

Assessing Patients' Expectations in Ambulatory Medical Practice

Does the Measurement Approach Make a Difference?

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To compare three different approaches to the measurement of patients' expectations for care, we conducted a randomized controlled trial. Medical outpatients ($n = 318$) of a small (six-physician), single-specialty (internal medicine), academically affiliated private practice in Sacramento, California, were contacted by telephone the night before a scheduled office visit and enrolled over a 5-month period in early 1994. Patients were randomly assigned to receive: (1) a self-administered, structured, previsit questionnaire combined with a postvisit questionnaire; (2) an interviewer-administered, semistructured, previsit interview combined with a postvisit questionnaire; or (3) a postvisit questionnaire only. We assessed the number and content of patients' expectations by previsit questionnaire versus interview; the interaction between sociodemographic characteristics and survey method in predicting number of reported expectations; the effect of unfulfilled expectations elicited by questionnaire and interview on visit satisfaction; and the effect of unfulfilled expectations elicited directly and indirectly on visit satisfaction. Patients reported more expectations by structured questionnaire than semistructured interview (median 12 vs 3, $p = .0001$). Although there was no main effect of sociodemographic characteristics on expectations, nonwhite patients reported more expectations than white patients by questionnaire and fewer by interview. The number of interventions desired before the visit but not received (indirectly reported unfulfilled expectations) was associated with lower visit satisfaction regardless of whether a questionnaire or interview was used to elicit previsit expectations (p value for the interaction between number of expectations and survey method, $> .20$). Having more indirectly reported unfulfilled expectations was significantly associated with lower visit satisfaction even after controlling for the number of directly reported unfulfilled expectations ($p = .021$), but the incremental change in classification accuracy was small (increase in receiver-operating characteristic curve area, 3%). In conclusion, studies of patients' expectations for care must contend with a sub-

stantial "method effect." In this study from a single group practice, patients checked off more expectations using a structured questionnaire than they disclosed in a semistructured interview, but both formats predicted visit satisfaction. Asking patients about interventions received in relation to their previsit expectations added little to simply asking them directly about omitted care. The interaction of survey method with ethnicity and other sociodemographic characteristics requires further study.

KEY WORDS: patients' expectations; office practice; randomized controlled trial; survey techniques.

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During the past 25 years, researchers and health care professionals have become increasingly attentive to patients' perspectives on illness and medical care. Although research in this area has used a variety of methods for assessing patients' expectations for care,¹⁻¹² data on the relative advantages and disadvantages of the different approaches are lacking.¹³

Rigorous assessment of the methods used to elicit patients' expectations is important because different data-collection techniques may yield different substantive conclusions. Recent reports have suggested that patients have a wide variety of specific expectations for care that extend to both technical and interpersonal interventions^{7,9,10}; unfulfilled expectations are related to lower visit satisfaction^{10,12}; and less-educated patients and ethnic minorities have more expectations even after controlling for health status.¹⁰

Studies supporting these conclusions have generally used self-administered, previsit intervention checklists, sometimes in combination with postvisit checklists. In the current investigation we evaluated three alternative approaches: (1) a self-administered, previsit questionnaire combined with a postvisit questionnaire (the standard approach); (2) a semistructured, previsit personal interview combined with a postvisit questionnaire; and (3) a postvisit questionnaire only. In so doing, we asked four research questions:

1. Does the content of patients' expectations differ when assessed by questionnaire versus interview?
2. Can the questionnaire and interview be used interchangeably in all populations?
3. Are expectations elicited by questionnaire and interview equally predictive of patient satisfaction?

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4. For eliciting unfulfilled expectations, will an after-visit survey suffice?

METHODS

The study was conducted in early 1994 within a community-based, university-affiliated, six-physician, general internal medicine practice in Northern California. Patients were eligible for enrollment if they were at least 18 years of age, could speak and understand English, had a telephone, and were scheduled for an office visit at least 1 day in advance. Using patient appointment lists obtained the day before the scheduled visit, we stratified patients by hour of appointment and randomly selected patients from each time stratum; telephoning continued until quotas were filled (8 patients per day, but not more than 3 patients per physician per day). Of 2,958 patients scheduled for appointments during the study period, 1,369 were randomly selected to be telephoned; 503 were contacted and determined eligible, and of these, 396 agreed to participate. There were 318 patients who completed all study instruments and were therefore available for analysis. Refusers ($n = 107$) were similar to respondents in terms of age but were more likely to be female (70% vs 53%, $p = .001$).

During the initial telephone contact, consenting patients were randomly assigned to one of three study groups (Table 1). The *questionnaire* group completed a previsit, self-administered checklist of 28 potentially desired interventions.¹⁰ The *interview* group completed a previsit, semistructured, face-to-face interview in which an assistant asked about expectations and desires in relation to eight broad categories of care. The *postvisit-only* group completed a brief self-administered demographic inventory that contained no questions on expectations. All patients completed a postvisit questionnaire asking

about interventions received¹⁰ and visit satisfaction using a 5-item scale (Table 1).¹⁴

Assessments of previsit expectations in the questionnaire and interview groups differed not only by method of administration (self- vs interviewer-administered) but also by content (28 specific interventions vs 8 general categories of care) (Tables 1 and 2). For these two groups of patients (but not the postvisit-only group), we constructed measures of *interventions desired* and *interventions desired but not received (unfulfillment)*. The number of interventions desired was the sum of the items reported by the patient as "necessary" for the doctor to do (from the 28-item list: questionnaire group) or that the patient wanted the doctor to do or felt the doctor should do (within 8 general categories: interview group).

We developed two measures of unfulfilled expectations. *Directly reported unfulfilled expectations (DRUEs)* were obtained by asking patients after the visit if there were any things they thought "were necessary for the doctor to do today but which didn't happen" and if they experienced any "disappointments" with the visit; the number of DRUEs was computed as the sum of a patients' unique complaints. *Indirectly reported unfulfilled expectations (IRUEs)* were computed for questionnaire patients by directly summing the number of interventions desired (before the visit) but not received (as reported on the 28-item postvisit checklist). For interview patients, verbatim expectations were first mapped to one of the 28 questionnaire items (if possible) and then compared with the postvisit checklist. For example, a patient who told the interviewer, "I want the doctor to check out my tonsils" would be counted as wanting an ear, nose, and throat examination. For the purpose of identifying IRUEs, verbatim expectations that could not be mapped to one of the 28 questionnaire interventions were not analyzed further ("Other expectations," Table 2).

Table 1. Distribution of Instruments to the Three Study Groups

Instrument	Previsit Questionnaire Long Form	Previsit Questionnaire Short Form	Previsit Interview	Postvisit Questionnaire
General content	Previsit expectations; demographic and health characteristics	Demographic and health characteristics only	Previsit expectations; demographic and health characteristics	Perceived occurrences; satisfaction; directly reported unfulfilled expectations
Measurement of expectations	Patients asked to rate 28 specific elements of care as definitely necessary. . .definitely unnecessary (5-point Likert scale)	Not elicited	Patients asked to tell interviewer things they <i>would like the doctor to do</i> or feel the doctor <i>should do</i> , within 8 general categories	Patients asked to report on "things that needed to be done today that didn't happen" and "things that disappointed you"
Questionnaire group ($n = 107$)	X			X
Interview group ($n = 105$)			X	X
Postvisit only group ($n = 106$)		X		X

Table 2. Patients' Expectations Elicited by Structured Questionnaire Versus Semistructured Interview

General Category (Interview Phraseology)	Specific Intervention (Questionnaire Phraseology)	Intervention Desired		Intervention Received		Intervention Desired/ Not Received	
		Quest. (%)	Interview (%)	Quest. (%)	Interview (%)	Quest. (%)	Interview (%)
Preparation for visit ("...anything you'd like the doctor to do or feel the doctor should do before your visit?")	1. Be familiar with medical record before walking into room	90.6	35.2*	73.8	54.4 [†]	24.3	20.0
	2. Other preparation for visit	—	34.3	—	—	—	—
History taking ("...things you'd like the doctor to ask about or feel the doctor should ask about?")	1. Ask how my condition is affecting my life and family	54.2	1.9*	13.4	17.8	42.1	1.9*
	2. Ask about my personal health habits	59.8	3.8*	40.2	46.1	32.7	1.9*
	3. Ask about previous treatments I've tried for my condition	65.4	9.5*	54.3	51.4	24.3	5.7*
	4. Other history taking	—	54.3	—	—	—	—
Physical examination ("...anything you would like the doctor to examine or feel the doctor should examine today?")	1. Examine eyes, ears, nose and/or throat	43.9	12.4*	39.2	43.3	19.6	5.7 [†]
	2. Listen to lungs (breathing) with a stethoscope	62.6	6.7*	56.6	53.8	22.4	2.9*
	3. Check abdomen for tenderness or organ enlargement	40.2	1.0*	40.6	37.5	18.7	0*
	4. Perform rectal exam	17.7	0.0*	21.9	19.2	9.3	0*
	5. Examine breasts (women only)	34.0	7.0*	25.4	33.3	10.3	0*
	6. Listen to heart with stethoscope	64.5	1.0*	53.3	47.1	25.2	1.0*
	7. Perform careful physical exam	60.7	10.5*	54.3	47.1	20.6	2.8*
	8. Other physical exam	—	38.1	—	—	—	—
Diagnostic testing ("...any tests or x-rays you would like the doctor to perform or feel the doctor should order today?")	1. Order cholesterol test	29.9	6.7*	11.3	19.2	20.6	3.8*
	2. Perform pap smear (women only)	28.3	1.8*	14.5	21.0	8.4	0 [†]
	3. Order an EKG	10.3	0*	3.8	3.8	9.3	0*
	4. Order mammogram (women only)	29.1	5.4*	12.7	10.7	6.5	2.9
	5. Order exercise stress test	9.3	0*	1.0	0	9.3	0*
	6. Order PSA (men only)	46.3	2.0*	14.8	6.0	19.6	1.0*
	7. Order blood tests	36.4	7.6*	32.1	35.6	17.7	2.8*
	8. Order x-ray or scan	16.8	4.7 [†]	12.2	7.7	13.0	3.8 [‡]
	9. Other test or x-ray	—	6.7	—	—	—	—
Medication prescribing ("Aside from refills... any medicines you'd like the doctor to prescribe or feel the doctor should prescribe today?")	1. Prescribe some medicine	42.1	30.5	55.7	54.8	11.2	7.6

Owing to the greater number of interventions reported necessary by the questionnaire group, the number of IRUEs was substantially higher for the questionnaire group (mean = 5.97, median = 5) than for the interview

group (mean = 0.83, median = 1). To achieve comparability, we dichotomized both questionnaire and interview patients at their respective means, creating groups with "high" and "low" IRUEs.

Table 2. Continued

General Category (Interview Phraseology)	Specific Intervention (Questionnaire Phraseology)	Intervention Desired		Intervention Received		Intervention Desired/ Not Received	
		Quest. (%)	Interview (%)	Quest. (%)	Interview (%)	Quest. (%)	Interview (%)
Consultation/referral (“. . .any kind of specialist you would like to be referred to or feel you should be referred to today?”)	1. Refer to a specialist	57.0	25.7*	28.3	26.0	35.5	15.2*
	2. Other referral	—	3.8	—	—	—	—
Information/counseling (“. . .any information, counseling, or personal help you would like the doctor to provide or feel the doctor should provide today?”)	1. Counsel about stress	26.2	1.9*	11.3	16.2	20.6	1.0*
	2. Provide general advice about how to stay healthy	57.0	8.6*	57.4	61.0	20.6	1.9*
	3. Tell name of problem (diagnosis)	67.3	2.9*	48.1	38.5	29.0	1.0*
	4. Tell cause of problem	66.5	2.9*	46.7	36.9	34.6	1.0*
	5. Tell whether likely to get better, and how fast	64.5	1.0*	41.3	42.2	33.6	0*
	6. Tell what can and cannot do while having problem	72.9	0*	47.6	43.6	34.6	0*
	7. Advise about personal habits (e.g., smoking)	38.3	1.0*	26.8	30.7	23.3	0*
	8. Provide other information or counseling	—	17.1*	—	—	—	—
Other expectations (interview only)		—	9.5	—	—	—	—
Median (range)		12 (0–26)	3 (0–9)	9 (1–18)	8 (1–19)	5 (0–22)	1 (0–5)
<i>p</i> value for difference (Kruskal-Wallis Test)			.0001		.40		.0001

**p* value for difference between questionnaire and interview group patients; $p \leq .001$ χ^2 testing.

† $p \leq .01$ by χ^2 testing.

‡ $p \leq .05$ by χ^2 testing.

In the statistical analysis, we first performed χ^2 tests to compare the proportion of patients who expected specific interventions.¹⁵ We then used the nonparametric Kruskal-Wallis H Test¹⁵ to examine the median number of interventions desired, received, and desired but not received in the questionnaire and interview groups; and to assess the effects of age, gender, educational attainment, income, ethnicity, and survey method (questionnaire vs interview) on the number of interventions desired.

In the next part of the analysis, we used multiple logistic regression analysis to determine the effect of having high IRUEs on the odds of having excellent overall satisfaction, controlling for survey method, age, and general health perceptions.¹⁶ To determine whether IRUEs elicited by interview were more closely associated with relative visit dissatisfaction than IRUEs elicited by questionnaire (which would argue for the greater validity of the interview), we included a term for the interaction between having high IRUEs and survey method. We also performed multiple logistic regression to assess the independent contribution of IRUEs and DRUEs in predicting dichotomized visit satisfaction, again adjusting for age and health perceptions.

In all analyses of visit satisfaction, patients were dichotomized into those with excellent (5.0) and less-than-excellent Ware satisfaction scale scores because of the skewed distribution of this variable (median 4.6, 25th percentile 4.0, 75th percentile 5.0). Alternative approaches (e.g., using multiple linear regression to predict trichotomized visit satisfaction) produced similar results.

To determine whether our results may have been influenced by the behavior of individual physicians ($n = 6$) or interviewers ($n = 7$), we repeated the multivariate analyses, adding indicator variables for physicians and interviewers. Although one male physician and one female interviewer generated and elicited lower than average patient satisfaction scores, the multivariate results were not materially affected and are reported without these further adjustments.

RESULTS

Study Population

Among the 318 patients completing the study, the mean age was 51 years, 53% were female, and 31% were

nonwhite. The mean number of years of education was 14.2, 46% were working full time, median family income was \$35,000, and 71% had prepaid (capitated) health insurance. In terms of these characteristics, the three study groups were similar (there were no large or statistically significant differences.)

Content of Patients' Expectations When Assessed by Questionnaire Versus Interview

Questionnaire patients reported expectations for more interventions than interview patients (median 12 vs 3, $p = .0001$, Table 2). For the seven comparable broad intervention categories, questionnaire patients were significantly more likely to report expectations for physician preparation for the visit, medical history taking, physical examination, diagnostic testing, referral, and counseling ($p < .01$), but not prescriptions ($p = .08$). The two groups were equally likely to *receive* all interventions except physician familiarity with the medical record (Table 2). As a result, the median number of interventions desired but not received was higher for the questionnaire group than the interview group (5 vs 1, $p = .0001$, Table 2).

Interchangeability of Questionnaire and Interview in Different Populations

When we examined questionnaire and interview group patients together, the median number of interventions desired did not differ significantly by age, gender, educational attainment, income, or race ($p > .30$ in each case). However, nonwhite patients reported significantly *more* total expectations than whites by questionnaire (median 17 vs 10, $p = .0001$) and significantly *fewer* than whites by interview (median 3 vs 4, $p = .01$). Similar patterns were observed for both technical expectations (e.g., laboratory tests) and interpersonal expectations (e.g., counseling).

Validity of Expectations Elicited by Questionnaire and Interview

To determine the construct validity of the self-administered questionnaire and semistructured interview, we estimated the effects of having above-average unfulfilled expectations on visit satisfaction using each instrument. Using multiple logistic regression analysis to adjust for age, health perceptions, and *survey method*, patients with high IRUEs had reduced odds of excellent satisfaction (odds ratio [OR] 0.46; 95% confidence interval [CI] 0.25, 0.86; $p = .015$). There were no significant interactions between having high IRUEs and survey method (the ORs relating high IRUEs to excellent satisfaction were 0.52 and 0.43 for the questionnaire and interview groups, respectively). Thus, both previsit instruments (in combination with a postvisit questionnaire) captured meaningful discrepancies between expectations and perceived interventions that were linked to dissatisfaction.

Benefits and Costs of Previsit-Postvisit Versus Postvisit-Only Assessment

The mean number of DRUEs was 0.64 overall (median 0, range 0–8), did not differ significantly among the three experimental groups (including the postvisit-only group) ($p = .97$), and was significantly related to visit satisfaction (Spearman correlation $r = -.34$; $p < .01$). To determine the incremental value of conducting a previsit-postvisit survey to identify discrepancies between patients' perceptions of interventions desired and received, we assessed the independent contribution of IRUEs (dichotomized at the mean for the questionnaire and interview groups, respectively) in predicting dichotomized visit satisfaction after controlling for DRUEs. Adjusting for age, general health perceptions, and survey method (questionnaire vs interview), patients with high DRUEs were less likely to report excellent satisfaction (OR 0.42; 95% CI 0.21, 0.83; $p = .012$). In a separate analysis, DRUEs were also associated with lower satisfaction among postvisit-only group patients (OR 0.37; $p = .048$). When IRUEs were forced into the model, patients with high IRUEs were less likely to be fully satisfied (OR 0.48; 95% CI 0.25, 0.90; $p = .021$), but the OR for DRUEs was barely affected (OR 0.43; 95% CI 0.22, 0.86; $p = .018$). Thus, both IRUEs and DRUEs supplied independent information. Nevertheless, the addition of IRUEs improved the predictive accuracy of the model (using receiver-operating characteristic curve area as the criterion) by only 3% (from .71 to .74), indicating that most of the information needed for predicting satisfaction was furnished by the DRUEs.

DISCUSSION

This randomized methodologic trial produced four key findings. First, patients disclosed more expectations for care on a structured written checklist than in a semistructured personal interview. Differences were especially dramatic for history taking, physical examination, laboratory testing, and counseling.

Second, the questionnaire and interview used in this study evoked different responses in different sociodemographic subgroups. In this largely white and well-educated clinic population, ethnic minorities reported more expectations than whites on the questionnaire but not in the interview. Whether these results arise from differences in literacy, willingness to disclose personal information in a research context, familiarity with health care settings and procedures, or facility with health-related questionnaires, they emphasize the need for caution in applying these instruments to underserved populations and underscore the need for more cross-population methodologic research.

Third, although the questionnaire was more "sensitive" than the interview in terms of eliciting more expectations, the odds of excellent satisfaction were reduced by approximately 50% in patients with above-average IRUEs regardless of the type of previsit assessment, implying

that indirectly reported unfulfilled expectations are meaningful whether they are derived from questionnaire or interview.

Finally, the combination of a previsit and postvisit survey assessing patients' expectations and their perceived fulfillment added little to a postvisit survey alone in predicting visit satisfaction. Given the substantial effort involved in collecting previsit-postvisit data, a postvisit-only survey should suffice for identifying clinical areas in which patients' perceptions of omitted care are likely to produce dissatisfaction. In addition, a theoretical advantage of direct reporting over indirect reporting of unfulfilled expectations is that direct reporting allows patients to modify their expectations based on what goes on in the visit. Conversely, studies aiming to describe patients' expectations more broadly in a dynamic fashion will require a previsit-postvisit design.

Among its limitations, this study was conducted in a single Northern California group practice. The study was relatively intrusive, and both patients and physicians may have altered their "natural" behavior in response. For example, patients may have been more likely to make requests and physicians more likely to comply. However, patients in the postvisit-only group were indistinguishable from those in the other two groups in terms of both directly reported unfulfilled expectations and visit satisfaction. Another limitation is that the primary outcome measure (patient satisfaction) was skewed and had to be treated dichotomously, limiting our power to detect significant effects. Nevertheless, the randomized design and use of a control (postvisit-only) group help to gird the study's internal validity and support its conclusions, at least as first-order approximations. The randomized design also attenuates concerns that might arise from the less-than-optimal telephone contact rate.

Research on patient-centered care is increasing.¹⁷ As this welcome trend continues, it is important that the tools for measuring patients' experiences, concerns, values, and expectations undergo rigorous evaluation. This study represents a preliminary assessment of several common approaches to measuring patients' expectations. More work is needed to clarify the role of various instruments for different purposes and for use among different patient groups.

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