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Predictors of Enrollees' Satisfaction With a County-Sponsored Indigent Health Care Plan

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This article summarizes the findings from a study examining the predictors of satisfaction among individuals enrolled in a county-sponsored indigent health care plan. Mail survey procedures were used to obtain information from enrollees regarding their satisfaction with the health care plan, as well as enrollees' demographics, health care status, and trust in their providers. Results of a stepwise regression model developed using a random half of the respondents revealed enrollees' trust in health care providers was the strongest predictor of general satisfaction, followed by perception of change in health status, and age. The model explained 49% of the variance and demonstrated little shrinkage when cross-validated on the remaining half of the respondents. Trust in health care providers, followed by perception of change in health status also emerged as the strongest predictors of enrollees' satisfaction with freedom of choice.

Keywords: *patient satisfaction; health care; predictors*

Background

Patient satisfaction has emerged as an important indicator of health care quality. The National Committee for Quality Assurance (2004) includes an

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assessment of members' experiences of health care plan performance in their set of standardized performance measures known as HEDIS. These measures are designed to ensure that purchasers and consumers have the information they need to reliably compare the performance of health care plans.

In addition, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), the nation's predominant standards-setting and accrediting body in health care which evaluates and accredits nearly 16,000 health care organizations and programs in the United States, has developed state of the art, professionally based standards. As part of the JCAHO ORYX initiative introduced in 1997, the Joint Commission developed a set of principles for organizations to solicit and maintain "perception of care measures." The ORYX initiative is intended to assist providers with their quality improvement efforts by requiring them to commit to the measurement and monitoring of outcomes and other performance indicators by integrating them into the accreditation process. It is envisioned that the collection of these performance data into a national database and the systematic reporting and the public disclosure of them will permit meaningful benchmarking and performance comparisons. These "perception of care measures" include assessing patients' satisfaction with the delivery of care and resulting outcomes (JCAHO, 2005).

Literature on Patient Satisfaction

Given the increased interest in and use of patient satisfaction measures for assessing the quality of health care delivery, it is not surprising that various investigators are examining correlates of members' levels of satisfaction (or dissatisfaction) with their health care plans. For example, Hsieh and Kagle (1991) used a cross-sectional design to examine the relationships of enrollees' characteristics, expectations, health status, and mode of service delivery with the satisfaction of 401 university employees. In terms of enrollee characteristics, they found that, in general, women reported higher levels of satisfaction compared to men and that extreme age groups (both younger and older) reported greater general satisfaction compared to the middle age groups. Satisfaction was also associated with respondents' health status. Respondents in poorer health had lower levels of general satisfaction relative to those reporting better health. In terms of characteristics of the health care plan, respondents enrolled in fee-for-service plans reported greater satisfaction compared to those enrolled in a prepaid group practice. Patients' expectations of their physicians' conduct was found to be one of the best predictors of their satisfaction with care. Enrollees with high expectations, such as using the latest medical technology or seeing the same physician

each visit, reported higher levels of satisfaction relative to those with lower expectations. Overall, Hsieh and Kagle (1991) concluded that demographic factors, health status, and mode of service delivery were not strong predictors of enrollees' satisfaction with their health care. They further concluded that satisfaction was associated with expectation but that these expectations varied across sociodemographic subgroups.

Health care providers' behaviors have also been documented as significant predictors of patient satisfaction. Bower, Swan, and Koehler (1994) surveyed 644 patients served by a southern Army hospital to determine what attributes patients used to evaluate the health care services they received. Based on their 298 respondents (46%), six predictors were found to be significantly related to patients' global levels of satisfaction with care. These predictors included caring, accessibility, communications, responsiveness, reliability, and knowing. They concluded that because many consumers are not able to assess the technical aspects of the care they received, qualities related to the personal nature of the delivery of health care services weighed heavily in consumers' assessment of satisfaction. Similarly, Kim, Kaplowitz, and Johnston (2004) survey of 550 Korean hospital patients found that patient-perceived physician empathy was significantly associated with patient satisfaction and ultimately treatment compliance.

A survey of 700 patients from a large general hospital in the United Kingdom identified three dimensions of patient satisfaction: quality of care, improvement in health, and psychological well-being (Hardy, West, & Hill, 1996). A subsequent survey of 483 patients from a different general hospital confirmed these dimensions of patient satisfaction and identified three important predictors of patient satisfaction. These predictors included communication by hospital staff, patients perception of their initial contact with the hospital, and perceived control over their treatment.

Jackson, Chamberlin, and Kroenke (2001) surveyed 500 patients presenting at a general army medical clinic to determine what patient and physician characteristics were correlated with patient satisfaction. They found older patients were more likely to be satisfied but that other patient characteristics were not related. Additionally, none of the following was associated with satisfaction: the type, duration, severity of symptoms, the type or number of previsit expectations, or the amount of cost of the initial visit. Mood and anxiety disorders were weakly correlated with dissatisfaction, whereas greater functional status was associated with increased satisfaction. The strongest association was found between unmet expectations and satisfaction. Patients who reported fewer unmet expectations had higher levels of satisfaction. The authors did find that the correlates of satisfaction changed as the time

increased from the visit. Immediately after a visit, communication and lack of unmet expectations were more highly correlated with satisfaction, whereas 3 months later patients' symptoms were more highly related to satisfaction. The authors concluded that investigators examining patients' satisfaction with health care need to consider the timing when the assessments are made. Joos, Hickman, and Boder (1993) surveyed 243 male patients served at a university-affiliated Veterans Affairs hospital to assess their satisfaction with the care they had received. They found a significant, albeit modest relationship, between patient satisfaction and their desires being met. More important, the relationships were stronger when physicians met patients' desires regarding information and affective support compared to when physician met desires for examinations, tests, and medications.

More recently, Bogart, Bird, Walt, Delahanty, and Figler (2004) conducted a series of studies to examine the relationships between physician stereotypes and satisfaction with health care among three disparate low-income samples. They found that patients' views of physicians were importantly related to their health-seeking behaviors. More specifically, patients having more negative views about physicians sought care less often when they became ill, were less satisfied with the care they received, and were less likely to adhere to physicians' treatment recommendations. They found no racial/ethnic differences in patients' satisfaction levels. These findings are consistent with those of other investigators who have also found a strong link between patient satisfaction and adherence to recommended medical treatment (Francis, Korsch, & Morris, 1969; Korsch, Gozzi, & Frances, 1968) and to improved clinical outcomes (Kane, Maciejewski, & Finch, 1997).

The purpose of this study was to examine predictors of patient satisfaction among individuals enrolled in a county-sponsored indigent health care plan. Unlike many of the previous studies that focused on patients' satisfaction associated with a specific medical encounter or hospitalization, this study attempted to obtain a broader population-based estimate of patient satisfaction from an enrolled population of health care plan beneficiaries to determine if the predictors of satisfaction comported with those identified in studies examining specific medical encounters. In addition, the present study differs in that it examined enrollees' trust in their health care providers as a predictor of satisfaction. We begin with a brief description of the health care plan.

Description of the County-Sponsored Health Care Plan

The county-sponsored health care plan is specifically designed for working county residents (<30% of its members are unemployed) who have incomes

at or below the federal poverty level and cannot afford health care coverage but whose income prevents them from qualifying for receiving Medicaid. At the time the study was conducted, a single adult could have an annual income up to $8,980, whereas a family of four could have an annual income up to $18,400 to qualify for the county-sponsored health care plan. In some special instances, residents with income above 100% of the poverty level with no other health care coverage can qualify. For most enrollees, this is not a permanent health care plan as more than 70% of the plan members remain in the program for less than 1 year.

The plan is a comprehensive managed health care system financed through a state authorized 0.5 cent county sales tax which was approved by the County Commission. The plan has a special emphasis on primary and preventive services, early intervention, health education, and the coordination of health and social services. Plan benefits cover a full array of diagnostic and hospital services as well as prescriptions, vision, dental, home health, and other medically necessary services. There are no premiums associated with the plan. However, there are copayments for certain services such as dental care and eyeglasses. More than 1,000 physicians participate in the health care plan that serves approximately 27,000 county residents per year. Enrollees receive primary care services within four networks with clinics located throughout the County that operate through competitive contracts with the County. The Plan is administered by the Hillsborough County (Florida) Department of Health & Social Services with oversight from a community advisory board.

Method

Sample Selection

A random sample of 3,600 enrollees in the county-sponsored health care plan was selected to receive a mail questionnaire assessing their current health status and satisfaction with the county's health care plan. This sample consisted of approximately 30% of the enrolled population and was selected stratifying four variables: *Gender* (2 strata; male, female), *Race/Ethnicity* (3 strata; White, Black, Other), *Age* (2 strata; 21-40, above 40), and *Provider Network* (4 strata; A, B, C, D). This process resulted in 48 different strata ($2 \times 3 \times 2 \times 4 = 48$). Data on these variables were used in stratifying the sample: (a) given they were available on all health care plan enrollees, (b) to increase the number of respondents from smaller strata, and (c) because

response rate differences have been associated with these demographic variables in other mail surveys. All current health care plan enrollees were classified into their respective stratum and a quota sample of 75 enrollees was randomly selected from within each stratum to receive a mail questionnaire.

Questionnaire

The mail questionnaire was developed in conjunction with staff from the county health care plan. In addition, a focus group was conducted with 10 randomly selected plan enrollees. Their comments and suggestions resulted in various changes being made to the questionnaire. The questionnaire included a number of previously developed, psychometrically tested and validated self-report health, and mental health and substance abuse status measures. The readability of the cover letter was at an 8.2 grade level and that of the questionnaire was at a 6.8 reading level. A description of the measures included in the questionnaire is presented below. The final version of the questionnaire was translated into Spanish and was reviewed and approved by county personnel.

Measures in the Questionnaires

Health status. The SF-12 (Ware, Kosinski, & Keller, 1996) was included as a measure health status. The SF-12 is a 12-item self-report measure of health and mental health functioning. In a general population—the mean score on each component is approximately 50. The SF-12 examines eight health concepts including physical functioning, role limitations because of physical health problems, bodily pain, general health, vitality (energy/fatigue), social functioning, role limitations because of emotional problems, and mental health (psychological distress and psychological well-being). The measure has good test-retest reliability (.89 for physical health and .76 for mental health) over 2 weeks. The median validity estimate for the physical health component was 0.67, whereas the median validity estimate for the mental health component was 0.97 (Keller, Kosinski, & Ware, 1996; Ware, Kosinski, & Keller, 1995).

Depression. The PHQ-9 is a nine-item respondent self-report measure of depression derived from the Patient Health Questionnaire. Items were based on the diagnostic criteria for major depressive disorder in the Diagnostic and Statistical Manual Fourth Edition (DSM-IV). A score of ≥10 had a sensitivity of 88% and a specificity of 88% for major depression (Kroenke,

Spitzer, & Williams, 2001). The PHQ-9 has been shown to have good internal consistency reliability ($\alpha = .80$) and good interitem and corrected item–total correlations (Lee, Schulberg, Raue, & Kroenke, 2007). In addition, the PHQ-9 was found to have a positive, moderate correlation with the Hopkins Symptom Checklist-20 ($r = .54$, $p < .0001$), another measure of depression (Lee et al., 2007).

Alcohol use. Alcohol use was assessed using the CAGE (Ewing, 1984; Mayfield, McLeod, & Hall, 1974), a four-item self-report measure. The CAGE has acceptable internal consistency ($\alpha = .69$; Hays, Merz, & Nicholas, 1995). A CAGE score of 2 or more was associated with a sensitivity and specificity of 74% and 91% (Buchsbaum, Buchanan, Centor, Schnoll, & Lawton, 1991).

Drug use. The questions included in the Drug Abuse Severity Test (DAST-10; Addiction Research Foundation, 1982) focus on possible involvement with drugs, not including alcoholic beverages during the past 12 months. The DAST was originally modified based on the Michigan Alcohol Screening Test and has been shown to have good psychometric properties ($\alpha > .85$; test-retest reliabilities $r > .70$) and the ability to identify individuals who need more intensive screening for substance abuse (Cocco & Carey, 1998).

Quality of life. Quality of life was assessed using the subjective portion of Lehman's (1988) Quality of Life Interview for the Chronically Mentally Ill (QoL). In this 8-item self-report measure, respondents assess their quality of life in seven life domains, as well as a global assessment of QoL, using a four-point Likert-type response scale ranging from "very" to "not at all" satisfied. The measure has been widely used in behavioral health services research.

Trust in health care provider. Respondents' level of trust in their physician was measured using the Trust in Physician Scale (Anderson & Dedrick, 1990). This scale is an 11-item, self-report measure that assesses patients' trust in physicians within the domains of dependability, confidence, and confidentiality of information. Respondents answered each question using a five-point Likert-type scale, and the items include both positively and negatively worded questions. Sample items include "I trust my doctor's judgments about my medical care," "I trust my doctor so much I always try to follow his/her advice," and "I sometime worry that my doctor may not keep the information we discuss totally private." Anderson and Dedrick (1990) reported that each of the 11 items has item-to-total correlations

exceeding .40. The internal consistency reliability of the scale was also high; with Cronbach's alphas exceeding .85 in two independent phases of scale development (Anderson & Dedrick, 1990). The scale's construct validity was also assessed as sufficient on multiple occasions by correlating scores obtained on this scale with those from scales assessing constructs closely aligned with patient/physician relationships. Validity of the measure, by comparison with other trust scales, showed moderate correlation with these other measures. In further measures of reliability and validity, Thom, Ribisl, Stewart, and Luke (1999) tested a slightly modified version of the scale where one question and the response labels had been slightly reworded. They report that the measure had high internal consistency ($\alpha = .89$) and good 1-month test-retest reliability ($r = .77$). Trust scores correlated well several measures of the patient's preferences regarding the physician's role. In 6-month follow-up surveys, trust scores were significantly correlated with continuity of care, adherence to prescribed medication, and overall satisfaction with care.

In Thom et al.'s (1999) study to assess the association between physician behaviors and patient trust, 414 patients enrolled in 20 community-based family practices rated 18 physician behaviors and completed the Trust in Physician Scale immediately following their visits. Trust was also measured at 1 and 6 months after the visit. The association between physician behaviors and trust was examined in regard to patient sex, age, and length of relationship with the physician. All behaviors were significantly associated with trust ($p < .0001$), with Pearson correlation coefficients ranging between .46 and .64. Being comforting and caring, demonstrating competency, encouraging and answering questions, and explaining were associated with trust among all groups.

Satisfaction with services. Enrollees' satisfaction with the mental health services they have received was assessed using portions of the Mental Health Statistics Improvement Program Task Force on a Consumer-Oriented Report Card (U.S. Department of Health and Human Services, 1996). Respondents completed this 12-item measure using a five-point Likert-type scale indicating their level of agreement with statements concerning service access, interpersonal interactions, quality of care, and costs.

Mailing Procedures

The mailing procedures followed those recommended by Dillman (1978) and Salant and Dillman (1994). In total, five separate mailings were conducted.

The first mailing consisted of a prenotification postcard informing the health care plan enrollees who were sampled that we were conducting a study examining their health care services and that they would receive a questionnaire in the mail in about a week. One week later, a second mailing was conducted. This mailing included a personalized cover letter and questionnaire, in both English and Spanish, an explanation of the purpose of the study, that respondents would be paid $7.00 for returning a completed questionnaire, and information about the days and hours of operation of the toll-free telephone number. A preaddressed stamped return envelope was also included in the mailing. One week later, a postcard reminder was sent to each person who had not yet responded. This reminder emphasized the importance of the study and again included information on the toll-free telephone number they could call. Two weeks after the postcard reminder was mailed, a fourth mailing containing a cover letter, questionnaire, and a preaddressed stamped return envelope was mailed to each nonrespondent. Finally, 4 weeks later, a fifth mailing was sent via certified mail to individuals who still had not responded. As with the second and fourth mailing, enrollees received a personalized cover letter, questionnaire, and a preaddressed, stamped return envelope.

As recommended by Dillman (1978), first class postage was used on both the outgoing and return envelopes of each mailing and address correction was requested from the post office so that mailing lists could be updated. These mailing procedures were based on the findings of a feasibility study conducted to assess the validity of using mail survey procedures with a Medicaid population. The findings from this feasibility study are summarized in Boothroyd and Shern (1998).

Data Analytic Plan

Assessment of survey response rates. Response rates to the mail survey were examined and reported as both an overall rate (i.e., number of returned questionnaires/number of questionnaires mailed), and an adjusted rate (number of returned questionnaires / [number of questionnaires mailed – (incorrect addresses + deceased individuals)]). Adjustments were made to the overall response rate for those surveys that were undeliverable and those mailed to deceased individuals. Adjusted response rates were compared across the four networks as well as for selected subgroups of enrollees (e.g., men vs. women) to determine if differential response rates were present.

Examination of response bias. The demographic characteristics (i.e., age, gender, race/ethnicity) of the mail survey respondents and nonrespondents

were compared to assess the overall representativeness of individuals responding to the survey with those in the larger sample (i.e., response bias). Chi-square analyses were used to test for gender and race/ethnicity differences between respondents and nonrespondents whereas an independent t test was used to assess age differences between the two groups.

Determining correlates of health care satisfaction. The 21-item satisfaction measure was first factor analyzed using a principal components procedure to determine its underlying structure. The unique components were then used as separate dependent variables in a series of stepwise regression analyses to determine the predicators of enrollee satisfaction. A split-sample cross-validation procedure (Lord & Novick, 1968) was used to develop the model and to estimate the degree of shrinkage. The 1,405 survey respondents were randomly divided into two approximately equal subsamples. A stepwise regression was used to identify predictors in one subsample (i.e., screening sample). Predictors were examined for collinearity. The resulting model was then applied to the second subsample (i.e., calibration sample) and enrollees' predicted health plan satisfaction scores were then correlated to their actual satisfaction scores using a Pearson Product-Moment correlation to determine the stability (i.e., shrinkage) of the estimates across the two subsamples.

Results

Response Rates

The unadjusted response rate to the mail survey was 39% (i.e., 1,405/3,600). However, given that in excess of 800 questionnaires were returned as undeliverable because of incorrect addresses, the adjusted response rate was 51%. The number of survey responses (i.e., 1,405) represents nearly 12% of the health care plan enrolled population.

Characteristics of Survey Respondents and Nonrespondents

Table 1 provides a comparison of the characteristics of survey respondents and nonrespondents. As is typical in many mail surveys, this comparison revealed that respondents were significantly older ($M = 43.8$, $SD = 12.90$) than nonrespondents ($M = 39.4$, $SD = 13.07$), $t(3,598) = 4.34$, $p < .001$. Significant gender differences were also noted between respondents and

Table 1
Comparison of Survey Respondents and Nonrespondents

Characteristic	Respondents (n = 1,405)	Nonrespondents (n = 2,195)	$p <$
Gender			
Male	45.2%	53.1%	.001
Female	54.8%	46.9%	
Race			
White	37.4%	30.8%	.001
Black	31.5%	34.5%	
Hispanic	28.3%	30.4%	
Other	2.8%	4.3%	
Age			
Mean	43.8 years old	39.4 years old	.001
SD	12.90	13.07	
Range	1-79	1-83	
Provider Network			
A	27.0%	24.8%	N.S.
B	26.6%	28.3%	
C	24.4%	22.6%	
D	22.0%	24.3%	

nonrespondents $\chi^2(1, N = 3{,}600) = 21.27$, $p < .001$. Women responded to the mail survey at a higher rate (54.8%) and men at a lower rate (45.2%) compared to nonrespondents (46.9% and 53.1%, respectively). With respect to race/ethnicity, significant differences were also found between respondents and nonrespondents $\chi^2(3, N = 3{,}600) = 19.91$, $p < .001$. Specifically, respondents were more likely to be White (37.4%) and less likely to be Black/African American (31.5%), Hispanic (28.3%), or from other minority groups (2.8%) compared to nonrespondents (30.8%, 34.5%, 30.4%, and 4.3%, respectively). No significant difference was found between respondents and nonrespondents regarding the Network to which they belonged.

Characteristics of Respondents in Sample 1 and Sample 2

A summary of the respondent characteristics in samples 1 and 2 are provided in Table 2. As can be seen, no significant differences were found between the two samples regarding respondents' gender, race/ethnicity, education levels, ages, or in the provider network in which they were enrolled. Based on the results of these analyses, the two samples appear equivalent on these enrollee demographic characteristics.

Table 2
Characteristics of Sample 1 and Sample 2

Characteristic	Sample 1 (n = 679)	Sample 2 (n = 726)	$p <$
Gender			
Male	46.6%	42.5%	.128
Female	53.4%	57.5%	
Race			
White	35.1%	33.3%	
Black	25.8%	29.1%	
Hispanic	34.9%	32.8%	.496
Other	4.3%	4.8%	
Education			
Less than high school	33.5%	32.9%	.808
High school or more	66.5%	67.1%	
Age			
Mean	43.7 years old	43.9 years old	.760
SD	13.73	12.08	
Range	1-74	4-79	
Provider Network			
A	29.5%	24.7%	.100
B	24.7%	28.4%	
C	23.0%	25.8%	
D	22.8%	21.2%	

Satisfaction Measure

Satisfaction with health care services was assessed using 21 items developed as part of the Mental Health Statistics Improvement Program Task Force on a Consumer-Oriented Report Card (U.S. Department of Health and Human Services, 1996). The underlying structure of the satisfaction items was examined using principal components analysis with a varimax rotation. Four components emerged with eigenvalues greater than one, accounting for 64% of the variance. However, in an effort to obtain the most parsimonious solution, both the three- and five-component solutions were also examined. It was determined that the three-component solution provided the most interpretable solution although still accounting for 59% of the total variance. The results of this solution are summarized in Table 3. With two exceptions, items with loadings of .5 or greater were considered as loading on a component. The two exceptions were Item 6 "providers encouraged me to use self-help groups," which was considered as loading on Component 1 even though the highest loading was .433, and Item 14 "asked what my problems were,"

Table 3
Principal Components/Reliability Analyses

	Component		
Satisfaction Items	1	2	3
SAT 1: Pleased with plan	0.770		
SAT 2: Able to get needed services	0.739		
SAT 5: Providers sensitive to cultural background	0.630		
SAT 6: Providers encouraged use of self-help groups	0.433		
SAT 7: Services considered all my health needs	0.712		
SAT 12: Received high quality services	0.757		
SAT 13: Treatment respected my values	0.700		
SAT 14: Asked what my problems were	0.549	0.510	
SAT 15: Services treated me as a whole person	0.635		
SAT 18: Providers communicated clearly with me	0.639		
SAT 21: Got needed referrals	0.610		
SAT 8: Had choice in service providers		0.632	
SAT 9: Had choice in type of services		0.669	
SAT 16: Had choice in taking medications		0.770	
SAT 17: Felt free to leave without being punished		0.684	
SAT 19: I had a choice in picking medications		0.678	
SAT 20: Felt free to complain		0.511	
SAT 3: Could *not* get general health services			0.701
SAT 4: Could *not* get mental health services			0.721
SAT 10: Health *negatively* effected because of services received			0.800
SAT 11: Health *negatively* effected because of medications received			0.788
Percentage of variance accounted for	42.5%	11.3%	5.3%
Cronbach's alpha	0.92	0.83	0.80

which had a loading on .549 on Component 1 and .510 on Component 2. This item was considered as loading on Component 1. All other item loadings on each component were below the .50 criterion. Examination of the items loading on the three components suggests that they reflect general satisfaction, satisfaction with freedom of choice, and negatively worded satisfaction.

Eleven items loaded on the first component that seemingly characterized patients' general satisfaction with the health care plan ($\alpha = .92$). Six items loaded on the second component that represents enrollees' satisfaction with the degree of choice they had within the health care plan ($\alpha = .83$). Finally, four of the 21 items were negatively worded, and all loaded on the third component labeled, negatively worded satisfaction ($\alpha = .80$).

Given that the third component consisted only of the four negatively worded satisfaction items, this component was not considered as a separate dimension of satisfaction and was therefore excluded from further analysis. This decision was based on the fact that Schriesheim and Eisenbach (1995) noted there was increasing evidence that the inclusion of a reverse or negatively scored item on questionnaires causes serious drawbacks that can negatively affect the measure's reliability and/or validity (Schriesheim, Eisenbach, & Hill, 1991) and can distort factor-analytic results by producing "artificial factors" composed almost exclusively of these items (also see Schmitt & Stults, 1985).

Correlates of Satisfaction

Table 4 summarizes the bivariate Pearson correlations between each of the 17 predictor variables used in the stepwise regression analysis and the two satisfaction domains. As is shown in the table, respondents' level of trust in their health care provider has significant ($p < .01$) positive correlations with both the general and choice satisfaction domains ($r = .664$ and $r = .474$, respectively)—larger than any of the variables and indicating that higher levels of trust were associated with more satisfaction. This was followed by the change in health status variable, which also had a significant ($p < .01$) positive relationship with both the general and choice satisfaction domains ($r = .438$ and $r = .324$, respectively). This relationship indicates that a perceived decline in health status was associated with lower levels of satisfaction whereas improved health status was associated with more satisfaction. Higher levels of depression were significantly associated with lower levels of both general ($r = –.179$) and choice satisfaction ($r = –.151$). Other variable significant bivariate relationships to both the choice and general satisfaction domains included age, having less than a high school degree, being enrolled in Network A and quality of life (see Table 4). Alcohol, drug use, service use, and being enrolled in Network C or Network D, had significance albeit weak correlations with general satisfaction, whereas being enrolled in Network B was significantly but weakly associated with choice satisfaction (see Table 4).

Predicting General Satisfaction

Respondents were split into two random subgroups. A stepwise linear regression analysis was performed with one subgroup to evaluate the potential contribution of 17 predictor variables in explaining the variability associated with the dependent variables of general satisfaction. The resulting

Table 4
Correlations of Predictors With the Two Satisfaction Domains

Predictors Variables	General Satisfaction	Choice
Respondent demographics		
Age	.179**	.062*
Female[a]	–.020	–.015
White[a]	.011	.024
Less than high school[a]	–.100**	–.093*
Not married[a]	.085*	.029
Working[a]	.006	.047
Health-related		
CAGE score (alcohol use)	.030**	–.013
DAST-10 score (drug use)	–.091**	.034
SF-12 score (physical health)	.120**	.087**
PHQ-9 (depression)	–.179**	–.151**
Change in health status since last year	.438**	.324**
Trust in health care provider	.664**	.474**
Used services in previous six months	.078**	.007
Network A	–.133**	–.135**
Network B	.057	.104**
Network C	.114**	.058
Network D[b]	–.086**	–.047
Quality of Life	.284**	.251**

*$p < .05$. **$p < .01$.
a. 0 = *no*/1 = *yes*.
b. Network D served as the contrast group in the regression analysis.

prediction model was then cross-validated with the second subgroup of respondents. In both analyses, six respondent demographic variables were included in the stepwise regression. They included (a) age, (b) being female (1 = *yes*/0 = *no*), (c) White (1 = *yes*/0 = *no*), (d) having less than high school education (1 = *yes*/0 = *no*), (e) being married (1 = *yes*/0 = *no*), and (f) working (1 = *yes*/0 = *no*). In addition, 11 health-related variables were included in the regression analyses. These included (a) CAGE score (alcohol use), (b) DAST-10 score (drug use), (c) SF-12 score (physical health), (d) PHQ-9 (depression), (e) change in health status over the past year, (f) trust in health care provider, (g) used services in previous 6 months (1 = *yes*/0 = *no*), (h) member of Network A (1 = *yes*/0 = *no*), (i) member of Network B (1 = *yes*/0 = *no*), (j) member of Network C (1 = *yes*/0 = *no*), and (k) Quality of life.

The results of this analysis indicate that trust in health care providers emerged as the strongest independent correlate of general satisfaction, followed by perception of change in health status, and then age (see Table 5).

Table 5
Predictors of Specific Dimensions of Patient Satisfaction: General Satisfaction and Choice

Predictor	B	Standard Error	Beta	Change in R^2	$p <$
General satisfaction*					
Intercept	16.43	1.46			
Trust in health care provider	0.45	0.02	.58	.44	.001
Perceived change in health status	–1.40	0.21	–.22	.04	.001
Age	0.06	0.02	.09	.01	.005
Choice**					
Intercept	10.10	0.87			
Trust in health care provider	0.22	0.02	.44	.249	.001
Perceived change in health status	–0.67	0.14	–.18	.029	.001

*$F(3, 572) = 183.19$; $p < .001$; $R^2 = .49$.
**$F(2, 563) = 108.20$; $p < .001$; $R^2 = .28$.

The remaining 14 variables failed to enter the model. In this model, trust and age had positive relationships to respondents' general satisfaction score. In other words, respondents with higher levels of trust in their health care providers reported greater levels of general satisfaction with the health care plan. Similarly, older respondents were more likely to report higher levels of general satisfaction with the plan compared to younger respondents. Perception of change in health status was negatively correlated because the variable measured the change from present to past; this relationship indicates that respondents who perceived an improvement in their health care status were more likely to report higher levels of general satisfaction score compared to respondents who perceived a decline in their health care status. Overall, this three-variable model explained 49% of the variance in general satisfaction for the first sample of data ($N = 679$). When the model developed with the first sample was cross-validated on the second sample of respondents ($N = 726$), the resulting Pearson correlation between respondents' actual and predicted scores on general satisfaction was $r = .709$, indicating that the model accounted for nearly 50% of the variance in respondents' general satisfaction.

Predicting Satisfaction with Plan Choice

A similar analytic process was used to evaluate the contribution of the 17 predictors to the criterion variable of enrolles' satisfaction with plan

choice. The same six respondent demographic variables and 11 health-related variables were included in a stepwise linear regression. Respondents' trust in their health care providers had a positive association with satisfaction with choice and again emerged as the single strongest predictor. Respondents reporting higher levels of trust in their health care providers also reported higher levels of satisfaction regarding their level of choice within the health care plan. This was followed by perception of change in health status. As with general satisfaction, respondents' perceptions of change in their health status was negatively correlated with their satisfaction with choice in the health care plan, that is, perceived improvement from previous health to current health equated to a higher satisfaction with freedom of choice. This model explained 28% of the variance in the satisfaction with freedom of choice for the first sample of data ($N = 679$). When applied to the second sample of respondents ($N = 726$) the Pearson correlation between respondents' actual and predicted scores regarding satisfaction with choice was $r = .78$, indicating that the model accounted for 28% of the variance in choice satisfaction.

Discussion

This study examined predictors of two components of satisfaction from among a general population sample of enrollees in a county-sponsored indigent health care plan. The results suggest that enrollees' trust in the health care providers, their age, and perceived change in health status were significant predictors of their general level of satisfaction, with the health care plan accounting for nearly 50% of the variance in general satisfaction. Respondents with higher levels of trust in their providers, those who were older, and those who reported that their health had improved had higher levels of satisfaction compared to enrollees who had less trust in their providers, were younger, or perceived that their health had declined. The model was cross-validated using a second sample of plan respondents and little shrinkage was found supporting the stability of the model. Respondents' trust in their health care providers was the single best predictor of their general satisfaction with the health care plan.

Similarly, respondents' trust in the health care providers and their perceptions of change in health status were significant predictors of their satisfaction with choice within the plan. These two variables accounted for approximately 29% of the variance in respondents' satisfaction with choice in their health care plan. In general, enrollees with higher levels of trust in their health care

providers and who perceived improvement in their health care status reported higher levels of satisfaction with plan choice compared to respondents with lower levels of trust or who reported that their health status had declined. This model was also cross-validated using a second sample of plan enrollees, and again little shrinkage was found supporting the model's stability.

Ware, Snyder, Wright, and Davies' (1983), who conducted a content analysis of 900 published questionnaire items used in studies of patient satisfaction, concluded there were eight domains that "influence satisfaction." These included (a) availability of services, (b) physical environment, (c) efficacy or outcomes of care, (d) finances, (e) accessibility and convenience, (f) continuity, (g) technical quality, and (h) interpersonal manner. A review of the content descriptions associated with these eight domains with the content of trust in health care provider scale used in this study suggests that technical quality (i.e., competence, thoroughness, accuracy) appears to be most closely, although not perfectly, aligned with the trust measured in this study, which emerged as the strongest influence of enrollee satisfaction. This raises an interesting question as to whether patients' trust in health care providers "influences" their satisfaction or is rather just one of a number of "domains" in which they experience satisfaction (or dissatisfaction). It is possible that the strong association between enrollees' trust in their health care providers and their levels of satisfaction with the health care plan that was found in this study is tautological in nature.

Regardless of the nature of this relationship, the results of this study are consistent with those from other studies. For example, several previous studies have found older individuals more likely to report higher levels of satisfaction compared to younger individuals (Hsieh & Kagle, 1991; Jackson et al., 2001). Jung, Baerveldt, Olesen, Grol, and Wensing (2003) found younger patients expressed stronger preferences related to control, being involved in health care decisions, and receiving detailed information compared to older patients who held stronger values for the physician making the decision. Similarly, several of these studies also found that respondents' reported health status (Hsieh & Kagle, 1991) and functioning (Jackson et al., 2001) were associated with their overall satisfaction. Individuals in better health or with higher levels of functioning reported increased levels of satisfaction.

One study found that patients' stereotypes of their physicians were significant predictors of satisfaction (Bogart et al., 2004). Although the construct differs somewhat from trust in health care providers, it was found that patients who had negative perceptions of their physician reported lower levels of satisfaction relative to patients who held more positive perceptions. Other studies have found that clinicians' service delivery behaviors at the practice

level have a significant influence on their ongoing relationships with their patients (Safran, Montgomery, Chang, Murphy, & Rogers, 2001).

Studies that have specifically examined the effects of patients' trust in their health care provider have found that trust is significantly related to a variety of enhanced health outcomes among both general and disabled patients (Chen, 2001; Stewart, 1984; Stewart, McWhinney, & Buck, 1979; Thom & Campbell, 1997; Thom et al., 1999). These outcomes include, among others, increased adherence to recommended treatment (Hall, Dugan, Zheng, & Mishra, 2001; Pascoe, 1983), patients remaining engaged in treatment (Safran et al., 2001; Pascoe, 1983), and in one study, increased satisfaction with services (Thom et al., 1999).

Safran et al. (2001) documented how practitioners' attitudes and behaviors affect patients' relationships with health care providers. In addition, Mechanic (1996) has stated the need for health care organizations to develop and implement policies that promote and facilitate provider–patient relationships. As a result, health care professionals need to be keenly aware of the importance of their interactions with patients. This may pose a more formidable challenge to the health profession, given that despite a growing emphasis in medical schools to promote patient-centered attitudes in doctors (Schmidt, 1998), a recent study by Haidet et al., (2002) found that advanced medical students "have attitudes that are more doctor-centered or paternalistic compared to students in earlier years" (p. 568). The challenge for the health care profession is highlighted by the fact that modest efforts to alter practicing physicians' attitudes and behaviors resulted in "no significant difference in patients' trust" (Thom, 2000, p. 245). This challenge is further noted by Thom (2000) who evaluated a brief training program for physicians designed to modify their behaviors to increase patient trust. Although the physicians showed some improvement no significant increase was found in patients' trust or satisfaction suggesting that the program was not effective.

Limitations

There are several limitations associated with mail survey procedures worth acknowledging that raise concerns about the representativeness and generalizability of the findings. First, the unadjusted survey response rate of 39% was lower than what one would ideally like, although the sample did represent 12% of the plans' enrolled population and when adjusted for incorrect addresses was a more respectable 51%. This concern having been stated, it should also be noted that this response rate is substantially higher than the rates reported in previous studies involving similar populations

(Barrilleaux, Phillips, & Stream 1995; Brown & Nederend, 1997; Rohland & Rohrer, 1996).

Second, the differences in the characteristics between respondents and nonrespondents (i.e., response bias) previously described could have a possible unknown influence on the resulting regression models. Given that several investigators have documented that age is an important predictor of satisfaction (Hsieh & Kagle, 1991; Jackson et al., 2001), and given that older enrollees were more likely to respond to the survey compared to younger respondents, the resulting prediction models may be somewhat biased.

A third limitation is that the sample only includes enrollees from one county-sponsored indigent health care plan in Florida. Thus, the generalizability of these results to individuals enrolled in private health care plans or residing in other states is uncertain. Replications of these findings with other samples of health care plans would certainly strengthen their validity.

Despite these limitations, the findings clearly document the important contribution that patients' trust in their health care providers has on their satisfaction with their health care plan. The results highlight the need for health care professionals to develop and maintain trusting relationships with the patients they treat and serve.

Implications for Health Care Professionals

One can reasonably ask that if patients' trust in their physician is so importantly associated with their satisfaction, what implications does this have for other professionals employed in the health care field? Several responses should be considered. First, as noted by Hsieh and Kagle (1991), to the extent to which all health care professionals understand the factors that influence patients' satisfaction with their health care, they can be instrumental in improving the quality of patients' health care experiences by helping patients develop realistic expectations of their health care and communicating these expectations to their health care providers. This is critically important, given the substantial body of literature that links the meeting of patients' expectations and desires with their satisfaction with care (Brody et al., 1989; Like & Zyzanski, 1987; Jackson et al., 2001; Joos et al., 1993). Second, as noted by Salvatore (1988), other helping professionals such as social workers have an important role in educating patients, doctors, and other health care professionals about the patients' psychosocial needs. This educational role can include the importance that patients' trust in their health care professionals has on a variety of issues such as remaining in care, compliance with treatment regimes, and ultimately health outcomes. Finally, many health professionals

in the field of medicine provide crucial support to patients in regard to facilitating interactions between individual patients and their health care providers. In aiding the communication between doctors and patients, all health professionals have a role in building trust between these two parties, thereby improving the patient satisfaction with their health care provider.

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