

Physicians' opening questions and patients' satisfaction

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Abstract

Objective: To determine the association between the format of physicians' opening questions that solicit patients' presenting concerns and patients' post-visit evaluations of (i.e., satisfaction with) the affective-relational dimension of physicians' communication.

Methods: Videotape and questionnaire data were collected from visits between 28 primary-care physicians and 142 adult patients with acute problems. Factor analysis resulted in three dependent variables derived from the 9-item *Socioemotional Behavior* subscale of the *Medical Interview Satisfaction Scale*.

Results: Question format was significantly, positively associated with patients' evaluations of physicians' listening ($p = .028$) and positive affective-relational communication ($p = .046$).

Conclusion: Patients desire opportunities to present concerns in their own time and terms regardless of how extensively they act on this opportunity.

Practice implications: Visits should be opened with general inquiries (e.g., *What can I do for you today?*) versus closed-ended requests for confirmation (e.g., *Sore throat, huh?*).

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1. Introduction

A standard phase of acute, primary-care visits is *problem presentation* [1,2]. This phase is medically important because it is one of the few places where patients are systematically given institutional license to describe their illness in their own terms and in pursuit of their own agenda [3]. Problem presentation is normally initiated by physicians' opening questions [1,4]. As noted in textbooks on medical interviewing [5–7], and as documented by clinical research [4,8,9], the linguistic format of physicians' opening questions strongly determines the nature, breadth, and depth of patients' problem presentations. This article examines the relationship between the format of physicians' opening questions and patients' post-visit evaluations of (i.e., satisfaction with) three aspects of the affective-relational

dimension of physicians' communication: listening and positive and negative affective-relational behavior.

1.1. Physicians' opening questions

In a previous study of 302 primary-care visits, Heritage and Robinson [4] found that approximately 90% of them were opened with one of two types of questions: (1) open-ended general inquiries (e.g., *What can I do for you today?* and *Tell me what's going on?*) and (2) closed-ended requests for confirmation of either general conditions or specific symptoms (e.g., *I understand you're having some leg problems?* and *Sore throat, huh?*). These formats communicate different stances toward both patients and their problems. Open-ended general inquiries claim a lack of knowledge of patient's problems, encourage their *de-novo* presentation, and frame patients (at least initially) as being active authorities over their own health information. Closed-ended requests claim prior knowledge of patients' problems (e.g., gathered from charted notes), encourage *Yes–No*

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confirmation-type answers, and frame patients as, at best, passive authorities. Heritage and Robinson found that, compared to closed-ended requests, when physicians open with general inquiries, patients produce significantly longer problem presentations (27.1 s versus 11.3 s) that contain significantly more discrete symptoms.

1.2. The affective-relational dimension of physicians' communication

Patients recognize and respond to at least two dimensions of physicians' communication: task-instrumental and affective-relational [10]. Although patients base their evaluations of physicians' communicative competence on both dimensions [11], there is an accumulation of evidence suggesting that patients' evaluations are more heavily influenced by the affective-relational dimension [12,13]. Patients' evaluations of the affective-relational dimension are important because they are associated with a number of critical health outcomes. For example, when patients evaluate physicians as having a 'positive' affective/relational communication style (e.g., rapport, empathy, reassurance), patients are more likely to have an increased level of physical functioning [14], more likely to adhere to medical recommendations, less likely to request post-operative narcotics [15,16], less likely to change physicians [17], and less likely to sue for malpractice [18].

1.3. Possible associations between opening questions and post-visit evaluations

There is evidence that single communicative actions, even at the beginnings of medical interactions, can affect medical outcomes. For example, Boyd [19] examined peer-review calls between insurance-company physicians and surgeons and found that the format of reviewers' opening questions (i.e., collegial versus bureaucratic) was significantly associated with reviewers' decisions to approve surgery. Similarly, parents' production of candidate diagnoses of their children's illnesses during problem presentation is significantly associated with physicians' perceptions of patients' expectations for antibiotics and with inappropriate prescribing [20].

The most common communication behavior associated with the task-instrumental dimension is physicians' information giving [10]. There is little reason to expect that physicians' opening questions that *solicit* patients' problem presentations would be associated with patients' post-visit evaluations of physicians' information *giving*; even if there were a link, it would likely be indirect because information giving primarily occurs in subsequent phases (e.g., diagnosis and treatment/counseling). However, there is reason to hypothesize that physicians' opening questions will be associated with patients' evaluations of the affective-relational dimension. As previously noted, physicians' opening questions signifi-

cantly affect patients' capacity for self-directed self-disclosure. During problem presentation, patients not only disclose medical symptoms, but also fears, psychosocial and lifestyle concerns, lay diagnoses, and so on. There is meta-analytic support [21] for Jourard's [22] theory that self-disclosing to others – including the disclosure of health information [23] – can be emotionally and instrumentally rewarding and that *the activity of disclosing is associated with increased liking of its recipients*. Physicians' open-ended (versus closed-ended) questions that facilitate patients' biopsychosocial participation are an integral component of a positive (versus negative) affective/relational communication style [24]. Supporting these points, researchers have shown that patients' descriptions of their symptoms, circumstances, and/or feelings associated with their problems are significantly associated with increases in their post-visit evaluations of affective/relational aspects of physicians' communication [25].

2. Methods

2.1. Sample

Data were collected in 2003–2004 from both an urban West Coast city and a rural Northeast town. Participants were 28 physicians and 142 patients. Physicians specialized in family practice (17 males, 11 females; 10 urban, 18 rural) and each saw an average of five randomly selected adult patients visiting for acute problems (e.g., cold, rash, cut). Patients were excluded who were visiting for chronic-routine problems (e.g., depression), pre-scheduled follow-up visits, complete physical examinations, and first-time intake visits.

2.2. Procedure

This study was approved by the Human-Subjects Protection Committees of all participating universities. Nurses admitted all eligible patients and escorted them to a private room where a researcher explained the study and, if patients agreed to participate, secured their written consent. The stated purpose of the study was to examine "how doctors and patients can best manage the medical concerns that emerge during visits." Participating patients then filled out a pre-visit survey, after which they were escorted to a visit room and seen by a physician. Physicians and patients interacted naturally and researchers were not present during visits. Visits were videotaped with small cameras that were positioned in ceiling corners such that their view could be obstructed by an examination curtain, which was drawn when requested by patients or physicians. Immediately after their visit, patients filled out a post-visit questionnaire and then were paid for their participation. Patients' questionnaire response rate was 99%.

2.3. Non-communication measures

Table 1 displays descriptive statistics for all variables. On the pre-visit questionnaire, we used the 12-item *Medical Outcome Study's Health Survey* [26] to measure patients' physical health status ($\alpha = .91$) and mental health status ($\alpha = .91$), both of which have been shown to affect patients' satisfaction [27,28]. The post-visit questionnaire measured patients' age, sex, race, education, and relationship with physicians (never seen versus seen before), which have also been shown to affect patients' satisfaction [27,29,30]. The post-visit questionnaire additionally measured the

Table 1
Descriptive statistics

Variables	Mean (S.D.)
Patients' age (years)	41.8 (14.7)
Patients' sex	
Male	35%
Female	65%
Patients' race	
White	85%
Non-white	15%
Patients' education	
<B.A. degree	69%
≥B.A. degree	31%
Patient's relationship with physician	
Never seen (i.e., stranger)	47%
Seen before (i.e., acquainted)	53%
Patients' problem type	
Upper-respiratory problem (e.g., cold/sinus)	46%
Non-upper-respiratory (e.g., back pain)	54%
Patients' physical health status	1.56 (.19) ^a
Patients' mental health status	1.78 (.16) ^a
Visit length (min)	12.4 (5.5)
Clinic location	
Urban (Westcoast City)	23%
Rural (Northeast Town)	77%
Physicians' opening question type	
General inquiry ("How can I help?")	70%
Request for confirmation ("Sore throat huh?")	24%
Other ("How are you?")	06%
Patients' problem presentation time (seconds)	22.9 (22.5)
Did patients' orient to presentation completion?	
Yes	23%
No	77%
Physicians' listening behavior	4.53 (0.53) ^b
Physicians' positive affective/relational communication	4.35 (0.51) ^b
Physicians' negative affective/relational communication	4.52 (0.71) ^b

^a Six items were dichotomized and averaged.

^b Items (Table 2) were measured on a 1–5 Likert-type scale, combined, and averaged.

dependent variable – that is, patients' evaluations of (i.e., satisfaction with) the affective/relational dimension of physicians' communication – with the 9-item *Socioemotional Behavior* subscale of the *Medical Interview Satisfaction Scale* ($\alpha = .84$; Appendix A; Table 2) [31]. Finally, in order to control for the particular institutional, social, behavioral, and philosophical demands of rural (versus urban) medicine [32], we controlled for clinic location.

2.4. Communication measures

The opening phase of all visits were transcribed according to conversation-analytic conventions [33]. Following Heritage and Robinson [4], who were guided by the work of Beckman and Frankel [1] and Marvel et al. [34], we operationalized problem presentation as all patients' communication beginning after physicians' opening questions, and ending at the onset of physicians' initial attempts to shift out of problem presentation into a different phase/activity (most commonly history taking and/or physical examination). We operationalized physicians' attempts to shift out of problem presentation as any complete turn of talk that initiated the first part of an adjacency-pair sequence [35].

Using this typology, we coded physicians' opening questions as either open-ended general inquiries, such as *What can I do for you?*, *How can I help?*, and *Tell me what's*

Table 2
Factor analysis results for patients' evaluations of physicians' affective/relational communication (N = 142)

	Loading	Eigen.	Variance (%)
Dimension 1: listening behavior		2.171	24.1
1. The doctor gave me a chance to say what was really on my mind	.832		
2. I really felt understood by the doctor	.867		
Dimension 2: positive affective/relational communication		2.672	29.70
1. After talking to the doctor, I felt much better about my problem(s)	.721		
2. I felt that the doctor really knew how upset I was about my pain	.659		
3. I felt free to talk to the doctor about private thoughts	.623		
4. I felt that the doctor accepted me as a person	.746		
Dimension 3: negative affective/relational communication		1.995	22.20
1. I felt that the doctor did not take my problems very seriously	.800		
2. The doctor was not friendly to me	.916		

going on?, or closed-ended requests for confirmation of general conditions or specific symptoms, such as *I understand you're having some sinus problems?* and *You slipped and fell four weeks ago?* ($k = .81$). In four visits (3%), physicians' opened with *How are you?*, which can be ambiguous for patients and thus confound problem presentation [36], and in four visits (3%), physicians' did not use an opening question. These eight cases were omitted from the analysis.

In an effort to isolate the effects of physicians' opening questions, which solicit patients' problem presentations, we controlled for three aspects of problem presentation. First, because problem type can affect the nature of problem presentation, we used the National Ambulatory Medical Care Survey's classification system (<http://www.cdc.gov/nchs>) to code patients' chief reason for visiting as either upper-respiratory or non-upper-respiratory ($k = .90$). Second, in order to control for the extent of patients' problem presentations, we measured their length in seconds (from video-digital clock; $\alpha = .97$). Third, in order to control for possible affective/relational implications of physicians interrupting patients prior to completing their presentations [1], we used the schema developed by Robinson and Heritage [35] to code for whether or not patients explicitly indicated their completion of problem presentation ($k = .76$). Explicit indications were either announcements of completion (e.g., *So that's why I'm here*) or solicitations of information about their problem (e.g., *Do you have any idea?*), including *I don't know if it's 'X'* formulations (e.g., *I don't know if its bronchitis or what*), which have been shown to seek medical information [2]. Finally, because visit length has been associated with patients' satisfaction [37,38], we coded and controlled for the number of minutes that physicians and patients were co-present (from video-digital clock; $\alpha = .99$). All coding inconsistencies were subsequently discussed and resolved.

2.5. Factor analysis of the socioemotional behavior subscale

We used the *Socioemotional Behavior* subscale of the *Medical Interview Satisfaction Scale* because it is arguably the most common, longstanding, and well validated measure of patients' evaluations of the affective/relational dimension of physicians' communication [39]. Because the coherence of individual items within this subscale can vary according to the type of patient population, it is statistically advisable

to retest their coherence [40]. Accordingly, we used a principal factor (versus components) analysis with an oblique (versus orthogonal) rotation [41]. The parameters for item inclusion were a loading of .60 or greater on the primary factor and less than .40 on secondary factors. As seen in Table 2, the subscale generated three distinct factors, labeled *physicians' listening behavior* ($\alpha = .89$) and *physicians' positive* ($\alpha = .81$) and *negative* ($\alpha = .78$) *affective/relational communication*.

3. Results

3.1. Regression analyses

The Statistical Analysis Software (SAS) package was used to run three linear multiple regressions using *Generalized Estimating Equations Modeling* [42], which adjusts standard errors to control for correlations between observations. In the present case, this was to control for the clustering effects of more than one patient visiting and rating the same physician. There were three dependent variables (physicians' listening behavior and physicians' positive and negative affective/relational communication) and 12 independent variables: patients' age, sex, race, education, problem type, and physical and mental health status, as well as clinic location, visit length, physicians' opening question type, length of patients' problem presentations, and whether or not patients' oriented to completing their presentations. None of the independent variables were intercorrelated at levels above .39, warranting their inclusion in the regression models [43]. For each model, we used stepwise regression, where the independent variable with the maximum correlation with the dependent variable was added first; the addition of independent variables was stopped if their p -values were above .40.

Regression results are presented in Tables 3–5. Our hypothesis was supported: when physicians solicited patients' problem presentations with open-ended, general-inquiry questions (versus closed-ended requests for confirmation), patients reported significantly more positive evaluations of physicians' *listening behavior* ($p = .023$) and *positive affective/relational communication* ($p = .046$) (note that open- and closed-ended questions were coded as 0 and 1, respectively, accounting for the negative associations); physicians' question type was not significantly associated with patients' perceptions of physicians' *negative affective/*

Table 3
Results of linear regression with GEE modeling for variables associated with patients' evaluations of physicians' listening behavior

Variable	Estimate	S.E.	95% CI	z	p-value
Patients' mental health status	-.429	.261	-0.997–0.477	-1.64	.100
Patients' relationship with physician	.155	.070	0.016–0.293	2.21	.027
Physicians' question design	-.205	.093	-0.393 to -0.023	-2.20	.028
Patients' problem presentation time	.003	.002	-0.001–0.007	1.40	.162
Clinic location	-.084	.090	-0.258–0.097	-0.94	.349

Table 4

Results of linear regression with GEE modeling for variables associated with patients' evaluations of physicians' positive affective/relational communication

Variable	Estimate	S.E.	95% CI	z	p-value
Patients' physical health status	.205	.241	−0.176–0.717	0.85	.395
Patients' mental health status	−.364	.188	−0.735 to −0.023	−1.93	.053
Patients' relationship with physician	.166	.077	0.016–0.317	2.14	.032
Physicians' question design	−.190	.095	−0.378 to −0.008	−2.00	.046
Patients' problem presentation time	.002	.002	−0.002–0.006	1.16	.244

Table 5

Results of linear regression with GEE modeling for variables associated with patients' evaluations of physicians' negative affective/relational communication

Variable	Estimate	S.E.	95% CI	z	p-value
Patients' physical health status	.460	.309	−0.214–0.851	1.49	.136
Patients' mental health status	.478	.331	−0.201–1.032	1.44	.149
Patients' relationship with physician	.213	.148	−0.070–0.505	1.44	.151
Visit length	−.019	.009	−0.001–0.036	−2.06	.039

relational communication. Additionally, compared to patients' who were strangers to physicians, those with established relationships reported significantly more positive evaluations of physicians' *listening behavior* ($p = .027$) and *positive affective/relational communication* ($p = .032$). Finally, though physicians' opening questions were not significantly associated with patients' ratings of physicians' *negative affective/relational communication*, visit length was. Consistent with earlier research [37], we found that patients who experience longer visits evaluate physicians significantly less negatively such that longer visits produced fewer negative ratings.

4. Discussion and conclusion

4.1. Discussion

We found that, controlling for a variety of health-contextual variables (e.g., patients' age, sex, race, education, problem type, and physical and mental health status, as well as clinic location, and visit length), when physicians open visits with open-ended, general inquiries (e.g., *What can I do for you?*, *How can I help?* and *Tell me what's going on?*) versus closed-ended requests for confirmation (*Sore throat huh?*, *I understand you're having some leg problems?*, *I see you have sinus problems?*), patients report being significantly more satisfied with the affective/relational dimension of physicians' communication. This type of satisfaction has been shown to increase patients' levels of physical functioning [14] and adherence to medical recommendations [15,16], and to decrease patients' levels of doctor shopping [17] and malpractice litigation [18].

Although we have documented a putatively direct effect between physicians' use of general-inquiry opening questions and patient satisfaction, it is possible that these questions simply index patient-centered attitudes [44–46], and that the positive relationship between physicians'

general-inquiry (versus closed-ended) questions and patients' satisfaction is thus an indirect one. If physicians' general-inquiry questions are merely one communicative instantiation of patient-centeredness, then patients' satisfaction may be similarly affected by other instantiations that occur elsewhere in visits (for example, patient-involved treatment decisions). More research is clearly needed on the relationships between physicians' patient-centered attitudes and specific features of physician–patient communication.

The data from this study were restricted to two geographic areas of the United States and to a predominantly Caucasian, Anglophone patient sample who were paid for their participation. We do not know whether these findings will generalize to other settings involving patients from different geographic locations, patients from more diverse ethnic and linguistic backgrounds, or patients whose motivation for participation is not influenced by payment considerations. This study was restricted to family practitioners dealing with acute problems and may not generalize to other primary-care specialties (e.g., internists) and other problem types (e.g., chronic care). Finally, our results might be altered by the effects of unmeasured pre-visit communication behaviors by other practice personnel (e.g., by receptionists, nurses, and medical assistants) on post-visit satisfaction.

4.2. Conclusion

In an earlier report [4], Heritage and Robinson found that, compared to physicians' opening questions that are closed-ended requests for confirmation, those that are open-ended general inquiries generate significantly longer problem presentations (27.1 s versus 11.3 s) that contain significantly more discrete symptoms. The striking finding of the present study is that, while patients' satisfaction with physicians is significantly associated with physicians' open-ended (versus closed-ended) question formats, neither the actual amount of time patients spent in describing their presenting concerns,

nor the presence or absence of patients explicitly indicating their completion with problem presentation, were significantly associated with patients' satisfaction. These results suggest that patients desire the *opportunity* to present concerns in their own time and terms regardless of how extensively they *act* on this opportunity. Patients' perceptions of this 'opportunity' may be grounded in the very different stances that open- and closed-ended question formats embody towards patients and their medical concerns. Open-ended formats embody the stance that, regardless of what patients have already previously said to medical assistants (or other intake personnel) and what might already be documented in patients' charts, physicians nonetheless want to hear (and perhaps value the hearing of) patients' concerns in their own words. Closed-ended formats embody the stance that patients' previous communications in the intake process constitute sufficient bases for consultations to proceed to the history (and perhaps, by implication, that patients' stories are not necessary).

4.3. Practice implications

Subject to the above limitations and to the necessity for further research, this study suggests that physicians seeing acute-care patients care should solicit patients' presenting concerns with open-ended, general-inquiry question formats (versus closed-ended requests for confirmation of general or specific symptoms).

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Appendix A

Socioemotional behavior subscale of The *Medical Interview Satisfaction Scale*

1. The doctor gave me a chance to say what was really on my mind.
2. I really felt understood by the doctor.
3. After talking to the doctor, I felt much better about my problem(s).
4. I felt that the doctor really knew how upset I was about my pain.
5. I felt free to talk to the doctor about private thoughts.
6. I felt that the doctor accepted me as a person.
7. I felt that the doctor didn't take my problems very seriously.
8. The doctor was not friendly to me.

9. The doctor would be someone who I would trust with my life.

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