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Perceived Health Status, Preventive Health Behaviors, Formal Education, and Potential Barriers to Health Care in a Rural Population

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**PERCEIVED HEALTH STATUS, PREVENTIVE HEALTH BEHAVIORS,
FORMAL EDUCATION, AND POTENTIAL BARRIERS TO HEALTH CARE IN
A RURAL POPULATION**

By

Toni Renee Gaultier

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ABSTRACT

PERCEIVED HEALTH STATUS, PREVENTIVE HEALTH BEHAVIORS, FORMAL EDUCATION, AND POTENTIAL BARRIERS TO HEALTH CARE IN A RURAL POPULATION

By

Toni Renee Gaultier

The purpose of this study was to examine preventive health behaviors, perceived health status, level of formal education, and potential barriers to health care in a rural northern midwestern state using Leininger's Cultural Care Theory. A short questionnaire was designed to identify factors that may influence health for rural residents. The sample consisted of 159 adults. The questionnaires were hand delivered to 299 randomly selected homes. Analysis was performed using descriptive and Chi-square statistics. The results supported an association between fewer preventive health behaviors and more potential barriers to health care ($\chi^2 = 36.72, p < .001$). A higher level of formal education was associated with higher perceived health status ($\chi^2 = 13.99, p < .001$). Potential barriers to health care were not found to be associated with lower perceived health status.

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CHAPTER I

Introduction

In the United States, the overall rate of many preventable health problems is disproportionately high in rural communities per capita as compared to urban areas. The U. S. government has long been aware of the discrepancies that exist in health care services for rural areas. Early in the 1900s, nursing took an active role in reaching out into rural areas to improve sanitation, promote healthy living, and attempt to decrease the infant mortality rate. In 1912, Lillian Wald, a registered nurse, was instrumental in establishing the role of the American Red Cross in rural areas through the Rural Nursing Service. Following the success of these nurses, Mary Breckinridge formed the Frontier Nursing Service in rural Kentucky. The effectiveness of these nursing services was documented by a decrease in the infant mortality rates and improvement in general family health status (Bigbee, 1993). Similar health issues persist today. Access to health care is limited by the inequitable distribution of nurses and physicians in the rural areas and frontier spaces. A large percent of the elderly live in rural areas, and poverty is persistently prevalent among rural persons of all ages (Bushy, 1991).

A slow shift in national policy from remedial care to preventive care has opened opportunities for nursing to impact the health status of our nation's rural communities. Multidisciplinary action plans with government support are a favored

solution (Beaulieu & Berry, 1994). Many believe a family approach to rural health care will be the key to successfully caring for our rural population (Anderson & Yuhos, 1993). However, to effectively influence rural health care and the health status of rural residents, thorough data collection must first be conducted to outline and identify the perceived needs of residents in the rural community.

The U. S. Office of Technology Assessment (OTA) has published survey results in several of their publications on rural healthcare. Health Care in Rural America describes rural residents as having more injuries, more acute illnesses, and more chronic conditions than urban residents have (1990). They also note that serious injury or death occurring as a result of motor vehicle accidents is two to three times more likely in a rural versus urban setting (OTA, 1989). However, access to care for both emergency services and medical care is limited.

In a summary of U. S. rural survey results, it was found that the average distance traveled to access medical care and emergency care was nearly double that of urban residents (Edelman & Menz, 1996). Priority issues identified by Parker et al. (1990) as significant to the rural communities included closure of rural hospitals, high concentration of elderly, shortage of primary care providers, high poverty levels, lack of health care education, distance to clinics, and the characteristics of rural people that influence their health care seeking behaviors, lifestyles, and illness prevention. National surveys have helped to establish the validity of these problems for rural areas in comparison to urban areas.

In the U. S., one in eight families live in poverty (USDHHS, 1990). In rural areas, one in five families are at or below the poverty level. Nationally, the elderly

represent about 12% of the total population. However, in rural areas, the elderly represent nearly 25% (Clemen-Stone, Eigsti, & McGuire, 1995). These two factors alone, coupled with the lack of primary care providers, create health concerns for the U. S. rural populations. Additionally, national health care costs are increasing rapidly with the cost of health insurance in 1997 increasing as much as 14% in Michigan alone (Michigan Medicine, 1999). Access to care issues are critical to implementing disease prevention services to the rural residents and provision of these services to all people is a Healthy People 2000 goal (USDHHS, 1990).

In 1990, the U. S. Department of Health and Human Services (USDHHS) conducted a major survey of rural communities that revealed startling facts. Published in 1991, Prevention Resources Guide: Rural Communities provided data that facilitated the development of organized efforts to establish a plan of action. This plan was focused on illness and accident prevention. Across the nation, task forces have been organized to target rural health care and focus on research to facilitate community assessments. These assessments have been instrumental in allocating more federal and state government funding for the underserved rural areas by illustrating the need for better health care services. Ethnic groups, minority populations, economics, and terrain were found to be widely diverse for each rural area. The state task forces have designed their recommendations to fit the needs of the rural population unique to the individual state.

In 1995, a Michigan task group issued a report that made recommendations specific for the state of Michigan (Task Group on Rural Health, 1995). This report summarized the challenges ahead for rural communities. Certain themes were

consistently addressed in the content of the report. First, the fragility of the rural health care infrastructure was displayed as a major deterrent to the availability of services. One example of this is the difficulty recruiting physicians and other primary care providers into rural communities. The report urges health care reform that calls for collaboration of services and stabilization of the rural health care system.

However, it acknowledges an important issue. Rural health care reform needs to involve the rural population if it is to be effective (Bushy, 1991). The rural population has an individual spirit that is unique to the culture, environment, and economics of each area. Obtaining involvement from the rural people is not as simple as changing the school curriculum to increase health awareness. A closer look at a rural community is essential before attempting to develop and implement plans that are sensitive to the unique needs of each rural area.

Purpose

The purpose of this research effort was to: (1) describe the association between preventive health behaviors and potential barriers to health care for rural residents; (2) describe the association of formal level of education with the perception of health status of rural residents; and (3) to describe the relationship between potential barriers to health care and perceived health status. At present, rural America has been under-represented in research on health issues (Bushy, 1991). This study will expand on existing research in similar rural areas that has served to prompt attention of the federal and state governments. Thus, rural research may influence policies aimed at long term solutions to these healthcare issues (Bigbee, 1993; Long, 1993; Ricketts, 1997).

CHAPTER II

Conceptual Framework and Review of Literature

Conceptual Framework

Leininger's Cultural Care Theory was first published in 1985 by Madeline Leininger and was a consummation of her education in both nursing and anthropology from the early 1960s (Wesley, 1992). Her early work resulted in transcultural nursing taking a firm place in contemporary nursing theory and practice. Over time, Leininger has refined her theory and model and is recognized as the founder of transcultural nursing. Leininger's theory provides a framework that allows for thorough study of a populace in terms of cultural characteristics. She encourages assessment of the target group the nurse is seeking to give care to and views it as essential to achieving culturally congruent care (Welch et al., 1998).

Care is the basis for Leininger's metaparadigm of her theory. Leininger's theory addresses application of culturally congruent care by the sub-culture of nursing (Cohen, 1991). Human caring is the central concept that Leininger views as the essence of nursing. Culturally based care is a predictor of how effectively wellness is enabled (George, 1995). The individual is seen as a human capable of giving and receiving care with some aspects of care being universal across cultures and other aspects being unique or in variance to other cultures.

Health is defined not only as a state of well-being, but as the ability to perform daily roles. Health beliefs, health patterns, health systems, and health practices are diverse and culturally defined (Leininger, 1995). Therefore, cultural context must be given high priority when attempting to give health care to a specific group.

Leininger's theory defines culture as the learned, shared, and transmitted beliefs, values, norms, and lifeways of a particular group that guide thoughts and actions (Leininger, 1995). Culture is well documented as an influential factor in determining an individual's choices about lifestyle and health.

The Sunrise Model was designed by Leininger to clarify her cultural care theoretical concepts. Worldview serves as the sun depicted in her model and consists of social structure and environment. Social structure includes the elements of religion, education, and economics. Environment can be an event, an interaction, an experience or the physical world around the individual (1995).

Leininger's concept of ethnohistory is described as the past facts, events, and experiences that contribute to the worldview of a particular culture over a short or long time span. Culture care diversity refers to the variability and/or differences in meanings, patterns, values, lifeways, or symbols of care within or between collectivities that are related to assistive, supportive, or enabling human care expressions (Leininger, 1995). Culture care universality is the common, similar, or dominant uniform care characteristics manifest in many cultures and reflecting ways in which to care. Leininger views nursing as a phenomenon resulting from deriving the needs of the individual or group and the method by which cultural care is delivered (Cameron & Luna, 1996).

The current study utilizes the concept of worldview and other specific concepts from the theory including culture, ethnohistory, culture care diversity, and culture care universality. Worldview is particularly integral to the current study because rural health care behaviors are seen as outcomes of cultural attitudes and beliefs. The culture care universality concept applies to the current study population because the subjects' background is comparable to many groups of Midwestern American people living in rural areas. However, each rural region is unique and diverse because its worldview arises from a different set of environmental factors. Knowledge about the diversity of a region alerts the researcher to the probability of differences existing in both environment and social structure, which influence health issues.

Not specifically included in the current study are the Leininger concepts of caring, culturally congruent care, generic (folk or lay) care, culture care repatterning, culture care accommodation, nursing, and professional care system. These concepts deal primarily with outcomes of assessment and could be applied to future research on this population to further enhance understanding. Due to the limited nature of this study, these concepts are not addressed.

In summary, the theoretical constructs of the Sunrise Model are supplied by Leininger to aid in the application of her theory of Cultural Care. According to Welch et al. (1998), the theory generates many domains of inquiry for study. Most commonly, the researcher looks at the worldview and ethnohistory when designing a study to examine the effect of culture on a population or group (Leininger, 1995). It is the general data on social structure, environment, and life events that continue to be

lacking on the rural populace. The purpose of the current research was to specifically examine the preventive health behaviors, potential barriers to health care, perceived health status, and level of formal education of a northern midwestern rural population. These concepts are illustrated by looking at the current literature available.

Review of Literature

Since the early 1970s, transcultural nursing research has been steadily evolving into an expanding knowledge base about culture as it applies to health and well-being. As a relatively new discipline, there is a vast amount more to learn than has been discovered, which is challenging and exciting (Leininger, 1995). The concepts are utilized in numerous studies about rural populations, not specifically using Leininger's theory, but closely following the basic construct of deriving culturally congruent care through research. The selected literature review focuses on the health of rural residents and rural culture. The authors investigate the level of formal education achieved by residents and how education relates to other cultural factors such as health status and health behaviors. Potential health care barriers, which reflect worldview (both social structure and environmental context), are also reviewed.

Rural culture and health. The rural culture is a constantly changing entity that is specific to each rural area with certain uniform characteristics that can be found to exist in most rural populations. Although many definitions of rural focus on quantitative data, a more accurate view is reached by defining the economics, social structure, and demographics of an area (Yawn, Bushy, & Yawn, 1994). Culture is a widely interpreted concept that can be influenced by other related concepts. The

worldview of the rural area, which considers both environmental and social structure, can affect how a rural culture evolves. The ethnohistory of the residents also has a direct relationship to the values, beliefs, and mores of the rural area. Through individualized rural community assessment, the health care needs can be identified and specific care modalities adopted that consider the unique health care needs of rural populations (Anderson & Yuños, 1993; Bigbee, 1993; Bushy, 1991; Bushy, 1993; Doty, 1996; Long, 1993; Yawn et al., 1994).

Many rural communities suffer from poor economic conditions related to the lack of industry and low wages, which in turn directly affect the rural culture. Wakefield (1990) described rural conditions in a review of government research on rural health, which showed one in five rural residents living in poverty. The problems identified in the Wakefield article match many of those found by the rural task forces throughout the United States. The problems include shortage of rural health care providers, access to care issues, unemployment, cost of insurance, and health education needs.

Spector (1996) describes poverty as a self-perpetuating cycle of poor economics, poor education, subsistence living conditions, high birth rates, and poor production which then reoccurs and contributes to health promotion and preventive behaviors not being valued or affordable to the person living in poverty conditions. Given this situation, rural residents are generally less educated, underinsured or uninsured, and more prone to chronic disease (Beaulieu & Berry, 1994; Bushy, 1991; Yawn et al., 1994). Adding to the complexity of the problem is the economic environment of the rural area, which is more likely to depend on a single industry that

is high risk for injury, such as mining, farming, and forestry. All these factors combine to influence the nature of the rural cultural environment. This environment affects the outcome and response to health care interventions aimed at health promotion and disease prevention.

According to Bigbee (1993), rural residents rate their health as fair or poor 20% of the time. There is a general outlook that sways the health care seeking behaviors of those who live far from traditional health care services. Overall the rural sub-culture encourages a casual, brave, and tough approach to illness and especially to injuries (Bushy, 1991). Information is gathered by word of mouth and not necessarily from accurate sources. Rural populations are characterized as self-reliant and use informal sources of social support from neighbors and friends (Lenz & Edwards, 1992). The self-reliance is thought to partly rise from the isolation and distance to services that many rural communities face. There also exists a phenomenon known as insider-outsider behavior. Rural residents tend to live, work, and socialize in the same locality for many years and display prejudices against “new-comers” that might last 10-20 years. This insider-outsider effect is felt to be responsible for the preference of rural dwellers to listen to and receive information from health care providers who are “insiders” (Lenz & Edwards, 1992).

Carson et al. (1993) related health status to barriers to health care in a descriptive, quantitative study. The researchers hypothesized that hardiness in farm and ranch families was an influencing factor on health promotion and disease prevention behaviors. The researchers wished to illustrate that rural families may be at risk due to their unique stressors and strains. These stressors and strains were

identified as social and geographic isolation, unstable incomes, and lack of or distance from community resources. The variables investigated included many barriers to health care that coincide with the other rural studies. This study focused on direct and indirect effects of stressors on health status and family dynamics. Stressors were defined as life changes and daily frustrations in relation to physical illness and relational difficulties (family discord and distress) reported by 188 farm and ranch families. They found that the social and environmental factors unique to these families had a strongly predictive influence on health status, illness, discord, and distress. There were several major limitations to the study, including the problem of assuming that one or two members reflected the view of the whole family, and the lack of generality of the study, which was limited to rural families in southwestern Idaho who wished to participate.

Formal level of education. A rural culture can be further described by the level of education encountered in the population. Fewer than 11% of rural residents have completed college and as high as 57% have less than a high school education in some communities. Women in rural areas have fewer years of education than men, which may be due in part to the fact that their role is viewed as traditional, often as domestic and care-giver in nature (Bushy, 1993). Also, educational centers are not located in rural areas, thus the availability of advanced education for both women and men is lessened. Rural culture is strongly influenced by both the lower educational level and poverty, which contributes to poor prevention of health problems and greater incidence of chronic disease (Beaulieu & Berry, 1994).

Potential barriers to health care. Social structure variables have been frequently studied in the literature. In terms of rural economics, Mueller, Patil, and Ullrich (1997) studied insurance status as a factor of utilization of health care services. They collected data from 1,235 households in Nebraska and made comparisons between the rural and urban homes. They found that rural residents went longer periods without insurance. The authors correlated lack of insurance to fewer physician visits. The researchers also discovered that lack of insurance is becoming more common in the 1990s than in the previous decade for both population groups. However, no significant difference was found in the actual rate of uninsured, although duration without insurance influenced health status adversely and was more predominant in rural areas. Health status was determined by the number of illnesses identified by the respondents. Limitations include the sample being from only one state, possible other influences on utilization such as distance to clinics, and differences in size of industry between urban and rural areas. Rural areas tended toward smaller employers who are less likely to provide insurance due to high premiums.

In a similar study, Krlewski, Liu, and Shapiro (1992) researched the health insurance coverage for farm families in Minnesota in a descriptive, correlational study. They investigated 1,482 rural farm families and found that the families were paying 15 to 20% more than urban Minnesota families for their insurance with the majority having limited, high deductible, and co-insurance provisions. Interestingly enough, this study did not find differences in satisfaction with health care services or accessibility despite the insurance differences that were found to exist. The

researchers proposed that cultural differences in perception of health may have accounted for the apparent satisfaction felt by the rural subjects. They surmised that cultural considerations served to also change perceptions of access to care, since rural persons expect to drive further for services or be served by few providers. The study was limited by many persons declining to participate in the full telephone interview, which the authors admit was lengthy.

Frenzen (1993) also used insurance as the focus of his study based on 1990 census data. To summarize, Frenzen identified key factors found in the economic differences between urban and rural populations that influenced health insurance. Availability of employment at large industries, which are more likely to provide insurance benefits, was one significant difference. Only 53% of rural residents had such access and income to enjoy health care coverage at work compared to 62% in urban areas. Sixteen percent of rural residents had no coverage at all, while 9% qualified for and received Medicaid. This comparison study utilized the 1990 census figures and only looked at health insurance coverage and income.

Kassab, Luloff, and Kelsey (1996) also examined insurance status and income but used a telephone survey of a randomly selected sample of elderly residents from four rural counties in Pennsylvania. This was aimed at identifying the influence of income and insurance status on health care for the rural elderly. They found low income was a barrier to both physician visits and dentist visits. Respondents with Medicaid coverage were less likely to visit a doctor than respondents with private insurance or Medicare only.

The importance of health insurance as an access to care factor was well supported in a descriptive, correlational study conducted in California with a sample group of 6674 persons (Stewart et al., 1997). The data were collected from surveys given to both Spanish-speaking and English-speaking adults. Access to health care was measured on availability, comprehensiveness, continuity, and communication. Analysis of variance was used to evaluate for mean differences in self-rated health care access. Respondents were divided into ten groups that were sorted by varied levels of insurance. Pairwise differences between the groups were evaluated by two sample t-tests. Having insurance was found to be significantly related to access ($p = < 0.001$).

Also of interest is a study done by Comer and Mueller (1995) on urban versus rural access to health care in Nebraska. They surveyed a random sample of 6000 households. Health status was measured by asking the respondents to chose either excellent, good, fair, or poor to describe their health status. Access to health care was evaluated by existence of a primary care provider, utilization of health care services, and distance traveled to obtain health care. The researchers actually found that access to health care, health status, and health insurance were better for rural residents than urban residents, instead of an opposite finding of the national government (OTA, 1990). Comer and Mueller concluded that each state needed to do separate needs assessments in order to determine the status of the rural residents. Possibly unique to this rural Nebraska population, income was not significantly different from the urban residents due to agriculture being the state's primary industry. The costs of health care were relatively low in these rural areas and the distance traveled to reach health

care services failed to impact utilization. The authors therefore suggest that their findings may only be generalized to similar rural states and not to all rural populations. A limiting factor was that the survey was conducted by telephone, which excluded households without telephones who might be poor or isolated.

Beck, Jijon, and Edwards (1996) centered their study on barriers to health care. The study used a descriptive, correlational approach to sex, perceived health status, and perceived financial barriers to care. The random sample represented 197 households in Appalachia. Personal interviews were conducted with 207 women and 178 men using the Duke Health Profile (1990) to measure the perceived health status. The Duke Health Profile measures perceived health status by asking 17 questions that pertain to mental, physical, social, and general health. Self-esteem is also assessed as a health variable. Dysfunctional measures include anxiety, pain, depression, and disability on the profile. Level of health is then scored from 0.0 or poorest health, to 100.0 or best health based on the responses to the questions. Analysis of variance, t-tests, and descriptive statistics were used for data analysis. They found that women perceived financial barriers to health care significantly more than men ($p < 0.01$) and that both women and men with perceived financial barriers experienced poor health ($p < 0.01$). Although the study may lack generality to the rest of the rural population, the tool has a high reliability and validity record that adds credibility to the results.

Several studies examined the relationship between chronic disease and access to care problems. Dansky and Dirani (1998) found significant differences between non-rural and rural diabetics with a fewer number of physician visits and more home health visits in the rural diabetics. The authors suggested that additional research was

needed to study the services required to accommodate the chronic disease management of rural populations. The sample size was adequate at 6698, but included only recipients of Medicare.

Lishner, Richardson, Levine, and Patrick (1996) summarized literature on access to health care for people with disabilities and chronic health problems in rural locations. There were 86 articles that met their criteria for inclusion. The articles reviewed included data on all age groups. They found a lack of data on the needs of chronically ill, rural people and a substantial number of access problems for this high-risk group. Again, further rural research was urged on these issues to address the needs of this population.

Ramsey, Edwards, Lenz, Odom, and Brown (1993) conducted an interesting study that involved care access through a nurse-managed clinic and included chronic health problems as a variable. The purpose of the study was to describe the common health conditions that were treated in the clinic and to investigate the satisfaction of the patients with the care they received. They included 2106 clients in the sample group. The setting was a small rural community in Tennessee located in the Appalachian Mountains. Although their data on acute care problems were good, the number of cases in the chronic group accounted for only 3.9% of the clients seen. Of those, hypertension and musculoskeletal problems ranked as the most frequent chronic conditions. The authors acknowledge the limitations of this study in this category, noting that only 3% of the clients seen were aged 66 or older when chronic problems are more likely to occur. Significantly, they found that 49% of the patients had no health insurance. Medicaid accounted for another 30%. The affordability of

health care for this rural community was one of the major issues addressed by the authors when evaluating their study. Patient satisfaction with the nurse-managed clinic was highly rated by 97% (n= 101) in a random telephone survey.

Research including potential barriers to health care, health status, level of formal education, and preventive health behaviors. In the following research studies, multiple concepts central to the current research appear in bold type to facilitate identification. These are complex community assessments that examine the impact of cultural based behaviors on health and how they do or do not differ from other populations. This illustrated the uniqueness of the rural group targeted in the study. Because these studies are more closely related to the current research, they will be examined in depth.

Rosswurm, Dent, Armstrong-Persily, Woodburn, and Davis (1996) performed both a qualitative and quantitative exploratory study on rural patients in Southern Appalachia. They used open-ended interviews to gather data from 257 randomly selected adult medical-surgical patients who were hospitalized for at least 2 nights in one of eight different hospitals. They excluded from the sample patients who had cognitive or psychiatric problems and those who were terminally ill. Two weeks following discharge, nurse interviewers reached 199 of the group to complete telephone interviews as well. Home interviews were conducted on 28 randomly selected native-born Appalachians from the original sample group another two weeks later. The data were used in triangulation with additional data collected from 203 nurses and 79 physicians who provided care to the patients in the study. The value survey used included 10 questions from Rokeach's (1973) 18-item Values Survey.

Results of the basic demographics found 58% or 149 patients in the sample group to be from rural areas (Rosswurm et al., 1996). These rural residents had a lower level of education, with 32% having had only a grade school education as compared to 22% of the urban residents. Gender had a very significant role in determining both profession and education. Of the 153 female patients, 20% had only a grade school education compared to 7% of the 104 male patients with that same level of education ($p < .02$). More females than males were employed part-time, were homemakers, or widowed (Rosswurm et al., 1996). A potential barrier to health care may involve the distance traveled to reach health care services. Rural residents drove an average of 25 minutes to reach their physicians while urban residents averaged 14 minutes.

Prior hospitalizations (62% had five or more previous admissions), ethnic background, health care interventions tried at home before seeking care, how fearful they were of being hospitalized, and concerns that they had about going home were all assessed in the data collection. In addition, the patients' values were described and compared to those of the health care professionals. The patients' perception of health was being independent and not being a burden to their families. Family was valued most with extended family often living in the same area for generations. In the rural sample group, 95% had help at home with adult children often living on the same land. In the qualitative data gathered in the home interviews, family, home, and the land were the main priorities identified by the subjects (Rosswurm et al., 1996).

In the values comparison, the researchers found that only 34% of the physicians were native to the Appalachian area and 27% were foreign-born. The

“outsider” status of the foreign physicians may have influenced their responses to values questions. Nurses were mostly native to the area (73%) and their values most closely matched those of the patient group as measured by their responses to the survey (Rosswurm et al., 1996).

Certain beliefs, found in the subject group, influenced their **health care behaviors**. According to Rosswurm et al. (1996), there is a documented Appalachian cultural trait of fatalism with adaptive acceptance. The individual believes that they lack of control over illness and are unable to prevent illness, but can only cope with the consequences. In this study, 36% did nothing to relieve their symptoms. The most common complaints were pain (chest, abdomen, or joints) and difficulty breathing. The patients interviewed did not identify any lifestyle changes in **preventive health behaviors** during their recovery at home following hospitalization. Only one person mentioned smoking cessation. Health promotion was limited to following prescribed medication routines and treatments, rather than weight reduction, low fat diets, exercise, and avoidance of substance abuse. Also, the subject group was found to under-utilize community resources. Only two had visiting nurses coming to their homes although others relied on family members for care.

Limitations included the number of patients who chose not to participate and that there were several different interviewers conducting the data collection. Telephones were utilized to interview those subjects contacted in the initial two week time period. Therefore, the poorer sample subjects without telephones were missed. When considering the health status and lifestyle risks, one should remember

that this was a convenience sample of hospitalized subjects with comorbid conditions and cannot represent southern Appalachia as a whole (Rosswurm et al., 1996).

An assessment was made in 1996 to identify health care needs of a specific cultural populace in rural Ohio. The most important health care issues identified by the participants were those related to **potential barriers to health care** such as financing and cost of health care services, cost of insurance, and concerns associated with characteristics and behaviors of rural residents (Birdwell & Calesaric, 1996). This study was conducted in two stages. The first stage included 12 focus groups in six rural areas consisting of six groups of consumers and six groups of health care providers. There were a total of 53 consumers and 53 health care providers who participated. The focus groups were moderated by graduate students who gathered qualitative data during the discussions. The second stage consisted of a questionnaire that was mailed to all focus group members and to individuals invited to the original focus groups who were unable to attend. Again the data were qualitative and required analysis to identify themes.

In the analysis of this descriptive, qualitative study, Birdwell and Calesaric (1996) discovered that the rural residents demonstrated some care concerns that are universal to all groups, such as access to health care and cost of both physician visits and medications. Concerns identified by the consumer groups that were thought to be unique to rural residents were centered on occupational hazards of farm life, such as lack of first aid skills and the need for tetanus boosters. For four of these issues the mean values were significantly higher for the rural consumers than for the provider groups. These included the high incidence of concern about agricultural and farm-

related hazards and accidents ($t = -2.36$, $df = 186$, $p = 0.019$), need for tetanus updates ($t = 2.22$, $df = 167$, $p = 0.028$), food safety ($t = 3.30$, $df = 180$, $p = 0.0001$), and problems with rabies ($t = -2.63$, $df = 169$, $p = 0.009$). Provider groups were more concerned with lack of adequate housing, lack of transportation, and lack of telephones. Both groups shared concerns with lack of health care providers, but providers identified this issue with a significantly higher mean value ($t = 3.64$, $df = 200$, $p = 0.0004$).

The researchers analyzed the data to establish the list of needs. When summarizing the results of the study, Birdwell and Calesaric (1996) described the rural residents' needs as having characteristics that were both similar to any population and yet unique to rural experience. Clearly one limitation of the study is that the participants were not randomly selected but invited to be part of the focus groups. There were several focus group moderators who gathered the information at the sessions and this may have influenced the content and the interpretation of the input given by either the consumers or the providers. Generalizability is again limited to Ohio rural residents only. As in similar studies already cited, the authors encourage individual community assessments of specific needs in rural areas, rather than relying on national data.

In 1997, the Grand Traverse Regional Community Foundation conducted an extensive community assessment of five counties that provided data on the current study's county (Quality of Life Index for the Grand Traverse Region, 1997). One of the strengths of the study was that it gathered subjective data describing the public opinion of the local health care system. Local residents rated their system at 63%

saying it was poor to average. **Potential barriers to health care** were examined through several study questions. The estimated percent of people without any health insurance was 11.8% or 1715 persons. Twenty-one percent said they did not have health benefits through their employer. Other survey indicators measured **disease prevention behaviors** and health promotion in the county. The smoking prevalence was 29% amongst rural residents and the percent of rural residents who were overweight was 36%. Heart disease was the leading cause of death. However, despite the large number of chronic health problems, the ratio of primary care physicians to population in the rural county was 1: 3434 compared to bordering Grand Traverse County at 1: 787. A major limitation to the survey was that it mainly reported nominal data. However, the published data were likely aimed at a general audience in the community and descriptive statistics are easily understood. Overall, this general data correlated well with the national averages for rural communities and provided a base for the current research to expand on.

In May of 1996, a community assessment was conducted of 21 counties in northern Lower Michigan including the rural county in which the current study takes place (Northern Michigan Community Health Assessment 1995 Survey Data [NMCHA], 1996). The study was the result of a task force effort to determine the **health status** of those counties in terms of meeting the Healthy People 2000 initiative (USDHHS, 1990). The methodology utilized was a survey conducted by telephone with at least 300 participants from each of the 21 counties and involved collaboration of the health departments of each county and the local hospital networks. The survey contained 88 questions and claimed to be the first of its kind and magnitude for a

rural area in the country. Data were collected on **potential barriers to health care** including income, insurance status, distance to primary care provider, and ratio of care providers to population. **Formal level of education** was also assessed in the survey. Each county was described in terms of chronic health problems, experiences with the health care system, specific lifestyle behaviors (such as smoking and obesity), and health care promotion and **prevention behaviors**. These variables were compared to other northern Lower Michigan counties and then priorities were established based on the data.

Education level was found to have a negative correlation with tobacco dependency, **health status**, and **health promotion behaviors**. In the same county that supplies the sample for the current research, 30% of adults had not completed high school (U.S. Bureau of the Census, 1990) and over 50% of families were living in or near poverty (median income \$15,000 or less for poverty, \$25,000 or less for near poverty). The northern Michigan study also revealed that 11.8% of the residents in the sample rural county were without health insurance and 13% failed to obtain health care when needed in the previous year due to the cost of the visit. The NMCHA study also addressed **preventive health behaviors** including alcohol and substance abuse, parenting skills, chronic disease management and recreational activities for youth, seniors, and families. However, the action plans were designed by the task group based on predetermined topics and may not have addressed the priorities of the rural people themselves. This was somewhat offset in the selection of task group members from a wide variety of community members including students, business leaders, and local health care workers. The income and educational level of

the task group is not given, leaving doubts about the viewpoint they might already have had which could have influenced how the data were weighted in importance. Since the task group contained mostly community leaders, this could be a very significant factor limiting the validity of the results. Once again telephones were a necessary commodity to be included in the survey as a participant and may have omitted the very poor (NMCHA, 1996).

Summary and Implications for Study

The literature review outlines research that explores the concepts of Leininger's theory as applied to rural perspectives and points out several key areas to investigate in the current study. The literature that focused on community assessments of the target population failed to evaluate relationships between most of the variables assessed. This may have been an omission in reporting rather than a lack of analysis, which would serve to skew the report toward issues the researchers chose to address. There were some analyses made between demographic variables in the Northern Michigan Community Health Assessment (1996) such as poverty and age. However, the Quality of Life Index (Grand Traverse Regional Community Foundation, 1997) mostly gave descriptive statistics that were not correlated to any other survey data. Therefore, the subjective data on health status and perceptions of services were not examined in relation to income, environment, education or other variables. However, both community assessments identified incident rates for health promotion and illness prevention behaviors.

Both The NMCHA survey (1996) and The Quality of Life Index (1997) assessments used telephone interviews for part of their data collection, which was

identified as a limiting factor in rural samples in particular because the more remote or poor families may not have telephones. Many of the other studies reviewed also used some form of telephone survey in all or part of their data collection process (Birdwell & Casesaric, 1996; Comer & Mueller, 1995; Kassab et al., 1996; Mueller et al., 1997; Rosswurm et al., 1996; Stewart et al., 1997).

The issue of lack of generalizability cannot be resolved. Several authors encouraged individual assessment of rural areas, pointing out the fact that the separate areas are inherently different in their needs and problems (Birdwell & Casesaric, 1996; Comer & Mueller, 1995; Kralewski et al., 1992; Mueller et al., 1997). As illustrated in the previous studies (Birdwell & Casesaric, 1996; Rosswurm et al., 1996), there can be major differences between rural residents and health care providers in their perceptions of health care needs. Leininger (1995), Bushy (1991), and Clemen-Stone et al. (1995) also gave adamant arguments on the necessity of assessing each community before attempting to design or administer health care services.

In summary, there are certain variables that influence access to health care in rural communities. These variables in turn impact the seeking of health promotion and illness prevention services. Subsequently, health status is linked to these same behaviors. The rural resident is thought to experience cultural diversity unique to each area. The current research has supported this viewpoint by selecting a limited geographical area in the sample county. Most of the literature suggests that rural residents suffer from inadequate health care as documented in Healthy People 2000 (1990). The current study includes implications for nursing by provision of a broader

knowledge base for giving culturally congruent care to rural residents in the study area. The current study also served to build on the existing research by providing data from households independent of the presence of a telephone.

Research Questions

The research questions tested in this study are: 1) Do rural residents with fewer preventive health behaviors have more potential barriers to health care, 2) Do rural residents with higher levels of formal education perceive their health status higher than those with lower formal education levels, and 3) Do rural residents with more potential barriers to health care rate their health status lower than those with few or no barriers to health care?

Definition of Terms

Preventive health behaviors are the seeking of health promotion and illness prevention care by the rural residents in the past year by way of a yearly primary care provider visit, prior mammography, and cholesterol screening. It also refers to the lack of any type of tobacco use in the study population. Based on the conceptual model, these preventive health behaviors are influenced by the rural culture and are affected by potential barriers to health care. They are a result of the learned, shared, and transmitted health values, beliefs, norms, and lifeways of the adult, rural residents in the current sample populace.

Potential barriers to health care refers to the lack of a primary care provider for the rural resident, the distance in miles to reach a primary care provider, the lack of health insurance, and inability to pay for services needed. From the Leininger model, these are past facts, events, and experiences that describe, explain, and

interpret the rural residents' health care behaviors over the past year and are included in the ethnohistory and worldview of a culture group.

Perceived health status is defined by the participants as their own perception of their health. This is described in four general categories from which the survey respondents choose one that most closely described themselves. In the conceptual model, health status is a part of both worldview and ethnohistory. Perception of health status is influenced by the individual's cultural beliefs.

Formal level of education is determined by the last year of education completed by the participant in the current study. In the Leininger model, education is part of the ethnohistory and the worldview of an individual. Education level may influence preventive health behaviors, potential barriers to care, and perceived health status.

CHAPTER III

Methods

Research Design

A descriptive, correlational design was used for this study. The sample was asked to respond to a questionnaire which included demographical information, perceived health status, preventive health behaviors carried out in the past year, and potential barriers to obtaining health care. This design was chosen to add to previous research performed in community assessments completed in 1995 and 1997 respectively. Data for the study were gathered over a four-week period by the questionnaire that was hand delivered to random households. Nearly all the questionnaires were self-administered.

Sample and Setting

A northern mid-western county that meets the government classification criteria for rural was the setting for this study. According to 1990 census, there were approximately 13,500 residents in the county. Individuals eligible to receive the forms were anyone 18 years or older living in the southern sparsely populated half of the rural county. Only one adult in a household was asked to participate in the survey.

The per capita personal income in this northern mid-western county in 1994 was \$15,000 and the average unemployment rate was 6.8%. The major industry in the area is gas and oil related businesses, two automobile parts factories, and heavy

construction. There is only one health care clinic in the county with four physicians, one physician's assistant, and one nurse practitioner available for patient visits. The mean number of minutes traveled to reach medical care is 27 minutes (NMCHA, 1996). Two villages are large enough to support a gas station and one post office. The only other communities are tiny villages consisting of clusters of houses at crossroads scattered about mostly abandoned farmland. Some families continue to farm on property that has remained in their possession for generations. The land is mostly sandy with numerous pine plantations. There are no formal recreational facilities except for a combination bar and bowling alley. Two rivers flow across the southern half of the county and are used for fishing and canoeing. In the entire county, 74% of the land is forest (Grand Traverse Regional Community Foundation, 1997).

Table 1

Sample Demographics: Age (n = 156^a)

Age (M = 51.7, SD = 17.1)	N	Percentage
19-30 yrs	16	10.3
31-40 yrs	31	19.8
41-50 yrs	31	19.8
51-60 yrs	29	18.6
61-70 yrs	20	12.8
71-80 yrs	22	14.1 %
81-92 yrs	10	4.5

Note. ^a Missing data was found on 3 of the surveys returned.

The sample population (n=159) included 110 women and 43 men with 6 respondents not specifying sex. The range of age was 19 to 92 years old. Table 1 displays the age demographic data collected on the survey tool. All age groups were well represented in the sample. Those over age 60 represented 31.4% of the sample. Respondents between the age of 40 and 60 made up the largest group of 38.6%, while those under 40 years old represented the remaining 30%. Table 2 lists the descriptive statistics for the variables used to further characterize the sample group. Thirty four percent of the sample had resided in the sample county at least 30 years. Those residing less than five years in the sample county represented 14.5% of the sample group. The mean of 25.8 years with a standard deviation of 20 years represented 69.8% of the total sample and was felt to support the residency status of the sample well.

Table 2

Descriptors of Rural Sample (n = 159)

Variable	n ^a	Mean	Range	SD
Years resided in county	159	25.8	79	20.9
Miles traveled to health care	154	19.9	78	13.3

Note. ^a Missing data occurred on five surveys.

The survey data described some of the health problems of the rural residents who responded to the survey. Of the respondents, 61% identified at least one major health problem. However, many of those with health problems still rated their health status as good. The following table depicts the results of queries on the survey regarding the five categories of health problems.

Table 3

Health Problems (n = 97)

Health Problem	Frequency	Percentage of Total Sample (n = 159)
Hypertension	42	26.4
Heart disease	24	15.1
Diabetes	11	6.9
Asthma	9	5.7
Other ^a	59	37.1

Note. ^a Many written responses were given, including lupus, multiple sclerosis, chronic back pain, cancers, hypo and hyperthyroidism, arthritis, hyperlipidemia, emphysema, blood disorder, allergies, bladder infection, weak legs, aneurysm in legs, panic attacks, migraines, acid reflux, stomach pains, bronchitis, CVA, fibromyalgia, and Parkinson's.

Instrument

The survey questionnaire was modeled after a survey tool utilized by Comer and Mueller (1995) that contained basic questions about health status, potential barriers to care, and primary care provider availability. Comer and Mueller derived their questions from national surveys. The current study's instrument was developed by the researcher by redesigning questions from Comer and Mueller's tool and including several questions based on topics from the local NMCHA study published in 1996. Comer and Mueller looked at their questions for validity and found that they were within the scope of similar questions utilized on U. S. government surveys designed to collect comparable data. The questions asked for recall of the past 12 months, since accuracy significantly drops after 50 weeks (Comer & Mueller). Analysis of the question regarding having a regular source of care was compared to other research and found to have only a 0.6 % of error. The other questions were single response in the affirmative or the negative in regards to health promotion and illness prevention behaviors and also appeared in similar format in the NMCHA. Some of the content was replicated to use for comparison of the current study to the previous community assessment data.

The current research tool included three categories of responses (Appendix A). The first four questions were demographical and limited to age, sex, formal education level completed, and length of residence in the sample county. The second category of questions was specific to health care access and involves potential barriers. These barriers included the number of miles driven to see a physician, nurse practitioner, or physician's assistant (question # 7), whether or not the resident had an

established primary care giver (question # 6), and ability to pay for services (question # 8). Insurance status was determined by inquiring as to whether or not they had a current policy (question # 14). Utilization was assessed in a single question regarding number of times they visited a health care provider in the past year (question # 5). In the last category, the participant was asked his/her perception of their health status (question # 9). Also assessed was the presence of health problems in the past 12 months (question # 10), as well as three specific disease prevention behaviors: cholesterol screening (question # 11), use of tobacco products (question # 12), and recent mammography (question # 13). These three prevention behaviors were chosen for several reasons. Accessible programs for mammography and cholesterol testing are in place in the county and available to low income persons. Also, the investigator wished to choose issues that were readily understood by the rural population to signify health status and prevention methods while keeping the measurement tool simple.

Data Collection Procedure

Prior to data collection, permission to conduct the study was obtained from the Human Research Review Committee of Grand Valley State University (Appendix B). A letter was used to introduce the study to participants and to explain why the study was being done (Appendix C). In addition, participants were assured that the responses were voluntary and would be confidential as well as anonymous. They were informed that sending the questionnaire back would signify consent to participate in the study. It was possible that the survey could generate stress or emotional anxiety resulting from self-assessment. Any stress or anxiety was expected

to be transient. Conversely, a possible benefit might have been produced by increased awareness of the importance of mammography and cholesterol screening. No other risks were expected to result to the participants in the study. The questionnaires were identified by numbers that were assigned after the forms were returned. No names were attached to any of the materials.

The surveys were randomly distributed by hand by the researcher to 10% of the households in five townships included in the study. The population data at the time of the 1990 census was used to determine 10% of each township's population. The actual number of surveys distributed in a township was determined by a population percentage to promote a fair representation. There were significant population variances among the townships included in the current study. Table 4 represents the distribution and return rate of the 299 surveys.

Table 4

Township Population with Surveys Distributed and Returned

	Population ^a	Surveys distributed	Surveys returned	% of sample
Township A	1076	87	57	35.8
Township B	871	70	30	18.9
Township C	291	23	13	8.2
Township D	885	71	33	20.8
Township E	596	48	26	16.4
Total	3719	299	159	100

Note. ^a 1990 U.S. census data.

Township C had the lowest population and the least representation in the current study. Township A had the highest population with the largest of the two villages located within its borders. The survey response rate was unexpectedly high for all townships with an overall usable return of 53%.

The sample was randomly chosen from all households in the lower, southern half of the rural county. In order to ensure that there was an equal chance of any household being chosen, the survey questionnaires were distributed as follows. The center of each township was located on a county map. The investigator drove to these approximate central positions and then tossed a coin twice. The first toss determined which road axis would be first surveyed and the second toss determined in what direction the investigator would proceed, either to the left or right. The first home approached was also based on a coin toss with every other household then included. When the border of a township was reached, the investigator returned to the center and chose another direction by coin toss.

The investigator offered to read the questions to potential subjects from a predetermined script (Appendix D). Although many people were home when the investigator knocked on their doors, only two elderly adults desired to have the questionnaire read to them. When a child answered a door, the investigator asked for an adult. If a resident was not at home, the survey materials were left in the door.

Excluded from the study were temporary residents who were vacationing in the county, three households that openly declined, those who failed to return their questionnaires, and those houses that were obviously abandoned or vacant. Vacant houses were not treated as part of the every other household distribution. To avoid

response bias, close friends and relatives of the researcher who live in the study area were excluded from the study. The subjects were given 10 days to complete the form. A self-addressed stamped envelope was enclosed for mailing responses via the U. S. Postal Service to a local post office box.

CHAPTER IV

Results

Introduction

The questions posed for this study were centered on the rural community demographics and the study variables of potential barriers to health care, perceived health status, formal level of education, and preventive health behaviors. The purpose of the study was to determine: 1) if rural residents with fewer preventive health behaviors have more potential barriers to health care, 2) if rural residents with higher levels of formal education perceive their health status higher than those with lower formal education levels, and 3) if rural residents with more potential barriers to health care rate their health status lower than those with few or no barriers to health care? The study variables were measured by the responses on the survey questionnaires.

Statistical Analysis

The Statistical Package for the Social Sciences (SPSS) was used for data analysis. The significance level was set at 0.05. Chi-square statistics were used to compare the data for preventive health behaviors and potential barriers to health care. Descriptive and Chi-square statistics were utilized to answer the second research question regarding formal level of education having an effect on perceived health status. Chi-square statistics were again used to evaluate the variables of perceived health status and potential barriers to health care.

The sample group of rural residents (n = 159) were from five townships in a northern mid-western state. Eight surveys were excluded from the study due to either dual respondents from a household or because the surveys were returned past the established inclusion date. Overall there was very little missing data with only 6 respondents not stating their age and several failing to respond to all 14 survey questions.

Demographics included age, sex, educational level, and length of time living in the county. These were measured at the nominal, ordinal, and interval levels. The distance traveled to reach a primary care provider (question # 7) was measured separately with descriptive statistics. Originally the distance traveled was intended to be included as a potential barrier but since the question did not ask the respondent to specify one-way mileage or round-trip, the data could not be used for the research question analysis.

Formal level of education (question # 3) was collected using five categories and later collapsed into three groups which included those with less than 12 years or a high school equivalency, those with 12 years or a high school equivalency, and those with an associate's degree or higher. Participants were asked to rate their health status by simply choosing either excellent, good, fair or poor to describe their health (question # 9). Perceived health status and educational status were thus at the ordinal level. Health problems (question # 10) were dichotomous responses to four general health problems (high blood pressure, diabetes, asthma, and heart trouble). A blank space identified as "other" prompted individual responses to the question.

Potential barriers included lack of a primary care provider (question # 6), inability to pay for services (question # 8), or lack of health insurance coverage (question # 14, see Appendix A). The sample was divided into two groups based on potential barriers. Those who had none were in one group (n = 107, 67.3%) and those who had one or more were in the remaining group (n = 52, 32.6%).

Preventive health behaviors were defined as at least one visit to a primary care provider (question # 5), a positive response to cholesterol testing in the past five years (question # 11), mammography in the past (question # 13), and a negative response to tobacco use (question # 12, see Appendix A). The sample was divided into two groups based on preventive health behaviors. The first group (37.7%) were those with two or fewer preventive health behaviors identified and were considered to have a low number of preventive health behaviors. The second group, those with a high number of preventive health behaviors, had three or four behaviors that they had positive responses to on the survey and consisted of 99 (62.2%) of respondents.

Descriptive Statistics

In respect to the study questions, the following tables outline the descriptive statistics obtained from the survey data. Except for the respondents who had mammography, percentages represent the entire sample. For prior mammography the percentage given is adjusted for those who answered “not applicable.” Respondents who replied “not applicable” to mammography were not said to have a negative response to the health behavior. Table 5 includes only the questions that were simple affirmative or negative responses. The ordinal data is depicted in Table 6.

Table 5

Dichotomous Study Questions (n = 159)

Study Question	Yes		No		Missing
	Frequency	%	Frequency	%	
Health care Provider	131	82.4	28	17.6	0
No Visit (inability to pay)	30	18.9	126	79.2	3
Health Insurance	142	89.3	16	10.1	1
Cholesterol Screening	93	58.5	61	38.4	5
Tobacco Use	37	23.3	121	76.1	1
Mammogram ^a (past five years)	76	63.8	40	33.6	3

Note.^a Not applicable accounted for 40 respondents (25.2%) and was found on the surveys completed by males. Percentages were adjusted accordingly using n = 119.

Some respondents wrote in replies to the question on insurance status such as “Medicaid,” “Medicare,” or “only pays for hospital, not for doctor visits.” One individual noted that she had “double coverage.” Although 89.3% of the total sample answered in the affirmative to having health insurance, 18.9% had not sought health care in the past year because they could not pay for services. A significant number of

respondents had an established health care provider (82.4%). Analysis revealed that 32.7% of rural residents responding to the survey had at least one potential barrier to health care.

Table 6

Frequencies and Percentages for Ordinal Study Questions (n = 159)

Variable	Frequency	%
Level of education^a		
None	2	1.3
Grade K-8	7	4.4
Grade 9-11	12	7.5
Grade 12 or equivalency	108	67.9
AD ^b or Bachelor Degree	29	18.2
Visit to primary care provider in the past year		
None	19	11.9
1-2 visits	46	28.9
> 2 visits	94	59.1
Perceived health status		
Excellent	22	13.8
Good	84	52.8
Fair	41	25.8
Poor	12	7.5

Note. ^a Missing data occurred once for level of education. AD^b = Associates Degree.

The majority of respondents had completed high school, an equivalency for high school, or college degree (86.1%). Of those with the higher levels of education, 18.2% had some type of college degree. Most participants (n = 140 of 159) had been to a primary care provider at least once in the past year. Many respondents had actually seen a health care provider more than twice (59.1%).

Research Questions

Research question #1. Do rural residents with fewer preventive health behaviors have more potential barriers to health care? In order to test the first question, Chi-square analysis was done (see Table 7).

Table 7

Preventive Health Behaviors by Potential Barriers to Health Care (n = 159)

<u>Barrier Status</u>	<u>Preventive Health Behaviors</u>			
	Low (n = 60)		High (n = 99)	
	n	%	n	%
No Barriers (n = 107)	23	14.5	84	52.8
Barriers (n = 52)	37	23.3	15	9.4

The analysis strongly supported that rural residents were more likely to have performed the identified preventive health behaviors if they had fewer barriers to health care ($\chi^2 = 36.73$, $p < .000$). Of the 107 respondents who had no barriers, 84 fell in the group having performed high preventive health behaviors. Thirty-seven respondents were found to have one or more barriers to care and were in the group who performed fewer preventive health behaviors. However, in the analysis, the issue arose that not all study respondents had an equal chance to fall into the higher group. Mammography was one of the four possible health behaviors. The sample included 40 men and 29 women under the age of forty who responded with either “not applicable” or “no.” Neither of these sub-groups can be said to have a negative health

behavior by not having had a mammogram. This fact left them with only three opportunities to demonstrate positive behaviors and therefore fall in the higher group (those with 3 or 4 health behaviors). Thus Research Question #1 was felt to lack statistical significance due to the failure to note this discrepancy.

Research question #2. The second question seeks to determine if health status is perceived higher by those rural residents who have higher levels of formal education. Perceived health status is divided into two groups. The respondents who rated their health as excellent or good were placed in the group qualified as having high perceived health status (66.7%). Those who selected fair or poor were considered to have low perceived health status (33.3%). The first three education levels were grouped together and represented 13.3% of the sample. The two remaining levels of education were left as separate categories. See Table 8 for an illustration of these results.

Table 8

Formal Level of Education by Perceived Health Status

<u>Education Level</u>	<u>Health Status</u>			
	n	Higher %	n	Lower %
Eleventh grade or less (n = 21)	7	4.4	14	8.9
12th grade or equivalent (n = 108)	74	46.8	34	21.5
Associates/Bachelor degree or higher (n = 29)	24	15.2	5	3.2

The research question was supported by a Chi-square of 13.99 with a $p < .001$ indicating significance. The results support that the respondents with a higher level of education perceived their health status higher than those with a lower level of education. Respondents with less than a high school education rated their health status as fair to poor (66.6%) more often than excellent or good (33.3%). Inversely, as education level rose, percentages of respondents rating their health status as fair to poor dropped. The respondents with a twelfth grade or equivalent level of education who perceived their status as low accounted for 31.5% of that sub-group. For those with college degrees, only 17.2% claimed to have a low health status.

Research question #3. The third research question explored potential barriers and perception of health status. The question asked if rural residents with more potential barriers to health care rate their health status lower than those with few or no barriers to health care. Table 9 displays the analysis of the two variables.

Table 9

Potential Barriers to Health Care by Perceived Health Status (n = 159)

<u>Potential Barriers</u>	<u>Health Status</u>			
	High		Low	
	n	%	n	%
No barriers (n = 107)	69	43.4	38	23.9
Barriers (n = 52)	37	23.3	15	9.4

The Chi-square was 0.700 ($p < .402$), which was not statistically significant and which indicates that the results are not significant for any relationship between the variables. Potential barriers to health care were not associated with the perceived health status of the sample. There was no difference between the higher and lower health status groups related to the potential barriers.

Additional Findings

An unexpected finding concerned distance traveled to reach a primary health care provider (question # 7). The respondents gave a range of 3 to 78 miles. Fifty-one percent drove 15 miles or less (mean 19.1, SD 13.3). Three outliers reported their mileage at 65, 70, and 78 miles. Some respondents specified one-way, others gave round-trip mileage. The tool did not request the respondent to differentiate. Therefore, the actual mileage was not clearly defined as one-way or round-trip. This data was not usable as a potential barrier to health care and thus was not included in the statistical analysis.

Summary

The research questions addressed the possible significance of certain variables existing together in a rural sample consisting of 159 subjects. The variables were compiled into four areas of interest: perceived health status; potential barriers to health care; preventive health behaviors; and formal level of education. The first two study questions were supported with p values less than .001. However, the results of analysis for the first research question were not valid due to inequalities found in the data when further consideration was given to mammography as a preventive health behavior. Those respondents with higher formal education rated their health status

higher than those with less education. The third question was not found to be significant. Insufficient data exists to determine a cause and effect association between the two variables.

CHAPTER V

Discussion and Implications

Discussion

The purpose of this research effort was to: (1) describe the association between preventive health behaviors and potential barriers to health care for rural residents; (2) describe the association of formal level of education with the perception of health status of rural residents; and (3) to describe the relationship between potential barriers to health care and perceived health status. Potential barriers to health care were of particular interest to compare to the literature reviewed. The study variables are addressed separately under each research question for clarity. Comparisons between the current study and those previously reviewed are given.

Research Question #1

The first question was do rural residents with fewer preventive health behaviors have more potential barriers to health care? Although initial analysis supported an association between these variables, the internal validity of the results was jeopardized by the definition of high or low preventive health behaviors. Survey question number 13 requested the respondents to indicate if they had undergone mammography in the past. Sixty-nine respondents did not require mammography due to being male or younger than 40 years old. These 69 respondents could only have three preventive behaviors compared to four with the remaining sample. Criteria for

having lower preventive health behaviors were 0-2 positive behaviors. To fall into the group said to have higher preventive health behaviors, the respondent needed 3-4 positive behaviors. Therefore, the results could not be said to be significant.

Potential barriers to health care. Frenzen (1993) and Mueller et al. (1997) provided information on insurance status similar to the current research approach. Both of these studies included insurance status as a potential barrier to health care and described utilization of health care services based on insurance status. Mueller et al. examined spells of lack of insurance in relationship to fewer primary care provider visits and found this to be significant. In the current study, lack of insurance was also identified as a potential barrier to health care. Frenzen reported a 16% rate of uninsured in his sample which was higher than the current research finding of 10.1%. Frenzen found that economic factors in rural communities contributed to lack of insurance amongst residents and therefore led to less use of health care services. These research findings are consistent with the current study results and similar recommendations were presented.

The Quality of Life Index for the Grand Traverse Region (Grand Traverse Regional Community Foundation, 1997) found lack of insurance in 11.8% of the study population. The current research found lack of insurance in 10.1% of the sample. When compared to those who did not seek care because of inability to pay for services (18.9%) the adequacy of the respondents' insurance to cover office visits would seem to be questionable. The rural residents may be unable to pay for high insurance premiums to provide adequate coverage. Under-insured status was not evaluated in the current research but may influence health care as a potential barrier.

The current research was compared to previous community assessments performed in recent years (NMCHA, 1996; Grand Traverse Regional Community Foundation, 1997). In 1993, 19.8% of the children and 51% of the families in the study population were living at or below the poverty level. Fifty-three percent of the school children qualified for free or reduced school lunches based on poverty levels, while 7% of the county's population received food stamps. Although actual income level was not assessed in the current study, there were thirty respondents (18.9%) who did not seek health care because they could not afford to pay for the services. This rate was similar to that found by Comer and Mueller (1995) in the rural sample they studied. However the local NMCHA Survey reported only 13% as not able to pay for services. This researcher feels that the current study may have represented a less affluent sample due to the door-to-door survey design that randomized households effectively. Many of the residences visited appeared to reflect poverty by the poor conditions encountered by the researcher.

The current study did not explore the association between insurance status and inability to pay for services or number of visits to a health care provider. However, Comer and Mueller (1995) found that lack of insurance did influence ability to pay for services but did not impact number of visits to a health care provider. This is consistent with the current research findings of only 11.9% not having at least one visit to a health care provider. Those with 1-2 visits accounted for 28.9% of the total sample and 59.1% of respondents had more than two visits in the past year.

Preventive health behaviors. Use of tobacco products elicited a positive response from 37 survey participants (23.4%). The incidence of tobacco use in the

current study actually fell below prior community assessment findings (29% per Quality of Life Index for Grand Traverse Region, 1997). The use of tobacco was not compared to other variables such as education or age. The reason for the lower percentage was not readily identified. The researcher had expected to find a higher incidence of tobacco use.

The NMCHA survey (1996) revealed that 71% of the female sample population had received mammograms appropriate for the age of the individual. The current research found that 87% of females over age 40 had undergone mammography at some time but did not differentiate between those who were due for exams and those who were up to date with screening. Cholesterol screening tests were found to be lower at 58% in the current research compared to 63.5% in the NMCHA survey. The cholesterol screening may have been less because the average age of the respondents was 51.6 years and they may not be concerned with this preventive health behavior.

Research Question #2

The second research question asked if rural residents with higher levels of formal education perceived their health status higher than those with lower formal education levels. This question was supported in the Chi-square analysis (13.99, $p < .001$). Lower levels of education were found to be associated with lower perceived health status.

Formal level of education. According to the Quality of Life Index for the Grand Traverse Region (Grand Traverse Regional Community Foundation, 1997), education in the sample county exceeded the national average with 94-97% of survey

completing high school in the past two years. In the current study, 86.4% (n = 108) of the total respondents had completed high school or received a high school equivalency. This was higher than the previous community assessments had found and may have been a reflection of the different study design and years of change in the sample. The current research included only those residents of the least populated, remote townships and did not exclude subjects based on lack of telephone service. It is unknown how the difference in sample may have contributed to the reported educational level of the respondents. However, lack of telephone service may be associated with poverty and the incidence of poverty is correlated with poor education (Wakefield, 1990; Spector, 1996). Also, it is possible that many of the rural high school graduates have moved away to seek better economic conditions.

In 1997, 13% of residents in the sample county had received a bachelor's degree or above, up from 4% in 1990 (Grand Traverse Regional Community Foundation, 1997). Information for the number with associate degree attainment was not given in the community survey. The current study identified those with associate, bachelor or higher degree attainment and found 18.4% of respondents with college degrees. This may have been influenced by the introductory letter that began with the request for the respondent to help the investigator in attaining her degree. It is possible that more persons sharing that value or life experience would respond to such a request.

Beaulieu and Berry (1994) attributed lack of education and poverty as influential in determining the presence of chronic health conditions. Lack of education was linked to social factors such as poor job salaries, lack of health

insurance, and low preventive health behaviors. The current research also found perceived health status to be significantly associated with level of formal education.

Perceived health status. Rural residents in the current study sample rated their health as fair or poor 33.3% of the time. Bigbee (1993) states that 20% of rural residents rate their health status as fair or poor. This was felt to be a significant factor in supporting this research question. Although the reason for the difference is not known, 61% of the current sample reported at least one chronic health condition.

The NMCHA Survey (1996) compared level of education to respondents who reported their health status as fair or poor. In the region, the NMCHA Survey found 32% of that sub-group to have less than a high school education. This was similar for the state of Michigan at 33% (NMCHA). The current research had 21 persons reporting health status as fair or poor (13.3% of total sample). Of those 21 respondents, 14 (66.6% of sub-group) had less than a high school education or high school equivalency. The opposite was true when examining those respondents with a college education. The NMCHA Survey results show 6% reporting fair or poor health status who were college graduates while the current research found 17.2%.

Research Question #3

The last research question described the association between rural residents with more potential barriers to health care and lower perceived health status. No association was found in the analysis (Chi-square = 0.7, $p < .402$). The investigator expected to find this question significant.

Perceived health status and potential barriers to health care. The data presented in the current research was not found to agree with previous studies that

found a correlation between health status and potential barriers to health care. Beck, Jijon and Edwards (1996) found financial barriers to be significant in predicting poor health. Carson et al. (1993) utilized the Family Seriousness of Illness Scale to describe the health status of a rural population. They correlated health status to strains and stressors they felt were unique to rural residents. Economic factors and ability to pay for services were included in the research variables. They also found health status to be significantly influenced by these factors.

Rural cultural considerations may have influenced the data in the current research. Kralewski et al. (1992) summarized similar findings and suggested that rural residents do not place the same importance on barriers to health care as the general population. Insurance status did not prove to be a barrier to health care in the study by Kralewski et al. They suggested that rural residents expect to drive further and have fewer primary care providers available. These possible conclusions may apply to the current rural sample as well.

Leininger's Conceptual Framework

The focus of the current research was to describe perceived health status, potential barriers to health care, formal level of education, and preventive health behaviors of a rural population. The data obtained assist to establish a basis for culturally congruent care as envisioned by Leininger (1995). The theory framework provided by Leininger includes the elements of culture and cultural care diversity that apply to the challenge of rural health care. The study variables were designed to illustrate the worldview and ethnohistory of rural residents. Worldview was assessed through the environmental elements of level of formal education, ability to pay for

services, and insurance status. Ethnohistory was determined by number of visits to a primary care provider and the preventive health behaviors performed by the respondent. These concepts in Leininger's framework contribute to assessment so that health care may be individualized for a culture or sub-culture to meet the needs identified. Care is the central concept of Leininger's Theory.

The limited rural sample supplied the sub-culture of concern for the current research. Simple demographics of residency, age, and sex provided the basic characteristics of the sample. The current study addressed Leininger's (1995) concept of individually defined health by requesting the survey respondents to describe their health status as they perceived it to be. Health status was also determined by the presence of chronic illness or health problems that the respondent could personalize by writing in answers.

Integral to the study and to the conceptual framework is the importance of assessment before attempting to work with an individual or a community in meeting health care needs. The results of the current study helped the researcher to define the existence of chronic disease, financial limitations in seeking health care, and the rural sample's perception of their health. These factors may impact utilization of health care services by the sample rural residents. The information obtained can help to design and implement care for this population according to Leininger's framework (1995) for culturally congruent care. Leininger's framework encourages a wholistic approach to community assessment. The current research tool fails to provide this due to the constraints of time and the desire to maintain brevity in the survey tool. Cultural care universality is demonstrated in the preventive health behaviors of

cholesterol screening and mammography that are currently available to the rural population through community services. These are measures that are widely accepted by the general culture of our society. There is potential to identify specific care issues for the rural community and to use Leininger's framework to design interventions that will emphasize individuality.

Limitations of the Study

Limitations of this study include possible threats to internal validity. The number of surveys returned was unexpectedly high with a 55.8% response rate (53% used). Only three households openly declined to accept the survey materials. The response rate helped to increase the significance of the research and reflects a strong community spirit. Also of note, the length of time living in the rural county where the current study took place demonstrates that most of the sample had a significant length of residency. This was important to the current research for defining the sample and ensuring that the respondents represented those who had long identified with the community.

Inadequate analysis of age and sex categories in the sample may have created other limitations to the study. Age or sex may influence both formal level of education and health status. Age may also have had an impact on preventive health behaviors practiced. For example, cholesterol screening related to age was not examined. The average age was 51.6 years old and cholesterol screening may not be as common in non-elderly persons. Conversely, the current study results were found to agree with previous data on rural populations with 25% of the sample being elderly compared to the national average of 12% (Clemen-Stone et al., 1995). Therefore,

analysis between age and preventive health behaviors, such as cholesterol screening, might be significant. In addition, some research on rural women suggests a lower level of education and greater emphasis on traditional roles (Bushy, 1993). Sex status may have also had an effect on the current survey responses since women represented 69.2% of the sample.

An unforeseen threat to internal validity resulted from unanticipated gender bias. Frequently male rural residents stated that they would have their “better half” or spouse “take care of it” when given copies of the survey distributed door to door. This may have contributed to the data skew toward female respondents (69.2%).

A limitation of the tool was discovered when distance traveled to reach health care was coded. The tool did not specify if the distance traveled was “one-way” or “round-trip.” Some respondents specified one-way mileage and others round-trip mileage. Because the actual mileage was not clearly defined, data from this question could not be used to describe a potential barrier to care.

The tool was inconsistent with requests for data involving time ellipses. Number of visits to a health care provider, chronic health problems, and inability to pay for services were given a 12-month inclusion period. Health insurance status did not specify “in the past 12 months” and this information may have influenced health care visits or inability to pay for services.

The printed format of the tool may have contributed to the number of missed values (5) reported on cholesterol testing. The question on cholesterol was short and visually easy to bypass or overlook on the tool. This may also have been a factor in missed responses to the first two questions that asked for age and sex status. These

followed the instructions rather closely and may have been overlooked. However, it may be possible that certain respondents also feared to reveal their identity to the investigator. Four of six surveys missing the data for male/female status live in the same township as the investigator. The investigator personally knew many of the rural residents living in the households surveyed. Conversely, familiarity with the investigator may have contributed to the high return rate.

Additional limitations to internal validity were found in two of the survey questions. The internal validity of the mammogram question was threatened by the language used on the tool that specified that the question was for women only. Three men responded to this question and were clearly certain they had had mammography performed. One man underlined his “yes” response as well as giving a date. It is uncertain if more men would have answered in the affirmative to this question.

The survey question on insurance status did not differentiate between those who had just acquired insurance and those who had insurance during the past year. This may have influenced the response to both questions about ability to pay for services and the number of visits to a health care provider in the past year. However, the opposite is also true if someone just lost his/her health insurance recently. This type of question has been validated in the National Health Interview Study (Comer & Mueller, 1995). Another possible limitation in the insurance query is that it did not identify the respondents who are underinsured or those who cannot afford high deductibles. Inadequate insurance may account for respondents stating an inability to pay for health care services. The underinsured status of respondents has been established in previous studies as an influence on access to health care services and

use of preventive health behaviors to maintain health (Kralewski et al., 1992; Kassab et al., 1996; USDHHS, 1990).

The results of the current study lack sufficient external validity to be applicable to rural areas across the U.S. However, they may be useful in explaining similar populations in other rural counties within the same geographical area described. There is strong support that community assessments must be individualized for a specific area. Extreme diversity in rural populations is evident in the current literature (Anderson & Yuhos, 1993; Birdwell & Calesaric, 1996; Lenz & Edwards, 1992; Long, 1993).

Implications

The diversity among rural populations can be dramatic. This study provided valuable information about rural residents in one county in a northern, mid-western state. The purpose of the study was to examine the perceived health status, formal level of education, potential barriers to health care, and preventive health behaviors for the rural population examined. The current research asked questions about utilization of services, existence of chronic conditions, inability to pay for services, insurance status and how rural residents perceived their health status.

The study results will be given to the regional health care providers. The data may be useful in helping to eliminate potential barriers, especially for low-income persons. Awareness by local health care providers of the number of residents who are unable to pay for services is important if health care is to be fairly distributed. Currently, most providers take a certain number of Medicaid recipients. This does not help the “working poor” who do not qualify for assistance. In a rural, nurse-managed

clinic in northeast Tennessee, patients without health insurance pay for services based on their income (Ramsey et al., 1993) and research revealed that this represented the most common form of payment for the clinic (49%). Preventive care accounted for 11% of the clinic's caseload and 19% received care without any payment for services.

When rural residents present with acute problems, it is an opportunity to emphasize preventive health behaviors such as colorectal screening or simple blood pressure monitoring. This can also be an opportunity for the health care provider to identify potential barriers the patient may have for not pursuing preventive health measures such as mammography. A rural clinic program similar to the one in Tennessee may be feasible for the sample rural community.

Recommendations for Future Research

This study provides a database that could be utilized in future research on this rural population. Several of the variables in the study could be analyzed to provide further information about the study sample. Health status and preventive health measures were not compared in the current research. The possible influence of sex on perceived health status, potential barriers to health care, and level of education were not examined and may hold significant information. In addition, individual factors for specific problems could be chosen for further research. For instance, it would be interesting to examine the tobacco use habits and the incidence of chronic health conditions. The current research defined all county residents as part of the rural population. Further research using the same database could define rural residents based on number of years living in the county to explore potential cultural aspects as recommended by Leininger (1995).

Additional recommendations for research such as the current study include changes to the tool to facilitate accuracy in responses. The question on distance traveled to reach health care should be designed to differentiate between total miles and one-way mileage. Future research might also focus more on potential barriers by asking for more detailed information on insurance and income status. Qualitative research could yield data not reported on the current survey. Certainly the question on mammography could be more clearly written and should be correlated with both sex and age status.

More research is needed on community perception of health care needs and how the present services meet or respond to those needs. Implications of insurance status for rural residents must be addressed in future research efforts. This information is vital to creating a sustainable plan to support the goals of the U. S. government adequate health care for all citizens (USDHHS, 1990).

Summary

The current study added to the limited knowledge about the rural population of this northern mid-western state. Access to care is complicated by economic factors and availability of primary care providers. More research is needed to look at access to care and to target areas to improve the health and wellness of the rural community. Formal education was found to have a significant impact on health status in the current research results.

Finally, community members must decide their own priorities and receive support to focus on the health care concerns that they identify. The rural residents must claim involvement and ownership of the programs implemented if they are to be

successful (Leininger, 1995). The need for primary and secondary prevention of disease through assistance for those lacking health insurance and improved availability of services has been clearly supported. Further individualized community assessment is needed to fully define the unique needs of each rural area.

APPENDICES

APPENDIX A

Your answers are important for us to understand health in our county. There are no right or wrong answers. Circle one answer to each question or write the answer in space provided.

Examples: A) I live in Michigan. Yes No B) How many pets do you have? Give number 3

1. You are Male Female.

2. Age in years _____

3. Highest formal education level completed. (Circle only one)

None Kindergarten-8th grade 12th grade or High school equivalent

9th grade-11th grade Associates / Bachelor's Degree or higher

4. How long have you lived in this county? Give number of years _____

5. How many times have you visited a medical doctor, physician's assistant, or nurse practitioner in the last 12 months?

None 1 or 2 times more than 2 times

6. Is there a particular medical doctor, physician's assistant, or nurse practitioner that you usually see?

Yes No.

7. How many miles do you travel to see your doctor, physician's assistant, or nurse practitioner?

Number of miles _____

8. Have you not gone to a doctor in the past 12 months because you knew you could not pay the bill?

Yes No.

9. In general, would you say your health is... (circle only one)

Excellent Good Fair Poor

10. During the past 12 months have you had any health problems or illness? (Circle any that you have had)

High blood pressure Diabetes Asthma Heart trouble Other _____

11. Have you had a cholesterol (fat in blood) test in the past five years? Yes No

12. Do you smoke or use chewing tobacco? Yes No

13. Women only: Have you ever had a mammogram (x-ray of the breasts)? Yes No
If yes, when? _____

14. Do you have any kind of health insurance that pays all or part of your doctor and hospital bills?

Yes No.

APPENDIX B



GRAND VALLEY
STATE UNIVERSITY

1 CAMPUS DRIVE • ALLENDALE, MICHIGAN 49401-9403 • 616/895-6611

October 14, 1999

Toni Renee Gaultier
5740 S. Branch Rd. SW
S. Boardman, MI 49680

Dear Toni:

Your proposed project entitled **Perceived Health Status, Health Behaviors, Formal Education, and Potential Barriers to Healthcare in a Rural Population** has been reviewed. It has been approved as a study which is exempt from the regulations by section 46.101 of the Federal Register 46(16):8336, January 26, 1981.

Sincerely,

Paul A. Huizenga, Chair
Human Research Review Committee

APPENDIX C

INTRODUCTORY LETTER FOR SUBJECTS

Help Local Nurse!


You can help me finish my Master's Degree! Please take just 5 minutes and answer these questions for me. The purpose of the questions is to help describe our community in terms of how available health care is to us and if we use any general health care services.

If you send this back to me, I will conclude you have consented to participate in my research. This is strictly confidential. I won't know who you are and I am not putting any names on any of the papers. This is also totally voluntary. That means you don't have to do this but if you do, you will help to describe our county for this study.

In 1995, Kalkaska County was part of a survey of local counties and most of these questions are the same as used then. There are 14 questions and I request that you return the questions to me in the stamped envelope. To have your answers included, please return the survey by November 12, 1999.

If you have any questions about the research, please contact Toni Gaultier, RN at work at 946-1200. If you have any questions about your rights in the study, call the Chairperson of the Grand Valley State University Human Research Review Committee, Professor Paul Huizenga at 616-895-2472.

Thank you!


**Toni Gaultier
PO Box 125
S. Boardman, MI 49680**

APPENDIX D

QUESTIONNAIRE SCRIPT

(Researcher approaches household and knocks or rings doorbell, if someone comes to the door and he/she is an adult, the researcher speaks the following script. If a child answers the door, the researcher asks to speak to an adult.)

Script: Hello, my name is Toni Gaultier from South Boardman. I am working on my master's degree in nursing. I am conducting a study on health in our county. The purpose of my research is to help describe our community in terms of how available health care is to us and if we use general health care services. This brief questionnaire can be completed in less than 5 minutes and is strictly confidential without any names anywhere on the form. If one adult is willing to fill the questionnaire out, giving it back to me or mailing it back will mean you consent to having your answers included in the results. Participation is voluntary. I would be willing to read it to you and fill it out for you if you would like.

(Researcher reads directions on questionnaire. Asks participant if they understand. Clarifies if requested to do so. Researcher reads each question separately and indicates the responses on the form. Researcher thanks participant and departs.)

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