Effects of a Self-Administered Previsit Questionnaire to Enhance Awareness of Patients' Concerns in Primary Care

John Hornberger, MD, MS, David Thom, MD, PhD, Thomas MaCurdy, PhD

OBJECTIVE: **To determine if a self-administered previsit questionnaire designed to increase awareness of patients' concerns alters the visit duration, content of the discussion, and patient and physician satisfaction.**

DESIGN: **A balanced, two-arm trial in which physicians were randomized.**

SETTING: **Two primary-care clinics affiliated with a university hospital.**

PATIENTS/PARTICIPANTS: **Ten physicians and 201 continuity-care patients.**

INTERVENTIONS: **In intervention visits, patients completed a previsit questionnaire asking about the desire for medical information, psychosocial assistance, therapeutic listening, general health advice, and biomedical treatment. Physicians reviewed questionnaires with patients during the visit.**

MEASUREMENTS AND MAIN RESULTS: **We used audiotapes of encounters to quantify the duration of the encounter and measured the number and type of diagnoses discussed in the visit, and patient and physician satisfaction with the encounter. Intervention visits were 34% longer (increase of 6.8 minutes; 95% confidence interval [CI] 0.4, 13.2) than control visits with most of the additional time spent in discussion of biomedical diagnoses (3.35 minutes; 95% CI 0.00, 6.72) and in the performance of the physical examination (2.7 minutes; 95% CI 0.5, 4.9). The number of diagnoses discussed per visit was 30% higher in intervention visits (increase of 1.7 diagnoses per visit; 95% CI 0.3, 3.2), but patients' satisfaction with these visits tended to be lower.**

CONCLUSIONS: **Using a previsit questionnaire to increase awareness of the patients' concerns may entail a trade-off between conflicting goals: trying to respond to patient concerns while not significantly increasing the cost per visit. A future challenge is to develop and refine techniques with sufficient efficacy to justify the expense of implementing the intervention and the longer visit needed to respond adequately to patients' concerns.**

KEY WORDS: **previsit questionnaire; patient satisfaction; physician satisfaction; medical communication.**
J GEN INTERN MED 1997;12:597–606.

teaching physicians communication skills,[6–10] and teaching patients how to communicate their concerns more effectively to their physicians.[11–15]

Clinical trials in which patients were coached to express their concerns and to ask questions of the physician have shown it is possible to increase the efficiency of the encounter, as measured by the amount of information discussed between patient and physician.[11–15] Such approaches also have been shown to have long-term beneficial effects on patient adherence to recommendations and on improving markers of biological health such as hemoglobin A_{1C} levels in diabetic patients and blood pressure in hypertensive patients.[13,16,17] Although these seminal studies suggest a substantial potential for improving patients' well-being by enhancing their involvement in clinical encounters, the costs of such methods are not easily dismissed, particularly when considering their application over millions of primary-care visits each year in the United States.

Others have used previsit questionnaires that inquire about patients' concerns as a vehicle to enhance patients' involvement in their care.[18–25] Evaluations of these questionnaires, however, have been limited to describing the types of concerns that patients express,[12,26–31] their effects on patient satisfaction,[9,20–22,32] and patient adherence.[9] These questionnaires are intended to influence the priorities of the encounter (e.g., time spent in discussion of psychosocial issues or behaviors to prevent illness), but their effects on what is discussed remain uncertain. Because physicians ultimately will decide whether and how such questionnaires will be used in their practices, interest centers also on physician satisfaction with encounters that use such surveys and the medical-care costs, particularly any change in the duration of the visit.

Physicians and organizations providing health care face increasing pressures to supply outpatient primary care services more efficiently.[1–3] One option is for physicians to see more patients per day,[4,5] which is likely to shorten the time spent per visit in face-to-face interaction with patients unless physicians work more hours per day. Others have sought to increase the efficiency of the visit by

We explore the consequences of using a self-administered patient survey that is completed prior to the visit and intended to improve the patient's and physician's awareness of the patient's concerns. We adapted a questionnaire from Like and Zyzanski's Patient Request for Patient Services[23] to enhance patients' prior consideration of the purposes of their visit. This study reports the results of a randomized clinical trial designed to assess the effects of this survey in primary-care visits on the types of topics discussed, the number of specific diagnoses discussed in the visit, and the total time spent per visit. We also report the effect of the intervention on patients' report of the services they received from their physician and patient and physician satisfaction with the visit.

METHODS

We conducted a two-armed, balanced, randomized trial of a previsit questionnaire adapted from Like and Zyzanski's Request for Physician Services Schedule,[32] which we call the Patient Concerns Form.

Subjects—Physicians and Patients

We enrolled primary-care physicians in group practices associated with Stanford University. Physicians had to practice medicine as at least 50% of their work activity and identify themselves as primary-care physicians. We excluded residents in training and medical students. Of 15 eligible physicians, 10 agreed to participate in the study. One of the five physicians who refused was soon to deliver a baby. Two physicians had recently begun employment with the group practice; the other two physicians did not give a reason for choosing not to participate. Physicians and patients were recruited between June and August 1993. We randomized physicians, rather than patients, to limit the potential bias of physicians' care differing systematically with respect to whether the patient received the intervention.

For each physician, we sought to recruit a consecutive series of 20 English-literate patients, aged 18 years and older, who had a regularly scheduled outpatient clinic appointment with a participating physician. We excluded children and patients who had called within 5 days to arrange the appointment for semi-urgent or urgent care. Patients signed informed consent forms to participate in the study. A research assistant enrolled subjects at the time of the scheduled clinic visit. Twenty (9%) of 221 potential subjects approached by the research assistant refused to participate because they anticipated insufficient time to complete the survey immediately after the visit.

Study Design

Intervention visits were designated as those involving the last 10 patients enrolled with physicians assigned to the experimental arm (one fourth of all visits). Patients enrolled in intervention visits were asked to complete the Patient Concerns Form. All patients enrolled with physicians assigned to the control arm and the first 10 patients enrolled with physicians assigned to the intervention arm received a pamphlet describing the clinic and hospital organization. For all subsequent analyses, we designate the first 10 patients enrolled with a physician as "phase I patients" and the second 10 patients enrolled with a physician as "phase II patients."

This design served two purposes. First, it permitted all physicians to become familiar with the outcome measures, particularly tape recording, used in the study prior to comparisons between intervention and control visits. Second, and more importantly, we anticipated that measurements made in phase I would correlate positively with measurements in phase II. If this is so, our design would result in an increased efficiency, that is, fewer physicians and patients to achieve the same power, to detect a meaningful difference.[33]

The Intervention

The Patient Concerns Form (Table 1) was adapted from Like and Zyzanski's Patient Requests for Services Schedule.[32] The Patient Concerns Form has 25 items covering five categories of concerns: desire for medical information (10 items), psychosocial assistance (4 items), therapeutic listening (4 items), general health advice (2 items), and biomedical treatment (5 items). We rearranged items from Like and Zyzanski's survey for this study on the basis of pilot testing of the survey ($n = 98$ visits) to make it easier for the physician to read the form and, thus, quickly learn the patient's concerns for that visit.

Patients in intervention visits completed the Patient Concerns Form while waiting for their visit. For each item, patients marked "yes" or "no" to whether they wanted to discuss that concern with their physician. If yes, then they marked whether the concern was "moderately" or "very" important to discuss with their physician. After answering all 25 items, patients ranked the three issues they most wanted to discuss with the physician. A nurse or research assistant attached the completed Patient Concerns Form to the front of the chart for the physician to review at the time of the interview.

Measurements

After the interview, patients completed a postvisit questionnaire to assess their perceptions of the concerns addressed by the physician. Patients also responded to questions about their health status and satisfaction with the visit. Physicians completed a questionnaire assessing their satisfaction with the encounter. We tape recorded all interviews to assess the number and type of diagnoses discussed and the time spent in discussion of these diagnoses.

Table 1. Items of the Patient Concerns Form and the Frequency of Services Provided by the Physician

Survey Item	Requested Services,* %	Received Services,† %
1. I had some tests done at a previous visit and I would like to find out my test results.	30	24
2. I would like the doctor to write a letter or fill out some forms for me.	16	31
3. I want something to be done to relieve my physical discomfort or symptoms.	62	29
4. I want the doctor to do something to find out what's wrong.		
a. Examine me.	79	77
b. Have some tests done.	50	45
c. To be referred to a specialist or other doctor.	50	21
5. I would like to know more about my problem.		
a. Do I have some kind of disease or condition?	57	42
b. What is the name of my problem?	55	37
c. What caused it?	54	38
d. What I can and can't do while I have the problem.	62	45
e. Whether it will continue, get better or get worse, or come back.	59	47
6. I would like to tell the doctor my ideas and concerns about my problem.		
a. What I'm concerned my problem might be.	58	68
b. What I think caused it.	49	53
c. The way I've been treating my problem at home.	58	62
d. How my problem is affecting my life and family.	50	40
7. I want to be comforted and feel that someone cares about me.	69	86
8. I would like to discuss my medications with my doctor.		
a. Problems I am having taking my medications.	36	22
b. Side effects I think are caused by my medications.	36	22
c. Learn more about my medications (how they work, side effects).	28	30
d. Make some changes in my medications (type, amount, schedule).	37	39
9. I would like some help for some personal, family, marriage, or emotional problems I am having.		
a. I want something to relieve my emotional discomfort (nerves, stress, worry).	30	16
b. I would like help for some marital or family problems I am having.	9	7
10. I would like some advice on how to stay healthy or about some personal health habits.		
a. Advice about diet or exercises.	49	42
b. How to lose weight, how not to get pregnant, how to stop smoking, how to control my drinking.	17	19
11. I want to talk with the doctor about increasing or decreasing how often I come to the clinic.	11	11

Represents fraction of subjects in visits using the Patient Concerns Form who marked that they wanted this service provided by the physician.

†*Represents fraction of subjects in all visits who marked on the postvisit questionnaires that this service had been provided by the physician.*

Patient Postvisit Questionnaire. The postvisit questionnaire contained 25 items similar to the items found in the Patient Concerns Form, except that each item was coded "yes" or "no" depending on whether the patient believed the physician provided the service. This questionnaire, therefore, is analogous to Like and Zyzanski's Patient Services Received Schedule.[32]

We assessed patients' health-related quality of life in the postvisit questionnaire using the Medical Outcomes Study 36-item Short-Form Survey (SF-36).[34] We also assessed the presence and severity of symptoms associated with depression and anxiety using the Hospital Anxiety and Depression Scale (HAD),[35] a well-validated survey of psychological symptoms of depression and anxiety that has been shown to have excellent construct validity for outpatients. The HAD has two subscales, anxiety and depression, each with a range of potential scores between 0 and 21. Higher scores correlate with a greater severity of anxiety or depression.

We assessed patients' satisfaction with the medical interview using the four items previously developed by Like and Zyzanski.[32] Last, we asked patients their age, gender, race or ethnic background, level of education, and presence of chronic medical conditions.

Physician Postvisit Questionnaire. After each visit, physicians completed a self-administered six-item questionnaire measuring satisfaction with the visit using items from a study by Greenfield and colleagues.[13] The research assistant collected information on the number and type of laboratory tests, imaging studies, and consultations requested during the visit. Surveys used in this study have undergone validation and reliability testing in previous studies.[36–43]

Audiotape Measurements. We assessed the number and type of diagnoses discussed in the visit using the International Classification of Primary Care (ICPC).[44] The ICPC Working Party designed this classification scheme to help health-care providers classify the reasons for the encounter, the diagnoses of problems, and the process of care.

We listened to audiotapes to design a data-coding form and instructions for coders that incorporated the classification scheme of the ICPC. More than 95% of all utterances made by the patient or physician could be categorized into one of five topic areas: biomedical, psychosocial, administrative, establishing rapport, and health system review.

We define the unit of discussion as a "phrase," from the moment a patient or physician began speaking on an issue or diagnosis in one of the five topic areas until they stopped speaking on that same issue. Phrases may include a series of utterances; for example, the utterances used to instruct a patient on the appropriate way to take an antihypertensive medication[21,45–47] would be assigned to the topic area coded "uncomplicated hypertension."

We assigned phrases associated with one of the two diagnostic ICPC categories of psychologic problems (e.g., feeling anxious, nervous, tense) or social problems (e.g., loss or death of a partner) to the *psychosocial* topic area. Many patients with a psychiatric illness also have physical manifestations of that illness (e.g., fatigue, anorexia, palpitations). Comments that described a physical symptom following discussion that the coder considered related to a psychiatric illness were assigned to the psychosocial topic area. We assigned phrases associated with any of the remaining diagnostic ICPC categories (e.g., headache) to the *biomedical* topic area. Phrases associated with insurance issues, completing forms, or writing letters were assigned to the *administrative* topic area. Phrases associated with enhancing the patient-physician relationship, but not related to a discussion of a diagnosis (e.g., "Nice weather, isn't it?"), were assigned to the *establishing rapport* topic area. In some visits, the physician asked a list of questions in which a "yes" or "no" reply is first required to elicit a previously unreported physical or emotional problem. We assigned such phrases to the *health systems review* topic area. We designated as *unknown* the 5% of phrases that did not correspond to one of the other categories.

The coders recorded (1) the topic area of the phrase; (2) the diagnoses, if appropriate; and (3) the tape recorder's log number designating the beginning and ending of each phrase. To transform the tape recorder's log number into time, we estimated for each of the three tape recorders the duration per unit change in the tape recorder's log number.

To assess reliability of the coding scheme, each of the three coders independently coded a random sample of 10% of the tapes. The coders achieved a high level of agreement reliability in reporting the total number of topics per encounter (intraclass correlation coefficient = .85), the total time of the encounter (intraclass correlation coefficient = .98), and time spent per specific topic area (intraclass correlation coefficient for biomedical topics = .95; psychosocial topics = .65; physical examination = .82; health review = .73).

Data Analyses

For continuous variables, we estimated the effect of the intervention using a linear model controlling for (1) whether the visit was associated with a physician in the control or experimental group, and (2) whether the patient was designated as belonging to phase I or II. Because data from visits of the same physician were likely to be correlated (the so-called design effect in survey research[48]), we estimated robust standard errors based on Huber's method.[49] With Huber's method,[49] we assume that the random error in the model of the jth patient seeing the ith physician, ϵ_{ij}, represents the sum of the random error associated with the ith physician, v_i, and the random error associated with the jth patient seeing the ith physician, v_{ij}. We assume the expectation of v_i equals 0 and the v_{ij} are independent, but not identically distributed, error terms with a mean 0 and variance σ_{ij}. With this technique, we estimate the net effect of the intervention as the difference between phases in experimental visits minus the difference between phases in control visits. The coefficients of the model are estimated using maximum-likelihood techniques. All analyses were performed using the STATA (version 5.0) statistical package, which easily accommodates the clustering of the data.

Because there were five physicians in each arm of the study, we also ran regressions with patient demographic covariates included in the models to assess the potential effect of imbalance of patients with randomization. The results of regressions that included patient demographic characteristics varied little from results of models that excluded these variables, providing further evidence that balance was achieved between groups. We therefore report the results of the regressions excluding baseline patient demographic variables.

For dichotomous outcome measures, we estimated the effect of the intervention using a logistic model, again controlling for physician and patient assignment and estimating robust standard errors. Because no subjects prematurely left the study or crossed over from one study arm to another, all analyses are on an intent-to-treat basis. All statistical tests were performed at the .05 significance level using two-sided tests. We designed the study to detect a 20% increase in the number of diagnoses discussed per visit with a power (1-β) equal to 80% and significance level (α) equal to 5%.

RESULTS

Eight of the participating physicians were men and two were women (Table 2). Physicians' average age was

Table 2. Subjects' Characteristics

Characteristic*	Control		Experimental	
Physicians				
Mean age, years (SD)	43 (7.6)		43 (6.8)	
Male:female	4:1		4:1	
Board certified, internal medicine:family practice	2:3		4:1	
	Phase I (*n* = 51)	**Phase II** (*n* = 54)	**Phase II** (*n* = 49)	**Phase II** (*n* = 47)
Patients				
Mean age, years (SD)	45.6 (13.8)	45.4 (15.4)	48.3 (15.8)	45.3 (14.6)
Female, %	26 (51)	29 (54)	23 (47)	31 (66)
Race/ethnic background, *n* (%)				
White (non-Hispanic)	34 (67)	35 (65)	29 (59)	26 (56)
Black	3 (6)	3 (6)	3 (6)	3 (6)
Hispanic	0 (0)	4 (7)	5 (11)	7 (15)
Asian	8 (16)	4 (7)	6 (12)	1 (2)
Other	6 (11)	8 (15)	6 (12)	10 (21)
Education, *n* (%)				
High school graduate or greater	48 (94)	47 (87)	43 (88)	40 (85)
College graduate or greater	35 (69)	30 (56)	27 (55)	25 (53)
Income (× $10,000),† *n* (%)				
<11	3 (6)	4 (7)	3 (6)	3 (6)
11–20	0 (0)	3 (6)	3 (6)	0 (0)
21–50	20 (39)	12 (22)	12 (25)	18 (38)
51–100	11 (21)	18 (33)	19 (39)	10 (21)
>100	13 (26)	9 (17)	8 (16)	7 (14)

* *Differences between groups were statistically insignificant (*p > .30*).*

† *Twenty-five subjects did not complete a response for income.*

43 years (SD 6.8 years). Six physicians were board-certified in internal medicine and four physicians were board-certified in family practice.

Patients' mean age was 46 years, and 54% were women. Of the patients, 61% were white, 6% were black, 7% were Hispanic, and 10% were Asian. More than 80% of patients had at least a high school education, and more than 50% had at least a college degree. There were no statistically significant differences in these demographic characteristics for patients in intervention and control visits.

Concerns Reported by Patients on the Patient Concerns Form

The 47 patients who completed the Patient Concerns Form before visits reported a total of 583 concerns. The most frequently expressed concern was "I want the doctor to do something to find out what's wrong—examine me" (Table 1). Other common concerns were, "I want something to be done to relieve my physical discomfort or symptoms," "I would like to know more about my problem—what I can and can't do while I have the problem?" and "I want to be comforted and feel that someone cares about me." The mean number of concerns expressed per visit was 12.1 (SD 12.3).

Biomedical and Psychosocial Diagnoses Discussed

Audiotaping revealed a total of 751 diagnoses discussed among all patients. The mean number of diagnoses discussed per control visit was 5.6 (SD 2.8). The 10 most commonly discussed diagnoses were lipid metabolism disorder (*n* = 21), uncomplicated hypertension (*n* = 14), feelings of anxiety or stress (*n* = 11), back symptoms or complaints (*n* = 10), fear of breast cancer (*n* = 9), feeling depressed (*n* = 7), cough (*n* = 6), headaches (*n* = 6), pregnancy (*n* = 6), and chest pain (*n* = 5). Visits using the Patient Concerns Form had approximately 30% more diagnoses discussed per visit (absolute difference = 1.7; 95% confidence interval [CI] 0.3–3.2). There was an insignificant increase in the number of psychosocial diagnoses per visit (difference = 1.0; 95% CI −0.2, 2.1).

Time Spent per Visit and in Discussion of Specific Topic Areas

Table 3 shows the topic areas to which audiotaped phrases were assigned, time spent in discussion for each of these topic areas, and estimated difference in the time spent per topic area between control and intervention visits. The average encounter lasted approximately 20 minutes.

Table 3. Time (Minutes) Spent in Total Visit and by Topic Area

Topic Area	Control			Experimental			Net Effect of Intervention (D−C)−(B−A)[†]
	A: Phase I* (*n* = 51)	B: Phase II* (*n* = 55)	Mean Difference (B−A)	C: Phase I* (*n* = 49)	D: Phase II* (*n* = 47)	Mean Difference (D−C)	
Total time of encounter	19.8 (11.7)	15.2 (8.5)	−4.6	22.0 (11.7)	24.2 (11.8)	2.2	6.8 (0.4, 13.3)[‡]
By topic area							
Biomedical	8.5 (5.7)	8.8 (5.8)	0.3	9.9 (6.2)	13.6 (7.1)	3.7	3.4 (0.0, 6.7)[‡]
Psychosocial	0.5 (1.6)	1.3 (4.1)	0.8	1.4 (3.6)	1.4 (3.3)	0	−0.8 (−1.6, 0.2)[§]
Administrative	0.1 (0.5)	0.3 (0.9)	0.2	0.2 (0.5)	0.1 (0.4)	−0.1	−0.3 (−0.7, 0.2)
Physical examination	3.8 (3.8)	2.1 (2.6)	−1.7	4.1 (4.0)	5.1 (5.6)	1.0	2.7 (0.5, 4.9)[‡]
Health systems review	1.9 (3.4)	0.4 (1.4)	−1.5	1.6 (2.3)	1.1 (2.3)	−0.5	1.0 (−0.5, 2.4)
Establishing rapport	0.8 (1.8)	0.4 (1.0)	−0.4	1.9 (3.1)	1.0 (1.3)	−0.9	−0.5 (−1.4, 0.6)
Physician out of room	3.1 (4.7)	1.6 (3.7)	−1.5	3.3 (6.6)	2.5 (4.3)	−0.8	0.7 (−1.2, 2.8)

*Mean (SD).
[†]*Mean difference (95% CI).*
[‡]p < .05.
[§]*p < .10. A CI that does not cross 0 is statistically significant at the .05 level.*

Discussion of all biomedical diagnoses occupied almost half of the visit time. Even though anxiety and depression were the third and sixth most commonly discussed diagnoses, respectively, only approximately 5% of the total visit time was spent in discussion of all psychosocial diagnoses.

Visits using the Patient Concerns Form were more than 6 minutes longer than control visits, an increase that was statistically significant. In visits using the Patient Concerns Form, the time spent in discussion of biomedical diagnoses was approximately 3 minutes longer than in control visits. Also, the time spent in the physical examination was approximately 2.7 minutes longer in visits using the Patient Concerns Form than in control visits. By contrast, there was little difference in the time spent in discussion of psychosocial diagnoses between control and intervention visits or in time spent in other topic areas.

Patient and Physician Satisfaction with the Visit

The mean physician satisfaction scores among items in control visits ranged from 4.36 to 4.38 (SE 0.06; interquartile range = 1; Table 4). More than half of the physicians reported the highest possible score on satisfaction surveys with the interview. In visits using the Patient Concerns Form, physician satisfaction scores (±SE) were 0.1 ± 0.01 higher than in control visits. Only item 4 ("The overall quality of care and services the patient received today from me") achieved statistical significance (difference = 0.35 ± 0.23; *p* < .05).

The mean patient satisfaction scores among items in control visits ranged from 4.43 to 4.55 (SE 0.6; interquartile range = 1; Table 4). As with physician scores, more than half of the patients reported the highest possible score on satisfaction items. In visits using the Patient Concerns Form, patient satisfaction was lower for items 1 and 3 and was higher for items 2 and 4. Only item 1 ("The

doctor's understanding the reasons for your visit today") achieved a statistically significant lower mean score (difference = −0.42 ± 0.17; *p* < .02).

Subsidiary Findings

Patients reported that physicians provided a total of 1,934 services during all visits (Table 1). The five most common services provided were "I felt comforted by my physician," "I was examined by my physician," "I was able to tell my doctor what concerned me," "I was able to tell my doctor what I thought caused my problem," and "I was able to tell my doctor the way I've been taking my medications." The average number of services provided per visit was 9.6 (SD 4.3).

Patients in visits using the Patient Concerns Form reported 1.67 more services were provided per visit than patients reported in control visits (95% CI −1.03, 4.38). A significantly greater fraction of patients reporting services were provided for: "Have some tests done" (odds ratio [OR] 4.1; 95% CI 1.8, 9.1), "Tell the doctor . . . what I'm concerned my problem might be" (OR 2.5; 95% CI 1.1, 5.6), and "I want to talk with the doctor about increasing or decreasing how often I come to the clinic" (OR 3.4; 95% CI 1.1, 10.1).

The mean score on the HAD anxiety subscale was 6.1 (SD 4.3). The mean score on the HAD depression subscale was 3.7 (SD 4.3). Zigmond and Snaith reported that a score of 11 or more on the anxiety or depression subscales of the HAD has more than 80% accuracy in predicting the diagnosis of anxiety or depression, respectively.[35] Twenty-two percent of all control and intervention subjects had a score of 11 or higher on the anxiety subscale of the HAD. Sixteen percent of subjects had a score of 11 or higher on the HAD depression subscale.

Anxiety scores for subjects with visits using the Patient Concerns Forms were significantly lower than for

Table 4. Physician and Patient Satisfaction with Encounter

Item	All Visits*	Difference Between Control and Intervention Visits†
Survey administered to patients‡		
1. The doctor's understanding of the reason(s) for your visit today?	4.55	−0.41 (−0.75, −0.07)§
2. The doctor's understanding of the type of help you wanted today?	4.48	0.05 (−0.33, 0.42)
3. The type of help you actually received today from the doctor?	4.43	−0.09 (−0.37, 0.18)
4. The overall quality of care and services you received today from the doctor?	4.52	0.13 (−0.09, 0.35)
Survey administered to physicians‖		
1. My understanding of the reason(s) for the patient's visit today?	4.38	0.21 (−0.45, 0.87)
2. My understanding of the type of help the patient wanted today?	4.37	0.23 (−0.43, 0.89)
3. The type of help the patient actually received today from me?	4.32	0.31 (−0.15, 0.77)
4. The overall quality of care and services the patient received today from me?	4.39	0.35 (0.01, 0.68)§
5. The patient seemed satisfied with how things went.	4.35	0.38 (−0.16, 0.92)
6. Overall, I was satisfied with this patient encounter.	4.32	0.41 (−0.17, 0.99)

*Mean

†Mean (95% CI).

‡Patients were asked "to rate some things about the clinic visit in terms of whether they were Poor (1), Fair (2), Good (3), Very Good (4), or Excellent (5)."

§$p < .05$.

‖In items 1–4, physicians were asked "to rate some things about the clinic visit in terms of whether they were Poor (1), Fair (2), Good (3), Very Good (4), or Excellent (5)." In items 5 and 6, physicians were asked whether they "Strongly disagree (1), Somewhat disagree (2), Are uncertain (3), Somewhat agree (4), or Strongly agree (5)."

subjects in control visits (difference = −2.1, 95% CI −3.5, −0.7). Depression scores for patients with visits using the Patient Concerns Form were approximately 40% lower than for patients seen in control visits (difference = −1.6, 95% CI −3.5, 0.3).

There was no significant difference on scores of items of the SF-36 between patients seen in control visits and patients seen in visits with the Patient Concerns Form. Items of the SF-36 did not correlate with the outcome measures described above. Also, there was no difference between control and intervention visits in the number of laboratory tests, imaging studies, or consultations ordered by the physician.

DISCUSSION

We developed the Patient Concerns Form to be a practical method to help the patient consider the purposes of the visit, increase physician awareness of the patient's concerns, and focus the interview on the concerns that were most important to the patient. We expected, therefore, to increase the discussion of potentially unrecognized problems or concerns—particularly among psychosocial diagnoses—and to improve patient and physician satisfaction with the visit. We also sought to achieve these outcomes with the least inconvenience or cost to the patient or physician.

Our study shows that visits using the Patient Concerns Form had (1) more diagnoses discussed per visit; (2) no difference in the number of patient-reported services received from physicians; (3) a trend toward lower patient satisfaction and higher physician satisfaction with the interaction; and (4) longer total time per visit with more

time spent in discussion of biomedical diagnoses and slightly less time spent in discussion of psychosocial diagnoses. Though not among our primary hypotheses, we also found that anxiety scores were significantly lower in visits using the Patient Concerns Form.

Our results contrast with those studies that suggest physicians can enhance the involvement of patients in visits without compromising some other valued aspect of the visit.[13,17,50] Not only does this seem incongruent with the physician's own belief that he or she rationally uses the visit time to its best advantage, but it also seems unlikely that a physician can simultaneously navigate between his or her own goals for the visit, the goals of the patient, and the goals of the many and varied professional organizations counseling physicians about what issues are most important to address with patients—all without increasing the time needed to negotiate these priorities. In contrast to other studies in this area, our findings suggest that there is a trade-off between these goals in primary-care encounters. In this instance, we found physicians willing to increase the duration of the visits and patients and physicians choosing to spend more time in discussion of biomedical than psychosocial topic areas.

The Patient Concerns Form seems to alter physician behavior by increasing visit duration, eliciting and addressing more diagnoses, and providing more services as reported by patients. However, patients appear to be no more satisfied in visits using the Patients Concerns Form. We suggest two possible explanations for this discordance between the increased number of services and patient satisfaction. First, the Patient Concerns Form may have raised patient *expectations* that the physician would discuss concerns beyond what was possible for physicians to

achieve.[51,52] We attempted to avoid raising expectations by explicitly instructing patients "to think about which of your concerns are most important to you right now and that you want to be sure to discuss with the doctor. Another visit can be scheduled if there is insufficient time to discuss all of your concerns." This statement, however, may have been insufficient to offset expectations raised by other components of the Patient Concerns Form. Second, one of the more frequent concerns raised in visits was to have something "done to relieve my physical discomfort or symptoms" (62%; Table 2). Yet, only 29% of patients reported that anything was done to relieve their physical discomfort and symptoms. Perhaps physicians were unable to, or did not, provide immediate relief of the patient's symptoms, leading the patient to report a less satisfactory encounter. Our findings suggest that adoption of this or other interventions for improving patient participation in their health care should consider the effect of the intervention on patients' expectations of care.

Implications

Patients and physicians alike face the dilemma of deciding what to discuss in their visits, particularly given the many issues that might arise in a primary-care visit and the increasing pressures to see patients in less time. In the past, when time constraints were even less of a concern than they are now, numerous studies revealed deficiencies in the systematic performance of the medical visit either because patients' concerns were not addressed,[20,23,53] or because symptoms of an illness remained unrecognized.[54,55] As a consequence, research efforts have focused on methods to encourage the patient to be a more active participant in the visit and to develop surveys that would bring to the attention of the patient and physician the problems and concerns confronting the patient. In general, assessments of these techniques have focused on their effects on the interactive aspects of the patient-doctor communication,[11,13,50,56] patient satisfaction,[11,13,17,23,50,56] and, less commonly, on physiologic measures of health.[13,17] Few studies have addressed the near-term economic effects of these techniques that may curtail interest in their widespread use, in particular, with respect to the time needed to apply these techniques and to whether focusing attention on one area (e.g., survey for depression) would adversely affect discussion of important issues in another area (e.g., health-maintenance issues).

By explicitly including in the Patient Concerns Form the statement "I would like some help for some personal, family, marriage, or emotional problems I am having," we had speculated before the study that there might be an increase in the time spent in discussion of these issues. Mental illness is a perplexing problem in the United States, as evidenced by an emerging awareness that as many as 50% of patients with depression or anxiety disorders are undiagnosed in their visits with primary-care physicians.[57–60] Researchers and analysts have offered many reasons for this lack of recognition and treatment. It has been suggested that perhaps primary care physicians are inadequately trained to recognize or treat depression or anxiety disorders.[61] Eisenberg also suggests that physicians respond rationally to the constraints imposed on the visit duration—that is, physicians have insufficient visit time to address all problems and decide to focus on the ones that they think are most salient.[62] The revealed behavior of patients and physicians in this study suggests, but does not necessarily prove, that discussion of biomedical concerns was of paramount importance in such visits.

Our study provides descriptive evidence about how physicians and patients currently spend time in primary-care visits, but it does not answer the normative question of what physicians and patients *should* discuss, and for how long. For example, was the lack of an increase in discussion of psychosocial diagnoses with the Patient Concerns Form worse for the patient than the increase in attention to discussion of biomedical diagnoses? At this point, the answer is unknown, and it will necessarily depend on the natural, untreated history of undiagnosed problems and the effectiveness and costs of available therapies for these problems if the primary-care physician were to uncover the diagnosis.

It may be possible to increase the number of problems discussed in a clinic visit without increasing the visit duration. To do so, however, would require that physicians spend less time on average per problem. They would have to take less time to elicit the history, allow the patient less time to ask questions, or provide shorter explanations of the treatment recommendations (they might even speak faster). Although we did not assess each of these components of the interaction, our analyses suggest that physicians using the Patient Concerns Form chose to discuss more problems rather than changing the pace or content of discussion of each problem.

We found significantly lower anxiety scores in visits using the Patient Concerns Form. It is possible that this measure represents a baseline characteristic of patients enrolled in these visits. We chose not to administer the HAD scale before visits because it might have focused patients' attention on these symptoms and, thus, limited the effectiveness of the Patient Concerns Form.

Alternatively, the Patient Concerns Form may have reduced patients' anxiety levels. For example, more than 85% of patients reported that they "felt like someone cared about them." Also, most patients described that they could tell their physician "what they thought might be the problem." These responses suggest that the Patient Concerns Form allowed patients to openly discuss their fears with the physician, who then could more fully assess the problem or reassure them verbally or with a longer, focused physical examination (e.g., as shown by the longer examination times). If these lower anxiety scores reflect an improvement in health status, it suggests a potential cost

savings with the Patient Concerns Form because anxiety level has been correlated with greater use of health-care services.[59]

Limitations

This study was performed on a limited number of patients seen in a single primary-care practice associated with a university teaching hospital. The patients in this study were literate and well educated. As such, they may have been better able to question their physicians and become more directly involved in their clinic visits. This study provides salient data on the potential of such an intervention. Further research is needed, however, to assess the effects of such interventions on other patient populations who are less educated or feel more constrained in their options to be involved in health-care decisions.

Coding of audiotapes inherently requires that the coder make a judgment about the intent of a phrase or utterance. For example, a physician's question about sleep disturbance asked in the context of evaluating the possibility of depression may be coded as either biomedical or psychosocial in nature. The coding scheme used for this study was designed to limit the bias of undercoding psychosocial concerns by ensuring that such phrases were coded as psychosocial if the proximate phrases referred to the patient's psychosocial or social well-being. Moreover, the patient's postvisit reports revealed a low rate of addressing psychosocial concerns, compared with other services provided during the visit, supporting the validity of our audiotape findings of minimal time spent in discussion of psychosocial concerns.

We were unable to assess whether the order of diagnoses discussed was altered in any way by the Patient Concerns Form. For example, one potentially desirable goal would be to discuss the most important problem early in the visit. Less important problems then would be left for discussion later in the interview, if time allowed. A much larger sample size would be needed, however, to find a statistically meaningful pattern in the order of discussion of specific diagnoses.

Conclusions

This study found that a self-administered patient survey completed just prior to the visit and intended to improve the patient's and physician's awareness of the patient's concerns resulted in more diagnoses discussed per visit, but significantly longer and, thus, more costly visits.

Early studies of techniques such as coaching patients to enhance their involvement in care showed great promise for improving patient satisfaction, patient adherence to recommended treatments, and biological markers of health in chronic diseases.[11–15] However, the cost of implementing such interventions probably is too great for widespread dissemination. More recent techniques, such as previsit questionnaires, suggest they may help physi-

cians become aware of previously unrecognized patient concerns. Though administering the questionnaire is inexpensive, this study suggests that its effect on the visit length is not inexpensive because physicians need time to discuss the concerns raised by the patient completing the questionnaire. Future efforts should focus on developing and refining techniques with sufficient efficacy to justify the expense of implementing the intervention and the longer visit needed to respond adequately to the patient's concerns.

REFERENCES

1. Roland MO, Bartholomew J, Courtnenay MJF, Morris RW, Morrell DC. The "five minute" consultation: effect of time constraint on verbal communication. BMJ. 1986;292:874–5.
2. Franks P, Nutting PA. Health care reform, primary care, and the need for research. JAMA. 1993;270:1449–53.
3. Alper PR. Primary care in transition. JAMA. 1994;272(19):1523–7.
4. Scheingold L. Office efficiency in primary care. HMO Pract. 1990;4:66–70.
5. Camasso MJ, Camasso AE. Practitioner productivity and the product content of medical care in publicly supported health centers. Soc Sci Med. 1994;38:733–48.
6. Mason JL, Barkley SE, Kappelman MM, Carter DE, Beachy WV. Evaluation of a self-instructional method for improving doctor-patient communication. J Med Educ. 1988;63:629–35.
7. Johnson A, Adelstein DJ. The use of recorded interviews to enhance physician-patient communication. Cancer Educ. 1991;6(2):99–102.
8. Levinson W, Roter D. The effects of two continuing medical education programs on communication skills of practicing primary care physicians. J Gen Intern Med. 1993;8(6):318–24.
9. Joos SK, Hickman DH, Gordon GH, Baker LH. Effects of a physician communication intervention on patient care outcomes. J Gen Intern Med. 1996;11(3):147–55.
10. Morgan ER, Winter RJ. Teaching communication skills. An essential part of residency training. Arch Pediatr Adolesc Med. 1996;150(6):638–42.
11. Roter DL. Patient participation in the patient-provider interaction: the effects of patient question asking on the quality of interaction satisfaction and compliance. Health Educ Monogr. 1977;5(4):281–315.
12. Zimney L, McClain MP, Batalden PB, O'Connor JP. Patient telephone interviews: a valuable technique for finding problems and assessing quality in ambulatory medical care. J Community Health. 1980;6(1):35–42.
13. Greenfield S, Kaplan S, Ware JE. Expanding patient involvement in care: effect on patient outcomes. Ann Intern Med. 1985;102:520–8.
14. Anderson LA, DeVellis BM, DeVellis RF. Effects of modeling on patient communication, satisfaction, and knowledge. Med Care. 1987;25(11):1044–56.
15. Lewis CC, Pantell RH, Sharp L. Increasing patient knowledge, satisfaction, and involvement: randomized trial of a communication intervention. Pediatrics. 1991;88(2):351–8.
16. Greenfield S, Kaplan SH, Ware JE, Martin E, Frank HJL. Patients' participation in medical care: effects on blood sugar control and quality of life in diabetes. J Gen Intern Med. 1988;3:448–57.
17. Kaplan SH, Greenfield S, Ware JE. Assessing the effects of physician-patient interactions on the outcomes of chronic disease. Med Care. 1989;27(3):S110–27.

18. Brodman K, Erdmann AJ, Lorge I, Wolff HG, Broadbent TH. The Cornell Medical Index. JAMA. June 11, 1949:530–4.

19. Mellner C. Self-administered medical history: theoretical possibilities and practical limitations of the usefulness of standardized medical histories. Acta Chir Scand. 1970;406 (suppl):4–104.

20. Lazare A, Eisenthal S. Patient requests in a walk-in clinic. J Nerv Ment Dis. 1977;165(5):330–40.

21. Inui TS, Jared RA, Carter WB, et al. Effects of a self-administered health history on new-patient visits in a general medical clinic. Med Care. 1979;26(12):1221–8.

22. Good MD, Good BJ, Nassi AJ. Patient requests in primary health care settings: development and validation of a research instrument. J Behav Med. 1983;6(2):151–67.

23. Like R, Zyzanski SJ. Patient requests in family practice: a focal point for clinical negotiation. Fam Pract. 1986;3:216–28.

24. Nelson EC, Larson CO, Davies AR, Gustafson D, Ferreira PL, Ware JE. The patient comment card: a system to gather customer feedback. Qual Rev Bull. 1991;17:278–86.

25. Joos SK, Hickam DH, Borders LM. Patient desires and satisfaction in general medicine clinics. Public Health Rep. 1993;108(6):751–9.

26. Adler LM, Ware JE, Enelow AJ. Changes in medical interviewing style after instruction with two closed-circuit television techniques. J Med Educ. 1970;45(1):21–8.

27. Burgoyne RW, Staples FR, Yamamoto J, Wolkon GH, Kline F. Patients' requests of an outpatient clinic. Arch Gen Psychiatry. 1979;36:400–3.

28. Barsky AJ, Kazis LE, Freiden RB, Goroll AH, Hatem CJ, Lawrence RS. Evaluating the interview in primary care medicine. Soc Sci Med. 1980;14A:653–8.

29. Freidin RB, Goldman L, Cecil RR. Patient-physician concordance in problem identification in the primary care setting. Ann Intern Med. 1980;93:490–3.

30. Eisenthal S, Koopman C, Lazare A. Process analysis of two dimensions of the negotiated approach in relation to satisfaction in the initial interview. J Nerv Ment Dis. 1983;171(1):49–54.

31. Southgate LJ, Bass MJ. Determination of worries and expectations of family practice patients. J Fam Pract. 1983;16(2):339–44.

32. Like R, Zyzanski SJ. Patient satisfaction with the clinical encounter: social psychological determinants. Soc Sci Med. 1987;4:351–7.

33. Kendall M, Stuart A. Distribution Theory. The Advanced Theory of Statistics. 2nd ed. New York, NY: Hafner Publishing; 1963; Vol I.

34. Ware JE, Sherbourne CD. The MOS 36-item short-form survey (SF-36), I: conceptual framework and item selection. Med Care. 1992;30:473–83.

35. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. Acta Psychiatr Scand. 1982;67:361–70.

36. Ware JE, Snyder MK. Dimensions of patient attitude regarding doctors and medical care services. Med Care. 1975;13:669–82.

37. Snaith RP, Taylor CM. Rating scales for depression and anxiety: a current perspective. Br J Clin Pharmacol. 1985;19(suppl 1):17–20S.

38. Aylard PR, Gooding JH, McKenna PJ, Snaith RP. A validation study of three anxiety and depression self-assessment scales. J Psychosom Res. 1987;31(2):261–8.

39. Hicks JA, Jenkins JG. The measurement of preoperative anxiety. J R Soc Med. 1988;81(9):517–9.

40. Wilkinson MJ, Barczak P. Psychiatric screening in general practice: comparison of the general health questionnaire and the hospital anxiety depression scale. J R Coll Gen Pract. 1988;38(312):311–3.

41. Stewart AL, Greenfield S, Hays RD, et al. Functional status and well-being of patients with chronic conditions: results from the Medical Outcomes Study. JAMA. 1989;262:907–12.

42. Feightner JW, Worrall G. Early detection of depression by primary care physicians. Can Med Assoc J. 1990;142(11):1215–20.

43. Stewart AL, Ware JE. Measuring Functioning and Well-Being. The Medical Outcomes Study Approach. Durham, NC: Duke University Press; 1992.

44. ICPC Working Party; Lamberts H, Wood M, eds. International Classification of Primary Care. Oxford, U.K.: Oxford University Press; 1989.

45. Bales RF. Interaction Process Analysis. Cambridge, Mass: Addison Wesley Press; 1950.

46. Wasserman RC, Inui TS. Systematic analysis of clinician-patient interactions: a critique of recent approaches with suggestions for future research. Med Care. 1983;21(3):279–93.

47. Roter D. Patient question asking in physician-patient interaction. Health Psychol. 1984;3:395–409

48. Frankel M. Sampling theory. In: Rossi PH, Wright JD, Anderson AB, eds. Handbook of Survey Research. San Diego, Calif: Academic Press; 1983:35–7.

49. Good BJ, Good MD. The meaning of symptoms: a cultural hermanentic model for clinical practice. In: Eisenberg L, Kleinman A, eds. The Relevance of Social Science for Medicine. Dordrecht, Netherlands: D. Reidel; 1980.

50. Roter DL, Hall JA, Katz NR. Patient-physician communication: a descriptive summary of the literature. Patient Educ Counsel. 1988;12:99–119.

51. Stiles WB. Evaluating medical interview process components. Med Care. 1989;27(2):212–20.

52. Kravitz RL, Callahan EJ, Paterniti D, Antonius D, Dunham M, Lewis CE. Prevalence and sources of patients' unmet expectations for care. Ann Intern Med. 1996;125:730–7.

53. Rost P, Frankel A. The introduction of the older patient's problems in the medical visit. J Aging Health. 1993;5(3):387–401.

54. Huber PJ. Robust Statistics. New York, NY: Wiley & Sons; 1981.

55. Katon W, Sullivan MD. Depression and chronic mental illness. J Clin Psychiatry. 1990;56:3–11.

56. Roter DL, Hall JA. Studies of doctor-patient interaction. Annu Rev Public Health. 1989;10:163–80.

57. Jencks SF. Recognition of mental distress and diagnosis of mental disorder in primary care. JAMA. 1985;253(13):1903–7.

58. Schurman RA, Kramer PD, Mitchell JB. The hidden mental health network: treatment of mental illness by nonpsychiatrist physicians. Arch Gen Psychiatry. 1985;42:89–94.

59. Schulberg HCL. Mental disorders in the primary care setting: research priorities for the 1990s. Gen Hosp Psychiatry. 1991;13:156–64.

60. Robbins JM, Kirmayer LJ, Cathebras P, Yaffe MJ, Dworkind M. Physician characteristics and the recognition of depression and anxiety in primary care. Med Care. 1994;32(8):795–812.

61. Schulberg HC, McClelland M. A conceptual model for educating primary care providers in the diagnosis and treatment of depression. Gen Hosp Psychiatry. 1987;9(1):1–10.

62. Eisenberg L. Treating depression and anxiety in the primary care setting: closing the gap between knowledge and practice. N Engl J Med. 1992;326:1080–4.