

Missed Empathic Opportunities During Hand Surgery Office Visits

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Abstract

Background: Empathy (conveyance of an understanding of a patient’s situation, perspective, and feelings) deepens the therapeutic alliance and leads to better health outcomes. We studied the frequency and nature of empathic opportunities and physician responses in patients visiting a hand surgeon. We also sought patient characteristics associated with the number of patient-initiated-clues and missed opportunities by surgeons. **Methods:** For this prospective cohort study, we enrolled 83 new, adult patients visiting 1 of 3 hand surgeons during a period of 4 months. All visits were audio-recorded, and empathic opportunities (patient-initiated emotional or social clues) and physician responses were categorized using the model of Levenson et al. Before the visit, patients completed the Newest Vital Sign health literacy test; 3 Patient-Reported Outcomes Measurement Information System-based questionnaires: Upper-Extremity function, Pain Interference, and Depression questionnaires; and a sociodemographic survey. **Results:** Empathic opportunities were present in 70% of hand surgery office visits. Surgeons responded empathically to about half of the opportunities. Patients with limited health literacy and greater symptoms of depression (small correlation; $r = -0.29$) were less likely to receive a positive response. Response to an empathic opportunity did not affect visit duration. **Conclusions:** Hand surgeons often miss empathic opportunities. Future research might address the influence of training physicians to address empathic opportunities on trust, adherence, satisfaction, and outcomes.

Keywords: empathy, empathic opportunities, hand surgery, limited health literacy, orthopedics

Introduction

Effective conversations with patients are pivotal to a therapeutic alliance.^{1,2} Patient-rated physician empathy (conveyance of a patient’s situation, perspective, and feelings) affects patient satisfaction, treatment adherence, and litigation risk.^{3–6} Data within primary care and oncology settings suggest that physicians often inadequately address patient emotions during encounters.^{7–13} Suchman et al. observed that patients tend to offer clues (direct or indirect comments about personal aspects of their lives or their emotions) during conversations with their physicians, rather than expressing their emotions directly.¹⁴ Clinicians can learn to look for and respond to these clues in order to help develop their relationship with a patient.^{15–17}

Despite growing interest in enhancing the patient–physician relationship in the hand surgery setting,^{5,18,19} research on how physicians address the psychological and social determinants of illness is scarce and confined primarily to primary care and oncology settings.^{7,12,13} Levinson et al described a cohort of 62 general surgery outpatients with

adequate response to patient emotional clues in only 10 of 26 (38%) cases.¹¹ Establishing a satisfying and mutually respectful relationship may be especially challenging among patients with limited health literacy.²⁰ They may not feel empowered to speak up or articulate worries. And physicians may find themselves having less to say and not knowing how to respond to clues initiated by patients with a different cultural background.²¹ In a highly specialized and technical field such as hand surgery—in which the usual model of clinical care is “find the problem and fix

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it”—identifying how surgeons respond to clues about patients’ worries is important for quality improvement purposes and may limit the potential for misinterpretation of patient preferences. A given intervention might lead to greater immediate satisfaction by addressing a perceived need to act but decreased overall health and thus lower satisfaction in the long run if patients’ misconceptions, stress, distress, and ineffective coping strategies are not addressed.

We undertook this study to answer the following questions: (1) What is the frequency and nature of empathic opportunities in hand surgery office visits, and how do surgeons respond to them? (2) What patient characteristics are associated with visits with at least one missed empathic opportunity? (3) Do patients with limited health literacy initiate fewer clues in general and as stratified by type of clues, and what other patient characteristics may influence patient initiating clue behavior? and (4) Do surgeons respond to clues initiated by patients with limited and adequate health literacy with the same frequency?

Materials and Methods

Study Design

After institutional review board approval, we conducted a secondary analysis of 84 patients from a prospective cohort. In the primary study, we looked at the association between patients’ level of health literacy and the number and type of questions they asked during the visit.²² Patients were eligible if they were at least 18 years old, fluent in English, and visiting the offices of 3 orthopedic hand surgeons for the first time. Enrollment took place between November 2015 and March 2016. Informed consent was obtained from all patients for being included in the study.

Data Collection

A research assistant not involved in clinical care audio-recorded all visits using an encrypted device. The research assistant explained audio recording was used to evaluate patient-physician communication, without telling the study specifics so as not to influence the conversation held during the visit. Although the surgeons knew of the existence of this study, the visit was not scripted, and they were unaware of which patients were being enrolled in the study.

Before the visit with the surgeon, patients completed a sociodemographic survey, the Newest Vital Sign (NVS) health literacy test,²³ and 3 Patient-Reported Outcomes Measurement Information System-based (PROMIS) questionnaires: Upper-Extremity function,²⁴ Pain Interference,²⁵ and Depression questionnaires.²⁶ The NVS health literacy test is based on an ice cream container nutrition label, in which patients can achieve a score ranging from 0 to 6. For this study, we categorized health literacy into limited (0-3)

and adequate (4-6) using the same threshold as in the original study of Weiss et al and 3 other recent studies.^{20,22,27} An NVS score less than 4 has a sensitivity of 100% and a specificity of 64% for predicting limited health literacy.²³ We included the PROMIS questionnaires because greater disability, maladaptive coping strategies, and symptoms of depression might affect the number and type of patient-initiated clues and surgeons’ responses to them. The entire survey was completed on a laptop computer, except for the NVS test, which was discussed orally in accordance with its guidelines.²³ We reviewed the medical records for information regarding primary health insurance (public vs private) and diagnosis (traumatic vs nontraumatic). Two researchers, who were unaware of the patient demographics, independently listened to the audio recordings of the visits to count the number and classify the nature of clues initiated by either patients or surgeons, and surgeons’ responses to them. We defined a clue as a direct or indirect comment that provided information about any aspect of a patient’s life circumstances or feelings.¹¹ In 1 patient (1.2%), the quality of the audio recording was low and the conversation was therefore unintelligible, leaving 83 patients in this study.

Empathic opportunities, patient-initiated clues to which surgeons can respond positively or negatively, were coded by 2 researchers using a model designed by Levinson et al¹¹ until they reached a 90% agreement level. As described by Levinson et al., clues were coded as either emotional or social. Social clues provided an opportunity to learn more about the patient’s personal life but were not associated with emotions. Emotional clues were associated with patient’s feelings or moments where patients implicitly sought support from the surgeon. Emotional clues were further coded into 6 categories to provide more granularity: feelings related to (1) biomedical condition (e.g. frustration, fear, guilt), (2) aging, (3) stress (e.g. work related, other life concerns), (4) loss of family member, (5) concerns about life changes (e.g. retirement, last child to college, wife in nursing home), and (6) feeling down or depressed. Physician responses to patient-initiated clues were divided into positive responses and missed opportunities.¹¹ A positive response encouraged patients to continue the conversation about personal or emotional concerns and were coded into 3 categories: (1) acknowledgment; (2) encouragement, praise, reassurance; and (3) supportive. Patient-initiated clues in which the surgeon did not support or encourage discussion about the personal topic were classified as missed opportunities, and coded as: (1) inadequate acknowledgment; (2) inappropriate humor; (3) denial; and (4) terminator. Surgeon-initiated clues were described as questions that encouraged the patient to talk about a personal topic.¹¹

To investigate if specific patient characteristics were associated with missed empathic opportunities by surgeons, we compared visits with (at least one missed empathic

opportunity) and without missed empathic opportunities. This analysis was restricted to visits in which patients made at least one clue ($N = 58$). After finalizing our analysis, we thought it would also be interesting to examine patient characteristics in relation to the percentage of positive responses to empathic opportunities, since the ratio of positive versus negative responses to patient clues may be more dependent on surgeons' communication skills and patient characteristics than missing 1 clue during an entire visit. Therefore, we asked, (5) What patient characteristics are associated with the percentage of positive responses to empathic opportunities ($N = 58$)?

Statistical Analysis

Continuous data were presented in terms of the mean and the standard deviation (*SD*). Categorical data were reported with frequencies and percentages. The relationship between patient characteristics and visits with at least one missed empathic opportunity was examined using Fisher's exact tests for dichotomous variables and independent samples *t*-tests for continuous variables. When evaluating patient characteristics with the percentage of positive responses to empathic opportunities, we used *t*-tests for dichotomous variables and Pearson correlation coefficients for continuous variables.

The association between the number of patient-initiated clues and patient characteristics was examined using independent samples *t*-tests for dichotomous variables and Pearson correlation coefficients for continuous variables. We used independent samples *t*-tests to compare the number of patient- and surgeon-initiated clues between patients with limited and adequate health literacy. Statistical significance was set at $P < .05$.

No a-prior power analysis was performed as this study was a secondary analysis of previously collected data. Furthermore, the primary question of this study (frequency or empathic opportunities and surgeon responses to them) is descriptive (meaning no *P*-values) rather than comparative.

Patient Characteristics

Our study cohort of 83 patients included 49 men (59%) and 34 women with a mean (*SD*) age of 52 (16) years. Most patients were white (82%) and employed (66%). Private insurance was more common (63%; 52/83) than government-funded insurance (37%; 31/83). About two-thirds of visits (65%) were related to nontraumatic conditions.

Results

Empathic opportunities were present in 70% (58/83) of hand surgery office visits with a mean (*SD*) of 2 (2) clues per visit (Table 1). Surgeons responded positively to about

Table 1. Frequency and Types of Clues.

Interviews and clues	Number
Interviews	83
Interviews with clues (%)	67 (81)
Patient-initiated clues	58 (70)
Physician-initiated clues	39 (47)
No. of patient-initiated clues (mean) ^a	162 (2.0)
Emotional	114 (1.4)
Social	48 (0.58)
No. of physician-initiated clues (mean) ^a	39 (47)
Emotional	15 (0.18)
Social	65 (0.78)

^aMean number of clues regarding all 83 visits.

half of the empathic opportunities (54%; 87/162). They more frequently missed opportunities to adequately address emotional (51%) than social (35%) clues (Table 2). Most patient-initiated emotional clues were about feelings related to their condition (68%; 78/114), stress (19%; 22/114), or concerns about life changes (11%; 12/114; Table 3).

No patient characteristics were associated with visits with missed empathic opportunities (Table 4). When evaluating patient factors with the percentage of positive responses to empathic opportunities, we found that patients with limited health literacy (0.27, *SD* = 0.40, versus 0.58, *SD* = 0.40; mean difference, -0.31 ; 95% confidence interval [CI], -0.56 to -0.061 ; $P = .016$), and patients with higher depression scores ($r = -0.29$; $P = .025$) received fewer positive responses from surgeons when they initiated clues, although this was a small correlation.

No patient characteristics were significantly associated with the number and type of patient-initiated clues. Surgeons were less likely to initiate clues to encourage patients to talk about their emotions among patients with limited health literacy (0.38, *SD* = 0.67, vs 1.2, *SD* = 1.4; mean difference, -0.78 ; 95% CI, -1.4 to -0.15 ; $P = .017$; Table 5).

Longer visits were associated with more patient-initiated clues ($r = 0.55$; $P > .001$), but a positive response from the surgeon was not associated with a longer visit duration.

Discussion

Empathy is a central component of therapeutic patient–physician relationship, deepens the therapeutic alliance, and leads to better health outcomes.^{3,4} Despite the growing evidence that effective patient–physician communication helps people get and stay healthy, research on how clinicians respond to patients' psychological and social concerns is scarce and confined to the primary care and oncology settings.⁷⁻¹² Establishing a satisfying and mutually respectful relationship may be especially challenging among patients with limited health literacy, since they may not feel empowered to speak up or articulate worries.

Table 2. Frequency of Physicians' Responses to Patient-Initiated Emotional Clues.

Response	Number of clues			Example
	Emotional	Social	Total	
Total No. of patient-initiated clues	114	48	162	
Positive responses (%)	56 (49)	31 (64)	87 (54)	
Acknowledgment	34			Pt: The pain is the most annoying thing. . . Ph: The pain that you are feeling is definitely annoying!
Encouragement, praise, reassurance	15			Ph: you are doing great! . . . I won't let you make any choices that put you at risk
Supportive	7			Ph: I think it's really important to think positive here. . . that will help you adapt to the problem
Missed opportunities (%)	58 (51)	17 (35)	75 (46)	
Inadequate acknowledgment	39			Pt: The thing that concerns me is the money . . . Ph: Mmh. . . you want to get this fixed right? You have to figure out the economics yourself.
No answer	14			
Terminator	3			Pt: I'm afraid I can't go to work for a long time. . . Ph: Yeah. Are you otherwise healthy?
Inappropriate humor	2			Pt: I think holding my kids did some damage. Ph: Don't blame those beautiful kids!
Denial	0			Ph: This really isn't a big deal.

Table 3. Categories of Patient-Initiated Emotional Clues.

Types of patient-initiated clues	Number
Total clues	114
Feelings related to condition (e.g. frustration, fear, and/or guilt)	78
Stress	22
Concerns about life changes (e.g. retirement, child to college)	12
Loss of family member	1
Feeling depressed	1
Aging	0

We therefore sought to characterize the frequency and nature of empathic opportunities and physician responses in patients visiting the hand surgeon. We also sought the association of patient characteristics with the number of patient-initiated-clues and missed opportunities by surgeons.

Our study was subject to several limitations that generate questions for future research. First, our sample size was too small to assess the independent contribution of patient characteristics to missed empathic opportunities using multivariable regression modeling. Second, no a priori power analysis was performed as this study was a secondary analysis of previously collected data. Furthermore, the primary question of this study (frequency or empathic opportunities and surgeon responses to them) is descriptive (meaning no *P*-values) rather than comparative. Third, communication has many subtleties and nuances including facial gestures, posture, eye gaze patterns and subtle neuroticisms that we missed using audio-recordings. Video-recordings present

an opportunity to better recognize patient-initiated clues and how physicians respond to them. Fourth, although we coded patient and physician clues and physician responses by using an adaptation of the Suchmans' coding system, there always remains a degree of subjectivity, which we tried to minimize by training our coders.^{11,14} Fifth, since patients and physicians were aware they were being audio-recorded, this may have altered their behavior. However, a previous study suggested audio recording has minimal effect on patient-physician communication.²⁸ Sixth, although we enrolled patients visiting the offices of 3 different hand surgeons, this study was conducted at a single urban academic center serving predominantly white patients in the northeastern United States. Therefore, our results lack generalizability. Seventh, we only included first-time office visits, but patient-physician interaction may change after multiple visits when the patient-physician relationship grows stronger. Eighth, only English-speaking patients were enrolled in this study. Given that culture and language barriers may hinder the patient-physician interaction, the percentage of missed empathic opportunities may be even more pronounced had we enrolled a more diverse patient population. Ninth, we focused primarily on the frequency and nature of empathic opportunities and physicians' responses to them, but this may lead to a simplistic conclusion regarding a complex topic such as patient-physician interaction. Finally, while perceived physician empathy leads to greater patient satisfaction in hand surgery office visits,⁵ the effect of responding to patients' emotions on overall patient satisfaction remains unclear and the subject of further research.

Table 4. Bivariate Analysis Missed of Empathic Opportunity (n = 58).

Variables	At least one missed empathic opportunity		P value
	No (n= 18)	Yes (n = 40)	
Age, mean \pm SD	50 \pm 14	54 \pm 17	.49
Gender, number (%)			1.0
Male	10 (56)	21 (53)	
Female	8 (44)	19 (47)	
Race, number (%)			1.0
White	15 (83)	33 (83)	
Non-white	3 (17)	7 (17)	
Insurance status, number (%)			.77
Public	6 (33)	16 (40)	
Private	12 (67)	24 (60)	
Working status, number (%)			.15
Working	14 (78)	22 (55)	
Not working	4 (22)	18 (45)	
Marital status, number (%)			.40
Unmarried	7 (39)	21 (52)	
Married	11 (61)	19 (48)	
Diagnosis, number (%)			1.0
Nontraumatic	12 (67)	25 (62)	
Traumatic	6 (33)	15 (38)	
Surgeon, number (%)			.067
1	12 (67)	13 (32)	
2	4 (22)	18 (45)	
3	2 (11)	9 (23)	
Health literacy, number (%)			.31
Limited (NVS score \leq 3)	2 (11)	11 (28)	
Adequate (NVS score \geq 4-6)	16 (89)	29 (73)	
Number of patient-initiated clues			
All types of clues	2.2 \pm 1.2	3.1 \pm 1.9	.074
Emotional type of clues	1.4 \pm 0.78	2.2 \pm 1.4	.039
Social type of clues	0.72 \pm 0.83	0.88 \pm 1.3	.65
Visit duration (min), <i>M</i> \pm <i>SD</i>	9.8 \pm 5.2	12 \pm 7.4	.32
PROMIS instruments, <i>M</i> \pm <i>SD</i>			
Pain Interference	56 \pm 6.6	60 \pm 9.8	.14
Upper Extremity Function	40 \pm 11	35 \pm 9.5	.053
Depression	46 \pm 7.1	50 \pm 9.8	.23

Visits with at least one patient-initiated clue were included. NVS = Newest Vital Sign; PROMIS = Patient-Reported Outcomes Measurement Information System-based.

Our findings that surgeons positively responded to empathic opportunities about half the time are consistent with the findings of Levinson et al. who reported that clinicians adequately addressed clues in 10 out of 26 cases (38%) in a small sample of general surgery patients.¹¹ Compared to studies performed in primary care and oncology settings, at least this subset of hand surgeons seem to address patient emotions more frequently.⁷⁻¹² Information about cancer and its treatment is complex and is more difficult for patients to digest. Studies have reported a mean of

2 to 4 empathic opportunities in oncology visits,^{7,8} compared to 2.0 clues per visit in our study. Furthermore, empathic opportunities involve ambiguities regardless of the coding system that is employed which makes comparing results between studies rather subjective.²⁹ At last, our findings may not be generalizable to all hand surgeons.

Our findings show that surgeons didn't address patient-initiated emotional clues about half the cases. A perceived lack of time could be one explanation. However, in our study, a positive response from the surgeon was not associated with

Table 5. Distribution of Patient-and Physician-Initiated Clues and Physicians Response Overall and By Health Literacy Level.

Clues	Health literacy			Mean difference (95% CI)	P value
	All patients (N = 83)	Limited (n = 21)	Adequate (n = 62)		
Total patient-initiated clues, <i>M</i> ± <i>SD</i>	2.0 ± 2.0	2.1 ± 2.1	1.4 ± 1.6	-0.70 (-1.7-0.29)	.16
Emotional, <i>M</i> ± <i>SD</i>	1.4 ± 1.4	1.0 ± 1.3	1.5 ± 1.4	-0.43 (-1.1-0.27)	.22
Feelings related to condition, <i>M</i> ± <i>SD</i>	0.89 ± 1.0	0.71 ± 1.1	0.95 ± 1.0	-0.24 (-0.76-0.29)	.37
Stress, <i>M</i> ± <i>SD</i>	0.30 ± 0.73	0.19 ± 0.51	0.34 ± 0.79	-0.15 (-0.51-0.22)	.42
Loss of family member, <i>M</i> ± <i>SD</i>	0.010 ± 0.11	0	0.020 ± 0.13	-0.020 (-0.070-0.040)	.56
Concerns about Life changes, <i>M</i> ± <i>SD</i>	0.14 ± 0.39	0.10 ± 0.30	0.16 ± 0.41	-0.070 (-0.26-0.13)	.50
Feeling depressed, <i>M</i> ± <i>SD</i>	0.010 ± 0.11	0.050 ± 0.22	0	-0.050 (-0.010-0.10)	.086
Social, <i>M</i> ± <i>SD</i>	0.58 ± 1.0	0.38 ± 0.80	0.65 ± 1.1	-0.26 (-0.79-0.26)	.32
Total physician-initiated clues, <i>M</i> ± <i>SD</i>	0.96 ± 1.3	0.38 ± 0.67	1.2 ± 1.4	-0.78 (-1.4-0.15)	.017

CI = confidence interval.

a longer visit duration. A study by Butow et al. found shorter visit duration when physicians responded adequately to patient emotions.⁷ Empathically addressing clues require recognition of patients' hints. Training programs, perhaps using audio and video recordings to improve empathic communication skills merit consideration.^{16,30}

Patients with limited health literacy initiated more clues than patients with adequate health literacy (2.1 + 2.1 vs 1.4 ± 1.6), but this difference was not statistically significant. No other patient factors were associated with the number of patient clues. Studies suggest that patients' behavior of expressing their concerns during office visits vary, depending on both personal and disease-related factors such as gender, education level, intensity of symptoms, personal characteristics, and coping style.³¹⁻³⁴ Butow et al. found that female and younger patients provided more clues during visits in oncology settings. This possibly reflects generational differences in the patient-doctor relationship and gender differences in emotional expression.⁷ A larger patient population might have demonstrated the association of gender and race with patient clues in this study. The finding that patients with limited health literacy received significantly fewer positive responses from surgeons when they initiated clues may have related to an inability of the physician to identify with patients' life circumstances. Furthermore, since patients with low literacy levels have more difficulty obtaining, processing and understanding medical information, the physician may become more focused on clarifying disease and treatment specifics than addressing empathic opportunities and encouraging patients to talk about their emotions. Our results highlight the importance of awareness and strategies to prevent misdiagnosis of patient preferences and improve patient satisfaction and adherence.^{5,35}

Based on available evidence in other healthcare settings,³⁶⁻⁴¹ it is likely that patients with limited health literacy in hand surgery are at greater risk for poor treatment adherence, suboptimal outcomes, and misuse of resources.⁴²

Greater symptoms of depression were associated with a lower percentage of positive responses. Studies repeatedly describe negative attitudes of physicians and the existence of a stigma toward patients with depression.^{43,44} Depression or a negative patient attitude could discourage surgeons or non-psychiatrist physicians from addressing patients' emotions because they don't consider it their job, and in their eyes, it may seem a time consuming and less effective endeavor. However, physician empathy can ameliorate depressive symptoms.⁴⁵

There are numerous opportunities to establish empathy during hand surgery office visits. Hand surgeons should be attentive for such clues and understand that addressing them takes little effort and does not lengthen the visit, but may improve the clinician-patient relationship, which is showing to improve adherence and outcomes. Future research might address training of surgeons to better recognize and take advantage of empathic opportunities, particularly among patients with greater symptoms of depression or limited health literacy.

Ethical Approval

The Ethical Committee granted their approval for this study: # 2009P001019/MGH

Statement of Human and Animal Rights

All procedures followed were in accordance with the ethical standards of the Partners Human Research Committee (under reference number 2009P001019/MGH) and with the Helsinki Declaration of

1975, as revised in 2008. Informed consent was obtained from all patients for being included in the study.

Statement of Informed Consent

Informed consent was obtained from all patients for being included in the study.

Declaration of Conflicting Interests

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Author D. has received royalties from Wright Medical Group and as an editor for the *Clinical Orthopaedics and Related Research* journal. He has received honoraria for talks and payment by lawyers for giving his expert review on cases. He receives salary from Universities and hospitals. The other authors declare that there is no conflict of interest. Dr. Ring: Skeletal Dynamics—Royalties/Wright Medical—Royalties/ Deputy Editor for *Clinical Orthopaedics and Related Research*—Stipend/Universities and Hospitals—Honoraria for talks/ Lawyers—Payment for Expert Review. The other authors declare that there is no conflict of interest.

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