A Brief Instrument to Measure Patients' Overall Satisfaction With Primary Care Physicians

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BACKGROUND AND OBJECTIVES: A brief and psychometrically sound scale to measure patients' overall satisfaction with their primary care physicians would be useful in studies where a longer instrument is impractical. The purpose of this study was to develop and examine the psychometrics of a brief instrument to measure patients' overall satisfaction with their primary care physicians.

METHODS: Research participants included 535 outpatients (between 18–75 years old, 66% female) who completed a mailed survey that included 10 items for measuring overall satisfaction with their primary care physician who was named on the survey. Patients were also asked about their perceptions of physician empathy, preventive tests recommended by the physician (colonoscopy, mammogram, and prostate-specific antigen (PSA) for age and gender appropriate patients) and demographic information.

RESULTS: Factor analysis of the patient satisfaction items resulted in one prominent component. Corrected item-total score correlations of the patient satisfaction scale ranged from 0.85 to 0.96; correlation between patient satisfaction scores and patient perception of physician empathy was 0.93, and correlation with recommending the physician to family and friends was 0.92. Criterion-related validity coefficients were mostly in the 0.80s and 0.90s. Patient satisfaction scores were significantly higher for those whose physicians recommended preventive tests (colonoscopy, mammogram, and PSA—compliance rates >.80). Cronbach's coefficient alpha for patient satisfaction scale was 0.98.

CONCLUSIONS: Empirical evidence supported the validity and reliability of a brief patient satisfaction scale that has utility in the assessments of educational programs aimed at improving patient satisfaction, medical services, and patient outcomes in primary care settings.

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Measurement of patient satisfaction is essential for evaluating the delivery of health care and for assessing patient outcomes. Patient satisfaction is an important indicator of quality of care because of its relevance to compliance and recall of medical advice.[1,2]

Patient satisfaction is a complicated construct involving an array of factors, including the physician's knowledge, clinical and communication skills, personal attributes, accessibility, convenience of location and surrounding area, office resource availability, continuity of care, efficacy, health insurance approval, or financial arrangements and other factors.[3]

A number of patient satisfaction instruments have been used to measure various aspects of patient satisfaction in different settings. Instruments have been developed to assess patient satisfaction with health care services,[4] satisfaction with out-of-hours primary care,[5,6] inpatient satisfaction,[7] satisfaction with physician's pain management,[8] geriatric patient satisfaction,[9] satisfaction with anesthesia care,[10] satisfaction with postoperative surgical care,[11] satisfaction with musculoskeletal care,[12] and satisfaction with psychiatric inpatient treatment.[13]

Grogan and colleagues[14] developed a 46-item questionnaire to measure patient satisfaction with specific aspects (eg, access, nurses, appointments, facilities) of general practitioner services in England. The Press Ganey survey of patient satisfaction has been widely used

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by hospitals to measure satisfaction with inpatient services.[15]

Despite the stockpile of patient satisfaction instruments addressing different aspects of medical care and health services, well-validated instruments for measuring patients' overall satisfaction with their primary care physicians are rare.[13] To our knowledge, currently a brief instrument is not available, which is specifically developed for measuring patients' overall satisfaction with their primary care physicians, and is supported by psychometric evidence, validated by indicators of patient compliance. There is a need for such an instrument, and this study was designed in response to that need.

Materials and Methods

Study Participants

Participants were 535 patients who responded to a mailed survey. These patients were selected based on the following criteria: (1) age between 18 and 75 years at the time of their first visit, (2) had at least two office visits with the physician during the past 36-month time period, and (3) spent at least two thirds of the total office visits with the attending physician identified as the patient's primary caregiver. These inclusion criteria were used for another study of a larger project to examine relationships between self-report empathy of physicians who participated in this study and clinical outcomes of a sample of their diabetic patients who required long-term interaction to form empathic engagement.[16] The average age of patients who participated in this study was 54.6 years (SD=13.9 years); there were 174 men (n=33%) and 355 women (n=66%) in the sample (six patients did not specify their gender).

Instruments

The survey instrument included 25 items (Survey available from corresponding author on request). The name of the primary care physician was printed on the first page. Patients were asked if the named doctor provided care to them during the past 3 years and how often they visited the physician during that time period. Questions about respondents' gender, age, education, race, and ethnicity were included in the survey. Patients over 50 years of age were asked if they had a colonoscopy that was recommended by the physician named on the survey. For female patients over 50 years of age, we asked if they had a mammogram that was recommended by the physician, and for male patients over 50 years, we asked if they had a prostate-specific antigen (PSA) test that was recommended by the physician.

We asked about preventive tests for those over 50 because these are common and important screening tests for which there are evidence-based recommendations and are also easy to access in the electronic health record. The upper age limit for screening with mammography and colonoscopy is often considered to be 75, particularly among patients with other serious and life-shortening diseases. The following item was used as one of the criterion measures for the validity study: "I would recommend this doctor to my family and friends." (1=strongly disagree, 7=strongly agree).

The Jefferson Scale of Patient Perceptions of Physician Empathy (JSPPPE) was also included in the survey. This brief instrument (five items) was developed to measure patients' perceptions of their physician's empathy. Evidence in support of the validity and reliability of this scale has been reported.[17,18]

Patient Satisfaction Scale

Ten items on patient satisfaction were included in the survey. Rather than generating new and untested items, we adapted 10 items (with minor modifications) from the Adult Primary Care Questionnaire based on an extensive review of the literature. This questionnaire was developed by the Consumer Assessment of Healthcare Provider and Systems (CAHPS)[19] Clinical and Group Survey and posted at the Web site of the Agency for Healthcare Research and Quality (AHRQ).

The questionnaire includes 101 items (37 in the main questionnaire and 64 in its supplement). For brevity, our team chose and slightly modified 10 items that seemed to be relevant to overall satisfaction with the primary care physician based on their content. Relevance of each item to patient satisfaction was confirmed by all investigators. For example, as an attempt to assure face validity, an item asking "In the past 12 months, did you take any prescription medicine?" was not included in the survey because it did not directly address the degree of patient satisfaction with the physician. However, an item such as "I would like my doctor to be present in any medical emergency situation" was included because of its direct relevance to patients' satisfaction with the physician. Each item was answered on a 7-point Likert scale (1=strongly disagree, 7=strongly agree). Total satisfaction score was calculated from sum of response to all 10 items. The possible score range was 10–70. A higher score indicates a greater satisfaction with the physician (A copy of the Scale of Patient Overall Satisfaction With Primary Care Physicians is available from the corresponding author on request).

Procedures

Subsequent to the approval of the Institutional Review Board of Thomas Jefferson University, we mailed the survey to 2,633 selected patients of the 29 faculty physicians (13 men, 16 women) from Jefferson's Department of Family and Community Medicine. All of these physicians were family physicians (no residents) practicing in an urban-based clinical setting. We randomly selected 100 patients for those physicians who had more than 100. The number of selected patients per physician ranged from 46 to 100, with an average of 91 patients per physician. All of these patients met the previously mentioned selection criteria.

A copy of the survey was mailed with a cover letter explaining the

purpose of the study as studying patient-doctor relationships. Patients were not asked to identify themselves and were assured about the confidentiality of their responses. Of the total mailed surveys, 84 were returned undelivered due to either incorrect addresses or change of addresses. We re-mailed the surveys to those with address changes if the forwarding address was specified on the envelope by the post office. Five surveys were not delivered, marked "deceased," and 32 patients indicated on their returned surveys that the physician named on the survey was not their primary care doctor. Patients remained anonymous; thus we could not identify who did or did not respond in order to send a follow-up note to increase the response rate. Anonymity was maintained to improve the response rate and to preclude signing a consent form.

Statistical Analyses

We used principal component factor analysis (varimax rotation) to examine underlying constructs of the patient satisfaction items. Pearson correlation coefficient was calculated to examine relationships between variables, and *t* test and analysis of variance were used to test the statistical significance of group differences. When appropriate, effect sizes were calculated to judge the practical importance of the statistically significant findings.[20,21] Statistical analyses were performed using SAS version 9.1 for Windows.

Results

We received a total of 535 completed surveys (20% response rate). All these patients confirmed that the named physician on the survey was their primary care doctor, and they had at least two visits with the physician during the past 3 years. Return rates per physicians varied from a low of 5% to a high of 36%, with a median of 20%.

Underlying Construct

Factor analysis of the scores of 10 satisfaction items resulted in only one prominent factor with an eigenvalue of 8.45, accounting for 85% of the variance. The eigenvalues of the other extracted factors were all below .35. Factor coefficients are reported in Table 1.

Factor coefficients ranged from .82 to .96, indicating that the instrument is a uni-dimensional scale involving only one prominent component that can be described as "overall" satisfaction.

Concurrent Validity at Item Level

Correlations between scores on each satisfaction item and patient's recommending the doctor to family and friends were all statistically significant, ranging from .74 to .92, with a median of .87 (Table 1). Correlations between scores of each item of the satisfaction instrument and scores on the JSPPPE were all statistically

Table 1: Factor Coefficients, Item-Total Score Correlations, and Correlations With Criterion Measures of Recommending Physicians and Perceptions of Physician Empathy at Item Level

Items of Patient Satisfaction Scale	Factor Coefficients	Item-Total Score*	Recommending Physician**	Physician Empathy***
1. I am satisfied that my doctor has been taking care of me.	.96	.94	.92	.87
2. My doctor explains the reason(s) for any medical test.	.96	.96	.88	.88
3. My doctor explains things in a way that is easy for me to understand.	.94	.94	.87	.87
4. I am confident of my doctor's knowledge and skills.	.94	.93	.88	.84
5. My doctor shows respect to what I have to say.	.94	.94	.87	.86
6. My doctor listens carefully to me.	.94	.94	.89	.90
7. My doctor really cares about me as a person.	.89	.90	.82	.88
8. My doctor encourages me to talk about all my health concerns.	.89	.91	.82	.88
9. My doctor spends enough time with me.	.84	.87	.77	.80
10. I would like my doctor to be present in any medical emergency situation.	.82	.85	.74	.77

* Correlation between scores of the item and the rest of the scale.

** Correlation between scores of the item and responses to this item: "I would recommend my doctor to my family and friends."

*** Correlation between scores of the item and scores on the Jefferson Scale of Patient Perceptions of Physician Empathy.[16,17]

significant, ranging from .77 to .90, with a median of .87.

Concurrent Validity at the Scale Level

We also examined the correlations between total scores of the satisfaction instrument and the total scores of the JSPPPE, its item scores, and rating on recommending physicians to family and friends for the total sample and by gender and age of the patients. Summary results are reported in Table 2.

Correlations are all large in magnitude, ranging from .69 to .96, supporting the concurrent validity of the satisfaction instrument for the total sample as well as for men and women and for younger (< 56 years of age) and older patients (≥ 56 years of age, median split).

Reliability

We calculated Cronbach's coefficient alpha, which is an indicator of the internal consistency reliability of the instrument (Table 3). The reliability coefficients for the total sample and subsamples by gender and age were very large in magnitude (≥.97), indicating that the instrument is highly internally consistent.

Descriptive Statistics

We examined the distribution of the satisfaction scores, which was skewed toward upper tail indicating that a great majority of physicians were given high satisfaction ratings by their patients (skewness index=-2.41). Although patients used the full range of responses (1 to 7) to each of the 10 items, the means of item scores were relatively high, ranging from 5.8 to 6.3 (standard deviations from 1.5 to 1.7). The mean of total scores of the entire 10-item satisfaction scale was 61.3 (SD=14.9, median=68), with a range between 10 and 70. The Cronbach's coefficient alpha, an indicator of internal consistency reliability, was .98.

The means, standard deviations, and ranges of scores of the satisfaction scale for total sample and for men and women, and younger and older patients, are reported in Table 3.

No significant difference was observed on the satisfaction scale between men and women; however, older patients obtained a higher satisfaction mean score than younger patients ($P<.05$). We found no significant difference on patient satisfaction scores between physicians with high and low patient response rates.

Criterion-related Validity

Colonoscopy. The satisfaction scores were compared for patients over 50 years of age who reported that their doctor did (n=333) or did not (n=78) recommend colonoscopy and whether they had the procedure done (self-report). Summary results are reported in Table 4.

The mean satisfaction score was significantly ($P<.01$) higher for those patients whose doctors recommended a colonoscopy screening test (M=63.7) than others in the same age group (M=51.9). The effect size was .80, indicating that the difference in satisfaction scores was of practical importance.[20,21] It is interesting to note that 81% (n=270) of patients who reported that their

Table 2: Concurrent Validity Coefficients of Total Scores on the Patient Satisfaction Scale With Scores on Selected Criterion Measures by Patients' Gender and Age

	Gender*		Age		Total
Criterion Measures	Men (n=174)	Women (n=355)	< 56 (n=266)	≥ 56 (n=269)	(n=535)
Perception of physician empathy.**	.94	.93	.96	.90	.93
My doctor can view things from my perspective (see things as I see them).	.81	.78	.88	.69	.78
My doctor asks about what is happening in my daily life.	.84	.78	.88	.74	.80
My doctor seems concerned about me and my family.	.90	.85	.91	.83	.88
My doctor understands my emotions, feelings, and concerns.	.85	.88	.92	.81	.87
My doctor is an understanding doctor.	.96	.94	.96	.93	.94
I would recommend my doctor to my family and friends.	.95	.91	.94	.90	.92

* Six patients did not specify their gender.

** Scores of the Jefferson Scale of Patient Perceptions of Physician Empathy.[16,17]

Table 3: Descriptive Statistics of Scores on Patient Satisfaction Scale by Patients' Gender and Age

	Mean	SD	Range	Cronbach's Alpha
Gender*				
Men (n=174)	62.9	13.7	10–70	.97
Women (n = 355)	60.7	15.1	10–70	.98
Age**				
< 56 years (n=266)	59.8	16.3	10–70	.99
≥ 56 years (n=269)	62.8	13.2	10–70	.98
Total (n=535)	61.3	14.9	10–70	.98

* t (527)=1.6, P=.10 (Six patients did not specify their gender).

** t (533)=2.4, P<.05.

physician recommended colonoscopy had the procedure done. In contrast, only 27% (n=21) of patients who reported that their physicians did not recommend colonoscopy did have it done (probably ordered by another physician or at the patient's own request).

Mammogram. The mean satisfaction score for female patients over 50 years of age who reported that their physicians recommended mammogram and had the test done (n=256) was significantly higher than for others in the same gender and age group (n=58) whose physician did not recommend the test (M=62.5 versus M=54.3, respectively, P<.01, Table 4). The effect size was .55, indicating that the difference should not be considered negligible.[20,21] The compliance rate was 92% (n=236) for the former group. In contrast, only 16 % (n=9) of patients in the latter group reported having a mammogram.

PSA. Male patients over 50 years of age who reported that their physicians recommended the PSA test and had the procedure done (n=126) obtained a higher satisfaction mean score than their counterparts in the same age group (n=37) whose physicians did not recommend the test (M=64.4 versus M=55.6, respectively, P<.01, Table 4). The effect size was .66, indicating that the difference was of practical importance.[20,21] The compliance rate was 90% (n=114) for the former group, but only 5% (n=2) of patients in the latter group reported having a PSA test done.

Table 4: Scores on Patient Satisfaction Scale and Physicians' Recommendations for Preventive Tests

Test Recommended by Physician	M	SD	t	d*
Colonoscopy**				
Yes (n=333, compliance rate=81%)	63.7	12.0	6.5†	.80
No (n=78)	51.9	21.4		
Mammogram***				
Yes (n=256, compliance rate=92%)	62.5	13.5	3.7†	.55
No (n=58)	54.3	20.7		
PSA****				
Yes (n=126, compliance rate=90%)	64.4	10.8	3.6†	.66
No (n=37)	55.6	21.5		

† P<.01

* Cohen's effect size estimate.[19,20]

** Male and female patients over 50 years.

*** Female patients over 50 years.

**** Male patients over 50 years.

Discussion

The findings of this study provide strong evidence supporting the psychometrics of a brief scale specifically developed to measure patients' overall satisfaction with their primary care physicians. The construct validity was supported by obtaining only one prominent underlying construct, implying that the goal of developing an overall satisfaction scale was achieved.

Concurrent validity of the scale was supported by significant correlations with scores of the JSPPPE and with a willingness to recommend the physician to family and friends. The findings of the link between patients' satisfaction and their perceptions of physicians' empathic engagement support the validity of the scale, confirming the perception that physician empathic engagement can have a positive effect on patient satisfaction.

Criterion-related validity of the scale was supported by higher satisfaction mean scores among patients whose physicians recommended the preventive tests and by the higher compliance rates. These important findings suggest that physicians' orientation toward preventive measures can contribute to higher patient satisfaction, probably due to patients feeling that their physicians do care about their future health. Findings

on higher satisfaction expressed by older patients is consistent with that reported by Grogan and colleagues.[14] Because the scale is unidimensional, a high degree of internal consistency was expected and was found as reflected in the coefficients alpha with relatively large magnitudes.

Limitations and Future Research

This study is limited in that it was based on research at a single institution and had a low response rate. Both may jeopardize the generalization of the findings. However, the major purpose of this study was to examine the internal relationships between scores of a newly developed scale and a number of criterion measures. The skewed distribution of satisfaction scores toward the upper tail could be due to the fact that patients in this study were chosen from the population of those who had a long-term and continuous relationship with the primary care physicians, which could contribute to the high level of patients' satisfaction found in this study. For generalization of the findings, a more representative sample from multiple medical centers with a better response rate will be required. Further research is also needed to examine the psychometrics of this instrument for different practice settings.

Despite the aforementioned limitations, our findings can add to the confidence of researchers about using this brief instrument which is supported by psychometric evidence for measuring patients' overall satisfaction with their primary care physicians. A psychometrically sound instrument that can be completed in a short time by patients would be a valuable contribution to patient satisfaction research and has a potential for the evaluation of educational programs aimed at improving patient satisfaction. The instrument can also be used as a predictor of clinical outcome and as an outcome of patient care. Other applications of the instrument include comparisons of patient satisfaction for physicians by gender and age, interaction of physician and patient gender and age, specialty (eg, internal medicine versus family medicine), type of medical education (eg, allopathic versus osteopathic), type of medical school (eg, public versus private), and cross-ethnical/cross-cultural comparisons of patient satisfaction with primary care physicians.

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