



Utilization of primary care services in Carbon County : a consumers perspective
by Scott Richard Oldfield

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Nursing
Montana State University

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Abstract:

Rural America is faced with a shortage of primary care services. One way in which this problem can be addressed is by utilizing the resources that are within rural communities to their full potential. Local primary care providers (PCPs) must recognize the perceived and actual health care need of residents within their community in order to maximize the available resources. Satisfaction with access to primary care provides a way in which utilization can be measured. Previous studies have found a positive correlation between satisfaction with access and utilization of services.

Carbon County is a frontier county located in south central Montana and has been identified as a health professional shortage area (HPSA) by the state and federal governments. It was unclear at the onset of this study whether the residents of Carbon County were optimizing the primary care services that exist within the county. The purpose of this study was three-fold: (1) determine whether residents of Carbon County are seeking primary care services in their community or seeking services elsewhere; (2) determine the level of satisfaction with access to primary care in Carbon County amongst the residents of Carbon County; (3) and determine whether there is a relationship between satisfaction with access and utilization of primary care services in Carbon County.

A descriptive correlational design was used for this study. A systematic sampling of 73 residents of Carbon County participated in the study. The data was collected by telephone survey and was analyzed utilizing frequency, descriptive, and bivariate analysis. The results indicated that over three fourths of the participants utilized the primary care services in Carbon County. The participants also appeared to be satisfied with the access to primary care services in Carbon County. There was no significant relationship identified between satisfaction with access and utilization of primary care in Carbon County.

Future research is needed in order to validate this study's findings. The more information that is available relating to factors influencing the utilization of rural primary care services, the better prepared local PCPs will be able to allocate and maximize the available primary care resources in their communities.

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A CONSUMER'S PERSPECTIVE

by

Scott Richard Oldfield

A thesis submitted in partial fulfillment
of the requirements for the degree

of

Master of Nursing

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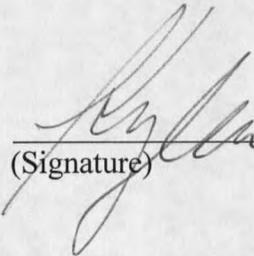
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of a thesis submitted by

Scott Richard Oldfield

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English, usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

Karen Zulkowski, DNS, RN

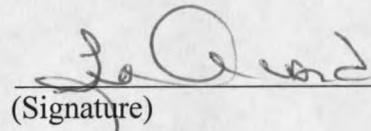


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Lea Acord, PhD, RN

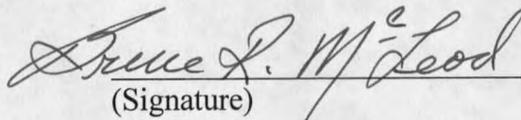


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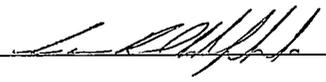
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ABSTRACT

Rural America is faced with a shortage of primary care services. One way in which this problem can be addressed is by utilizing the resources that are within rural communities to their full potential. Local primary care providers (PCPs) must recognize the perceived and actual health care need of residents within their community in order to maximize the available resources. Satisfaction with access to primary care provides a way in which utilization can be measured. Previous studies have found a positive correlation between satisfaction with access and utilization of services.

Carbon County is a frontier county located in south central Montana and has been identified as a health professional shortage area (HPSA) by the state and federal governments. It was unclear at the onset of this study whether the residents of Carbon County were optimizing the primary care services that exist within the county. The purpose of this study was three-fold: (1) determine whether residents of Carbon County are seeking primary care services in their community or seeking services elsewhere; (2) determine the level of satisfaction with access to primary care in Carbon County amongst the residents of Carbon County; (3) and determine whether there is a relationship between satisfaction with access and utilization of primary care services in Carbon County.

A descriptive correlational design was used for this study. A systematic sampling of 73 residents of Carbon County participated in the study. The data was collected by telephone survey and was analyzed utilizing frequency, descriptive, and bivariate analysis. The results indicated that over three fourths of the participants utilized the primary care services in Carbon County. The participants also appeared to be satisfied with the access to primary care services in Carbon County. There was no significant relationship identified between satisfaction with access and utilization of primary care in Carbon County.

Future research is needed in order to validate this study's findings. The more information that is available relating to factors influencing the utilization of rural primary care services, the better prepared local PCPs will be able to allocate and maximize the available primary care resources in their communities.

CHAPTER 1

INTRODUCTION

In the early to mid 1900's the exodus of America's population from rural settings to urban communities created an erosion of rural primary care services. The decrease in the population of rural regions in the United States has made it difficult for primary care providers (PCPs) to maintain viable practices in rural communities. The problem of maintaining accessible health care services in rural America is not only due to the lack of rural PCPs. Other contributing factors include geographic barriers, lack of public and personal transportations, and a higher rate of poverty in rural than urban populations (Davis, McAdams, & Tilden, 1994).

The health care plight of rural residents is impacted by this disproportionate allocation of resources: physical facilities, medical equipment, and health care professionals. Larger communities possess the majority of the resources, leaving small rural communities in need of primary health care services. The mal-distribution of health care resources leads many residents of rural communities to travel great distances for their health care needs. Even if rural communities possess primary care services, they often lack specialty services. Residents of these communities must decide whether they will utilize the local services knowing they will have to go elsewhere for specialty care, such as obstetrics and orthopedics (Borders, Rohrer, Hilsenrath, & Ward, 2000).

To ensure that health care needs of rural residents are being met, the limited primary care services that are available within rural communities must be accessed and

utilized to their fullest potential. In order for efficient utilization of primary health care services, rural PCPs must understand the actual and perceived needs and desires of community members. This understanding can be accomplished by assessing community members' satisfaction with access to the local primary care services. Without a quantifiable method of determining community satisfaction, the PCP is unable to determine whether primary care services placed into the community are being utilized to their full potential. If satisfaction with access to primary care is high within a community, it is likely that the available resources are being used (Thomas & Penchansky, 1984). If community members are not satisfied with local primary care services, health care will not be sought or will be sought elsewhere. By exploring patient satisfaction with access and trends in health care utilization, local health care organizations and professionals will be better prepared to meet the needs of their communities.

Statement of Problem

Carbon County is a frontier community located in south central Montana. Carbon County has been identified as having limited primary care services to meet the health care demands of the entire county. It is important that existing health care services are efficiently utilized. It is unclear at this time if the residents of Carbon County are fully utilizing the health care service available to them within their community.

Statement of Purpose

The purpose of this study is to identify patient utilization and satisfaction of primary health care services within Carbon County. The questions that will be answered include:

1. Are the residents of Carbon County using primary care resources within the county or seeking their care in surrounding communities?
2. What is the level of satisfaction with access to primary care services in Carbon County amongst the residents of Carbon County?
3. Is there is a relationship between patient satisfaction with access to primary care services and utilization of these services in Carbon County?

Background

Montana is considered a category I frontier state (Zelarney & Ciarlo, 1999). To attain category I frontier status, over 15% of the state's population must live in frontier counties with a population density of seven or less people per square mile (Zelarney & Ciarlo, 1999). According to 2000 Census estimates, of the 56 counties in Montana, 47 are considered frontier counties with over 35% of the state's population living within these counties (US Census Bureau, 2000). One such county is Carbon County, occupying an area of 2,048 square miles with a population density of 4.7 people per square mile.

There are 9,552 residents living in Carbon County. Ninety-seven percent of Carbon County residents describe themselves as white, making Carbon County a racially

homogeneous community (US Census Bureau, 2000). Carbon County is an agricultural community with 23.1% of the population involved in agriculture, forestry, or fishery industries, a significantly higher proportion compared to the 2.7% of the nation's overall population involved in these industries (US Census Bureau, 1990).

Carbon County is demographically and sociodemographically similar to many rural communities; a higher proportion of the population is elderly, live in poverty, and are disabled relative to national averages. An estimated 16.8% of the population in Carbon County was 65-years-old or older as compared to 12.4% of the nation's population (U. S Census Bureau, 2000). The poverty rate in Carbon County was 26.3% in 1990 while the national average was 21.4%. In 1990 the U.S. Census Bureau identified 16.6% of Carbon County residents between the ages of 16 and 64 as having mobility, self-care, and/or a work disability, compared to a national average of 14.1% disability for citizens between the ages of 21 to 64 (U. S. Census Bureau, 1990).

Like many frontier counties, Carbon County has limited resources to meet the health care needs of its residents. Both the United States National Public Health Service and the state of Montana have identified portions of Carbon County as Health Professional Shortage Areas (HPSAs) (Montana Department of Public Health and Human Services (MTDPHHS), 2000). A region can be designated as a HPSA based on PCP to population ratio, presence of an underserved population group, or the insufficient capacity of a local health care facility to meet the health care needs of the community (Leitner, Gast, Sarvela, Ring, & Newell, 1996).

Despite the presence of three primary care clinics and a small community hospital in the county, Eastern Carbon County, Fromberg, Bridger, and Joliet are all considered Primary Care Health Professional Shortage Areas (HPSA) (MTDPHHS, 2000). Carbon County presently has six PCPs, including five Physicians and one Family Nurse Practitioner (FNP), to meet the primary care needs of the community. There are two clinics in the county seat of Red Lodge and one clinic in Bridger, which is approximately 22 miles northeast of Red Lodge. Red Lodge is also the site of a 22-bed community hospital and two nursing homes. For those who choose to primary care outside of Carbon County, there are a total of five communities within a one-hour drive that have primary care resources including Billings, Laurel, and Columbus in Montana, and Cody and Powell in Wyoming.

Conceptual Framework

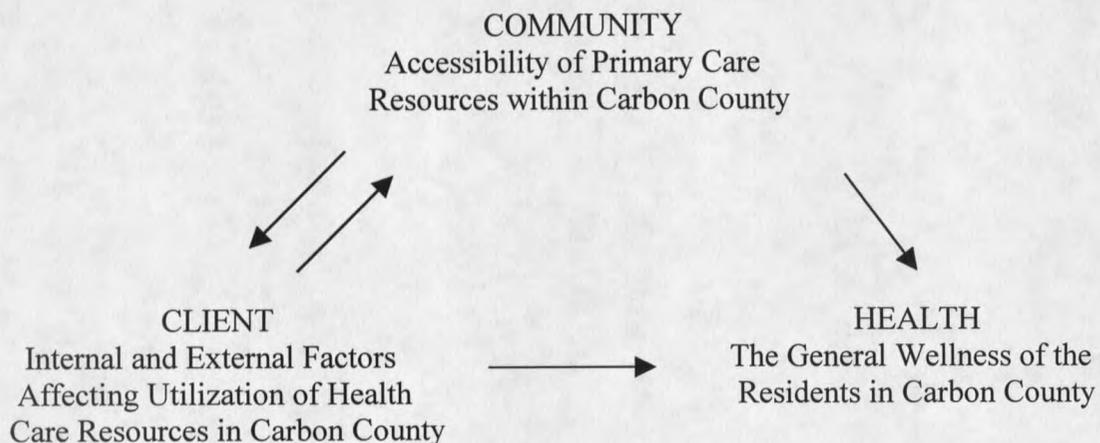
This study examines individuals' perceptions of the community's primary care needs and resources under the framework of Betty Neuman's Systems Model and the Community Capacity Model (see Figure 1). Neuman's Systems Model places community, client and health into a framework that is both interdependent and continually changing. The Community Capacity Model helps to better explain the process by which a community is able to meet the needs of its members.

According to Neuman (1995), optimal wellness is achieved when the needs of the individual, family, group, or community are being met. This wholistic approach to health, developed by Neuman, addresses the community's physiological, psychological,

sociocultural, developmental, and spiritual needs. The environment is a basic phenomenon of the Neuman Systems Model, and the relationship between the community and the environment is reciprocal with continual interaction between the two (Freese et al., 1998).

The use of the Community Capacity Model helps to refine this study's focus by recognizing the community as the primary component for health care change. Community capacity is the community's potential for addressing presenting health issues (Goodman et al., 1998). To help further clarify community capacity Goodman et al. (1998) identify dimensions and subdimensions of community capacity, including resources and skills. The community is able to demonstrate capacity by its ability to access and use resources prudently. If resources are lacking within the community, it is the goal of that community to move towards the acquisition of the needed resources by drawing from already existing resources, thus demonstrating a high degree of skill.

Figure 1. The Community Capacity Model for Carbon County



Definitions

Three key components of both Neuman's Systems Model and the Community Capacity Model are community, client, and health. For the purpose of this study, it is important that these components are clearly defined. Providing a clear understanding of each component will allow for a better understanding of the value and practical use of the study's findings.

Community

Community is often defined as location but can also take on a more active form. Community can also be defined as a group of people with common views and goals working within a given social system to meet its needs (Higgs & Gustafson, 1985). In another definition taken from a public health prospective, community is viewed as a natural gathering of people with similar needs who have sufficient resources to deal with life's demands to remain in a state of wellness (Turnock, 2001). The definition of community in this study draws from these community capacity influenced definitions. For the purpose of this study, community refers to all residents of Carbon County working together to achieve health through the coordination of individual and group resources.

Client

Neuman (1995) describes the client as a system that can be defined as a person, family, group, community, or issue. The client system is comprised of the physiological, psychological, sociocultural, developmental, and spiritual dimensions of the client. The

client is influenced by environmental factors, both internal and external, influencing the various system parts. For the purpose of this study, the client is defined as individuals residing in Carbon County having the opportunity to utilize the health care resources available within the county.

Health

Wellness is obtained when the various parts of the system are working in harmony, while illness exists when there is disharmony among the parts of the system. Health is achieved when all the needs of the system are met. This concept of health is dynamic in nature and constantly changing (Freese et. al., 1998). For the purpose of this study, health is the ability of Carbon County residents to optimally utilize existing primary health care services to maintain wellness at the individual and community levels.

Prestudy Assumptions

Prior to conducting this study, three assumptions were made, which include:

1. The primary care services within Carbon County are not being utilized to their full potential.
2. There is a relationship between satisfaction with access and utilization of primary care services.
3. The utilization of available primary care services is a measure of the potential primary care needs within the community.

CHAPTER 2

LITERATURE REVIEW

Access to rural health care has been measured various ways. One way is by taking a look at self-reported barriers to care. Other researchers have used distance measures to determine access to health care. By far the most common means of measuring access is focusing on the use of available health care services (Stearns, Slifkin, & Edin, 2000). Focusing on utilization is often used when comparing rural health care consumers with their urban counterparts. Ultimately, the goal of all the research has been aimed at assessing whether the health care needs of rural residents are being met.

Community

Although a community is comprised of individuals with varied interests and concerns, the residents of the community have enough similar needs that they unite for the general benefit of all. By pulling together individual resources and talents, residents of a community are able to acquire needs that could not be obtained at the individual, family, or group level. Primary care is one such need that is sought by residents of rural communities.

Primary Care

Primary care can come in many forms. Although there is no consensus as to the definition of primary care, all primary care systems should: (1) be accessible, (2) possess

a proper mix of health care professionals, (3) have a community and provider-supported health care delivery system, (4) have links to tertiary care resources, (5) foster a relationship with a professional education system that prepares and supplies health care professionals, (6) link to a network of health care delivery services within the community such as local schools (Davis et al., 1994). These constants of primary care systems allow for the health care needs of a community to be met. The lack of, or even absence of, rural health care resources requires that a primary care system be in place that will assist and direct community members to obtain needed care.

Access to Primary Care

Access is one concept often included in discussions of health care utilization. Unfortunately, the definition of access is not always clear. Some authors have literally defined access as the use of a health care system, while others have broadened the meaning of to include factors that influence the use of a health care system. These factors may be attributed to either the resources or to the individuals seeking the health care (Penchansky & Thomas, 1981). Penchansky and Thomas (1981) define access as "the degree of 'fit' between the clients and the system." This definition of access looks at five dimensions: (1) availability, (2) accessibility, (3) accommodation, (4) affordability, and (5) acceptability.

Availability is a measure of the need versus the availability of health care resources in the community. Accessibility refers to issues of transportation and distance to the health care locations. Accommodation relates to how the health care resources are organized, i.e. clinic hours. Affordability not only deals with direct cost and insurance

issues but also how the community values the care received. Finally, acceptability addresses the perceptions and attitudes the community has towards the health care facility and health care providers, and vice versa (Penchansky & Thomas, 1981).

The relationship between satisfaction with health care access and utilization of health care resources in any given community is theoretically positive. As access to primary care improves, the utilization will also improve. Thomas and Penchansky (1984) studied the relationship between satisfaction with access and utilization of services. A positive relationship between satisfaction with access and utilization was not found when the data from the entire sample population was examined. When the same data was reexamined, separating the participants of the study into demographically homogeneous segments, there was a significant positive relationship with every access dimension except accessibility (Thomas & Penchansky, 1984). Some attribute the inability to identify a relationship between satisfaction with access and utilization in large communities to the multiple extraneous variables such as health care need, race, education, and family size (Roghamann, Hengst, & Zatowny, 1979). In small predominately homogenous communities the extraneous variables may not have such a significant impact on confirming a significant relationship between satisfaction with access and utilization of health care.

Client

There are several unique demographic and sociodemographic challenges to recognize when addressing access to primary care within rural communities. Rural

residents tend to be older, poorer, more disabled, and perceive themselves to be less healthy than urban residents (Geyman and Hart, 1994; Rowland and Lyons, 1989). It would seem logical, then, that the need for primary care services within rural communities is great. Yet the lack of PCPs and large costs associated with primary care prevent residents of rural communities from getting the care they need (Earle-Richardson & Earle-Richardson, 1998).

Elderly

Consistent with the total population of the United States, rural dwellers are living longer. Along with advancing age comes an increased likelihood that primary care services will be accessed for the management of chronic illnesses. Unfortunately, the elderly are often faced with their own unique barriers in seeking health care in a rural area. Rural elderly often have decreased access to transportation which becomes a factor when considering the travel distance to primary care services (Nemet & Bailey, 2000). A study of the relationship between the rate of utilization of health care and distance from health care services among elderly residents in rural Vermont indicated that participants who had to travel greater than ten miles went to their PCP less frequently than those who traveled less than 10 miles (Nemet & Bailey, 2000).

Disabled

It is estimated that over 10% of the world's population possess some type of disability (Frye, 1993). The Americans with Disabilities Act (ADA) defines disability as "a physical or mental impairment that substantially limits one or more major life

activities of an individual, and record of such an impairment, or being regarded as having such an impairment” (One Hundred First Congress of the United States of America, 1990). Individuals with disabilities often require primary care services in order to access specialty care and community resources that are absent in most rural communities (Lishner, Richardson, Levine, & Patrick, 1996).

There are three basic subgroups of disabled persons including the elderly, laborers, and children. Within the rural communities the disabled population primarily consists of elderly with chronic illnesses. Another subgroup of rural disabled is working-age individuals that experience occupational injuries. Donham and Thu (1993) estimate that agricultural workers have a death and injury rate five times that of other occupations. It has also been determined that there is a higher proportion of disabilities among rural children than their urban counterparts (Levey, Curry, and Levey, 1988).

Poor

According to the National Center for Health Statistics, rural residents tend to be poorer and more likely to be uninsured or underinsured than their urban counterparts (McManus & Newacheck, 1989). The lack of payment assistance has the potential to influence access to primary care resources. Individuals with no private insurance, only Medicare or Medicaid coverage, are twice as likely to travel outside the immediate area for health care than individuals with private health insurance (Borders et al., 2000). This data suggests that rural residents without private insurance have a more difficult time accessing local rural primary care.

In 1965 Congress established Medicare, which has provided a means for needy members of communities to access primary care (Stearns et al., 2000). When comparing self-reported access to care, satisfaction with care received, and use of services between rural and urban recipients of Medicare, there was no significant difference in the three measures between rural and urban Medicare beneficiaries (Stearns et al., 2000). These results either indicate that rural Medicare recipients are finding adequate primary care services in their communities or traveling to larger communities for their health care.

Health

Neuman's concept of health does not take into consideration how community systems interpret the various degrees of wellness, which would influence when needed changes are initiated to correct disharmony. The influence that environmental factors, including where someone lives, have on the way in which health is viewed is significant. The perception of health held by individuals can directly influence when and how they choose to access primary care services (Long, 1993).

For many rural residents, health is directly related to their ability to perform daily tasks (Long & Weinert, 1989). A rural resident may be experiencing symptoms of an illness. However, if he is able to work, he will not seek health care. By not actively accessing primary care services when experiencing symptoms of illnesses, not limiting functionality, rural residents may be overlooking a treatable illness that might lead to future disability.

Summary

The rural population is faced with unique barriers to accessing health care. The elderly, disabled, and poor rural residents face additional barriers including the need for specialized care that, in many cases, can only be accessed in regional urban centers.

The review of literature has shown that the measurement of access to rural primary care can be accomplished through determining the utilization of primary care services. Once access has been measured and identified as less than optimal to meet the health care needs of a rural community, the pursuit of additional health care resources by the rural community can be initiated.

The review of literature has also identified the lack of literature regarding rural primary care utilization and access. The reason for the absence of material is not clear. One speculation for the void focuses on the national health care system that is driven by capitalism. The nature of capitalism places great importance on the viability of a health care practice. If the need in rural communities for primary care services does not present a potential profit for health care agencies, little time and resources will be spent studying and understanding the plight of rural health care.

CHAPTER 3

METHODOLOGY

Study Design

This study employed a descriptive correlational design. A telephone survey was used to measure participants' utilization and need of local primary care, demographic and sociodemographic information, and satisfaction with access to primary care services. The four questions relating to utilization and need of primary care included the number of times that primary care was accessed in the last six months, where the health care was sought, how long the participant has known his or her PCP, and whether a chronic illness exists requiring frequent visits to their PCP (Appendix A). Demographic and sociodemographic questions related to age, race, gender, education, duration of residency in Carbon County, and whether the participant lives in or out of town were also asked (Appendix B). The satisfaction of access survey consisted of fourteen questions based on the five dimensions of access including availability, accessibility, accommodation, affordability and acceptability (Appendix C).

Population and Sample

The target population for this study consisted of Carbon County residents 18 years and older. Of the 9,552 residents of Carbon County, approximately 76% (n= 7,260) of the Carbon County population fall into this category (US Census Bureau, 2000). There were two criterion for exclusion to this study. Children under 18-years-old, unable to

legally provide verbal consent, did not participate in the survey. Individuals over the age of 18 unable to provide verbal consent or respond appropriately to the survey questions were also excluded from the study. The method of selection was systematic sampling, using an ordered list of the target population and selecting every third individual. The sampling frame for this study consisted of the various phonebook listings for the towns throughout Carbon County including Belfry, Bridger, Fromberg, Joliet, and Red Lodge. Every third name from these phonebook listings was contacted via telephone randomly starting with the letter of the alphabet drawn from a hat and proceeded alphabetically. Data was collected until one percent of the target population, or 73 participants, had been surveyed. Due to the nature of telephone surveying, the setting for this study was natural with no controls in place. Selection bias might have been present since persons with unlisted telephone numbers and those that did not have telephone service were not included in the sample.

Procedures

After the Human Subjects Review Committee approval was obtained, potential participants were contacted by telephone. The subjects were provided with the identification of the caller and reason for the call. The participants were then asked to verbally agree to complete a telephone survey lasting five to ten minutes. The participants were instructed that their responses would be recorded by hand and that the call was not being audio recorded. Once the survey was completed the subject was provided with the researcher's home phone number and the committee chair's office

phone number and encouraged to call with any questions or concerns related to the study. The data was collected over a four-month period during various times of the day and the week.

The consent process involved the participant's verbal consent once the researcher had thoroughly explained the purpose of the study and the fact that there was no identifiable risks or benefits to participating in the study, and ensured the participant's confidentiality (Appendix D). To ensure confidentiality of the participants and the data provided, numbers were substituted for names. Once the subject had consented to participate he or she was given a number identifier corresponding with the number of participants recorded to that point. Only the researcher and committee members had access to the surveys. The surveys are stored in a locked file cabinet located in the researcher's home and will be destroyed in five years from the completion of the study. The risk of infringing on the rights of the subjects participating in the study was minimized by the absence of deception and coercion within the study's design. Once the data was collected it was entered into SPSS 10.0 software program for analysis. All surveys and floppy disks containing research records are kept secure in the researchers' home along with the surveys.

Instrumentation

The access to care survey used in this study was originally developed in 1974. The purpose of the survey was to identify satisfaction with existing health care resources influencing the choice of health care plans by spouses of General Motors Corporation

employees in Rochester, New York (Penchansky & Thomas, 1981). Based on the concept that access must be evaluated not just by the presence of health care services but by determining the use of them, Thomas and Penchansky (1981) used the data obtained from the survey in the development of their framework for evaluating health care access.

The original survey consisted of sixteen questions related to the five dimensions of access. Four questions related to availability and accommodation, three questions related to affordability and acceptability, and two questions related to accessibility. For the purpose of this study, assessing satisfaction with primary care, the availability question addressing emergency care was not used. The satisfaction with the other patients seen at the clinic was also excluded, leaving a total of fourteen questions. Each question utilized a five-point Likert scale that included the following response selections: very satisfied, satisfied, neutral, dissatisfied, and very dissatisfied.

The tool has reliability and validity. Discriminant validity was determined utilizing a factor analysis on the original sixteen questions. It was established that the participating subjects perceived the dimensions independently and the specific satisfaction questions related to the appropriate corresponding dimension of access. Construct validity was determined by performing five least squares to relate the independent demographic variables to each of the five access dimensions. The range was between zero and one for each of the independent variables. With only 4 of the 306 independent variable pairs correlating above 0.3, primarily weak linear relationships were identified. An example would be an $R=2.92$ indicating that travel time greatly decreased satisfaction with accessibility (Thomas & Penchansky, 1981).

Anderko, Robertson, & Uscian (1998) used Thomas and Penchansky's framework for evaluating health care access, including the utilization of the survey to measure a rural nursing center's effectiveness in improving access to health care in a tri-county area of rural Illinois. The fact that the satisfaction with the access dimensions positively correlated with utilization provides support for the reliability of the survey.

Statistical Analysis

The four utilization and need questions were analyzed by assessing frequency and mean. Frequency and mean analysis was also the manner in which the six demographic and sociodemographic questions were analyzed. In order to assess whether Carbon County residents were seeking their primary care in Carbon County or elsewhere, where the participants were seeking primary care services was analyzed using frequency analysis.

Five multiple variables, corresponding with the five dimensions of access, were formed using the fourteen access to care questions. Satisfaction with access to Carbon County primary care services by the participants in the study was determined by analyzing the multiple variables using frequency and mean analysis.

Pearson's correlation was used to analyze the potential relationship between utilization and satisfaction with access of primary care in Carbon County. The constant variable in each of the analyses was the number of primary care visits to the PCP within the last six months. The additional variables were the multiple variables that were formed using the access to care questions representing the five dimensions of access.

CHAPTER 4

FINDINGS

Introduction

This quantitative study explored utilization and satisfaction with access of primary health care services in Carbon County. Participants were contacted via telephone over a four-month period. The participants completed a survey that included questions related to utilization and need of primary care, demographic and sociodemographic information, and access to care questions. The data collected was analyzed utilizing frequency, descriptive, and correlation analysis.

It is unclear if the residents of Carbon County are fully utilizing the primary care service available to them within their community. This chapter provides a full description of the sample population demographics, sociodemographics, and utilization and needs of primary care services. It also provides a summary of the findings relating to use of Carbon County primary care services, satisfaction with access to primary care in Carbon County, and the presence or lack thereof a relationship between utilization and satisfaction with access.

Sample

A total of 73 residents of Carbon County participated in this study. There were 361 residents contacted in order to acquire the sample. The participants either lived

within one of the county's towns ranging in population from 43 to 2,218 or in the surrounding rural areas.

Demographic and Sociodemographic Measures

Of the 73 participants, 49.3% (n=36) were male and 50.7% (n=37) were female. Participants 54 years and older comprised 46.6% (n=34) of the sample population, and subjects between the ages of 35 to 54 made up 39.7% (n=29). All the participants in this study described themselves as Caucasian. When participants were asked whether they considered their place of residence to be in town or in a rural setting, 56.2% (n=41) stated that they lived in town and 43.8% (n=32) said out of town. The participants of this study were highly educated with 49.3% (n=36) of the participants attaining a college degree or higher. The majority of the participants in this study have lived in Carbon County for over twenty years. Of the 73 participants, 52.1 % (n=38) have lived over twenty years in Carbon County and 9.5% (n=7) for 16 to 20 years.

Utilization and Need of Primary Care Measures

The data indicated that 82.2% (n=60) of the participants have known their PCP for longer than one year as opposed to 17.8% (n=13) of the participants having less than one year of experience with their PCP. When the participants were asked whether they had any chronic conditions that would require regular visits to their PCP, 71.2% (n=52) of them denied having any such conditions. The remaining 28.8% (n=21) of the participants identified conditions requiring regular visits, such as diabetes, hypertension, and hypothyroidism (see Table 1).

Table 1. Demographic, Sociodemographic, and Utilization and Need Measures

	N	Percent
Gender		
male	36	49.3
female	37	50.7
Age		
18-34	10	13.7
35-54	29	39.7
>54	34	46.6
Race		
Caucasian	73	100.0
Native American	0	0.0
African American	0	0.0
Asian	0	0.0
Other	0	0.0
Location of Residency		
Town	41	56.2
Rural	32	43.8
Education		
< High School	5	6.8
High School/GED	21	28.8
Associates Degree /Some College	10	13.7
College Degree	26	35.6
Advanced Degree	10	13.7
Total	72	98.6
Missing Data	1	1.4
Duration of Residency		
0-5 years	10	13.7
6-10 years	12	16.4
11-15 years	6	8.2
16-20 years	7	9.6
>20 years	38	52.1
Knowing PCP		
<1 year	13	17.8
>1 year	60	82.2
Chronic Illness		
No	52	71.2
Yes	21	28.8

Where Carbon County Residents Are Seeking Primary Health Care Services

The first objective of this study was to determine whether the residents of Carbon County are utilizing primary care services within the county or seeking their care in surrounding communities. Of the 73 participants, 76.6% (n=56) stated that they received their primary care services in Carbon County. The remaining participants acquired their primary care in Billings, Columbus, Laurel, and other locations out of the area (see Table 2).

Table 2. Where Primary Care is Sought

	N	Percent
Carbon County	56	76.7
Billings	10	13.7
Columbus	1	1.4
Laurel	4	5.5
Powel, WY	0	0.0
Cody, WY	0	0.0
Other	2	2.7

Satisfaction with Access to Primary Care in Carbon County

The second objective was to determine the level of satisfaction with access of Carbon County primary care services among the residents of Carbon County. The participants were asked fourteen questions relating to satisfaction with access to primary care in Carbon County. The individual questions were then organized into multiple variables corresponding to the five dimensions of access including availability, accessibility, accommodation, affordability, and acceptability. The results from the

individual questions were analyzed using frequency and descriptive analysis, while the multiple variables were analyzed using only descriptive analysis.

Availability

Three questions reflected the participants' satisfaction with the availability of primary care services in Carbon County. The first question addressed the participants' perceptions of their ability to receive good primary health care in Carbon County. Of the participants rating their satisfaction with the availability of good primary care in Carbon County, 65.6% (n=58) were either very satisfied or satisfied, while 6.8% (n=5) were either dissatisfied or very dissatisfied. The mean score for satisfaction with being able to find good medical care in Carbon County was 3.90 based on the five point Likert Scale.

Satisfaction with being able to find a good PCP in Carbon County was also rated positively by the participants with 65.8% (n=48) stating that they were satisfied or very satisfied. The mean score for question #2 was 3.95.

Participants were also asked how satisfied they are with their general knowledge of where to receive primary health care in Carbon County. The majority of participants answered with very satisfied, 31.5% (n=23), and satisfied, 46.6% (n=34), while 5.5% (n=4) of the remaining participants rated their satisfaction as either dissatisfied or very dissatisfied. The mean score for satisfaction with being able to find a good PCP in Carbon County was 4.03 (see Table 3).

Table 3. Availability

	N	Percent	Mean
Question #1			
Very Satisfied	25	34.2	3.90
Satisfied	23	31.5	
Neutral	20	27.4	
Dissatisfied	3	4.1	
Very Dissatisfied	2	2.7	
Question #2			
Very Satisfied	28	38.4	3.95
Satisfied	20	27.4	
Neutral	20	27.4	
Dissatisfied	3	4.1	
Very Dissatisfied	2	2.7	
Question #3			
Very Satisfied	23	31.5	4.03
Satisfied	34	46.6	
Neutral	12	16.4	
Dissatisfied	3	4.1	
Very Dissatisfied	1	1.4	

Accessibility

The first of the two questions addressing accessibility asked the participants to rate their satisfaction with the convenience of Carbon County primary care clinics in relationship to their residence. Of the 73 participants, 83.6% (n=61) rated their satisfaction as very satisfied or satisfied with the location of Carbon County clinics. The mean score for satisfaction with the convenience of clinic locations was 4.30.

The participants' satisfaction with their ability to get to their local Carbon County PCPs' Offices was high with 52.1% (n=38) very satisfied and 31.5% (n=23) satisfied. Of the remaining participants, 6.8% (n=5) were dissatisfied. The mean score was 4.29 (See Table 4).

Table 4. Accessibility

	N	Percent	Mean
Question #4			
Very Satisfied	38	52.1	4.30
Satisfied	23	31.5	
Neutral	8	11.0	
Dissatisfied	4	5.5	
Very Dissatisfied	0	0.0	
Question #5			
Very Satisfied	38	52.1	4.29
Satisfied	23	31.5	
Neutral	7	9.6	
Dissatisfied	5	6.8	
Very Dissatisfied	0	0.0	

Accommodation

The participants were asked to rate four different measures of accommodation to include waiting time for an appointment, clinic hour convenience, waiting time in the waiting room, and ease at which their PCP could be contacted. Of the 62 participants that rated their satisfaction with the waiting time for an appointment, 45.2% (n=33) ranked their satisfaction as very satisfied and 28.8% (n=21) answered with satisfied. The mean score for satisfaction with waiting time for appointments was 4.39.

When asked to rate their satisfaction with the convenience of clinic hours, 39.7% (n=29) answered with very satisfied, 41.1% (n=30) voiced a rating of satisfied, 9.6% (n=7) were neutral, and 4.1% (n=3) were dissatisfied. The mean score for the satisfaction with clinic hours was 4.23.

The participants were also asked to rate their satisfaction with the waiting time from the time they step into the clinic until the PCP sees them. A total of 61 participants answered the question with 35.6% (n=29) rating their satisfaction as very satisfied and

38.4% (n=28) satisfied. The mean score for satisfaction of the waiting room wait was 4.28.

Participants that rated their satisfaction with their ability to contact their PCP as very satisfied consisted of 39.7% (29) of the participants while 37% (n=27) were satisfied. Only 2.7% (n=2) of the participants were dissatisfied. The mean score for satisfaction with the accessibility of the PCP was 4.24 (see Table 5).

Table 5. Accommodation

	N	Percent	Mean
Question #6			
Very Satisfied	33	45.2	4.39
Satisfied	21	28.8	
Neutral	7	9.6	
Dissatisfied	1	1.4	
Very Dissatisfied	0	0.0	
Missing Data	11	15.1	
Question #7			
Very Satisfied	29	39.7	4.23
Satisfied	30	41.1	
Neutral	7	9.6	
Dissatisfied	3	4.1	
Very Dissatisfied	0	0.0	
Missing Data	4	5.5	
Question #8			
Very Satisfied	26	35.6	4.28
Satisfied	28	38.4	
Neutral	5	6.8	
Dissatisfied	2	2.7	
Very Dissatisfied	0	0.0	
Missing Data	12	16.4	
Question #9			
Very Satisfied	29	39.7	4.24
Satisfied	27	37.0	
Neutral	9	12.3	
Dissatisfied	2	2.7	
Very Dissatisfied	0	0.0	
Missing Data	6	8.2	

Affordability

Satisfaction with affordability was ascertained by asking the participants three questions relating to satisfaction with their health insurance, cost of health care, and the time in which their medical bills needed to be paid. Of the 60 participants that rated their satisfaction with their health insurance, 28.8% (n=21) were very satisfied and 34.2% (n=25) were satisfied while 4.1% (n=3) were very dissatisfied. The mean score for the satisfaction with health insurance was 4.02.

Of the 67 participants that rated their satisfaction with the cost of health care in Carbon County, 39.7% (n=29) were either very satisfied or satisfied. Of the remaining participants, 28.8% (n=21) individuals voiced neutrality while the remaining 23.2% (n=17) were dissatisfied or very dissatisfied. The mean score for satisfaction with the cost of primary health care in Carbon County was 3.21, the lowest of all the mean scores.

The participants were also asked how satisfied they were with how soon they need to pay their bills from their Carbon County PCP. The majority of the 57 participants, 42.5% (n=31), were satisfied. Of the remaining participants, 19.2% (n=14) were very satisfied while only 2.7% (n=2) were dissatisfied. The mean score for satisfaction with the timing in which payment is required was 4.00 (see Table 6).

Table 6. Affordability

	N	Percent	Mean
Question #10			
Very Satisfied	21	28.8	4.02
Satisfied	25	34.2	
Neutral	11	15.1	
Dissatisfied	0	0.0	
Very Dissatisfied	3	4.1	
Missing Data	13	17.8	
Question #11			
Very Satisfied	4	5.5	3.21
Satisfied	25	34.2	
Neutral	21	28.8	
Dissatisfied	15	20.5	
Very Dissatisfied	2	2.7	
Missing Data	6	8.2	
Question #12			
Very Satisfied	14	19.2	4.00
Satisfied	31	42.5	
Neutral	10	13.7	
Dissatisfied	2	2.7	
Very Dissatisfied	0	0.0	
Missing Data	16	21.9	

Acceptability

The last two access to care questions correspond with the access dimension of acceptability. The first of the two questions asked the participants to rate their satisfaction with the general appearance of their Carbon County clinics. Of the 72 participants that answered this question, 91.7% (n=67) were very satisfied or satisfied with their clinics' appearances. The mean score for satisfaction with the appearance of their primary care clinic was 4.50.

The second question asked the participants how satisfied they were with the general appearance of the neighborhood in which their Carbon County clinic was located.

Of the participants rating the appearance of the clinics, 93.1% (n=68) of the participants were very satisfied or satisfied with the surrounding area in which the clinics were located. The mean score for satisfaction with the appearance of surrounding neighborhoods was 4.52, the highest of the mean scores (see Table 7).

Table 7. Acceptability

	N	Percent	Mean
Question #13			
Very Satisfied	42	57.5	4.50
Satisfied	25	34.2	
Neutral	4	5.5	
Dissatisfied	1	1.4	
Very Dissatisfied	0	0.0	
Missing Data	1	1.4	
Question #14			
Very Satisfied	42	57.5	4.52
Satisfied	26	35.6	
Neutral	2	2.7	
Dissatisfied	0	0.0	
Very Dissatisfied	1	1.4	
Missing Data	2	2.7	

Satisfaction with the Five Dimensions of Access

The fourteen access to care questions were organized into five categories corresponding with the five dimensions of access. Descriptive analysis was performed on the five multiple variables that were created producing a mean satisfaction score for each dimension. The highest score was 4.51 for satisfaction with acceptability, while the lowest score was 3.72 for satisfaction with affordability. All of the mean scores for the five dimensions of access were within a half of a point from the score of four, or

satisfied. When the mean scores were combined, the resulting overall satisfaction with access score was 4.153 or just above the rating of satisfied (see Table 8).

Table 8. Satisfaction of the Five Dimensions of Access

Dimensions of Access	Mean Score
Availability	3.96
Accessibility	4.295
Accommodation	4.28
Affordability	3.72
Acceptability	4.51
Overall Mean Score	4.153

Relationship Between Utilization and Satisfaction with Access

The third objective was to determine whether there is a relationship between utilization of primary care services in Carbon County and residents' satisfaction with access to the primary care services.

Visits to PCP in the Last Six Months

The data collected regarding the number of visits to the participants' PCPs in the last six months was organized into four categories including zero visits, 1-3 visits, 4-6 visits, and >6 visits. The majority of the participants, 60.3% (n=44), had seen their PCP 1 to 3 times in the last six months. Of the remaining participants, 24.7% (n=18) did not see their PCP in the previous six months, 11.0% (n=8) had 4 to 6 visits, and only 4.1% (n=3) of the participants went to their PCP more than six times in the last six months (see Table 9).

Table 9. Visits to the PCP in the Last Six Months

	N	Percent
0 visits	18	24.7
1-3 visits	44	60.3
4-6 visits	8	11.0
>6 visits	3	4.1

Bivariate Analysis of Utilization and Satisfaction with Access to Care

In order to determine a relationship between the utilization of primary care services in Carbon County and the residents' satisfaction with access to primary care services, Pearson's correlation analysis was used. The data pertaining to the number of visits to the participants' PCPs in the last six months was entered into Pearson's correlation analysis along with the multiple variables corresponding with the five dimensions of access. The results ranged from a negative linear relationship of $-.121$ between the number of visits to the PCP and affordability to a positive linear relationship of $.625$ between availability and accommodation. Significant positive relationships were found among the various dimensions of access except for accessibility and accommodation and accessibility and affordability. There were no significant relationships between the number of visits to the PCP and the satisfaction with access to primary care services in Carbon County (see Table 10).

Table 10. Analysis of Utilization and Satisfaction with Access

	PCP Visits	Avail	Access	Accom	Afford	Accept
PCP Visits						
Pearson Correlation	1.000					
Significance						
N	73					
Availability						
Pearson Correlation	.051	1.000				
Significance	.670					
N	73	73				
Accessibility						
Pearson Correlation	-.040	.446**	1.000			
Significance	.735	.000				
N	73	73	73			
Accommodation						
Pearson Correlation	-.022	.625**	.215	1.000		
Significance	.869	.000	.097			
N	61	61	61	61		
Affordability						
Pearson Correlation	-.121	.291*	.017	.312*	1.000	
Significance	.375	.029	.901	.019		
N	56	56	56	56	56	
Acceptability						
Pearson Correlation	.066	.480**	.331**	.604**	.329*	1.000
Significance	.585	.000	.005	.000	.013	
N	71	71	71	61	56	71

(**) Correlation is significant at the 0.01 level

(*) Correlation is significant at the 0.05 level.

CHAPTER 5

DISCUSSION

The purpose of this study was three-fold: (1) to determine whether the residents of Carbon County are using the primary care services within the county or seeking services elsewhere; (2) to determine the level of satisfaction with access to primary care services among Carbon County residents; (3) to identify any relationships between satisfaction with access of primary care services in Carbon County and utilization of services. The findings of this study indicate that Carbon County residents stay within the county for their primary care needs. The data also shows that residents of Carbon County are satisfied with access to primary care as defined by the five dimensions of access. The results of this study did not identify a significant relationship, positive or negative, with satisfaction with access and use of Carbon County primary care services.

Evaluation of ResultsDemographic and Sociodemographic Measures

The demographic data collected is consistent with the overall characteristics of the Carbon County population. The gender, age, and race distribution of the sample population is similar to 2000 US Census Carbon County estimates. According to the estimated 2000 Census, 51.7% of Carbon County residents are female while the remaining 48.3% are male (US Census Bureau, 2000). The gender distribution of the sample population was 50.7% female and 49.3% male, which is similar to the census

results. Participants of the study between the ages of 18 and 34 make up 13.7% of the sample population while 39.7% were between 35 and 54 years-of-age. The remaining 46.6% were over the age of 54. These percentages of participants falling into the three age categories compares to Carbon County data of 19.8%, 41.7%, and 38.4%, respectively (US Bureau of Census, 2000). All of the participants in the study identified their race as Caucasian. The results are consistent with US Bureau of Census estimates (2000) of 99% of the Carbon County population identified as Caucasian.

Two categories of sociodemographic data did not appear to truly represent the population of Carbon County. The first category is the location of residency. Of the 73 participants, 56.2% of them identified their home to be within one of the county's towns, a slight deviation from census estimates of 44.9% of Carbon County residents living within the limits of a town (US Bureau of Census, 2000). The difference in the data may be due to how the participants perceive what designates living in town verses out of town.

The second category deviating from census information is educational attainment of Carbon County residents. According to the US Bureau of Census data (1990), 21.9% of Carbon County residents 18 years and older had not completed high school. Of the remaining residents, 33.3% completed high school, 25.6% residents had an associate's degree or some college, 13.9% had college degrees, and 5.3% possessed advanced degrees. Study participants not completing high school represented only 6.8% of the sample population while 28.8% had high school diplomas, 13.7% attained an associate's degree, 35.6% had college degrees, and 13.7% possessed advanced degrees. The results show that the participants of this study tended to be more educated than the Carbon

County average. One possible answer for this irregularity is that of the 439 residents that were contacted, it was the more highly educated residents that agreed to participate in the study. Perhaps the higher the level of education, the more likely a person is to recognize the potential benefit from research, and therefore, the more interest in participating.

Influence of Independent Variables

When the demographic, sociodemographic, and utilization and need measures were cross-tabulated with the data pertaining to where primary health care was sought, no significant pattern of influence could be attributed to any individual variable. The findings were the same when cross-tabulation was performed using the five dimensions of access variables, which assessed satisfaction of access to primary care in Carbon County. The results may represent reality or could indicate that the sample size was not adequately large enough to show significant relationships.

Significant Relationships

Although no significant relationship was identified between the utilization of primary care services and satisfaction with access in Carbon County, significant positive relationships were found among access to care questions within their corresponding dimension. The finding reinforces the validity of the tool used first validated by Thomas and Penchansky (1984).

Study Limitations

Selection Bias

As mentioned earlier, selection bias could have been present since persons with unlisted telephone numbers and those that do not have telephone service could not be included in the study. It also became apparent as the data was collected that the time of the day the participant was contacted produced a selection bias. During working hours the participants contacted were often retired elderly or stay at home moms as compared to a more diverse group of participants contacted after working hours.

Generalizability of Findings

There are two significant factors limiting the generalizability of the findings. The first is the racially homogeneous composition of the sample population. International and urban communities with diverse populations might not be able to relate these findings to their own community. The second factor influencing the generalizability is the sample size. The 73 participants in the study comprise one percent of Carbon County's population over the age of 18. It is questionable whether one percent of the Carbon County population could provide a true representation of rural residents as a whole.

Nursing Implications

This study found that the residents of Carbon County utilized the primary care services within the county and were satisfied with the services they received. For the residents of Carbon County and other frontier counties to continue to have the

opportunity to receive local primary care services, the nursing community must act as advocates. Nurses must work together with rural residents to lobby the federal and state governments for assistance in maintaining accessible health care in rural communities. The nurses within the community must facilitate and mobilize local resources to help maintain the current services within their community and acquire additional resources when necessary.

Nursing education must provide future nurses with insight into practical and theoretical issues of rural health care. Providing a better understanding of the actual and perceived health care needs of rural residents will help the student nurse transition into not only an agent of wellness but an agent of change within his or her community. Empowering future nurses to identify needs, lobby for and mobilize available resources, and facilitate change within rural communities will ultimately promote wellness.

Using FNPs, not as affordable substitutes for Physicians but as specially trained agents of health and change within rural communities will help to assist in maintaining satisfaction with primary care in rural communities. FNPs could not only practice within the population center of a frontier county but could provide outreach programs in the outlying communities. The possibility of visits to homebound and elderly clients would also provide rural residents with additional resources, allowing them to stay within their community for care.

Recommendations for Future Research

Additional research is needed in order to validate the findings of this study. Studies that utilize other methodology and design will allow for a more accurate picture of the use and satisfaction of access to rural primary care services. The relationship between utilization of services and independent variables must also be further studied. Future research should be focused on the individual factors influencing rural residents' health care choices. If the independent variables influencing use of primary care services in rural communities can be identified, PCPs will be better able to appropriately distribute the limited resources available within rural communities.

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APPENDICES

APPENDIX A

UTILIZATION AND NEED OF PRIMARY CARE SERVICES QUESTIONNAIRE

In the last six months how many times have you been to your primary care provider (PCP)?

0 1 2 3 4 5 6 7 8 9 10

How long have you been going to your primary care provider?

<1=0

>1=1

Do you have any chronic illnesses that would require regular visits to your PCP?

no=0

yes=1

Where did you/do you seek health care? Carbon County=0

Billings=1

Columbus=2

Laurel=3

Powel, WY=4

Cody, WY=5

Other=6

APPENDIX B

DEMOGRAPHIC AND SOCIODEMOGRAPHIC QUESTIONNAIRE

Gender: Male=0
Female=1

Age: 18-34=0 35-54=1 >54=3

Location: Town=0 Rural=1

Duration of residency in Carbon County:
0-5=0 6-10=1 11-15=2 16-20=3 >20=4 Seasonal Resident=5

Education: <High School=0
GED/High School=1
Associates Degree=2
College=3
Advanced Degree=4

Race: Caucasian=0
Native American=1
African American=2
Asian=3
Other=4

APPENDIX C

ACCESS TO CARE QUESTIONNAIRE

Very Satisfied=5 Satisfied=4 Neutral=3 Dissatisfied=2 Very Dissatisfied=1

1. All things considered, how much confidence do you have in being able to get good medical care in Carbon County?
1 2 3 4 5
2. How satisfied are you with your ability to find one good health care provider in Carbon County?
1 2 3 4 5
3. How satisfied are you with your knowledge of where to get health care in Carbon County?
1 2 3 4 5
4. How satisfied are you with how convenient your health care professional's offices in Carbon County is to your home?
1 2 3 4 5
5. How satisfied are you with your ability to get to your Carbon County health care provider's office?
1 2 3 4 5
6. How satisfied are you with how long you have to wait to get an appointment?
1 2 3 4 5
7. How satisfied are you with how convenient clinic hours are?
1 2 3 4 5
8. How satisfied are you with how long you have to wait in the waiting room?
1 2 3 4 5
9. How satisfied are you with how easy it is to get in touch with your Carbon County health care provider?
1 2 3 4 5
10. How satisfied are you with your health insurance?
1 2 3 4 5
11. How satisfied are you with your health care provider's prices in Carbon County?
1 2 3 4 5
12. How satisfied are you with how soon you need to pay the bill?
1 2 3 4 5

13. How satisfied are you with the appearance of the health care facilities in Carbon County?
1 2 3 4 5

14. How satisfied are you with the neighborhoods the clinic offices are in?
1 2 3 4 5

The satisfaction with access portion of the survey was adapted from a survey conducted in Rochester, New York, in 1974. Author unknown.

APPENDIX D

CONSENT STATEMENT

Good (morning, afternoon, or evening), my name is Scott Oldfield and I am a graduate student from Montana State University-Bozeman. I am in the process of working on a study that looks at the use of the health care services in Carbon County. Would you be willing to take 15 to 20 minutes to answer a few questions about your satisfaction and use of health care in Carbon County? There is no identifiable risks or direct benefits from participating in this survey. The information from the survey will be reported as group data in a written report and presentation. The information that you provide will be kept confidential.

YES

NO

Should you have any additional questions about participation in this survey please feel free to contact me at any time at (406)-256-3825 or Karen Zulkowski, my committee chairperson, during business hours at (406)-657-1739.

MONTANA STATE UNIVERSITY - BOZEMAN



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