

CONSUMER SATISFACTION WITH PRIMARY CARE PHYSICIANS IN A MANAGED CARE HEALTH BENEFITS PLAN

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ABSTRACT

This study examines the idea that *both* perceptions of how services of a physician are rendered and perceptions about administrative aspects of a managed care health benefits plan impact on the satisfaction consumers have with their chosen primary care physician. Findings indicate that quality of care, not quantity, impacts on satisfaction, as does increased age and decreased incomes. Three variables that can be controlled by benefits administrators are also important determinants of satisfaction: access to care, adequacy of the plan, and perceived satisfaction with the benefits administration office.

INTRODUCTION

Studies of managed care have generally focused on dissatisfaction as it relates to disenrollment. Studies of satisfaction with physicians have often focused on the *process of satisfaction*. Other times, a set of *factors related to satisfaction* has been formulated. Whether or not encounters with components other than a primary care physician in a managed care plan impact on the satisfaction consumers have with their primary care physician is a question that has not been answered. This study examines consumer satisfaction with primary care physicians and how the components of a managed care plan influence that satisfaction. The question is an important one as consumers have been given an indication that they will be dissatisfied with managed care health benefits plans because they will lose their ability to choose a physician (Steele 1992). And, managed care adds additional layers to the process of obtaining health care. Not only do consumers deal with physicians, specialists, and insurance companies, they must also deal with referral processes and managed care representatives.

REVIEW OF LITERATURE

With some exceptions, the patient satisfaction literature is not well linked with the consumer satisfaction literature (e.g., Hemenway and Killen

1989; Kolodinsky 1993; Singh 1989; Stier 1987; Strasser et al. 1993). However, patients *are* consumers and there are indications that in order for health care reform to work consumers need to become better at consuming health care (Beisecker 1988; Kasteler et al. 1976; Kronick 1992; White-Means 1989).

Several studies have examined the concept of patient satisfaction. Many of the studies that dealt specifically with satisfaction with some aspect of health care are based on the quality, satisfaction, and behavior framework suggested by Parasuraman, Zeithaml, and Berry (1988). Some researchers have examined the communication process of physicians as being associated with satisfaction (Buller and Buller 1987; Street and Wiemann 1987; Woolley et al. 1978). This body of research gives legitimacy to the notion that process is important in the satisfaction outcomes of patients as "patients rely more on the physician's communication style than on the specific treatment information and success of treatment when evaluating medical care" (Buller and Buller 1987, p. 381). Utilization of medical services has also been found to affect satisfaction (Aday and Andersen 1974; Gray 1980; Mirowsky and Ross 1983). Others have suggested that many individual aspects of care are related to satisfaction. Quality of care, access to care, availability of resources, and continuity of care accounted for 72% of the variance in satisfaction in a study by Ware and Snyder (1975), while Russell (1990) found that quality of care and accessibility accounted for 64% of the variance. Health status of individuals has been found to influence satisfaction (Hall et al. 1993). Other research concerning consumer satisfaction with health care has also supported the idea that many aspects of care lead to consumer satisfaction or dissatisfaction (Abramowitz 1987; Strasser et al. 1993; Cleary and McNeil 1988; Doering 1983; Meterko et al. 1990; Woodside et al. 1980), and that consumers are also able to form summary measures of their satisfaction (Aharony 1991; Strasser et al. 1993).

Research that focused specifically on managed care health benefits plans have examined, for the

most part, dissatisfaction and how it relates to disenrollment (Lewis 1984; Long et al. 1988; Solnick and Hemingway 1992; Weiss and Senf 1990). None have focused on consumer satisfaction with primary care physicians chosen when enrolled in these types of health care plans.

THE RESEARCH QUESTION

Based on the literature review, a question related to managed care that has yet to be answered is, "how do the components of a managed care health benefits plan impact on the satisfaction consumers have with their chosen primary care physician?" Components found to be related to satisfaction, including access, quality of care, billing process, and continuity of care are all pieces of managed care systems that may or may not be directly related to contact with a physician. They are components that can be manipulated by the way a health care plan is put together and administered. If overall consumer satisfaction with primary care physicians is influenced by variables external to actual physician encounters, then administrators of managed care plans can play a role in increasing the satisfaction consumers have with their chosen primary care physician.

One potential complication in identifying how satisfaction with primary care physicians is influenced by components of a managed care plan is the potential relationship between the number of times patients see a physician and their satisfaction with the encounters (Gray 1980; Mirowsky and Ross 1983; Roghmann et al. 1979; Wolinsky 1976). Previous findings indicate that the more patients see a physician, the less satisfied they are, but the more satisfied they are, the more they will visit the physician (Mirowski and Ross 1983). This idea has great implications for managed care and more traditional HMO systems of benefits. First, the idea of managed care is to enforce physician as gatekeeper and "wellness coordinator." The same is true of HMO's. If this concept works, then consumers may be more satisfied the more they see their physician as he/she keeps them well. However, if increased visits are due to problems not being corrected and referrals to specialists who may solve the problem are decreased, then increased number of visits can lead to decreased satisfaction.

METHODOLOGY

A model that can predict satisfaction with a primary care physician and account for the interrelationship between number of visits and satisfaction can be written:

$$(1) \quad y_1 = \alpha_1 y_2 + \sum_{i=1}^N \beta_{1i} x_i + v_1$$

$$(2) \quad y_2 = \alpha_2 y_1 + \sum_{i=1}^R \beta_{2i} z_i + v_2$$

where y_1 and y_2 are measures of satisfaction and visits to a primary care physician, x_i and z_i consist of independent variables expected to impact on satisfaction and physician visits, and v_1 and v_2 are error terms. Equations (1) and (2) represent the structural forms of a simultaneous system.

Data

The population included 2955 employees eligible for health care benefits at a medium sized university. The health benefits choices changed in 1993. Previous to that time, employees chose between two plans: a fee for service plan where any physician or specialist could be chosen and there was no co-payment, and a traditional HMO.

Under the new plan, employees choose among three different plans: an "in-network" managed care plan, where a \$2.00 co-payment is required for office visits, and "out-of-network" plan where the individual can choose any physician and pay 10% of the cost, and a traditional health maintenance organization (HMO) that also requires a \$2.00 co-payment per office visit. Completed questionnaires were received from 1238 employees, for an overall response rate of 42%. The responses received were representative of actual enrollments in the three plans, with the majority (86.5%) of respondents enrolled in the in-network plan, 5% in the out-of-network plan, and 8.5% in the HMO. This study includes 898 respondents who had complete information for all of the variables included in the analysis.

Variables Measured

The dependent variables include *general* satisfaction with the primary care physician, a dummy variable created from a five point ordinal Likert scale that included categories from strongly disagree to strongly agree for the statement, "I am satisfied with my chosen primary care physician." Office visits were also coded as dummy variable, as the question was asked categorically, with responses including no visits, 1-5 visits, 6-10 visits and 10 or more visits. Demographic measures include age of respondent (AGE), income level categories of less than \$15,000 and greater than \$50,000 (INC1, INC2), and employee type (a proxy for educational level), measured as a 0/1 dummy variable where the omitted category is faculty/officer of administration and the included category is support staff (STAFF). Measures of experience with the benefits plan include whether the respondent was an employee when the managed care plan was initiated in 1993 (CHANGE), type of plan enrolled in (HMO) and (OUTNET) where the left out category is the in-network plan, and whether the respondent was ever referred to a specialist (SPECIAL). Whether the respondent experienced problems with other aspects of the plan was measured by dummy variables representing problems with managed care representative (PROBREP), and problems with the insurance carrier (INSURE). The number of problems a consumer had with their primary care physician was also measured (PCPPROB). Factor analysis was used to create four additional variables. The first is a composite variable for measuring problems respondents have with the benefits office that administers the plans at the university. The second three factors include measures of continuity of care, adequacy of care (resources), and accessibility to care. Table 1 identifies the factor loadings after varimax rotation (See Green et al. 1988). Given the measures available, these results are consistent with the factors described by Ware and Snyder (1975) and Russell (1990). Table 2 provides descriptive statistics of the measured variables.

Empirical Model

Because the dependent variables measuring

Table 1
Formulation of Factors

<u>VARIABLE</u>	<u>BENEFIT</u>	<u>ACCESS</u>	<u>ADEQUATE</u>	<u>FLEX</u>
Benefits office is professional				.36
Benefits office is informed				.39
Benefits office solves problems				.38
Appointment scheduling is difficult				-.50
Time between making appointment and seeing M.D. is too long				-.49
Co-payment limits my ability to seek care I need				-.29
Benefits coverage is adequate				.57
Benefits coverage is convenient to use				.60
It is easy to change primary care physicians				.95
Eigen value	2.29	1.73	1.42	1.02

satisfaction and physicians visits were both measured on ordinal scales, the usual method to account for simultaneity of visits and satisfaction using two stage least squares regression is inappropriate. To use the model presented in equations (1) and (2), the dependent variables satisfaction and physician use, both measured on ordinal scales, must be changed into two category dummy variables. Therefore, the five point scale to measure satisfaction was recoded to a 1 if the respondent was very satisfied or satisfied. The four category physician use variable was recoded to a 1 if the respondent had used their primary care physician 6 or more times in the previous twelve months. To estimate the model, we follow the technique described by Mallar (1977) and Maddala (1983). It is basically a logistic regression analog to two stage least squares regression. First, the reduced forms of the equations are estimated using Logit and including

Table 2
Summary Statistics

<u>VARIABLE</u>	<u>DEFINITION</u>	<u>VALUE</u>	<u>STANDARD</u> <u>DEVIATION</u>
VISITHAT	Percent heavy users	.02	.13
SATHAT	Percent satisfied	.87	.13
AGE	Age of respondent	45	10.62
INC1	Income < \$15,000	.02	.14
INC2	Income > \$50,000	.85	.35
STAFF	Respondent is staff rather than faculty or officer of administration.	.27	.44
CHANGE	Respondent was employed at university before managed care plan was instituted.	.85	.47
OUTNET	Respondent is enrolled in out-of-area plan.	.02	.13
HMO	Respondent is enrolled in traditional health maintenance organization.	.10	.29
PCPPROB	Number of problems with primary care physician in past 12 months.	.54	1.58
SPECIAL	Respondent was referred to a specialist during past 12 months.	.66	.47
PROBREP	Respondent experienced a problem with a managed care representative.	.05	.22
INSURE	Respondent experienced a problem with the insurance company.	.15	.36

N=898

all the independent variables. The structural equations are then estimated using Logit and the estimated values of the dependent variables as independent variables and making sure at least one other independent variable is left out of each equation to insure the equations are identified.

The structural model estimated is:

$$(3) \text{ SATISFACTION} = \alpha_0 + \alpha_1 \text{ VISITHAT} + \alpha_2 \text{ AGE} + \alpha_3 \text{ INC1} + \alpha_4 \text{ STAFF} + \alpha_5 \text{ CHANGE} + \alpha_6 \text{ OUTNET} + \alpha_7 \text{ HMO} + \alpha_8 \text{ PCPPROB} + \alpha_9 \text{ SPECIAL} + \alpha_{10} \text{ PROBREP} + \alpha_{11} \text{ INSURE} + \alpha_{12} \text{ BENEFITS} + \alpha_{13} \text{ ACCESS} + \alpha_{14} \text{ ADEQUATE} + \alpha_{15} \text{ FLEX} + \text{ERROR}$$

$$(4) \text{ VISITS} = B_0 + B_1 \text{ SATHAT} + B_2 \text{ AGE} + B_3 \text{ INC2} + B_4 \text{ STAFF} + B_5 \text{ OUTNET} + B_6 \text{ HMO} + B_7 \text{ PCPPROB} + B_8 \text{ ACCESS} + B_9 \text{ ADEQUATE} + B_{10} \text{ FLEX} + \text{ERROR}$$

RESULTS AND DISCUSSION

Results of the structural equation estimation using a two stage Logit estimation technique are provided in Table 3. Several results are notable. First, there appears NOT to be a simultaneous relationship between heavy use of a primary care physician (more than six times in the previous twelve months) and satisfaction with that physician. This finding does not support that of previous research, especially that of Mirowsky and Ross (1983) who concluded that satisfaction and doctor visits form a "self regulating system." That is, as visits increase, satisfaction decreases, leading to fewer visits. Their conclusions support the assertion that managed care is unnecessary since as a patient increases the number of visits, satisfaction decreases, thus leading to fewer visits. The findings of this study give no indication that satisfaction and visits are related and support the findings of Wolinsky (1976) and Gray (1980), despite their flawed methodologies. Another interpretation of the results are that they are inconclusive, given the discussion in the section outlining "The Research Question." It could be that some consumers are more satisfied with a greater number of visits because their physician "keeps them well." It could also be that other consumers are dissatisfied because, despite increases in the number of visits, their problem was not solved. If a similar number of data points fall into each category, the effect of visits will not be sorted out in the analysis. This is an area fruitful for further research.

Table 3
Structural Equation Estimates for Satisfaction
and Heavy Use of Primary Care Physician

VARIABLE	DEFINITION	SATISFACTION	OFFICE VISITS
INTERCEPT		.75 (.06)***	.89 (.45)**
VISITHAT	Percent heavy users	.16 (.10)	.....
SATHAT	Percent satisfied	.....	.03 (.27)
AGE	Age of respondent	.01 (.009)*	-.01 (.008)**
INC1	Income < \$15,000	.15 (.08)*	.....
INC2	Income > \$50,000	.....	.44 (.18)***
STAFF	Respondent is staff rather than faculty or officer of administration.	-.12 (.02)	.02 (.16)
CHANGE	Respondent was employed at university before managed care plan was instituted.	.04 (.04)	.....
OUTNET	Respondent is enrolled in out-of-area plan.	-.06 (.09)	-.87 (.64)
HMO	Respondent is enrolled in traditional health maintenance organization.	-.03 (.04)	.74 (.24)***
PCPPROB	Number of problems with primary care physician in past 12 months.	-.04 (.008)***	.....
SPECIAL	Respondent was referred to a specialist during past 12 months.	-.01 (.05)	.63 (.13)***
PROBREP	Respondent experienced a problem with a managed care representative.	.02 (.06)	.....
INSURE	Respondent experienced a problem with the insurance company.	.05 (.03)	.....
BENEFITS	Factor representing satisfaction with benefits administration.	.05 (.01)***	.....
ACCESS	Factor representing accessibility of health benefits.	-.09 (.01)***	-.15 (.09)*
ADEQUATE	Factor representing adequacy of health benefits.	.04 (.01)***	-.08 (.08)

FLEX Factor representing ease of changing primary care physician. -.003 (.01) -.13 (.07)**

N 898 898
 LOG LIKELIHOOD .32E-13 .85E-05

* Significant at .1 level
 ** Significant at .05 level
 *** Significant at .01 level

Increases in the number of problems experienced significantly decrease the probability of being satisfied. Thus, these results give some indication that it is the *quality* of visits, not simply the *number* of visits, that influences overall satisfaction.

Second, though not the central focus of this study, it is notable that the visits equation indicates that older persons are not more likely to be heavy users of physicians; higher income persons are more likely to be heavy users, as are those who have been referred to a specialist and are enrolled in a traditional HMO. In addition, as access becomes more difficult, the probability of being a heavy user decreases, as it does when consumers find it easy to change a physician. The negative relationship between age and visits appears to fly in the face of the fact that older persons are the heaviest users of medical care (Health Insurance Association of America 1991). However, when one considers that all persons who took part in this study were employed and not retired, the finding is less striking. The other results are reasonable in that those who are likely to have seen a specialist most likely have exhausted the expertise of their primary care physician.

Note also the positive influence of belonging to the HMO on the number of office visits. In the data set used, the HMO was the only "old" piece of the benefits plan that was carried over to the "new" managed care system. Perhaps because respondents were already attuned to the concept of an HMO where patients see physicians to "keep well" rather than "treat illness," this group uses primary care physicians to a greater degree than the new managed care system.

Third, satisfaction with a primary care physician appears to be related to factors directly attributable to components of a managed care plan that can be controlled by the administrator of the benefits plan. As access decreases, satisfaction

decreases and the higher the adequacy of the benefits plan, the higher the probability a consumer will be satisfied. In addition, it also appears that higher overall satisfaction with the administration of a health benefits plan influences the perception of satisfaction a consumer has with his or her primary care physician. Satisfaction is also influenced by factors directly attributable to the physician encounter, as the more problems a consumer had, the lower the probability of satisfaction. These results reinforce findings of previous researchers (Ware and Snyder 1975; Russell 1990). It is not the case that problems with other components of a managed care plan, including the representatives for managed care or the insurance handler, influence the probability of being satisfied with a primary care physician. Two demographic characteristics were found to influence satisfaction: age and having a low income. Previous research has found that older persons tend to be more satisfied with medical care (Ward 1990) and "put themselves in the hands of the provider" (Beisecker 1988). Lower income consumers may do the same thing. Very relevant to the discussion of managed care is the finding that ability to change physicians does not impact on consumer satisfaction with a primary care physician. Add to this the finding that choosing to be out of the network does not affect satisfaction and a conclusion may be that the limits to choice when enrolled in a managed care plan may not deleteriously affect consumers' perceptions of satisfaction with their primary care physician.

Though this study must be considered exploratory given that it was conducted at a single university, the results give some indication that consumer satisfaction with a primary care physician is influenced by factors that the administrator of a benefits plan has control over. For example, the benefits administrators set a co-payment, part of the factor that makes up the variable ACCESS. The administrators also determine how the system will work in terms of adequacy of coverage and convenience of use. The administrators also have some control over appointment scheduling and timing of appointments, since the overall plan sets the number of physicians available in the network. If there are not enough available physicians, access will be limited. Physicians themselves should also

be able to increase the satisfaction of consumers by addressing scheduling problems encountered by their patients. It also appears to be the case that the quality, not particularly the quantity, of visits to a physician influences consumer satisfaction. Thus, overall, it appears that actions of both the physician and the benefits administrators can influence consumer satisfaction with primary care physicians in a managed care health benefits plan.

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