THE EFFECT OF HEALTH CARE COVERAGE ON MEDICAL COST, UTILIZATION, AND WELL-BEING OF THE AGED

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Abstract

The relationship of medical insurance, utilization and health status indicators were examined for 463 elderly individuals. The uninsured were less well and tended to utilize the health care system more often than those with more types of coverage. Need was found to be the best predictor of utilization. A profile describing those with above average levels of well-being was also developed. Methodological issues and health care policy recommendations were discussed.

The purpose of medicare, medicaid, private insurance, and other medical coverage is to help provide and pay for the cost of health care and related services. It has been estimated that virtually every elderly person in the United States (99.4%) is entitled to some type of health care coverage with approximately 70-75% possessing private insurance (McMillan and Gornick, 1984; Statistical Abstract, 1986). The nature and extent of health care protection and benefits provided vary greatly across coverages and between individuals. Also, for 1987, it was estimated that approximately 200,000 older Americans had no health care coverage at all (Statistical Abstract, 1986). Is there an association between health insurance coverage, medical cost, utilization, and health?

Legislators and policy makers believe that those with medical coverage use the health care system more often, pay less out of pocket expenses, and enjoy better health. These beliefs are embodied in policies which attempt to restrict access to the system and shift the burden of paying for the cost of health care from the government and private insurers to consumers. Such policies include increasing co-payments and deductables, reducing coverage, restricting eligibility, reviewing the need for care, and encouraging early hospital discharge. This trend continues even though current research suggests that the "need" for medical care is a more important and consistent predictor of utilization than simply having the ability to enter the health care system (Aday et al., 1980; Coulton and Frost, 1982; Estes et al., 1986; Wan, 1982; Wolinsky et al., 1983). Therefore, health care utilization may be more rationally based than is currently believed. Policies that attempt to restrict access and shift the burden of cost to the consumer may do so at the expense of those who are less well, cause the elderly to postpone seeking treatment, and exacerbate existing health problems. Ultimately, the need for health care

will increase and require more expensive, subsequent, restorative services (Becker and Kaufman, 1988; Harrington et al., 1986; Munnell, 1985; Wolinsky et al., 1983). Therefore, these policies should be reexamined particularly since early intervention and continuity of care have been shown to be cost effective (Binstock, 1986; Hunt, 1980; and Kennie, 1983).

Finally, evidence exists that the health and well-being of our citizens is steadily increasing. This is reflected in increased life expectancies, decreased death rates, and other quality of life and health status indicators (Colby, 1989). Although part of these increases in health and well-being are attributed to health care utilization, the exact proportion of its impact is unknown.

Conceptual Model

Andersen's behavioral model of health services utilization and its revisions contain all major factors of interest in this study (Aday and Andersen, 1974; Aday et al., 1980; Andersen, 1968; Andersen and Newman, 1973). Andersen and others have grouped the variables associated with health care utilization into three major sets of characteristics. Predisposing characteristics were individual attributes such as age, sex, ethnicity, occupational and marital status as well as health beliefs. These characteristics were considered to be associated with different levels of need recognition and health service usage. Enabling characteristics were comprised of family and community resources such as income, living arrangements, health insurance, and knowledge of health services. These characteristics had to be present in sufficient quantities to permit access into the health delivery system. Finally, need characteristics were defined as self-reported perceptions regarding levels of health and well-being. These were thought to be the most potent and direct predictors of

health service utilization. Therefore, when sufficient levels of predisposing and enabling characteristics existed and a need was perceived, health services were more likely to be utilized.

Studies testing and revising the model concluded that need characteristics explained the largest proportion of variance regarding health services utilization, with predisposing and enabling characteristics contributing minimally if at all (Branch et al., 1981; Coulton and Frost, 1982; Snider, 1980; Wan, 1982; Wolinsky, 1978; Wolinsky et al., 1983). One notable exception was having a regular source of medical care (Wolinsky et al., 1983). Therefore, it appears that elderly individuals who access the health care system tend to do so based more upon "need" than predispositions or simply being able to do so.

Although it is important to determine the characteristics and circumstances of the elderly who are using the health care system, we believe it has more utility to ascertain which factors predict those who are more well from those who are not. In other words, which of the factors described above can be used to develop a profile of those who are in better health. Andersen's model has been restructured to examine the effect of predisposing and enabling characteristics, and utilization on perceptions of well-being (need characteristics). The purpose of this study was to describe those factors with special attention paid to the effect of health insurance on medical cost, utilization, and well-being.

Method

Sample

Thirty-six facilities which serve the elderly in Mahoning, Summit, and Portage counties in Ohio agreed to participate in this study. Choice of facilities was determined by the desire to purposively select a sample of elderly individuals with sufficiently diverse levels of variability for all study variables. Facilities ranged from nursing homes to senior centers. Data was gathered for 463 of their clientele aged 60 and over, between June 1986 and January 1988. Subjects on average were 73.4 years old and had an approximate annual income of $11,750. Seventy-seven percent were female and 96 percent were Caucasian. Forty-two percent had had professional or white-collar jobs or spouses in such occupations. Ninety-six percent were retired. Fifty-eight percent were widowed, 30 percent were married, five percent were divorced, and seven percent were single. The demographic characteristics of the sample are summarized in Table 1.

(Insert Table 1 about here)

Variables and Measures

Need characteristics were measured by a 79-item, self-administered Wellness Index. The Wellness Index is comprised of five Likert-type subscales which measure physical health, morale, ability to carry out the activities of daily living, level of spirituality, and social resources, and yields one general measure of level of functioning. An R-factor, principal component analysis revealed all subscales could be combined to form an overall index (factor scale) that had a Theta reliability coefficient of .77 (n=463). T-tests revealed the Wellness Index had discriminant validity, because significantly

different scores were obtained when the mean scores of groupings of independent elderly were compared to the mean scores of less independent elderly. Actual living arrangements ($t=4.19$ d.f.$=456$; $p<.001$) and independent judgements of professional staff ($t=5.48$; d.f.$=425$; $p<.001$) were the criteria used to form these groupings.

Utilization was measured in a number of ways. Self-reports regarding the number of times medical care was sought, amount of money spent for medical care, and number of days hospitalized during the past two and half months were obtained. These variables were dichotomized and combined to form an overall medical utilization variable comprised of these three measures. Enabling characteristics were measured by having subjects report the type(s) of medical coverage they had as well as their income and living arrangements. Finally, a number of items were used to measure predisposing characteristics. These included age, sex, occupational status, race, and marital status.

Results

Ninety-six percent of the elderly individuals included in this study had some type of health care coverage. Ten percent had Medicaid, 60% had Medicare Parts A and B, and 45% had comprehensive private insurance. Regarding utilization, 55% reported they had sought medical care, 62% had spent money for medical care, and 7% had been hospitalized sometime during the two and half months for which subjects were asked to provide this information. Table 2 summarizes these findings and shows the percentage of individuals with other types of coverage.

(Insert Table 2 about here.)

One-way ANOVA's were utilized to determine the effect medical coverage had on medical cost, utilization, and well-being. The number of types of coverage

possessed, which ranged from 0-4, served as the grouping variable. The results in Table 3 show there were no significant differences between number of types of coverage and any of the cost and utilization measures. Regarding well-being, Table 4 indicates there was a significant relationship ($p < .05$) between number of types of coverage and mean Wellness Index scores.

(Insert Tables 3 and 4 about here.)

Those with no coverage tended to have significantly lower Wellness Index scores that those with more types of coverage. Those who were uninsured had a mean Wellness Index score of 262 while those with four types of coverage had a mean score of 276.

Pearson Product Moment Correlation Coefficients were calculated to assess the relationship between well-being and utilization of the health care system. The results contained in Table 5 indicate there were significant correlations between well-being and all cost and utilization measures ($p < .001$).

(Insert Table 5 about here.)

Those with lower Wellness Index scores sought medical care more often, reported more illness and days hospitalized, and spent more for medical care. Those who were less well tended to use the system much more frequently overall ($p < .001$). Finally, a two-group, stepwise discriminant analysis was performed to identify which of the predisposing, enabling, or utilization variable contributed most to well-being and which best differentiated subjects who had above and below average wellness scores. Only those variables that had significant correlations with well-being were included in this final analysis. Race and marital status were deleted for this reason.

(Insert Table 6 about here.)

Table 6 shows five variables, including sex (-.41), occupational status (-.37), living arrangement (.35), number of types of health insurance coverage (.33), and utilization (-.65) loaded significantly on a factor which explained 12% of the

variance of well-being and correctly grouped 67.5% of the cases. Therefore, above average well-being was associated with using the system less often (utilization); being female and having a higher occupational status (predisposing characteristics); living more independently; and having more types of medical coverage (enabling characteristics).

Discussion

The results of this study suggest that utilization of the health care system is more rational than politicians and policy experts realize. At the bivariate level of analysis there were no significant associations between health care coverage and utilization. Those with more types of coverage did not access the health care system more often, pay fewer out of pocket expenses, or have more days hospitalized. As was found in studies that tested Andersen's model, simply having health care coverage was not a sufficient condition to predict system usage. It was those who were significantly less well who were using the system more often and were paying greater out of pocket expenses. These were the individuals who were more ill and required more days of hospitalization. There was, however, a significant relationship between medical coverage and well-being. Those with no coverage tended to be less well than those with more types of coverage. These were the individuals who were more likely to enter the system. Therefore, need appears to affect utilization more than simply possessing health care coverage. Again this finding was supported by the literature that was previously reviewed.

Regarding factors that predict those who were more well, Andersen's restructured model showed overall utilization to be the best predictor, with predisposing and enabling factors, respectively, second and third. Unlike other studies which tested Andersen's model, both predisposing and enabling

characteristics were significant contributors in the restructured model. It appears that the relationships predicted by Andersen's original and revised model exist and that predisposing and enabling characteristics remain important contributors regarding utilization and need characteristics (well-being). These findings could also be the result of the methods used in examining and structuring study variables. In this study all independent variables were given equal weighting and were not entered into the analysis in any particular order. Also, need characteristics were viewed as the dependent variable rather than utilization. Finally, utilization was conceptualized in a different fashion. It must be remembered, however, that the purpose of this study was to examine factors associated with utilization and develop a profile of elderly individuals who had above average levels of well-being. In this regard, people who were more well tended to use the system less often (utilization), be female, have a higher occupational status (predisposing factors), live more independently and have more types of health insurance coverage (enabling factors). It is interesting to note that age (predisposing) and income (enabling) did not load significantly on this factor even though at the bivariate level of analysis they were significantly associated with well-being. Perhaps declines in well-being usually attributed to advancing age or reduced income may actually be produced by combinations of other factors such as those discussed above.

Limitations of the Study

One of the methodological problems of this study was the issue regarding the representativeness of the sample selected. A purposive sample was selected to assure sufficient variation in all study variables. Therefore, the agencies selected were not representative of all agencies in this geographic area. Also,

the agencies that agreed to participate may be different from those that declined or have different clientele. For these reasons these results may not generalize to more representative samples of agencies which serve the elderly or to other representative samples of other groupings of elderly individuals. Also, since services were being provided to individuals in this study, there may have been an interactive effect of service provision on the variables of this study. Perhaps these relationships would not be found for individuals not in need of or receiving any services.

Implications for the Future

The results of this study call for a re-examination of the intended purpose of many of our health care policies. Policies which attempt to restrict access to the system, reduce service, and decrease expenditures will fail to do so in the long run. They will fail because the elderly tend to enter the system primarily based upon the need for health care. Therefore, people who are ill will eventually access the system and use services. Delaying access to needed treatment will only exacerbate existing health care problems and increase the demand for future and/or additional services. This will eventually result in greater utilization and cost. Finally, considerable time, effort, and money are spent in implementing many of our health care policies which attempt to restrict access and reduce service provision. Since the elderly do benefit from medical treatment and rehabilitation (Lind, 1982; Parry, 1983), and health care utilization appears rational, it seems to be more prudent to reallocate these scarce resources to expand coverage and provide more universal health care protection.

Table 1. Demographic Characteristics of the Sample.

	$\bar{X}$	s.d.
Age	73.4	7.1
Income	$11,750	3,250
	percent	
Sex		
female	77%	
male	23%	
Employment status		
retired	96%	
full-time, part-time or seeking employment	4%	
Past/current occupational status		
professional	11%	
white collar	31%	
blue collar	21%	
other	37%	
Race		
white	96%	
black	4%	
Marital Status		
single	7%	
married	30%	
separated	0%	
divorced	5%	
widowed	58%	

n = 463

Table 2. Percentage of Subjects Reporting Types of Health Insurance Coverage, Utilization, and Illness

	%
Type of Health Care Coverage	
Medicaid	10
Medicare Part A	27
Medicare Parts A & B	60
Private Insurance (hospitalization only)	40
Private Insurance (comprehensive)	45
Uninsured	4
Utilization	
Sought Medical Care	55
Spent Money on Medical Care	62
Hospitalized	7

n = 463

Table 3. Analysis of Variance of Medical Cost and Utilization by Number of Types of Health Insurance Coverage

	F	p
No. of Times Sought Medical Care	1.348	NS
Money Spent on Medical Care	.571	NS
No. of Days Hospitalized	.847	NS
Overall Utilization	.489	NS

d.f. = 4, 441

Table 4. Oneway Analysis of Variance of Mean Wellness Index Scores by Number of Types of Health Insurance Coverage

Summary Table

Source	d.f.	MS	F	p
Between	4	1502.09	2.42	.05
Within	439	621.22		
Total	443			

Number of Types of Health Insurance Coverage	Mean Wellness Index Score	s.d.
None	262	32.3
One Type	266	26.2
Two Types	269	24.2
Three Types	275	24.1
Four Types	276	18.7

Table 5. Correlations Between Medical Cost and Utilization and Wellness Index Scores

	Wellness Index	p
No. of times sought medical care	-.19	.001
Money Spent on Medical Care	-.19	.001
No. of Days Hospitalized	-.14	.001
Overall Utilization	-.26	.001

n = 461

Table 6. Differentiation Between Subjects Who Had Above Average Wellness Index Scores And Those With Below Average Scores

Variables in Function	Standardized Coefficients	Structural Coefficients	F	p
Predisposing Characteristics				
Age (younger)	-.25	-.23	2.85	NS
Sex (female)	-.41	-.33	8.15	.01
Enabling Chacteristics				
Occupational Status (higher)	-.37	-.36	6.22	.01
Income (higher)	.15	.23	1.12	NS
Living Arrangement (more independent)	.35	.40	5.85	.05
Number of Types of Health Insurance Coverage (more coverage)	.33	.31	5.38	.05
Utilization				
Overall Utilization (less)	-.65	-.62	22.05	.001

Classification Accuracy

	Predicted Group			
	Below-Average Wellness	Above-Average Wellness	n	Overall Accuracy
Below-Average Wellness	65.2%	34.8%	230	67.51%
Above-Average Wellness	29.9%	70.1%	204	

Predicted Results

Function	Chi-square	d.f.	Canonical Correlation	p
1	53.57	7	.34	.001

n = 434

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