DISTANCE AND ACCESS TO HEALTH CARE FOR RURAL WOMEN WITH HEART FAILURE

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ABSTRACT

Background and Research Objective: Heart Failure (HF) is a disease state requiring ongoing and specialized health care. For persons living in rural areas, access to care may be delayed or difficult as best due to the distance involved. Distance to obtain health care can be further confounded by such issues as weather and lack of transportation. To further understand these issues, a sample of women diagnosed with HF and living in rural upstate New York was studied to explicate the impact of distance and weather on access to health care.
Sample and Method: A convenience sample of 45 women living in upstate New York diagnosed with HF was studied to assess the impact of distance and the associated issues on accessing health care. Mileage to primary care and specialty care was quantified. Frequencies for associated issues such as the need for emergency care, weather, and the ability to drive were measured.
Results and Conclusions: The mean distance to obtain primary care was 6.4 miles, while the mean distance to obtain cardiology care was 32.6 miles. However, only 50% of the sample actually sought ongoing care from a cardiologist. When assessing the impact of weather or distance on access to health care, no significant influences were found. However, with increasing age, weather was shown to approach significance (p=. 059). These findings further illustrate the ongoing issues experienced by rural dwellers when accessing health care for HF.

INTRODUCTION

Accessing health care in rural areas is confounded by such varied problems as an insufficient health infrastructure, the press of chronic diseases and disabilities, socioeconomic barriers, and physical barriers (Ricketts, 2001). Many rural dwellers must travel formidable distances to obtain even the most basic of health care services. Distance issues may be further affected by accessibility of transportation, the inability to drive, lack of a driver's license, physical and mental impairments that may impact the use of public transportation, and severe or inclement weather (Bushy, 1993). Understanding how rural dwellers perceive distance when accessing health care is an important in factor in policy formation as well as service delivery. To better understand this phenomenon, a sample of older rural women in upstate New York diagnosed with heart failure (HF) was studied to better understand the impact of distance on accessing health care services. This paper describes the findings of this research.

DISTANCE

Henson, Sadler, and Walton (1998) defined distance as "a degree of separation between two or more entities" and added that "the nature of that entity may be in space,

time, or behavior" (p. 51). Distance can be measured in various ways including linear distance on a map, road distance, travel time, perceived distance, perceived travel time, and distance to the nearest provider (Arcury, Gesler, Preisser, Sherman, Spencer, & Perin, 2005). Distance is comprised of three attributes including mileage, time, and perception (Henson, Sadler, & Walton, 1998). Nemet and Bailey (2000) found that elders in Vermont who had to travel longer than 10 miles tended to go to physicians less often. In addition, distance in miles can be compounded by weather or physical barriers. Persons living in rural Appalachia have been found to receive less preventative and routine health care because of the mountainous and relatively inaccessible terrain (Gatz, Rowles, & Tyas, 2004). This effect however is not universal. In rural North Carolina, distance was not found to be associated with either acute or chronic health care utilization (Arcury, Gesler, Preisser, Sherman, Spencer, & Perin, 2005).

While distance may impact access to health care from rural areas, this factor is also confounded by the availability of affordable care. Health insurance coverage differs for the rural population, with fewer persons having private insurance because of the industries in which they are employed or because of part-time employment status (Schur & Franco, 1999). Farmers and persons who are self-employed or work in small establishments often lack health insurance. Twenty percent of rural persons are uninsured as compared to 16% of urban residents (Schur & Franco, 1999).

Of concern is the fact that rural dwellers tend to use fewer health care services than their urban counterparts. Use of health services by elders was studied over an 8-year period at a South Carolina Area Agency on Aging; findings indicated that urban dwellers were twice as likely to use services as rural dwellers (Wallace, Lockhart, & Boyle, 1995). Similarly, (1998) examined readmissions of 9,112 persons with HF to New York hospitals over the period of a year and discovered that patients treated in rural hospitals were less likely to be readmitted. In contrast, those with higher readmission rates were Black, had Medicare and Medicaid insurance, had more co-morbid conditions such as chronic lung disease or diabetes, and had experienced the need for telemetry monitoring during their hospitalizations. The North Carolina Health Resource Program (Slifkin, Goldsmith, & Ricketts, 2000) also found that rural minorities were more disadvantaged than urban dwellers in several areas, including cardiovascular disease. This disadvantage was related to the higher levels of poverty in rural areas and the historical access problems in rural areas.

Even if transportation is available, health care providers may be in short supply. About 20% of the U.S. population lives in rural areas, but only about 9% of the nation's physicians serve that population (Rosenblatt & Hart, 1999). Large metropolitan areas have 304 active physicians per 100,000 population, and small metropolitan areas have 235. Rural areas average much lower numbers of physicians, with rural areas not adjacent to metropolitan areas having only 53 physicians per 100,000 persons (Rosenblatt & Hart, 1999). Although federal programs have been successful in redistributing family practitioners to rural areas, specialists are underrepresented in rural areas. Metropolitan counties have 190 specialists per 100,000 persons, whereas non-metropolitan counties have only 54.6 specialists per 100,000 persons (Schur & Franco, 1999).

Distance compounds the issue of time which is especially critical in situations such as time to receive trauma care. Rural persons are 50% more likely to die from trauma than urban dwellers (Young, Torner, Sihler, Hansen, Peek-Asa, & Zwerling,

2003). Uneven distribution of services may also confound the issue of distance in rural areas. Rural residents are less likely to obtain the services of a specialist. Rural persons who reported poor health were found not to have visited a physician in the past year (Schur & Franco, 1999). As managed care systems evolve, there is concern that these systems will restrict their services to areas with ample insurance and large aggregates of population, leaving rural areas without access to quality health care (Rosenblatt & Hart, 1999). Rural dwellers also must be concerned about reaching specialists care, filling prescription medications, and obtaining emergency care (Lee & Winters, 2004).

Bushy (1993) wrote that rural perceptions of time and space vary. Indeed, even long distances may not be seen as isolating by rural dwellers who utilize trips from rural areas to perform multiple tasks along the way. Rural persons have been found not to expect to have services available locally and expect to have to travel to receive those services (Pierce, 2001). Bushy (2000) wrote that perception of distance in rural areas can be altered by the person's sense of social connectedness and that persons who live miles apart may consider each other as neighbors. Perceptions about distance in rural areas are currently shifting due to the advance of communication technologies and the net effects of globalization (Rosenblatt, 2001).

CONCEPTUAL MODEL

This research is rooted in the work of Moos (1979) who developed a socioecological model illustrating the transaction between an individual, the environment and health. The primary interaction occurs between the individual and the environment, which is comprised of such factors as distance, temperature, weather, and topography. This interaction influences the level of the individual's cognitive appraisal, the degree of activation, which activates the individual and allows for coping to occur. Coping with the environmental press ultimately impacts health status and health related behaviors. These actions ultimately provide feedback to both the individual and the environmental systems (Moos, 1979). This research focuses on the physical portion of the environment as well as the cognitive appraisal of the environment in reference to health seeking behaviors.

DESIGN AND METHODS

The purpose of this study was to gain a further understanding of the impact of distance on access to health care for rural women in upstate New York diagnosed with heart failure. A descriptive correlational design was used to explicate such factors as distance and time involved in assessing routine and cardiology health care. It was hypothesized that distance, weather and other environmental factors would negatively influence access to health care.

SAMPLE

Approval for this study was obtained from the Human Subjects Research Review Board at Binghamton University. A convenience sample of 45 women aged 65 years or older constituted the subjects of this study. These women were diagnosed by a primary care provider with HF related to any cardiovascular condition. The women were recruited

from primary health care practices located in rural areas in rural upstate New York State classified according to the Beale code levels 6 through 9 of the Rural-Urban Continuum Code for New York (U.S. Department of Agriculture, 2001).

FINDINGS

The mean age of this sample of rural women was 77.7 years (range= 65-98 years). The mean age at time of diagnosis with HF for this group was 71.6 years (range = 54-93). All of the women described themselves as White.

Table 1 lists the findings related to the demographic variables including marital status, length of residence, yearly household income, educational level, and insurance coverage. The largest percentage of this sample were widowed (48%), while 29 (42.2%) were married. More than half of the women (55.5 %) listed their yearly household incomes at less than $20,000. The majority obtained a high school education or less, while the remainder had attended college. Nearly half of the women (46.7%) lived alone, while 19 (42.2%) lived with one other person. Five persons stated that they lived in households of three or more persons.

Table 1
Demographic Findings

Demographic	N	%
Marital status		
Single	2	4.4
Married	19	42.2
Divorced	2	4.4
Widowed	22	48.9
Years at current residence		
1-5	8	17.8
6-20	14	31.1
21-72	23	51.1
Yearly household income		
$0-10,000	10	22.2
$10,001-20,000	15	33.3
$20,001-30,000	6	13.3
$30,001-50,000	4	8.9
No response	10	22.2
Years of education		
1-6	1	2.2
7-12	26	57.8
12-16	14	31.1
> 16	14	8.9
Years of education		
Medicare	40	89.0
Medicaid	6	13.3
Private	23	51.0

The following self-reported co-morbidities were found: hypertension (71.1%), diabetes (37.8%), myocardial infarction (35.6%), COPD (15.6%), CVA (15.6%), history of cancer (15.6%), and kidney disease (6.7%). Fourteen (31.1%) reported 2 co-morbidities, 11 (24.4%) reported 3 co-morbidities, and 4 (8.9%) reported 4 or more co-morbidities. The researchers assessed a New York Heart Association classification level based on the women's report of symptoms. Fourteen (31.1%) of the women exhibited symptoms at Class 1, 18 (40%) at Class 2, 13 (28.8%) at Class 3, and none at Class 4.

Twenty-five (57%) of the women stated that they smoked in the past, and 3 (7%) currently smoked. Pack/years for the past and current smokers averaged 30.3 (range 3-70 pack/years). The women listed the medications they were currently taking with the average number per subject being 8.14 (range 3-19). Forty-three (96%) stated that they "Always" took their medications as ordered and only two (4%) women stated that they occasionally forgot to take their medications.

None of the women in this study lived in areas with access to public transportation. Therefore, the women were obligated to arrange for private transportation to health care providers. The average distance to the local provider for this sample was 6.5 miles. This number appears to be lowered significantly by the presence of several small clinics placed in small towns throughout the area by two competing hospital systems from a nearby city. The rural offices were usually staffed by a part-time physician, a nurse practitioner, and an office assistant. One woman was cared for by a physician who visited her in her home, and another woman with severe symptoms used a scooter for transportation to the doctor's office that was close to her home. Some women were able to walk to a doctor's office or drove only a very short distance. The longest commute to a primary provider for this study was 30 miles. The relatively short commute times may reflect changing methods of providing health care services driven by managed care. This trend is reflective of the findings of Rosenblatt and Hart (1999) who found that 90% of rural areas are in services areas covered by managed care providers that increase access to providers and provide institutional support to physicians in communities that would be unable to support such services independently.

Table 2 presents the information regarding access to primary and cardiology care. It was found that 53% women were driven to the primary provider, while 91% were driven to the cardiology providers presumably because these offices were further away from their homes. The women stated that they were grateful to have services close to their homes and were very pleased with the quality of the care received there. Surprisingly, not all of the women eligible for Medicare were enrolled.

Table 2
Access to Rural Health Care

Access method	Primary (MD/ NP)	Cardiology (MD/NP)
Routine care	45.0 (100%)	22.0 (49%)
Miles to office	6.4 (0-30 miles)	32.6 (1-90 miles)
Minutes to office	13.2 (0-35 min)	39.1 (10-90 min)
Drive self	21.0 (47%)	4.0 (9%)

Only fifty per cent of the women in this sample were treated regularly by a cardiologist and the average distance traveled to see that provider was 32 miles, while some of the women traveled as far as 90 miles to see a cardiologist. Schur and Franco (1999) found a great disparity in the availability of specialists between urban and non-Metro areas and a 15% deficit in the volume of services provided to Medicare beneficiaries in non-Metro areas. While many of the women in this study drove many miles to see specialists in urban areas, it was noted that there were visiting cardiologists in the small town clinics maintained by the hospital systems in this area. This reflects a trend initiated by the Medicare administration to increase the amount of care provided by specialists close to the homes of persons requiring that care (Health Care Financing Administration, 2001).

Although some of the women had significant distance or time involved in traveling to health care, only 12 (29%) of the women indicated that weather kept them from keeping health care appointments. The women who did not drive themselves to appointments responded that they were transported by family members. These included husbands, children, or grandchildren, or neighbors. Only one woman who was driven to health care appointments by a neighbor paid for this transportation.

In addition, access to emergency care in rural areas was determined with questions about the availability of 911 service and the time until arrival of emergency responders. Thirty-seven (82%) of the women stated that 911 was available in their locality. Twelve (27%) of the group had received emergency care at home. Of this group, the average time from the call for help until the arrival of the emergency responders was approximately 9 minutes and this service was provided by a network of volunteer ambulances in rural areas. All of the women who required emergency health care in their homes rated the quality of service as good. When asked about use of emergency services without using an ambulance, the women described calling children or a neighbor to take them to a hospital or other facility for care. The average time to access this care after leaving home was over 18 minutes. Sixteen (36%) of the subjects had visited an emergency department in the past year for symptoms of HF, and 11 (24%) of the women had been admitted to the hospital during the previous year for treatment of HF. See Table 3 for the findings related to ED and hospital admissions.

Table 3

ED Visits and Hospital Admissions in Previous Year for HF

Year	ED Visits	Hospital Adm.
1	10 (22%)	8 (18%)
2	3 (7%)	2 (4%)
3	2 (4%)	1 (2%)
4	1 (2%)	0

When applying correlational statistics to environmental factors including distance and weather on access to health care for rural women with heart failure, no significant findings emerged. There was however, a trend that weather might impact access to care which approached significance (p=. 059). This finding supports previous research which

indicates that rural dwellers manage to access health care in spite of obstacles presented by distance (Arcury, Gesler, Preisser, Sherman, Spencer, & Perin, 2005; Pierce, 2001).

CONCLUSIONS

Rural women with HF need ongoing and specialized health care. The distance to obtain that care, while considered by most rural dwellers as a normal part of rural life, must be factored into each person's decisions about access to health care and emergency care. The lack of full-time primary or specialty care in rural clinics, lack of emergency providers during traditional work hours, limited access to 911, limited or non-existent public transportation, lack of insurance or underinsurance, and weather restrictions are some of the factors that put direct access to appropriate health care for rural dwellers in jeopardy.

Nurses who provide health and emergency care for rural women with HF must be aware that women with HF take living in rural areas in their strides, but they often must rely on others to provide transportation to that health care, especially if it is at a distance from their homes. Older women with heart failure may have an increased need for help accessing health care in bad weather and this need coordination of transportation and or health care available at home. Nurse practitioners who specialize in cardiac diseases such as heart failure have the specialized skill set necessary to provide sophisticated care in rural areas thus offsetting access issues. The need for increased funding to provide both education and placement of nurse practitioners in rural areas must be communicated to the appropriate legislators.

Discussions about access to emergency care must take place with the knowledge that rural areas often rely on volunteer services which may delay the time involved. While this sample of women obtained the health care they needed in spite of distance, transportation issues, and / or weather, it must be noted that some rural dwellers may forgo ongoing care for these reasons. Weather is not found to be a concern for rural women who must deal with this on a routine basis in certain areas in the country, but contingency plans for maintaining a continuity of care for HF should be discussed. This is especially important as women get older and travel in poor weather may present issues of safety. Nurses must be aware that access for rural dwellers to specialty care for such diseases as HF presents some unique difficulties in accessing health care and planning in advance for that care is key to successful management strategies.

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