurance coverage and services use is old and may not be a true representation of influence on service use today.

In summarizing the literature, there appears to be a strong correlation between socioeconomic status and health service utilization among patients in general, irregardless of their diagnosis. Education level and level of household income were identified as the socioeconomic factors having the greatest impact on utilization. Individuals in the middle socioeconomic level, and those with insurance that covered services were felt to utilize services the most.

Therefore, this and other studies are needed to obtain a greater understanding of how socioeconomic status influences the use of formal community health services by individuals diagnosed with lung cancer. Understanding the influence that socioeconomic status has on service use will assist health care professionals to help improve access to services in order to achieve more favorable outcomes for their patients.

CHAPTER IV

Methods

Study Design

A correlational study design will be used to examine the differences Socioeconomic status, and functional deficits in their regard to formal community health service utilization. This study design will make it possible to determine whether there is a difference between socioeconomic status and the use of formal community health services, by individuals diagnosed with lung cancer. Also, differences in functional status will be determined in regard to service use.

Sample selection

To address the research question, the following analyses are based on secondary data analysis from a sample of 196 patients who participated in waves I and II of the (R01 NR/CA01915) " Family Home Care for Cancer - A Community Based Model" study. The study was funded by the National Institute of Nursing Research and the National Cancer Institute. Co-Principal Investigators of the study were Barbara A. Given, PhD, RN, FAAN, and Charles W. Given, PhD. The eligibility requirements for participation in this study included:

1) age 65 or older

2) newly diagnosed with lung cancer, of any stage.

Participants in the study were recruited through community hospitals affiliated with the College of Human Medicine, College of Nursing, and the Cancer Consortium of Michigan State University. Information on the original study's human subjects' protection and approval of UCRIHS is included (see Appendix c). To ensure further protection of the subjects in this study, data provided to the author will not include names or address of the individuals who participated.

Data Collection

Demographic data which will include the individuals sex, age, race, living arrangements, household income, education, insurance coverage and caregiver status will be collected by completing wave I of the study. All other data will be obtained from wave II of the study with the patient as the respondent. The data was collected by completing the " Patient With and Without Caregiver Telephone Interviews" which was administered by a trained interviewer. In order to insure accuracy of the data collection the interviewers were required to complete a formal training session. After completing the training session the interviewer completed a mock interview as well as participated in a taped interview with a subject in order that feedback from the training staff could be offered. To insure quality assurance throughout the study each interviewer is required to have a taped interview on a monthly basis to be critiqued and ten percent of the records are audited for quality.

Operational Definitions, Instrumentation, and Scoring

The instruments used for collection of data in this study are wave I-II of the "Patient With Caregiver Telephone Interview" and "Patient Without Caregiver Telephone Interview". Wave I of the study collected data six weeks post-discharge and wave II data was collected at week 12. For the purpose of the current study selected questions from the original instruments will be included in the data. Psychometric testing of all scales will be completed to determine reliability and validity, if the scale can be improved by item deletion this will be done and reported.

Although the original study included twelve items under community health service utilization category, only five items will be included for this study. The five items that will be operationalized for this study are identified in Table 1. The operational definitions of these five items are listed below:

1. Visiting Nurse Services are services provided by a R.N. or L.P.N. hired through an agency to come into the home and provide skilled nursing care to an individual.

2. Home health aides or companions are services hired through an agency or privately, for the purpose of assisting

in personal care, and non skilled health care services. Such services may assist in housekeeping tasks and meal preparation.

3. Case management services are services that a nurse or social worker provide to assist an individual to access available resources to provide care.

4. Chore or housekeeping services are services provided by a paid individual, which may include family or friends to assist in housekeeping duties.

5. Meals on Wheels is a service which provides prepared meals to the home with minimal cost to the recipient.

Each of the above five items were given a score of either zero or one. If the respondent indicated that a service was utilized, a score of one was given to that particular item. If the respondent indicated that a service was not utilized no score was given. A score of one or greater will indicate that a service or services were utilized. Frequency of use and number of services used is beyond the scope of this study and will not be included.

The independent variables operationalized in the current study are socioeconomic factors that may influence the use of community health services. A list of the independent variables is also found in Table 1. The operational definitions and scoring of the independent variables within this study are described below.

Level of income can be operationalized as all sources of combined income of all household members. Item # 5 under the category of "Finances" is used to measure the level of income of a combined household. Income levels will be combined to make three categories for more accurate analysis. The scoring for this item includes:

Level of income	Score
0- 14,999	1
15,000- 29,999	2
30,000+	3

Level of education is determined by the highest level of education completed by the individual. Item # 3 under the category of "Sociodemographic Information" is used to assess this variable. Respondents are asked to indicate the highest level of education completed. For the current study levels of were combined to make only four categories of education. The scoring for their responses are as follows:

	Score
Some high school or below	0
High School Graduate	1
Some College	2
College degree or greater	3

The third independent variable is insurance coverage which includes what type of insurance coverage an individual has. Insurance will be scored as three mutually exclusive

categories and will be given a 0 if the individual doesn't carry this type of insurance or a 1 if they do. Medicare part B, Medigap or private insurance, Champus, Indian health services, and Blue Cross/Blue Shield are combined and are included in the other category. Items # 9a thru 9h under the category of "Finances" is used to determine the current insurance coverage.

Type of insurance	Scoring
Medicare A	0 or 1
Medicaid	0 or 1
Other	0 or 1

For the purpose of this study need is identified as a control variable and will be determined by the functional status of an individual. Instrumentation used to assess the functional status of individuals in the original study, is the MOS 36-Item Short Form Survey (SF-36). This instrument was developed by John E. Ware and was designed to assess health status of individuals in a study on medical outcomes (Ware & Sherbourne, 1992). Eight health concepts were assessed using this instrument and include: physical functioning, role limitations due to physical problems, social functioning, body pain, general mental health, role limitations due to emotional problems, vitality, and general health perceptions. Individuals included in this study will be assessed for limitations in physical functioning only, in order to determine their functional status. Ten items that address physical functioning have been identified from the FS 36 functional status tool (Ware & Sherbourne, 1992). This scale is found in wave II interview booklets and includes items # 1a thru 1j under the category of "instrumental activities of daily living for the patient". Reliability and validity of the original thirty-six item scale was reported by Ware, Kosinski, Bayliss, Mchorney, Rogers, and Raczek (1995).

Each item of the functional status tool will be scored using a unidirectional scale with lower scores indicating less defects in functioning and higher scores indicating greater levels of functional defects. The scores will be totaled and divided by the number of items asked. Individuals with higher scores are those with greater levels of functional defects. Individuals with score of 1 or less will be placed in the category of minimal functional deficits, scores of 1.0-1.99 will be in a category of moderate functional deficits, and 2.0 -3.0 is the category for maximum functional deficits. Refer to Appendix A for the questions that form this scale and the scoring of items.

Analysis

Although there are 196 participants in the study the N= may be significantly different in the findings, due to the subjects not providing complete data on all items.

SPSS software will be used in this analysis (Norusis, 1993). Frequencies will be run on all sociodemographic data. Crosstabulations will be run on the sociodemographic data to determine the relationship between socioeconomic status and service use. Chi-Square analysis will be run on the variables with an established level of significance of 0.05 to determine the relationship between variables. Pearsons Chi-Square analysis will be used to determine the relationship between the independent variables of the study: level of income, level of education, insurance coverage, and functional status and formal community health service utilization by lung cancer patients.

With the knowledge of previous research indicating the high degree of influence that need has on service utilization, deficits in physical functioning will be analyzed to determine needs in this population. Analysis will determine how much service utilization is due to deficits in physical functioning.

CHAPTER V

Results

The findings described in this section are compiled from the 196 subjects who were eligible for the study. Tables showing sociodemographic characteristics of the sample and the results of the data analysis are included.

Table 2.

Sociodemographic Variables in this patient Population (N = 196)

Characteristics	n	%
Sex		
Male	122	(62%)
Female	74	(37%)
Race		
Caucasian	177	(90%)
African American	14	(7%)
Native American	2	(1%)
Age		
60-69	44	(22%)
70-79	122	(62%)
80-90	30	(16%)
Education Completed		
Some High School or less	60	(36%)
High School graduate	51	(26%)

Table 2. (Cont.)

Sociodemographic Variables In This Patient Population (N = 196)

Characteristics	n %
Some College	32 (16%)
College Degree or more	11 (6%)
Living Arrangement	
Lives Alone	55 (29%)
Lives With Spouse	114 (59%)
Lives With Children	24 (12%)
Household Income	
0-14,999	48 (29%)
15,000-29,999	78 (47%)
30,000+	39 (24%)
Insurance Coverage	
Medicare A	180 (99%)
Medicaid	15 (8%)
Other	176 (92%)

Sociodemographic Characteristics

The sample from which the results were drawn was predominantly white N= 177 (90.3%), males N= 122 (62.2%). The mean age of the sample was 74, SD 5.15 the youngest subject was 66 years old and the oldest was 99. Forty eight percent (N= 94) of the sample held a high school diploma or greater. The mean household income was $20,000 to $25,000. Fifty nine percent (N= 144) of the population lived with a spouse, twenty nine percent (N= 55) lived alone, and twelve percent (N= 24) lived with children. The majority of the sample were insured by Medicare and secondary insurance.

Among the 196 subjects that fit the criteria for the current study few utilized formal community health services. A significant amount of individuals did not provide data on use of services therefore N=166 responded to visiting nurses services and N=165 responded to all other services. Table 3. provides frequency, and percent of usage.

Socioeconomic Factors and Community Service Use

The independent variables of: level of education, household income, insurance coverage, and functional status are examined to determine influence of socioeconomic factors on use of formal community health services.

Functional status

The functional status of individuals prior to the diagnosis of cancer was not considered for the current

Table 3.

Formal Community Health Service Use by Frequency and Percent (N= 165)

Variable	Used No.	(%)	Not Used No.	(%)
Visiting Nurses	38	(23)	128	(77)
Home Health Aides	7	(4)	158	(96)
Case Management	7	(4)	158	(96)
Chore/Housekeeping	12	(7)	153	(93)
Meals on Wheels	10	(6)	155	(93)

study. Therefore, the functional status presented reflects deficits in physical functioning of the individual at the time data was collected for Wave II of the original study. Level of functioning ranged from 0 to 3 with the lower scoring representing individuals with the least deficits in function to higher scores indicating those with the most deficits. Scores ranging for 0-.99 indicated individuals with minimal functional deficits and were placed into functional category 1, those with scores of 1.0-1.99 are in category 2, and the remainder of scores 2.0-3.0 are in category 3. The mean score for functional status was 1.78. The majority of the study population fell into the moderate functional deficit category or level 2, this included fifty eight percent (N= 112) of the population. Thirty nine percent (N=74) were found to have maximum functional deficits, and only three percent (N=6) had minimal functional deficits.

Functional status of an individual did not appear to have an influence on the use of any of the five formal community health services. Visiting Nurses Services was the services that was utilized the most although statistical analysis did not indicate an influence from functional deficits on use (Chi-Square 4.1; df 2; p= .128). It is surprising that functional deficits did not have a greater influence on community services use since there were a significant amount of individuals who fell within the category of maximum deficit category. Table 4. shows a representation of functional deficits and use of community health services.

Education

Level of education within the sample group included individuals who completed grade school to one individual who completed graduate education. The majority, 62% (N=111), of individuals obtained a high school diploma or less. Of the 196 subjects only N=141 provided information on their educational level. Visiting Nurses services was utilized the most among individuals who provided information on educational level. Thirty subjects reported using Visiting

Table 4.

Functional Status and Use of Formal Community Health Services by Number, Percent, and Significance Level

Variable	Used No. (%)	Not Used No. (%)	p value
Visiting Nurses	N=38	N=127	
Functional Category			
1	1 (33)	2 (67)	n/s
2	28 (28)	72 (72)	.13
3	9 (15)	53 (85)	
Home Health Aides	N= 7	N=157	
Functional category			
1	0 (00)	3 (100)	n/s
2	6 (.06)	94 (94)	.39
3	1 (.01)	60 (98)	
Case Management	N= 7	N=157	
Functional Category			
1	0 (00)	3 (100)	n/s
2	5 (5)	95 (95)	.81
3	2 (3)	59 (97)	
Chore/Housekeeping	N=10	N=154	
Functional Category			
1	0 (00)	3 (100)	n/s
2	8 (8)	92 (92)	.43
3	2 (3)	59 (97)	
Meals on Wheels	N=11	N=153	
Functional Category			
1	0 (00)	3 (100)	n/s
2	6 (6)	94 (94)	.77
3	5 (8)	56 (92)	

Significance level = $p \leq 0.05$

Nurses services (21%), seventy nine percent (N= 111) did not utilize this service. The greatest percentage of individuals utilizing Visiting Nurses services were those that had less then a high school diploma (29%), or persons who had a college degree or more (30%).

One hundred and forty individuals of the sample (N=196) provided information on educational level and the remaining services. Only 4 individuals (3%) reported using home health aides. Individuals with the highest level of education demonstrated the greatest use of home health aides. Six individuals reported using case management services, the greatest percentage of which were in the lowest educational level (12%). Eight percent (N=12) reported using chore or housekeeping services, with the highest usage among those having some college educational. Six percent (N= 8), of individuals reported use of meals on wheels with the highest percent falling in the college or more category. See Table 5 for listing of use and significance values.

INCOME

Although the majority of the sample 47% (N= 78) fell within the $15,000 to $29,999 range, twenty nine percent (N= 48) were within the lowest income category of $0 to $14,999.

Table 5.

Educational Level and Use of Formal Community Health Services by Number, Percent, and Significance Level

Variable	Used No. (%)	Not Used No. (%)	p value
Visiting Nurses	N=30	N=111	
some high school	5 (30)	12 (71)	
high school	5 (12)	36 (88)	n/s
some college	8 (19)	35 (81)	.19
college or more	12 (30)	28 (70)	
Home Health Aide	N=4	N=136	
some high school	0	17 (100)	
high school	1 (2)	40 (98)	n/s
some college	1 (2)	42 (98)	.73
college or more	2 (5)	37 (95)	
Case Management	N=6	N=134	
some high school	2 (12)	15 (88)	
high school	2 (5)	39 (95)	n/s
some college	0 (0)	43 (100)	.23
college or more	2 (5)	37 (95)	
Chore/Housekeeping	N=12	N=128	
some high school	1 (6)	16 (94)	
high school	2 (5)	39 (95)	n/s
some college	5 (12)	38 (88)	.68
college or more	4 (10)	35 (90)	
Meals on Wheels	N=8	N=132	
some high school	1 (6)	16 (94)	
high school	3 (7)	38 (93)	n/s
some college	1 (2)	42 (98)	.71
college or more	3 (8)	36 (92)	

Significance level = $p \leq 0.05$

There appears to be a substantial number of individuals who participated in the study that are considered to be in poverty. When using the US Bureau of the Census poverty level of $14,335 there may be inaccuracy in the significance of poverty within this study. All individuals with an income range of $0-$14,999 were considered to have an income equal to or less than poverty level, although there might have been individuals whose income was above $14,335 but below $14,999. Therefore, it is possible that the true number of individuals with an income level below $14,335 is over estimated.

Income did appear to have a significant influence on the use of home health aides services (Chi-Square 6.2; df 2; .04). There was no other significance found in the influence of income level on the use of formal community health services other then home health aides. Although, Visiting Nurses services was found to be closest to significance with Pearson Chi-Square vales of 5.3; df 2; p= .06.

Individuals in the lowest income category utilized formal community health services over all more than persons in any other income category. The exception to this was in regards to case management services which was utilized most by individuals in the middle income category. As with educational level there were a many subjects who did not report data on both services use and income both. The missing data may be do to individuals reluctance to share information on income. See Table 6.

Insurance Coverage

Since the population in the study included only individuals over the age of sixty-five it is not surprising that 99% were covered by Medicare. In addition to Medicare coverage 84% of individuals also had additional insurance coverage which fell into the category of other. Medicaid covered 8% (N= 15) of the sample group, two who were covered only by Medicaid, the other thirteen had Medicare coverage as well. When examining the relationship between insurance coverage and use of formal community services Medicare, Medicaid or other insurance coverage were found not to have a significant influence. See Table 7. for insurance coverage and use of service significance level.

Table 6.

Income level and Use of Formal Community Health Services by Number, Percent, and Significance Level

Variable	Used No. (%)	Not Used No. (%)	p value
Visiting Nurses	N=35	N=117	
$0-14,999	16 (35)	30 (65)	n/s
$15,000-29,999	12 (17)	60 (84)	.06
$30,000 >	7 (21)	27 (79)	
Home Health Aides	N=7	N=144	
$0-14,999	5 (11)	41 (89)	Sig
$15,000-29,999	2 (3)	70 (97)	.04
$30,000 >	0 (0)	33 (100)	
Case Management	N=6	N=145	
$0-14,999	2 (4)	44 (96)	n/s
$15,000-29,999	4 (6)	68 (94)	.39
$30,000 >	0 (0)	33 (100)	
Chore/Housekeeping	N=11	N=140	
$0-14,999	4 (9)	42 (91)	n/s
$15,000-29,999	3 (4)	69 (96)	.31
$30,000 >	4 (12)	29 (88)	
Meals on Wheels	N=10	N=141	
$0-14,999	6 (13)	40 (87)	n/s
$15,000-29,999	2 (3)	70 (97)	.09
$30,000 >	2 (6)	31 (94)	

Significance level = $p \leq 0.05$

Table 7.

Insurance Coverage and Use of Formal Community Health Services by Number, Percent and Significance Level

Variable	Used No. (%)	Not Used No. (%)	p value
Visiting Nurses			
Medicare A	37 (23)	125 (77)	n/s.58
Medicaid	3 (23)	10 (77)	n/s.99
other	9 (17)	45 (83)	n/s.16
Home Health Aides			
Medicare A	7 (4)	154 (96)	n/s.83
Medicaid	1 (7)	12 (92)	n/s.52
other	1 (2)	53 (98)	n/s.27
Case Management			
Medicare A	7 (4)	154 (96)	n/s.83
Medicaid	1 (7)	12 (92)	n/s.52
other	2 (4)	52 (96)	n/s.79
Chore/Housekeeping			
Medicare A	11 (7)	150 (93)	n/s.78
Medicaid	1 (7)	12 (92)	n/s.88
other	3 (6)	51 (94)	n/s.66
Meals on Wheels			
Medicare A	10 (6)	151 (94)	n/s.79
Medicaid	1 (7)	12 (92)	n/s.80
other	1 (2)	53 (98)	n/s.10

Significance level = $p \leq 0.05$

Interpretation of Findings and Discussion

The question studied by this researcher was: Does the socioeconomic status of individuals diagnosed with lung cancer, influence their use of formal community health services? After statistical analysis was completed it appeared that socioeconomic status did not have a great influence on the use of any of the five services identified for the study. Although ninety seven percent (N= 186) of individuals in the current study were determined to have moderate to high deficits in physical functioning, functional status was also found not to have a significance on use of services. From the literature review, need was determined to be the strongest predictor of health service use. The current study found no significance between functional deficits and the use of formal community health services. This may be do to the fact that the majority of subjects who participated in the study did not live alone and likely received assistance from family members. Individuals living with a spouse or child likely have help in meeting there activity of daily living needs therefore, requiring less assistance from out of the home.

When considering education's influence on the use of formal community health services it is important to note the greatest percentage of the sample had less than a high school diploma. According to Freeman(1989) and Mandelblatt et al., (1991) individuals with less education may not have the social, or problem solving skills needed to seek health care services therefore, these individuals have a higher percentage of poor outcomes. The current study however found that individuals with less than a high school diploma were among those who utilized services most. It was found that individuals who had a college degree or more were the most likely to use services followed very closely by those with the least education. Individuals in the high school diploma and some college categories were much less likely to utilize services.

When looking at the current study income, may have the most influence on service use of all of the variables. When using Chi-Square analysis, the influence that income had on home health aides showed the only true significance with $p < .05$. Visiting Nurses had significance of $p = .06$ and meals on wheels a significance of $p = .09$. Even though the p values of Meals on Wheels and Visiting Nurses did not meet the criteria for significance, there values were the closest to significant of all the variables other than Visiting nurses. Income however may not be a good indicator of service use due to the fact that Medicare and Medicaid cover the cost of Visiting Nurses and home health aides when individuals qualify for services. When individuals covered by Medicare and Medicaid utilize Visiting Nurses services and home health aides there is no out of pocket expenditure if they meet criteria, therefore income may have no influence on use. Individuals that do not qualify for services according to Medicare and Medicaid requirements will have out of pocket expenditures. Level of income would likely influence the use of services by these individuals with expenditures.

The significance in use of Meal on Wheels among the lower income may be due to the fact that most counties have financial subsidy programs that cover this service. Elderly individuals in the low income level that meet the criteria can receive meals at little or no cost.

The lack of significance that insurance coverage had on service use is not surprising since almost the entire population was covered by Medicare. Medicare and Medicaid, as well as, most private insurance's cover Visiting Nurse services and home health aides. A more diversified coverage of insurance's or a greater representation of individuals below the age of sixty five who did not have Medicare coverage may present very different statistics on utilization. Much less significance may be found among individuals covered by insurance's other than Medicare due to the fact most do not cover formal community health services. The failure of insurance companies to cover formal community health services, means out of pocket expenditure for individuals and their families, therefore decreasing the likelihood of use by these individuals.

Other Interesting Findings

Although, not part of the formal study, the influence that age and gender had on service use was of interest. Age was found to have a significant influence on the use of Meal on Wheels with a p= .02. The significance indicated that individuals over the age of seventy eight were more likely to use meals on wheels then those younger. This significance may be due to speculation that with increasing age the more co-morbid conditions one might have or the likelihood of being widowed increases as well. It was surprising that use of services other than Meals on Wheels did not increase with age of the individual. It seems as individuals age, the need for services that provide more physical assistance such as home health aides or chore/housekeeping services would increase.

When looking at gender, there was a significance in the use of home health aides and housekeeping services for females. Seven (4%) individuals reported using home health aides and of those that utilized the service six were females. Chi-Square analysis revealed 6.5; (df 1); .01 for home health aide use. Twelve individuals reported using chore or housekeeping services and of those, ten were female giving a p= .001. The significance of these findings may be due to the fact that females usually assume the roles that these two services can provide, therefore if she is unable to fulfill the role outside assistance is needed.

Sixty two percent of the subjects in the study were male and thirty seven were female, therefore it would seem likely that more men than women would require assistance. This may reflect that many of the men are married and that their wives are continuing to fulfill the roles that home health aides and chore or housekeeping services would provide.

In summarizing the results of this study, socioeconomic status of an individual was not found to have much significance on the use of formal community health services. The population in this study which included individuals diagnosed with lung cancer within twelve weeks of their participation, who were over the age of sixty five were not frequent users of formal community health services. Although the literature supported that need was a significant factor in health service utilization the current studies findings did not support this fact. The lack of use of formal community health services may be explained in many ways, including diagnosis and staging of cancer although it is beyond the scope of this study.

Limitations of This Study

The following limitations to the current study are identified:

The first limitation to the study is the sample population which was a nonprobability, convenience sample. The sample is fairly homogeneous in that all participants are elderly, recently diagnosed with lung cancer and living in Michigan. The sample population was perdominantly Caucasian individuals, therefore it is a poor prediction of service utilization by all races. The results of this study may not be generalized to a larger population which includes younger patients or those with other types of malignancies. The results as well may not be generalized to individuals living in other geographical areas due to availability of services within each state.

There was no control or examination for stage of cancer, comorbid conditions or treatment modality, such as chemotherapy, surgery, or radiation or a combination of these. Stage and comorbid conditions would likely be a strong predictor of formal community health service utilization, with the persons in more advanced stages or with more comorbid conditions requiring more assistance. Not all treatment modalities carry the same risk for side effects, therefore it would seem more likely that an individual receiving chemotherapy would be sicker and require more assistance than someone undergoing radiation alone.

Although functional status of the individual could be controlled after their diagnosis of cancer, it is important to control for the functional status of an individual prior to diagnosis of cancer to determine an accurate influence on use. Previous deficits in functional status as well as continued decline may significantly influence use of formal community health services.

In the current study each socioeconomic variable is looked at separately which does not give a true representation of socioeconomic status. To determine a more accurate estimate of socioeconomic status it would be necessary to combine income, education, and insurance coverage. In order to assess the difference in socioeconomic status and its influence on formal community service utilization, the independent variables must be combined. The current study can determine only if difference in each individual variable has a influence on service use.

The most significant limitation of the study is the importance placed on insurance coverage and type of insurance. Insurance may be a very poor predictor of formal community health service use because few formal community health services are actually covered. Visiting Nurses and home health aides are covered by Medicare and Medicaid for a limited time, only if a skilled nursing care need is identified. Therefore, it is not possible to know from the data within this study which individuals have skilled needs that qualify for coverage of formal community health services. A more accurate prediction of service use is not having insurance coverage, but whether the service needed will be covered by the type of insurance the individual has.

The last limitation identified for this study is the lack of information regarding pattern of use of community health services previous to this study. If an individual has utilized services prior to the diagnosis of lung cancer and had a good experience there likelihood of utilizing services again would be higher. Individuals who have never used formal community health services or those who had a bad experience with service use may be less willing to attempt use again.

CHAPTER VI

Implications for Advanced Nursing Practice

Given the statistical findings of the current study it appears that few elderly individuals diagnosed with lung cancer utilized formal community health services. Advanced Practice Nurses (APN's) in primary care, as well as, geriatrics could influence the way elderly patients diagnosed with lung cancer utilize community health services. APN's can help in achieving more favorable outcomes for lung cancer patients by facilitating the use of services available to help meet individuals needs. Since 78 percent (N=152) of the individuals in this study were between the ages of 70 and 90 it is understandable that many elderly individuals diagnosed with lung cancer have considerable deficits in their functional status. APN's have the ability to assist individuals with the greatest needs to benefit from formal community health services.

Advanced Practice Nurses are well known as highly effective practitioners with a holistic focus on the health care they provide. Holistic care is very important for the individuals in this study who have a recent diagnosis of lung cancer. As a practitioner the APN provides care for patients diagnosed with lung cancer based on sound theory and advanced clinical judgment therefore, assisting individuals in securing formal community health services to help cope with health care problems and prevent complications.

First and foremost, it is imperative for the APN functioning as a assessor to determine what needs each individual diagnosed with lung cancer may have. The majority of the current sample appeared to have at least a moderate amount of need since, 186 individuals fell into the categories of 2 or 3 on the functional deficits scale. Individuals with greater deficits in functional status would likely require more assistance with their mobility and activities of daily living. After determining what needs an individual has, it is important to determine if the resources they are currently using to meet their needs are adequate. If the current resources are not adequate to meet the individuals needs the APN must assess what access they may have to community health services. In order to determine accessibility the APN must take into consideration acceptability, attainability, accommodation, affordability, and availability.

Affordability and availability are just two reasons individuals in this study may not have utilized services. Although the majority of individuals in the study have Medicare, this is no indication that there need for services will be met, do to strict requirements for coverage of services. Access to formal community health services may be limited to many of the individuals in this study due to low incomes that could not sustain much out of the pocket expenditures. As an advocate and case manager the APN can assist individuals to limit their out of pocket expenditures and attempt to get service use covered by their insurance carrier. If the individual is hospitalized, it is important for the APN to assess the needs of the individual so that a skilled nursing need is not overlooked prior to discharge. If the individual is not hospitalized though has, or develops a skilled nursing need the APN must advocate for the individual, so that formal community services that qualify for payment will be covered.

When considering services that insurance does not cover, many individuals may not be aware that each county has services available to elderly individuals in need through the Commission on Aging. Service availability is dependent on the funding within each county, therefore all counties do not offer the same services. Services may have different requirements for eligibility or individuals may need referrals to receive assistance. Some services such as meals on wheels are accessible to low income individuals at no cost, but only available to others at a fee. The APN working with lung cancer patients must be well versed on the availability and affordability of such services.

Meals on Wheels and chore or housekeeping services are not covered by any health insurance agency. However, these services are available, at minimal cost for those who qualify. Even though the cost of many services is minimal many individuals may view this as unaffordable or unacceptable and choose not to utilize certain services as an option to assist in meeting their needs. For these reasons it is important as new health care systems are developed under national health care reform, that APN's utilize their knowledge and abilities as a change agents, leaders, and patient advocates to help identify and eliminate barriers to formal community health services for lung cancer patients.

A large portion of the Advanced Practice Nurses role when working with lung cancer patients focuses around education of patients and families. When dealing with elderly individuals diagnosed with lung cancer the APN uses the roles of assessor, educator, counselor, and change agent to influence the use of community health services by cancer patients. Although each individual has the common diagnosis of lung cancer their situations may be very different. Thirty percent of the current population live alone, and may have very different situations and needs than those who live with a spouse or child. Therefore, each individual situation requires a thorough assessment by the APN to determine the appropriate educational and counseling needs.

If an individual has needs that are not being met, it is the role of the APN to educate and counsel regarding the available resources so they may make an educated decision on service use. If the individual currently requires no formal community health services the APN should educate on availability of resources in case the need arises in the future.

The elderly individuals in this study demonstrated that the majority seventy one percent (N= 138) of lung cancer patients do not live alone, but live with a spouse or children. Because the majority of individuals lived with someone this could account for the low frequency of use of formal community health service among this population. Twenty nine percent (N= 55) of the sample population live alone, and would likely benefit from formal community health services the most due to less family support services. Regardless of living arrangement, both individuals that do and do not live alone may benefit form services that formal community health agencies can provide. APN's in the role of change agent should encourage both individuals to utilize services in order to increase the likelihood of a more favorable outcome.

The current study population indicates that many individuals diagnosed with cancer have a minimal level of education. Therefore, education materials provided by the APN regarding use of community health services must include accurate and easy to understand information not only on available services but what types of activities each service provides. Education materials must be easy to read as well as understandable, for those individuals with limited education. The APN in primary care can assist the individual diagnosed with lung cancer, to make appropriate decisions on which services would best meet their needs.

When functioning in a collaborative role the APN can utilize the knowledge of other disciplines in obtaining accurate information on available services as well as financial reimbursement. Medical Social Workers are very knowledgeable about community services as well as financial issues regarding such service use. Social services is one resource in which to obtain information on available services within the area that an individual client lives.

While collaborating with other health care disciplines the APN must assume the role of case manager in order to ensure continuity and advocacy of care for lung cancer patients. As a case manager for the population within this study the APN would help determine services needed and assure that the appropriate plan of care provided by formal community health services was being carried out. APN's functioning in the role of case manager, as well as change agent facilitate the identification of service needs and implement a therapeutic plan in collaboration with other members of the health care team. In order to meet the needs of individuals diagnosed with lung cancer a collaborative approach must be taken to bring about positive changes in service use behavior.

The APN as a researcher and evaluator can study the frequency, health status and demographic characteristics of individuals diagnosed with lung cancer who utilize formal community health services. Individuals with low functional status, the socioeconomically disadvantaged and those living alone need closer follow up by the APN to ensure that the services used are meeting their needs. Quality of formal community services needs to be assessed through regularly scheduled evaluations. Quality assurance programs to study the effectiveness of formal community health services when used by individuals diagnosed with lung cancer need to be developed to determine patient satisfaction.

There are many ways in which the APN can influence the use of formal community health services by individuals diagnosed with lung cancer. By providing comprehensive, continuous, and coordinated care the APN in primary care can utilize the various role characteristics to assist individuals diagnosed with lung cancer in meeting their needs.

Implications For Further Research

A secondary analysis was used to complete this research study, and was a beginning attempt in identifying differences in socioeconomic factors and functional status that influence the use of formal community health services, by individuals diagnosed with lung cancer. There is a great need for further investigation into why individuals diagnosed with lung cancer may or may not use the assistance of formal community health services. There are several ways in which further research could improve and expand this subject.

Research that would include a less homogenous sample, which included equal men and women and more racial diversity, may be helpful in determining the influence socioeconomic status had on service use by lung cancer patients. Since all individuals in the current study were over the age of 65, living in Michigan and diagnosed within the last twelve weeks with cancer these findings cannot be generalized to all individuals diagnoses with lung cancer.

A broader study of individuals from many different geographical regions, and timing since diagnosis might be helpful in predicting a more accurate assessment of use by lung cancer patients. Waiting until six months form the initial diagnosis may have very different findings then the current population. It may be beneficial to examine different age groups as well, although most individuals diagnosed with lung cancer are over 50.

Although this study included only lung cancer patients further research which included a sample of individuals with any cancer diagnosis might provide us with better understanding of service use on a broader basis. Individuals diagnosed with breast cancer would likely not need as much assistance as others with lung, or stomach cancer due to the severity of the location. Although, individuals diagnosed with metistatic cancer of any origin may require significant assistance dependent on staging.

In the current study there was no way to indicate the stage of lung cancer the individual was diagnosed with, if further research were to be done using only lung cancer patients, controlling for stage could prove beneficial. The staging of lung cancer is important when considering use of formal community health services. Individuals in the more advanced stages of cancer would more likely need the assistance of formal community health services more than those with early staging.

Research that controlled for co-morbid conditions, functional status prior to diagnosis, treatment modality such as surgery vs. chemotherapy or radiation, and prior use of formal community health services would also provide a more accurate picture of service use. Individuals with other co-morbid conditions, or deficits in functional status prior to diagnosis may be more apt to use formal community services because they may have greater needs. Those individuals with prior formal community health service use that had a positive experience would likely be more apt to use these services again.

The influence that differing modalities of treatment such as surgical intervention, radiation, chemotherapy, has on formal community health service use is vital. The overall prognosis of lung cancer is poor. Some individuals diagnosed in the early stage of lung cancer that are treated with surgical intervention may however be asymptomatic for many years, never requiring the need for use of formal community health services. Individuals such as these would make it inaccurate to predict service use by diagnosis of lung cancer alone. Controlling for prior service use would help to determine the effects of the current cancer diagnosis on use.

Lastly, a follow-up study using these same 196 subjects would be helpful to determine any changes in patterns of formal community health service use. The question of while controlling for functional status, does socioeconomic status of individuals diagnosed with lung cancer, influences their use of formal community health services could be addressed. Length of time since diagnosis, closeness to death and the stage of lung cancer at diagnosis would give a more accurate assessment of formal community health service use by these individuals. It is very likely that the further out in time from diagnosis, the closer to death, and the higher the staging the more apt the individual would be to use services.

Since the cost of most formal community services identified in the current study were not covered by insurance without meeting strict criteria, it may be helpful to delete this as an influence. In further research all variables could be combined to determine socioeconomic status rather than looking at individual socioeconomic variables.

In summary, the current study did not indicate significant use of formal community health services although, further research may. It is important then to continue research on the factors that influence use of formal community health services not only by lung cancer patients but those with all types of chronic disease processes. Further research on service utilization could prove beneficial in more readily meeting the needs of patient to help facilitate improved outcomes of care.

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APPENDIX A
QUESTIONNAIRE

1. Are you currently limited in . . . because of your health? (We are interested in your ability to do these activities.)

a. Moderate activities, such as moving a table, bowling or playing golf?

	Score
______ No, not limited at all	1
______ Yes, limited a little	2
______ Yes, limited a lot	3

b. Vigorous activities, such as lifting heavy objects or participating in strenuous sports?

	Score
______ No, not limited at all	1
______ Yes, limited a little	2
______ Yes, limited a lot	3

c. Lifting or carrying groceries?

	Score
______ No, not limited at all	1
______ Yes, limited a little	2
______ Yes, limited a lot	3

d. Climbing several flights of stairs?

	Score
______ No, not limited at all	1
______ Yes, limited a little	2
______ Yes, limited a lot	3

e. Climbing one flight of stairs?

	Score
______ No, not limited at all	1
______ Yes, limited a little	2
______ Yes, limited a lot	3

f. Bending, kneeling or stooping?

	Score
______ No, not limited at all	1
______ Yes, limited a little	2
______ Yes, limited a lot	3

g. Walking one block?

	Score
______ No, not limited at all	1
______ Yes, limited a little	2
______ Yes, limited a lot	3

h. Walking several blocks?

	Score
______ No, not limited at all	1
______ Yes, limited a little	2
______ Yes, limited a lot	3

i. Walking more than one mile?

	Score
______ No, not limited at all	1
______ Yes, limited a little	2
______ Yes, limited a lot	3

j. Bathing or dressing yourself?

	Score
______ No, not limited at all	1
______ Yes, limited a little	2
______ Yes, limited a lot	3

APPENDIX B
CONSENT

THIS project EXPIRES

JUN 05 1996

and must be renewed within
11 months to continue.

Michigan State University 9/95

MSU FAMILY HOME CARE CANCER STUDY

CAREGIVER CONSENT FOR RESEARCH

Introduction

You are being asked to participate in a research project to study the costs associated with cancer and the effects of cancer on the lives of patients and their families or caregivers. The purpose of this research study is to determine how age, preexisting health conditions, the site and extent of the cancer, and the type of treatment affects the patient's mental status and ability to perform usual daily activities. In addition, information concerning the involvement of and effect on patient's families or caregivers will be collected.

This study is being conducted by Drs. Barbara and Charles Given who are professors in the College of Nursing and the Department of Family Practice at Michigan State University. This research study is being sponsored by Michigan State University and also involves other hospitals or medical center. This study will involve 1,235 patients 65 years of age and older who have breast, colon, lung or prostate cancer.

Description of Procedures

Should you decide to participate you will be contacted by telephone four times over the next 12 months; at approximately 4, 12, 24 and 52 weeks following your friend or family member's diagnosis. The trained interviewer who will call you will ask a number of questions about your health, how you are feeling, the types of activities you help your friend or family member perform, and the amount of time and money you spend in caring for this person. It will take about 45-60 minutes to complete each interview. In addition, a written questionnaire will be sent to you with a stamped return envelope. This questionnaire will ask questions regarding the assistance you provide to your friend or relative and will take about 15 minutes to complete.

Risks and Discomforts

It is not expected that you or your friend or family member will be placed at any physical, financial or legal risk as a result of participation in this study. Regardless of whether or not you choose to participate in this study, you and your friend or family member will continue to receive medical care under the direction of his/her personal physician(s). All information collected for this study including that obtained from your friend or family member will be kept strictly confidential.

It is recognized that the diagnosis and treatment of cancer is stressful. In over 400 cancer patients, the investigators have found no patient to date who experienced additional stress as a result of responding to similar interview questions or written questionnaires. All interviewers for this study will be trained by the investigators, and will be able to assist you if you should find any aspect of this study upsetting. In addition, you are free to withdraw from this study at any time for any reason without penalty or change in the quality of medical care which you receive. If you have any questions or wish to withdraw from the study you may call either the project coordinator or Charles W. Given, the Co-Principal Investigator, at the research office: (517) 353-3843 or toll free, 1-800-654-8219.

Benefits

It is not expected that you or your friend or family member will experience any direct benefit from participation in this study. Information from this study may provide useful information concerning the personal and financial impact of the diagnosis and treatment of four common cancers among the elderly. Neither you nor your friend or family member will be paid or receive any other form of compensation for participating in this study.

Alternatives

If you decide not to participate in this study your friend or family member will continue to receive all medical care and other standard forms of support. Neither you nor your friend or family member will be contacted for telephone interviews or asked to complete questionnaires.

Rights and Responsibilities

To take part in this study, you must choose to do so and sign this form on the line below. Only volunteers will be used in this study. If you choose to be in the study now, you may withdraw later on by calling Dr. Charles W. Given at (517) 353-3843 or toll free, 1-800-654-8219. If you choose not to take part in this study, or if you withdraw after you have started, you will not be penalized in any way.

A record of your progress while on the study will be kept in a confidential file at College of Nursing at Michigan State University. Only a few people who work on the study will have access to records that could directly or indirectly identify you. Information about your participation in this study will be combined with that of all other patients who participate in the study and may be shared with others in the research field, but no names will be used. There will be no names or other patient identification used in any study reports published later on.

In the unlikely event of any injury from the research, no reimbursement, compensation or free medical treatment is offered by Michigan State University.

Should you have any questions about your rights as a subject or should you sustain any injury related to the research, you may contact Dr. David Wright, Chair, University committee on Research Involving Human Subjects, at (517) 355-2180.

I have had an opportunity to ask questions about the study and was given sufficient time to consider my participation. I have received a copy of this form and agree to participate.

Caregiver's Signature____________________________Date________________

Please print:

name ____

address_______________________________________

____

phone ____

Name of Patient___________________________________

Investigator's Signature__________________________Date________________

Witness' Signature_______________________________Date_______________

APPENDIX C
HUMAN SUBJECT APPROVAL

MICHIGAN STATE
UNIVERSITY

May 7, 1996

TO: Barbara A. Given
A230 Life Sciences

RE: IRB#: 92-280
TITLE: FAMILY HOME CARE FOR CANCER--A COMMUNITY-BASED MODEL
REVISION REQUESTED: 04/22/96
CATEGORY: FULL REVIEW
APPROVAL DATE: 05/06/96

The University Committee on Research Involving Human Subjects' (UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project and any revisions listed above.

RENEWAL: UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must use the green renewal form (enclosed with the original approval letter or when a project is renewed) to seek updated certification. There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

REVISIONS: UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please use the green renewal form. To revise an approved protocol at any other time during the year, send your written request to the UCRIHS Chair, requesting revised approval and referencing the project's IRB # and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.

PROBLEMS/ CHANGES: Should either of the following arise during the course of the work, investigators must notify UCRIHS promptly: (1) problems (unexpected side effects, complaints, etc.) involving human subjects or (2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

If we can be of any future help, please do not hesitate to contact us at (517)355-2180 or FAX (517)432-1171.

Sincerely,

David E. Wright, Ph.D.
UCRIHS Chair

DEW:bed

cc: Charles Given

OFFICE OF
RESEARCH
AND
GRADUATE
STUDIES

University Committee on
Research Involving
Human Subjects
(UCRIHS)

Michigan State University
232 Administration Building
East Lansing, Michigan
48824-1046

517/355-2180
FAX: 517/432-1171

APPENDIX D
HUMAN SUBJECT

MICHIGAN STATE
UNIVERSITY

July 9, 1997

TO: Barbara A. Given
A230 Life Sciences

RE: IRB#: 97-462
TITLE: THE INFLUENCE OF SOCIOECONOMIC STATUS ON THE USE OF FORMAL COMMUNITY HEALTH SERVICES BY LUNG CANCER PATIENTS, WHILE CONTROLLING FOR FUNCTIONAL STATUS
REVISION REQUESTED: N/A
CATEGORY: 1-E
APPROVAL DATE: 07/07/97

The University Committee on Research Involving Human Subjects'(UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project and any revisions listed above.

RENEWAL: UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must use the green renewal form (enclosed with the original approval letter or when a project is renewed) to seek updated certification. There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

REVISIONS: UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please use the green renewal form. To revise an approved protocol at any other time during the year, send your written request to the UCRIHS Chair, requesting revised approval and referencing the project's IRB # and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.

PROBLEMS/ CHANGES: Should either of the following arise during the course of the work, investigators must notify UCRIHS promptly: (1) problems (unexpected side effects, complaints, etc.) involving human subjects or (2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

If we can be of any future help, please do not hesitate to contact us at (517)355-2180 or FAX (517)432-1171.

Sincerely,

David E. Wright, Ph.D.
UCRIHS Chair

DEW:bed

cc: Jane L. Smallwood

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