BRIEF REPORT: Patient-Physician Agreement as a Predictor of Outcomes in Patients with Back Pain

Thomas O. Staiger, MD,¹ Jeffrey G. Jarvik, MD, MPH,^{2,3,4} Richard A. Deyo, MD, MPH,^{1,2,4} Brook Martin, BS, MPH,⁴ Clarence H. Braddock III, MD, MPH⁵

¹Department of Medicine, University of Washington, Seattle, Wash, USA; ²Department of Health Services, University of Washington, Seattle, Wash, USA; ³Departments of Radiology and Neurosurgery, University of Washington, Seattle, Wash, USA; ⁴Center for Cost and Outcomes Research, Stanford University, Stanford, Calif, USA; ⁵Department of Medicine and Center for Biomedical Ethics, Stanford University, Stanford, Calif, USA.

OBJECTIVE: To determine whether a patient-physician agreement instrument predicts important health outcomes.

DESIGN: Three hundred eighty patients with back pain were enrolled in a comparison of rapid magnetic resonance imaging with standard x-rays. One month later, patients rated agreement with their physician in the following areas: diagnosis, diagnostic plan, and treatment plan. Outcomes included patient satisfaction with care at 1 and 12 months and functional and health status at 12 months.

SETTING: Urban academic and community primary care and specialty clinics.

MEASUREMENTS AND MAIN RESULTS: Higher agreement at 1 month (using a composite sum of scores on the 3 agreement questions) was correlated in univariate analysis with higher patient satisfaction at 1 month ($R=-.637$, $P<.001$). In multivariate analysis, controlling for 1-month satisfaction and other potential confounders, higher agreement independently predicted better 12-month patient satisfaction ($\beta=0.188$, $P=.003$), mental health ($\beta=1.080$, $P<.001$), social function ($\beta=1.124$, $P=.001$), and vitality ($\beta=1.190$, $P<.001$).

CONCLUSION: Agreement between physicians and patients regarding diagnosis, diagnostic plan, and treatment plan is associated with higher patient satisfaction and better health status outcomes in patients with back pain. Additional research is required to clarify the relationship between physician communication skills, agreement, and patient outcomes.

KEY WORDS: physician-patient communication; agreement; back pain; satisfaction.

DOI: 10.1111/j.1525-1497.2005.0175.x

J GEN INTERN MED 2005; 20:935-937.

Agreement between patients and physicians is an important goal of the doctor-patient interaction.^{1,2} Prior studies have shown that a patient's agreement with his or her physician can predict important health outcomes.³⁻⁸ Despite the importance of patient-physician agreement, there are few validated instruments for assessing this key aspect of the medical encounter. Some existing instruments measure the related construct of "concordance" in medication or treatment decisions, but each instrument defines concordance differently. Moreover, these concordance instruments are designed to be used only in a narrow range of clinical encounters.⁵⁻⁸ Another

instrument's "Finding Common Ground" subscale assesses a patient's perception of physician patient-centeredness; however, this subscale assesses many aspects of the physician-patient relationship in addition to agreement.⁹

We therefore designed an instrument to measure patients' agreement with their physicians about key aspects of a visit, and examined whether this agreement instrument could predict patient satisfaction or functional outcomes. We evaluated our agreement instrument in patients with back pain, a common clinical problem whose outcomes have been shown to be related to physician-patient communication.¹⁰

METHODS

Instrument Development

After reviewing the pertinent literature,^{1-9,11-16} we developed the following 3 questions to assess a patient's agreement with their physician: 1) Do you agree with your physician's explanation for the cause of your primary symptom or symptoms?; 2) Do you agree with your physician's plan for diagnostic tests?; and 3) Do you agree with your physician's suggested plan for treatment? Responses were indicated on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). High internal consistency between the 3 questions (Cronbach $\alpha=0.76$) allowed us to create a composite agreement score, using a simple sum of the 3 responses, with a score range of 3 to 21.

Study Population

We evaluated this instrument in the Seattle Lumbar Imaging Project (SLIP), a study examining the impact of substituting a rapid magnetic resonance imaging (MRI) for standard x-rays for patients with back pain in primary care.¹⁷ The SLIP study population consisted of 380 adult patients with back pain who were referred for spine radiographs and had no history of trauma. Of 1,250 eligible patients, 547 did not participate because a research coordinator was not available or the primary physician decided not to refer the patient. Of the 703 remaining subjects, 154 did not fulfill inclusion criteria and 169 refused to participate.

Study Procedure and Outcome Measures

One month (± 2 weeks) after enrollment, patients were telephoned and asked the 3 agreement questions. Our primary

The authors have no conflicts of interest to declare for this article or this research.

This paper was presented at the 26th Annual SGIM Meeting, Vancouver, British Columbia, May 2003.

Address correspondence and requests for reprint to Dr. Staiger: 4245 Roosevelt Way NE, Seattle, WA, 98105 (e-mail: staiger@u.washington.edu).

Received for publication March 7, 2005

and in revised form April 14, 2005

Accepted for publication April 19, 2005

outcome was patient satisfaction 1 and 12 months after study enrollment, using a version of the Deyo-Diehl satisfaction questionnaire.¹⁸ Functional and health status were assessed at 1, 3, and 12 months; the 1 and 12 measures were secondary outcomes for this study. Functional status was assessed with a modified Roland score, which assesses how back pain affects common daily activities.¹⁹ Health status was assessed with the 8 domains of the SF-36.²⁰

Statistical Methods

We examined associations between the composite agreement score and the following variables: age, gender, race, marital status, education level, any comorbidity, patient receiving or applying for disability, prior or continuous low back pain, and body mass index (BMI). Spearman rank correlation was used to select variables to incorporate into a linear regression. Variables with a significant Spearman rank correlation to the composite agreement score were selected for linear regression models. We developed stepwise linear regression models with satisfaction, Roland, and all 8 domains of the SF-36 as the dependent variables, controlling for age, gender, comorbidity, prior or continuous back pain, BMI, and the baseline of the dependent variable.

RESULTS

Enrollment and Follow-Up

Of 380 study subjects, 336 (88%) completed the agreement instrument and were retained in the analysis. Their baseline characteristics are presented in Table 1. Among those who did not complete the instrument, the most common reason was that they could not be contacted within the specified data collection time frame. Excluded subjects did not differ significantly from those included, except for significantly lower 1-month satisfaction scores and higher (worse) Roland scores that bordered on being significant (data not shown). All but 7 subjects completed the 12-month satisfaction questionnaire.

Descriptive Analysis

Patients reported disagreeing (strongly disagree, disagree, somewhat disagree) with 12% of their physicians' explanations for the cause of their problem, 9% of the diagnostic plans, and 13% of the treatment plans. Twenty-one percent of patients disagreed with at least 1 of the agreement questions. An additional 29% answered "Neither agree nor Disagree" to at least 1 question.

Table 1. Baseline Characteristics (N=336)

Age, average years (SD)	53.2 (14.7)
Women	56%
Race or ethnicity	
White	79%
Other	21%
Married or living with another	28%
> High school education	74%
Any comorbidity	78%
On or planning disability	10%
Previous low back pain	95%
Body mass index (SD)	28.7 (5.7)
Composite agreement score, range, 3–21 (SD)	16.1 (4.0)

Quantitative Analysis

In univariate analysis, a higher composite agreement score was correlated with better patient satisfaction at 1 month ($R=.637$, $P<.001$). In multivariate analysis, controlling for 1-month satisfaction and other potential confounders, a higher agreement score at 1 month independently predicted higher 12-month patient satisfaction ($\beta=0.188$, $P=.003$) and higher 12-month scores on the SF-36 domains for mental health ($\beta=1.080$, $P<.001$), social function ($\beta=1.124$, $P=.001$), and vitality ($\beta=1.190$, $P<.001$) (Table 2). Patient-physician agreement had no effect on the other 5 SF-36 domains. We were concerned that functional or health status improvement in the first month might affect patients' 1-month agreement scores. Although we had no measures of function or health status at 1 month, we assumed that the 3-month measurement of these outcomes would be strongly associated with the magnitude of improvements at 1 month. We therefore repeated the analysis controlling for improvements in function and health status at 3 months; the 1-month agreement score remained significantly associated with 12-month satisfaction, mental health, social function, and vitality scores.

DISCUSSION

While patient-physician agreement has been hypothesized to be an important goal of the medical encounter, little is known about how to measure agreement and whether agreement is related to important outcomes. We developed a simple 3-item instrument for measuring patient-physician agreement that is applicable in both the research and clinical setting. We found that when this agreement instrument was used in patients with low back pain, 21% of patients disagreed with at least 1 key aspect of the encounter, and that patients with higher agreement had increased patient satisfaction and improvements in measures of health status at 12 months.

Our findings are consistent with studies that found associations between symptom resolution and agreement, and between resource utilization and finding common ground.^{3,11} Although the exact nature of the relationship between agreement and outcomes is unclear, it is plausible that physician communication skills that promote patient agreement might enhance compliance, and thereby improve outcomes. However, it is also possible that patients whose views of their problem agree with their physicians' views may have better outcomes regardless of physician communication skills. Additional research should clarify the relationship between physician communication skills, agreement, and patient outcomes.

It is noteworthy that 21% of these patients disagreed with their physician about at least 1 aspect of their care, and that such disagreement may predict worse patient outcomes. Patients may feel inhibited in expressing such a disagreement directly to their physician, making it difficult for physicians to address patients' concerns. Clinicians could use this agreement instrument following a visit to identify and resolve such problems. In addition, hospitals and medical groups could use this instrument to locate "high-risk" patients who warrant additional follow-up, or to identify physicians in need of additional training in patient-physician communication.

This study has several limitations. We only studied patients with back pain, limiting our results' generalizability. In addition, the study design did not allow administration of our

Table 2. Linear Regression Models to Predict 12-Month Outcomes

Variable	β	Standard Error	P Value
Model #1: Predicting total satisfaction score* at 12 months			
Constant	0.0946	0.809	.243
Agreement	0.188	0.062	.003
Satisfaction at 1 month	0.040	0.062	<.001
Model adjusted r^2 = .183			
Model #2: Predicting SF-36 Mental Health† at 12 months			
Constant	19.522	5.13	<.001
Agreement	1.08	0.221	<.001
Mental health baseline	0.558	0.05	<.001
Continuous pain	-5.706	1.833	.002
Comorbidity	-1.818	0.659	.006
Model adjusted r^2 = .493			
Model #3: Predicting SF-36 Social Function† at 12 months			
Constant	31.095	6.725	<.001
Agreement	1.124	0.336	.001
Social function baseline	0.511	0.05	<.001
Comorbidity	-5.224	0.994	<.001
Continuous pain	-10.999	0.336	<.001
Model adjusted r^2 = .485			
Model #4: Predicting SF-36 Vitality† at 12 months			
Constant	12.967	5.035	.011
Agreement	1.19	0.261	<.001
Vitality baseline	0.574	0.05	<.001
Comorbidity	-4.286	0.778	<.001
Continuous pain	-5.466	2.164	.012
Model adjusted r^2 = .534			

*Range = 1 to 11.

†Range = 1 to 100.

instrument until 1 month after the initial patient encounter. This delay could have changed patients' agreement scores at 1 month versus immediately after the encounter. Nonetheless, we believe that the instrument's validity is supported by the associations between agreement at 1 month and subsequent 12-month satisfaction and health status scores, especially since these associations persisted after controlling for changes in functional and health status at 3 months.

In conclusion, we developed and evaluated a 3-item instrument to assess a patient's agreement with a physician about key elements of the clinical encounter. We found patient agreement with their physician to be associated with patient satisfaction cross-sectionally and that agreement predicted higher patient satisfaction and improvements in health status at 12 months. Physicians should use communication strategies that promote agreement with patients about diagnosis

and management, which in turn may enhance both patient satisfaction and health outcomes.

This work was supported by Grants HS-09499 from the Agency for Healthcare Research and Quality, and P60-AR48093 from the National Institute for Arthritis and Musculoskeletal and Skin Diseases.

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