Patients With Greater Symptom Intensity and More Disability are More Likely to be Surprised by a Hand Surgeon's Advice

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Abstract

Background A clash between a patient's assumptions and a doctor's advice can feel adversarial which might influence satisfaction ratings and compliance with treatment recommendations. A better understanding of sources of patients' bewilderment might lead to improved strategies for conveying counterintuitive information that improve patient comfort and wellbeing.

Questions/purposes This study addressed the following questions: (1) Are magnitude of disability, pain intensity, symptoms of depression, or health anxiety associated with a higher level of surprise when a patient is presented with diagnostic information and/or therapeutic recommendations? (2) Does the surgeon accurately perceive the patient's bewilderment? (3) Does the surgeon's perception of patient bewilderment

correlate with diagnosis or a patient's magnitude of disability, pain intensity, symptoms of depression, or health anxiety?

Patients and Methods In this prospective cohort study, we invited new patients who met prespecified criteria during a 3-month period in one hand-surgery practice to enroll; of 93 patients invited, 84 (90%) agreed to participate. Patients reported demographics and completed the short versions of the DASH questionnaire (*QuickDASH*), the Patient Health Questionnaire, the Pain Self-Efficacy Questionnaire, and the Short Health Anxiety Inventory; rated their pain intensity; and rated the degree to which the information given by the surgeon was unexpected or surprising on an 11-point ordinal scale. The surgeon also rated his impression of the patient's surprise on an 11-point ordinal scale.

Results Only greater symptom intensity and magnitude of disability (*QuickDASH*) correlated with greater unexpected information when rated by the patient ($\beta = 0.058$; $p < 0.001$). There was a correlation between patient surprise and the surgeon's perception of the patient's surprise ($r = 0.58$; $p < 0.001$). Greater surgeon-perceived patient surprise correlated with nonspecific illness ($p = 0.007$; $\beta = 3.0$).

Conclusions Patients with greater symptom intensity and magnitude of disability, and perhaps also patients with non-specific diagnoses, are more likely to be surprised by a hand surgeon's advice. Future research might address the ability of previsit preparation (using decision aids or other alternative means of education) to ameliorate the discordance between patient assumptions and hand surgeon advice.

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Each author certifies that he or she, or a member of his or her immediate family, has no funding or commercial associations (eg, consultancies, stock ownership, equity interest, patent/licensing arrangements, etc) that might pose a conflict of interest in connection with the submitted article.

Each author certifies that his or her institution approved the human protocol for this investigation, that all investigations were conducted in conformity with ethical principles of research, and that informed consent for participation in the study was obtained.

This study was performed at the Hand and Upper Extremity Service, Department of Orthopaedic Surgery, Massachusetts General Hospital, Boston, MA

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Introduction

Patients make assumptions regarding their condition, diagnosis, etiology, prognosis, and preferred treatment, the so-called "explanatory model" [6]. These assumptions are

influenced by internal (eg, biological, psychologic) and external factors (eg, medical knowledge, advice from their primary care doctor, internet and other media, family, culture, education). Often these assumptions are accurate, and caregivers should give them some weight as the patient's analysis and insights may help in difficult diagnostic and treatment dilemmas. However, we know that human "gut feelings" and first impressions often are inaccurate and benefit from rethinking and careful analysis [12].

Regarding hand and upper extremity illnesses, a patient's assumptions can be relatively nonspecific; something along the lines of, "There is something wrong" or, "If I do not get this fixed, I will not be able to depend on my arm." Sometimes a patient's assumptions are very specific; for example, "I need a cortisone shot." As many upper extremity conditions do not have proven disease-modifying treatments, the surgeon's advice often is unexpected and counterintuitive. For enthesopathy of the extensor carpi radialis brevis origin (tennis elbow), patients feeling like they need to protect their arm and expecting a curative injection might perceive the following advice as unexpected or even shocking: "I wish we could fix this right away. We have only nonspecific treatments to help you feel better, but it is safe to use your arm and the problem eventually will go away." Or consider the example of a patient with mild symptoms from trapeziometacarpal arthrosis; she might have an explanatory model of the problem as that of an injury that needs repair, when the truth is that the problem is more like grey hair [1], a normal part of human development, such that not everyone with the problem needs an intervention, and some patients would be well served to try to adjust to the disability rather than undergo major reconstruction. The difference between a patient's preconceived expectation and the eventual recommendation may be confusing or even upsetting [7–9].

When a patient's assumptions are discordant with the hand surgeon's advice, the interaction can feel like a debate or argument. The patient may feel that the surgeon has not listened to him or her and does not understand what he or she is experiencing. This may contribute to decreased satisfaction with the surgeon and decreased compliance with recommended management. For the patient's health and well-being, and also because patient satisfaction is increasingly measured, used as a quality incentive, and publically reported, research to determine the factors associated with patients' surprise at the surgeon's advice is worthwhile.

Given the evidence that patient mindset and circumstances are associated with symptom intensity and disability [10, 12] and that psychologic factors are associated with unexpected diagnoses [13], we studied the relationship of symptom intensity and magnitude of

disability to patient surprise. Specifically, we asked: (1) Are magnitude of disability, pain intensity, symptoms of depression, or health anxiety associated with a higher level of surprise when a patient is presented with diagnostic information and/or therapeutic recommendations? (2) Does the surgeon accurately perceive the patient's bewilderment? (3) Does the surgeon's perception of patient bewilderment correlate with diagnosis or a patient's magnitude of disability, pain intensity, symptoms of depression, or health anxiety?

Patients and Methods

Study Design and Setting

Between May 2013 and July 2013, we conducted a prospective cross-sectional study of new patients seeing one hand surgeon (DCR) at a large university hospital for the first time and before any operative treatment. Patients were enrolled consecutively on the days that the surgeon was in the office with the exception of when he was with another patient. The study was approved by our institutional review board, and informed consent was obtained.

Participants/Study Subjects

We invited 93 adult, nonpregnant, new patients to participate. Nine patients declined, resulting in a final cohort of 84 patients.

Description of Experiment, Treatment, or Surgery

To determine whether the patient was bewildered by the diagnosis, treatment, prognosis, and/or followup, we had patients rate, "Was anything the doctor told you unexpected?" on an 11-point ordinal scale between 0 "not at all unexpected/surprising" and 10 "extremely unexpected/surprising". The surgeon rated "How much did the patient find your advice unexpected or surprising?" on an 11-point ordinal scale between 0 "not at all unexpected/surprising" and 10 "extremely unexpected/surprising". Neither the surgeon nor the patient was aware of the other's rating.

Variables, Outcome Measures, Data Sources, and Bias

At enrollment, patients reported demographics and rated their pain intensity on an 11-point ordinal scale. Additionally, patients completed the short version of the DASH questionnaire (*QuickDASH*) to measure upper-

extremity-specific disability, the short (two questions) version of the Patient Health Questionnaire (PHQ-2) to measure symptoms of depression, the short (two questions) version of the Pain Self-Efficacy Questionnaire (PSEQ-2) to measure effective coping strategies, and the shortened (five questions) version of the Short Health Anxiety Inventory questionnaire (SHAI-5) to measure health anxiety.

Statistical Analysis and Study Size

Diagnoses were categorized as traumatic (ie, fracture, sprain, contusion, laceration), nontraumatic discrete diagnoses (eg, carpal tunnel syndrome, arthritis, enthesopathy), or nonspecific nontraumatic problems. We used nonparametric tests since patient surprise and surgeon perception of patient surprise was not normally distributed. In bivariate analysis, we used Spearman correlations for continuous variables (eg, age), the Mann-Whitney U test for dichotomous variables (eg, sex), and the Kruskal-Wallis test for categorical variables (eg, diagnosis).

Variables with a *p* value less than 0.10 in bivariate analysis were entered in a multivariable regression analysis to determine factors associated with unexpected information and surgeon-rated unexpected information. Surgeon-rated unexpected information was not entered in the linear regression analysis of unexpected information, and vice versa.

Demographics of Study Population

In our cohort of 84 patients, there were 47 men and 37 women with an average age of 46 years (range, 18–79 years) (Table 1).

Results

After controlling for other demographic and illness-related factors, only increased upper extremity symptoms and disability (as measured by the *QuickDASH*) were associated with the level of surprise when patients were presented with diagnostic information and therapeutic recommendations ($\beta = 0.058$; $p < 0.001$) (Table 2).

There was a correlation between patient surprise and surgeon perception of patient surprise ($r = 0.58$; $p < 0.001$).

After controlling for other factors, nonspecific illness was the only factor independently associated with surgeon perception of patient surprise ($p = 0.007$; $\beta = 3.0$) (Table 2).

Table 1. Patient demographics

Parameter	Mean	SD	Range
Age (years)	46	17	18–79
Education (years of school)	16	3.3	3–26
Pain Intensity (measured on an 11-point scale from 0 [no pain] to 10 [the most intense pain possible]).	4.5	2.8	0–10
	Number	%	
Sex			
Men	47	56	
Women	37	44	
Marital status			
Single	40	48	
Living with partner	1	1.2	
Married	37	44	
Separated/divorced	6	7.1	
Work status			
Working full time	50	60	
Working part time	8	10	
Retired	13	15	
Unemployed, able to work	10	12	
Unemployed, unable to work	3	3.6	
Diagnosis group			
Trauma	44	52	
Nontrauma, discrete	31	37	
Nonspecific illness	9	11	
Smoking			
Yes	9	11	
No	75	89	
Sought treatment for these symptoms before			
Yes	45	54	
No	39	46	
Prior surgery to address the presenting symptoms			
Yes	7	8.3	
No	77	92	
Other pain condition (eg, back pain, fibromyalgia, migraine headaches)			
Yes	26	31	
No	58	69	

Discussion

When the patient's assumptions do not match the hand surgeon's advice the patient can feel dismissed or demeaned. These are risky moments for the doctor-patient relationship. A patient feeling these emotions may be inclined to dismiss the doctor's advice, seek care elsewhere, or make complaints against the doctor [4, 9]. There

Table 2. Bivariate analyses

Parameters	Patient surprise		Surgeon perception of patient surprise	
	Mean (SD)	p value	Mean (SD)	p value
Sex				
Men	3.8 (± 3.6)	0.054	4.4 (± 0.47)	0.23
Women	5.4 (± 3.8)		5.2 (± 0.52)	
Marital status				
Single	4.2 (± 3.8)	0.52	4.4 (± 3.2)	0.8
Living with partner	8.0 (± 0.0)		7.0 (± 0.0)	
Married	4.4 (± 3.5)		5.2 (± 3.2)	
Separated/divorced	6.3 (± 4.9)		4.2 (± 3.4)	
Work status				
Working full time	3.8 (± 3.4)	0.49	5.0 (± 3.2)	0.74
Working part time	5.9 (± 4.2)		5.1 (± 3.9)	
Retired	5.3 (± 4.3)		4.4 (± 3.8)	
Unemployed, able to work	5.0 (± 3.8)		4.3 (± 1.9)	
Unemployed, unable to work	6.3 (± 5.5)		2.7 (± 2.5)	
Diagnosis group				
Trauma	4.2 (± 3.8)	0.52	4.1 (± 3.1)	0.013**
Nontrauma, discrete	4.5 (± 3.9)		4.9 (± 3.1)	
Nonspecific illness	5.8 (± 3.4)		7.4 (± 2.6)	
Smoking				
Yes	4.3 (± 3.7)	0.21	4.7 (± 0.37)	0.97
No	5.8 (± 4.2)		4.7 (± 1.1)	
Sought treatment for these symptoms before				
Yes	4.1 (± 3.9)	0.37	4.8 (± 0.48)	0.80
No	4.8 (± 3.6)		4.6 (± 0.51)	
Prior surgery for the same symptoms				
Yes	4.9 (± 3.1)	0.75	4.7 (± 1.5)	0.98
No	4.4 (± 3.8)		4.7 (± 0.36)	
Other pain condition				
Yes	5.3 (± 4.1)	0.18	5.1 (± 0.59)	0.47
No	4.1 (± 3.5)		4.6 (± 0.43)	
	Correlation	p value	Correlation	p value
Age	0.02	0.87	−0.040	0.72
Education	−0.18	0.099	−0.011	0.92
Pain Intensity	0.24	0.030	0.35	0.0013
QuickDASH	0.36	< .0001*	0.23	0.032
Surgeon perception of patient surprise	0.58	< 0.001	NA	NA
Patient surprise	NA	NA	0.58	< 0.001
PSEQ-2	−0.077	0.49	−0.0006	1.0
PHQ-2	0.11	0.31	0.039	0.72
SHAI-5	0.16	0.15	0.15	0.17

PSEQ-2 = short version of the Pain Self-Efficacy Questionnaire; PHQ-2 = short version of the Patient Health Questionnaire; SHAI-5 = Short Health Anxiety Inventory; NA = not applicable; * the only factors associated with patient surprise in multivariable analysis; ** the only factor associated with surgeon perception of patient surprise in multivariable analysis.

is evidence that unexpected or unwelcome advice may result in poor patient understanding, diminished satisfaction, and diminished outcomes [5]. This is particularly important as patient satisfaction is increasingly incentivized and publically reported. With an increasing emphasis on cost-containment, patients may feel that the doctor is motivated by financial considerations in withholding expected tests or treatments. We evaluated factors associated with patient surprise in the hope that this knowledge might lead to improved strategies for conveying counter-intuitive information that improves patient comfort and wellbeing.

Our results should be interpreted in light of our study's limitations. First, this was a single-surgeon study. Since unexpected information may arise when there is a discrepancy between the assumptions of the patient and the information given by the doctor, the results of this type of study might vary by physician. Second, for practical reasons many patients completed questionnaires after seeing the doctor, which might have affected the results. We thought this would have limited influence on the results, but future research might measure disability and pain before and after seeing the doctor and determine the influence of the doctor's consultation (and surprising news) on these variables. The rating of unexpected information by the patient and surgeon are not validated, although they are simple ordinal scales addressing a straightforward subjective construct. The subgroup analyses (eg, diagnosis) may be underpowered.

Our findings suggest that greater symptom intensity and magnitude of disability are associated with greater discrepancy between patient assumptions and hand surgeon advice (surprise). It is somewhat surprising that psychologic factors did not correlate with unexpected information, given they correlate with pain intensity and disability [12]. Future research should address the specific personal and psychosocial factors associated with patient surprise and how surprising information can be delivered with greater empathy so that patients are more receptive. Useful tips provided by former American Academy of Orthopaedic Surgeons (AAOS) President John Tongue are available from the AAOS Communications Skills Mentoring Program (<http://www3.aaos.org/education/csm/InitialMedEncounter.cfm>) including: "be as curious about the person as you are about their medical problem"; and "Acknowledging the patient's emotions and values helps them see you as someone who values them as an individual"; and perhaps most cogent to this discussion: "Patients come with a self-diagnosis; so after presenting your professional opinion, always ask: 'How does this fit with what you've been thinking?'"

The surgeon involved in this study (DCR) perceived patient surprise with moderate correlation. This suggests that doctors who are alert to the issue of unexpected information and its potential adverse consequences may be able to turn

the experience of surprise into an opportunity for empathy and clarity if the moment is handled with skill [2, 3, 11]. Future research could determine surgeon-specific factors associated with accurate perception of patient surprise.

The observation that nonspecific diagnosis was the only factor associated with surgeon perception of patient surprise in multivariable analysis suggests that the surgeon is sensitive to the patient's expectation of a specific diagnosis and definitive treatment. In a previous study, 72% of the patients with a nonspecific illness found the physician's information surprising [13]. The fact that symptoms and disability (*QuickDASH*) were significant in bivariate analysis, but not retained in the multivariable analysis suggests that it is disability associated with nonspecific illnesses that is particularly susceptible to patient surprise. Previsit screening and educational information might help patients feel more comfortable and hopeful when receiving the surgeon's advice—an approach worth investigating.

Patients with greater symptom intensity and magnitude of disability are more likely to find the information provided by a doctor unexpected. If the physician is not able to recognize and address a patient's feelings of surprise, there is a risk that unexpected information may feel unwelcome or dismissive, be hurtful to the doctor-patient relationship, and derail care [5]. There is evidence that a gap between patient beliefs and physician advice can affect outcomes even when therapy is adequate [9]. Improved methods for identifying and addressing unexpected information merit additional study.

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