

Patients' Knowledge of Health Plan Coverage and Satisfaction with Care

Jessie L. Tucker III, PhD, MBA, CFM

Objective: To test the hypothesis that patients' satisfaction with their healthcare is related to their knowledge of their managed care plan.

Study Design: A written survey was sent to beneficiaries of the military health system.

Patients and Methods: Respondents were active or retired military personnel and their nonmilitary, immediate family members enrolled in either TRICARE Prime, a voluntary, gate-keeper-based managed care program (enrollees), or other military managed care programs (nonenrollees). Responses to 5 questions that measured patients' understanding of their program served as independent variables; satisfaction with care was the dependent variable. Responses were stratified according to whether care was received in a military or a civilian healthcare organization. Analysis of variance (ANOVA) and regression analysis were used to determine the association between the variables.

Results: Enrollees differed from nonenrollees in certain sociodemographic characteristics, with nonenrollees being older ($\eta^2 = 0.035$; $P < .01$), closer to retirement ($\eta^2 = 0.051$; $P < .01$), and tending to receive healthcare in military healthcare organizations (HCO) ($\eta^2 = 0.009$; $P < .01$). After controlling for sociodemographic characteristics, patients' understanding of their coverage served as a poor predictor (military HCO [$R^2 = 0.003$; $P < .01$]; civilian HCO [$R^2 = 0.025$; $P < .01$]) of satisfaction with their care.

Conclusions: Patients' understanding of their coverage appears to be a statistically significant, but rather small, contributor to satisfaction with their care. The study suggests that health plan understanding is a poor predictor of patient satisfaction.

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For healthcare providers and managed care organizations (MCOs) faced with mounting patient expectations, increased patient diversity and education, greater variety in plans offered, and reduced reimbursements that limit service options, assuring patient satisfaction remains a challenge.^{1,2} Wider choice is unlikely to be supported by increased payments from patients, employers, or governmental agencies, and hence MCOs must seek other options to address patients' concerns and ensure their satisfaction with the full spectrum of care.

The connection between patient satisfaction, loyalty, and retention is well documented.^{2,3} Patient satisfaction is of variable importance as a predictor of retention in a health plan; when plan options are controlled by employers, its importance is questionable,⁴ but when patients choose their own plans, satisfaction is linked to retention.⁵ A loyal membership confers several advantages, including consumption of fewer resources because of increased compliance with medical instructions, positive referrals, more understanding on the part of the patient when problems arise, and fewer complainants.⁶ Customer loyalty allows MCOs to maintain the patient base required to spread risks⁷ and reduce per-member costs,⁸ an important consideration when a small change in the monthly premium can lead as many as 25% of employees to withdraw from or enroll in a health plan. A potentially healthier patient population base also supports the underwriting process.^{4,5}

From the Baylor University Graduate Program in Health Care Administration, San Antonio, TX.

Address correspondence to: Jessie L. Tucker III, MBA, PhD, PO Box 340032, San Antonio, TX 78234-0032. E-mail: drjt@tucknet.com.

Health plan accreditation processes also place considerable emphasis on patient opinion, as demonstrated by the reporting requirements of Quality Compass, a managed care accrediting program of the National Committee for Quality Assurance (NCQA),^{5,10} and of the Health Plan Employer Data and Information Set (HEDIS). Patient assessments are a significant component of quality and performance enhancement programs of MCOs¹¹ and the NCQA and are tracked by more than 80% of the nation's largest employers. Satisfaction ratings can thus influence an employer's choice of health plan offerings, with dissatisfaction among just a few employees resulting in lost contracts and reduced revenues for MCOs.¹²

Because satisfaction is affected by various elements of the care experience,^{13,14} a customer-centered focus that stresses communication, caring, and empathy nurtures patient loyalty far beyond the short-term market gains derived from cost-cutting initiatives.^{2,15} Communication enhances patient satisfaction^{16,17} and fosters a cooperative relationship among managed care and healthcare organizations and patients, thereby generating loyalty.^{18,19}

Traditional predictors of satisfaction in a managed care environment, such as access,^{14,16,20} being a not-for-profit health plan,²¹ and being located in a less than mature managed care market,²² often result from plan restrictions or resource limitations. However, dissatisfaction may also stem from patients' assessments of their providers.²³⁻²⁵ The degree to which patients understand the details of their coverage may also affect their satisfaction with their healthcare. The association between providing health plan information and patients' satisfaction is well documented.²⁶ Practices such as furnishing updated lists of providers,²⁷ disseminating information about quality improvement initiatives,²⁸ and providing reports outlining plan performance²⁹ and changes in coverage³⁰ positively influence perceptions of care and plan choices; conversely, negative information about isolated and sensationalized events can impact perceptions unfavorably.³¹ This suggests that informed patients should be more satisfied and loyal than their less informed counterparts.

This study sought to identify alternative predictors of patients' assessments of their care beyond the documented benefits of addressing patients' complaints,^{4,32,33} because resource limitations and restrictions make it difficult to alter traditional predictors of patients' satisfaction. Alternative predictors could also allow organizations with good patient satisfaction ratings to refine their approach and maintain favorable

appraisals. The objective of this study was to determine whether patients' understanding of their managed care coverage was a predictor of satisfaction with their care.

... METHODS ...

Patient Sample

Approximately 1.7 million military service personnel and their nonmilitary, immediate family members were eligible for government-subsidized healthcare in 1997. A random sample of this population, stratified by hospital area of responsibility (ie, those within a 60-mile radius of each hospital) and branch of service to ensure appropriate representation, was surveyed to assess various aspects of their care in the previous year. The stratified probability samples were chosen to ensure sample size adequacy (confidence at greater than 96%),³⁴ and 27,533 surveys were mailed. The response rate was 57%, with a total of 15,749 patients responding. From this total number of respondents, responses of 3815 patients who were voluntarily enrolled in the TRICARE Prime program (referred to as "enrollees") were used to answer the main research question of this study. As a preliminary analysis, enrollees (n = 3815) were also compared to nonenrollees who did not choose the TRICARE Prime option (n = 11,934) to illuminate differences between the groups.

TRICARE is a 5-year-old program that oversees governmental and nongovernmental managed care and delivery organizations contracted to provide care for military beneficiaries. Military beneficiaries have 3 options under TRICARE. TRICARE Prime, the least expensive option, is a health maintenance organization (HMO) plan focused on nonemergent care and with a primary care gatekeeper. TRICARE Extra is a preferred provider organization plan and TRICARE Standard is a largely fee-for-service program with significant patient cost sharing. TRICARE Prime is more likely to be selected by lower-ranking, lower-salaried enlisted military personnel, members with larger families, and members with higher than average healthcare bills. Participation in TRICARE Prime Care required voluntary enrollment, in contrast to the other 2 plans, in which enrollment was an automatic benefit of military service or affiliation.

Measures

The survey was designed to assess respondents' understanding of their managed care program, and

how that understanding related to their satisfaction with care received in more than 100 civilian or military healthcare organizations (HCOs) nationwide. Patients were stratified by type of HCO providing service—military or civilian—because under TRICARE, patients can choose their providers, and hence these organizations can be considered competitors.

The 5 questions used to assess patients' understanding of their program (independent variables) are listed in **Table 1**. Responses were measured with a 4- or 5-point Likert scale. The main dependent variable was patients' satisfaction with their care, measured with a 5-point scale.

Sociodemographic variables used in the assessment are listed in **Table 2**. Health status was ranked on a 5-point Likert scale (1 = poor to 5 = excellent). Six educational levels were as follows: GED or high school diploma, some college courses, and associate, baccalaureate, master's, or professional degree.

Statistical Analysis

The basic sociodemographic profile of all respondents was initially assessed by computing descriptive statistics for all the variables. Next, patients' ages were clustered into 4 groups. These groups reflect 1) the age of a majority of active duty service members (18-37), a range including the earliest age at which service members can retire after 20 years of service (38-52), the pre-Medicare retirement group (53-64), and the Medicare eligible group (≥65). Analysis of variance (ANOVA) was performed to determine whether these sociodemographic variables differed between program enrollees and nonenrollees.³³ To determine whether enrollee satisfaction was related to knowledge of their coverage, responses to the questions in **Table 1** were analyzed both individually with ANOVA and collectively with linear regression analysis. This was done to assess the degree to which the variance in enrollees' satisfaction scores is associated with (ANOVA), and predicted by (linear regression), the variance in their understanding.

ANOVA results that produce statistically significant ($P < .05$) η^2 scores provide a nonparametric predictive assessment of the association between sociodemographic variables and satisfaction (ANOVA 1), and then sociodemographic and main variables and satisfaction (ANOVA 2). The difference in significant η^2 scores controls for patients' sociodemographic characteristics and provides a nonparametric measure of prediction that better concentrates on the predictive value of the main variables. Statistically significant F scores provide assessments of the significance and serve as the basis for the derivation of the P values for the individual ANOVAs.

Using a 2-step hierarchical linear regression, all sociodemographic variables were first loaded into a predictive model. Next, all sociodemographic and the 5 main variables were loaded into a predictive model. The difference in statistically significant ($P < .05$) R^2 scores controls for patients' sociodemographic characteristics and provides a parametric measure of prediction that better concentrates on the predictive value of the main variables. Further, statistically significant β scores (t -scores > 2 standard deviations from the mean) provide assessments of the significance and relative weight of each individual variable in each of the models.

Table 1. Main Variables of the Study

Survey Questions	Response Choices		
Dependent Variable			
I am satisfied with the healthcare that I received.	1	to	5
	Strongly disagree		Strongly agree
Independent Variables			
I have clear information on TRICARE enrollment procedures.	1	to	5
	Strongly disagree		Strongly agree
I am confused about my costs under TRICARE.	1	to	5
	Strongly disagree		Strongly agree
I have clear information on TRICARE appointment procedures.	1	to	5
	Strongly disagree		Strongly agree
I need more information about TRICARE.	1	to	5
	Strongly disagree		Strongly agree
How much do you know about TRICARE?	1	to	4
	Nothing		A great deal

... RESULTS ...

Sociodemographic Profile of Respondents

The mean age of respondents was 52 years and the largest beneficiary group appeared to be retired service members younger than 65 and their families. Respondents on average were in good health (mean score, 3.4); a majority of them were married (79%), Caucasian (84%), and retired (69%). Utilization, measured as the number of visits in the past year, averaged approximately 7 visits for civilian HCOs and slightly more than 6 visits for military HCOs. Finally, the average level of education for all respondents was the completion of at least 1 college level course (Table 3).

Demographic variables that varied significantly between enrollees and nonenrollees were the following (Table 2): Nonenrollees were older ($\eta^2 = 0.035$; $P < .01$), closer to retirement ($\eta^2 = 0.051$; $P < .01$) (service status [$\eta^2 = 0.034$; $P < .01$]), and tended to receive healthcare in military HCOs ($\eta^2 = 0.009$; $P < .01$). Other potentially significant sociodemographic characteristics that differed with enrollment deci-

sion included care being provided in a civilian HCO ($\eta^2 = 0.004$; $P < .01$), number of visits to a civilian HCO ($\eta^2 = 0.006$; $P < .01$), and the geographic location of the HCO ($\eta^2 = 0.101$; $P < .01$), although all of the η^2 values remain questionable because of the large sample size. As suggested by the small η^2 values and very high levels of significance, a large sample can produce very statistically significant results that have very small predictive values.

Plan Information and Satisfaction with Care

As shown in Table 4, the very small η^2 and R^2 values suggest that enrollees' satisfaction with their care was not significantly predicted by their understanding of their health plan. Ignoring patients' sociodemographic characteristics, the items used to assess patients' understanding provided questionable individual predictive power for civilian ($\eta^2 \leq 0.007$; $P < .01$) and military HCOs ($\eta^2 \leq 0.014$; $P \leq .315$). After controlling for patients' sociodemographic characteristics, patients' understanding of their coverage as assessed by all items simultaneously, served as a very poor predictor of satisfaction with their

Table 2. Comparison of Enrollees and Nonenrollees

Sociodemographic Variable	Enrollees n = 3815	Nonenrollees n = 11,934	df	η^2	F	P
Age (18-37, 38-52, 53-64, \geq 65)	41/14.36	52/18.22	3	0.035	711.60	< .0001
Education	4.43/1.73	4.35/1.88	5	0.003	24.28	< .0001
Health status	3.4/0.94	3.45/1.01	4	0.003	43.90	< .0001
Utilization (civilian HCOs)	6.83/9.51	6.18/9.77	85	0.006	2.366	< .0001
Utilization (military HCOs)	6.15/11.15	7.17/11.28	76	0.005	2.525	< .0001
Beneficiary group			5	0.051	633.99	<.0001
Branch of service			5	0.003	34.41	< .0001
Sex (51% female; 49% male)			7	0.003	24.28	< .0001
HCO location			100	0.101	66.44	< .0001
Marital status (79% married; 21% single)			1	0.005	316.99	< .0001
Race (84% Caucasian;16% minority)			1	0.003	178.35	< .0001
Rank (proxy – income/social status)			5	0.003	35.60	< .0001
Service status (31% active duty; 69% retired)			1	0.034	2087	< .0001
Type of HCO						
Civilian healthcare organization			1	0.004	254.26	< .0001
Military healthcare organization			1	0.009	549.86	< .0001

Table 3. ANOVA Results of Enrollment Choice

Independent Variables	F	df	η^2	P
Sociodemographic variables				
Age (x=52; s=18.22) (18-37, 38-52, 53-64, ≥ 65)	834.86	3	0.137	< .001
Beneficiary group (active/family, retired/family < 65, retired/family ≥ 65)	692.78	5	0.180	< .001
Branch of service (Air Force, Army, Coast Guard, Marine Corps, Navy, or Public Health Service)	17.57	5	0.006	< .001
Education	15.09	7	0.007	< .001
Gender (51% female; 49% male)	197.94	1	0.013	< .001
Health status (x=3.4; s=1.01)	45.72	4	0.012	< .001
HCO location in the United States	9.55	34	0.020	< .001
Marital status (79% married; 21% single)	253.80	1	0.016	< .001
Race (84% Caucasian;16% minority)	105.03	1	0.007	< .001
Rank (proxy for income and social status)	39.40	5	0.012	< .001
Service status (31% active duty; 69% retired)	1707.55	1	0.098	< .001
Utilization (civilian HCOs) (x=7.17; s=11.45)	4.06	67	0.026	< .001
Utilization (military HCOs) (x=6.26; s=9.86)	2.28	71	0.015	< .001
Type of HCO where care received				
Civilian healthcare organization	458.73	1	0.029	< .001
Military healthcare organization	947.64	1	0.057	< .001

Table 4. ANOVA Results of Enrollee Satisfaction with Care

Independent Variables	F	df	η^2	P
Civilian healthcare organizations*				
I have clear information on TRICARE enrollment procedures.	7.97	4	0.004	< .001
I am confused about my costs under TRICARE.	5.86	4	0.003	< .001
I have clear information on TRICARE appointment procedures.	12.53	4	0.007	< .001
I need more information about TRICARE.	5.37	4	0.003	< .001
How much do you know about TRICARE?	6.68	3	0.002	< .001
Military healthcare organizations†				
I have clear information on TRICARE enrollment procedures.	30.08	4	0.014	< .001
I am confused about my costs under TRICARE.	26.05	4	0.012	< .001
I have clear information on TRICARE appointment procedures.	26.33	4	0.012	< .001
I need more information about TRICARE.	12.81	4	0.006	< .001
How much do you know about TRICARE?	1.18	3	0.000	.315

*Adjusted $R^2 = 0.025$ ($P < .01$) after controlling for sociodemographic variables.

†Adjusted $R^2 = 0.003$ ($P < .01$) after controlling for sociodemographic variables.

care in civilian ($R^2 = 0.025$; $P < .01$) and military ($R^2 = 0.003$; $P < .01$) HCOs. These results suggest that patients' understanding only predicts 2.5% of the variance in their satisfaction in civilian HCOs, and only 0.3% in military HCOs (Table 5).

... DISCUSSION ...

A starting point for maintaining or improving patients' assessments of their healthcare is to identify influencing factors. This study suggests that although patients' satisfaction appears to vary significantly with their understanding of their managed care plan coverage, this difference predicts a negligible portion of that variance. This finding highlights the potential for statistical significance with managerial unimportance. For example, the findings of this study suggest that to better than a 99% level of statistical certainty, patients' understanding will predict 2.5% of their satisfaction in civilian HCOs. Although statistically significant, 2.5% is rather unimportant when you consider that the remaining 97.5% is unexplained. Patients' understanding of their managed care plan may therefore represent a significant factor that should be controlled for in patient satisfaction studies.

The results of this study suggest that knowledge of health plan coverage, although not as significant a

predictor of satisfaction as traditional measures due to their smaller β scores ($\beta < 0.149$), may influence patients' satisfaction with the care provided by a healthcare organization. Although small in its predictive ability, the high level of statistical significance supports the notion that payers and providers can directly and indirectly share the blame when patients are less than satisfied (directly due to the suggested 2.5% of predictive value that suggests if patients better understood their plan that they would be very slightly more satisfied, and indirectly via continuing efforts to improve patient, provider, and payer relations through unified, patient-focused efforts). Collaborative efforts to ensure that patients understand their coverage can benefit both providers and payers through reduced numbers of disgruntled patients and through patient-perceived improvements in communication and increased empathy.

Information sharing can form the basis of a patient satisfaction improvement initiative, a move supported by a positive patient response to organizational informational efforts. Partly because of the deficit between the clinical knowledge of providers and their patients, patients gauge their care experiences with sociopsychologic markers such as communication, empathy, and responsiveness. As these variables are traditional predictors of satisfaction and quality, patients should be more satisfied if

provided educational opportunities such as workshops and seminars that increase their understanding of their health plan. An alternative explanation for the weak association could be that lack of understanding may translate into anger toward the plan, which in turn, may become directed at the healthcare organization.

For the specific population under study, the weak support for the main hypothesis suggests that healthcare organizations do not suffer significantly from health plan misunderstandings among patients. However, the finding that the great-

Table 5. Regression Results of Enrollee Satisfaction with Care

Independent Variables	β^*	t-score	P
Civilian healthcare organizations[†]			
I have clear information on TRICARE enrollment procedures	0.113	3.677	< .001
I am confused about my costs under TRICARE	-0.031	-1.068	.286
I have clear information on TRICARE appointment procedures	0.052	1.809	.071
I need more information about TRICARE	0.004	0.124	.901
How much do you know about TRICARE?	0.021	0.726	.468
Military healthcare organizations[‡]			
I have clear information on TRICARE enrollment procedures.	0.149	6.429	< .001
I am confused about my costs under TRICARE.	-0.025	-1.146	.252
I have clear information on TRICARE appointment procedures.	0.090	4.088	< .001
I need more information about TRICARE.	-0.044	-1.855	.064
How much do you know about TRICARE?	-0.113	-4.976	< .001

*Standardized; after controlling for sociodemographic variables.

[†]Adjusted $R^2 = 0.025$ ($P < .01$) after controlling for sociodemographic variables.

[‡]Adjusted $R^2 = 0.003$ ($P < .01$) after controlling for sociodemographic variables.

est differences in enrollment choice were related to certain demographic factors, especially age and military status, provides an opportunity to better assess patients' financial risk exposure.

... CONCLUSION ...

This study identified statistically significant but small differences in patients' satisfaction based on self-reported understanding of their health plan coverage. However, such differences had little predictive value and hence provide little opportunity for targeted improvement efforts. The next step will be to determine whether patients' understanding of their managed care plan should be a control variable in patient satisfaction studies to further isolate the total effects of main variables. In efforts to more adequately determine what alterable variables predict satisfaction, it is important to ensure that analytic efforts are not hindered by the cumulative weight of a number of small predictors. As suggested by this study, 2.5% is rather negligible. However, when coupled with 3 to 4 other 2.5% predictors, they can significantly hinder the ability to identify larger, single and alterable variables. Further studies are required to identify barriers to understanding and validate interventions for change including user-friendly benefits manuals, personalized orientations, and more follow-up and personal contact, especially in the initial months of enrollment.

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