Is Patients’ Perception of Time Spent With the Physician a Determinant of Ambulatory Patient Satisfaction?

Chen-Tan Lin, MD; Gail A. Albertson, MD; Lisa M. Schilling, MD; Elizabeth M. Cyran, MD; Susan N. Anderson, BS; Lindsay Ware, BA; Robert J. Anderson, MD

Background: Time management in ambulatory patient visits is increasingly critical. Do patients who perceive a longer visit with internists report increased satisfaction?

Methods: Prospective survey of 1486 consecutively encountered ambulatory visits to 16 primary care physicians (PCPs) in an academic primary care clinic. Patients were queried regarding demographics, health status, perception of time spent before and after ambulatory visits, whether the physician appeared rushed, and visit satisfaction. Physicians were queried regarding time spent, estimated patient satisfaction, and whether they felt rushed.

Results: In 69% of 1486 consecutive visits, patient previsit expectation of visit duration was 20 minutes or less. Patient and PCP postvisit estimates of time spent significantly exceeded patient previsit time expectation. Patients who estimated that they spent more time than expected with the PCP were significantly more satisfied with the visit. When patient postvisit estimate of time spent was less than the previsit expectation, visit satisfaction was significantly lower independent of time spent. Patient worry about health and lower self-perceived health status were significantly associated with patient expectation for longer visits. Primary care physicians felt rushed in 10% of encounters. Although PCPs estimated patient satisfaction was significantly lower when they felt rushed, patient satisfaction was identical when PCPs did and did not feel rushed. Patients indicated that PCPs appeared rushed in 3% of encounters, but this perception did not affect patient satisfaction.

Conclusion: Perceived ambulatory visit duration and meeting or exceeding patient expectation of time needed to be spent with the physician are determinants of patient satisfaction in an ambulatory internal medicine practice.

Arch Intern Med. 2001;161:1437-1442

Time Management is a key issue in a contemporary ambulatory internal medicine practice. Increasing administrative duties and emphasis on cost-effectiveness often act to limit the time physicians spend with patients.1,2 Diminished physician time spent in ambulatory encounters may decrease patient and physician satisfaction.1,3,4,5,6,7,8,9,10 Inappropriate prescribing and referring behavior,1,2,3,4,5,6,7,8,9,10,11 and increase the risk of malpractice claims.1,2,3,4,5,6,7,8,9,10,11,12

No studies, to our knowledge, have assessed patient expectations for time needed with the physician in current ambulatory internal medicine practice. The present study was therefore undertaken to test our hypothesis that increasing duration of ambulatory visits and meeting patients’ expectations for time needed to be spent with the physician are associated with enhanced visit satisfaction. Secondary objectives of our study were to assess the characteristics of patients who perceive a need for more time with the physician and to ascertain the frequency and impact of physicians’ feeling rushed during the ambulatory medical encounter.

RESULTS

The study assessed 1486 patient visits. Seventy-two percent of the visits were with the patient’s usual physician, 18% were episodic visits with a physician other than the patient’s usual physician, and 10% were new patient visits. Sixty-five percent of the patients were women. Fifty-one percent of the patients were aged 40 to 59 years, while 24% were younger than 40 years and 25% were 60 years or older. Most patients self-rated their health as good (42%) or either very good or excellent (36%), while fewer rated their health as either fair or poor.
PATIENTS AND METHODS

SETTING

The study was conducted at a community-based, ambulatory internal medicine clinic affiliated with the University of Colorado Health Sciences Center, Denver. This clinic is staffed by 16 general internists and provides care for several managed care plans and for participants in other types of payment plans. The 16 physicians who saw study patients were aware of a research study but were unaware of the objectives of the study. All consecutively encountered patients seen during a 3-month interval in the spring of 1998 were asked to participate. Aggregate billing data show that about 30% of this patient population are from 1 of several capitated and noncapitated managed care contracts, 33% are from non–managed care Medicare, and 17% are from different sources, including commercial insurance, self-pay, and non–managed care Medicaid. Patients were not stratified based on insurance type. Insurance information was not collected directly from patients for this study. More than 95% of patients who were asked participated in the study. Information on those refusing to participate was not obtained. Patients were asked to participate and informed consent was obtained by a professional research assistant in the waiting room before the visit. Patients were told that their participation required the completion of brief (2- to 3-minute) previsit and postvisit self-administered questionnaires. Patients were informed that all responses were confidential. The study was approved by the Colorado Multiple Institutional Review Board, Denver.

STUDY INSTRUMENTS

Two self-administered patient questionnaires were developed, reviewed by a professional survey consultant, pilot-tested by 20 to 30 patients and 5 to 10 physicians, and further modified for clarity. Before seeing the physician, patients completed a 1- to 2-minute previsit questionnaire. Patients were asked to respond to the question “How much time do you expect to spend with the doctor today?” by checking a box indicating less than 10, 10 to 20, or more than 20 minutes. These time frames were selected based on recent studies4-5,16-18 conducted in family medicine and general internal medicine settings. For patients indicating a perceived need for more than a 20-minute visit, we asked them to indicate if they needed 20 to 39, 40 to 60, or more than 60 minutes. Patients were asked to rate their overall health as poor, fair, good, very good, or excellent. Patients were asked to respond to the statement “I am worried about my overall health” with response options of strongly disagree, disagree, not sure, agree, or strongly agree. Demographic information on sex and age (≤39, 40-59, or ≥60 years) was obtained. After seeing the physician, patients were asked to complete a second questionnaire. They were asked, “How much time did you spend with the doctor?” (using the same time frames noted previously) and “Did the doctor appear rushed?” (yes or no). Patients were also asked to respond to the statement “Overall, I am satisfied with this visit” with response choices of strongly disagree, disagree, neither agree nor disagree, agree, or strongly agree. Physicians completed a self-administered questionnaire after each visit. Physicians were asked, “How much time did you spend with the patient?” (using the same time frames as in the patient questionnaire), “Was this a regular patient of yours?” (no, yes, or new patient), and “Did you feel rushed?” (yes or no). Physicians were also asked to estimate the patient’s satisfaction with the visit as very unsatisfied, unsatisfied, somewhat satisfied, satisfied, or very satisfied.

We attempted to ascertain actual patient time spent with the physician by direct observation by a trained professional research assistant in a random sample of 174 (11.7%) study encounters. This direct observation was done on random days for several months by an assistant at a nursing station. Neither the patient nor physician knew they were being timed. Timing began when the physician entered the examination room and ended when the physician left the examination room for the final time. Timing was paused whenever the physician left the room during the examination and restarted when the physician reentered. This “paused” time when the physician left the room between initial entrance and final exit was subtracted to calculate the actual time spent with the patient. For some of our analyses, “time spent” was converted into the same categories used for patient and physician estimates to facilitate comparisons.

DATA ANALYSIS

For the patient question related to overall health, a numerical score was given: 1, poor; 2, fair; 3, good; 4, very good; and 5, excellent. Likewise, for the patient statement concerning worry about general health, a score was assigned: 1, strongly disagree; 2, disagree; 3, not sure; 4, agree; and 5, strongly agree. Scores for the patient question on satisfaction with the visit as follows: 1, strongly disagree; 2, disagree; 3, neither agree nor disagree; 4, agree; and 5, strongly agree. For the physician questionnaire regarding estimated patient satisfaction, possible scores were as follows: 1, very unsatisfied; 2, unsatisfied; 3, somewhat satisfied; 4, satisfied; and 5, very satisfied.

All statistical analyses were performed using commercially available software (SPSS-PC version 4.2; SPSS Inc, Chicago, Ill). Continuous variables were tested using analysis of variance. Categorical variables were compared by means of the χ² test. Interobserver variability in estimation of visit duration was assessed using a weighted k statistic.¹⁹ Differences were considered statistically significant at P<.05 (2-tailed). Values are expressed as mean (±1 SD).

Because a relatively small number of physicians were studied, we performed additional statistical analyses. To account for possible clustering by physician, a mixed linear model was used. These analyses were conducted using an available statistical software package (PROC Mixed Procedure, SAS version 6.12; SAS Institute, Cary, NC). The P values in this study are expressed in terms of the mixed linear model.

(22%). Most patients (51%) disagreed or strongly disagreed with the statement that they were worried about their overall health, while 22% were not sure and 27% agreed or strongly agreed that they were worried about their overall health. Initially, we compared patient estimate of time expected to be spent with the physician (previsit questionnaire) with patient estimate of actual time spent with the physician (postvisit questionnaire). As seen in Figure 1, most patients (69%) before the visit anticipated spend-
ing 20 minutes or less with the physician. However, after the visit, 48% of patients estimated that they actually spent 20 minutes or less, and most (52%) believed that they spent 20 minutes or longer (postvisit vs previsit estimate, \( P < .001 \)). Thus, patients estimated that they spent more time with the physician than they had anticipated needing before the visit.

We next ascertained whether an association existed between patient perception of time spent with the physician and overall visit satisfaction. We compared the mean Likert scores in response to the statement “Overall, I am satisfied with this visit” as a function of postvisit patient estimate of time spent with the physician. These scores (mean \pm SD) were 4.42 \pm 0.90 \((n = 85)\) when patients indicated they had spent less than 10 minutes; 4.50 \pm 0.70 \((n = 597)\), 10 to 20 minutes; and 4.61 \pm 0.70 \((n = 604)\), more than 20 minutes \((P = .02)\). Thus, visit duration did not correlate with satisfaction scores when analyzed in this way, possibly because of a “ceiling effect,” in that most patients are satisfied with their clinic visit and that discerning a significant difference between groups may be problematic.

To address this, we then compared only the most satisfied patients in each time group. To do this, we studied only the responses in which patients noted that they strongly agreed with the statement “Overall, I am satisfied with this visit” as a function of their postvisit estimate of time spent with the physician. These scores (mean \pm SD) were 4.42 \pm 0.90 \((n = 85)\) when patients indicated they had spent less than 10 minutes; 4.50 \pm 0.70 \((n = 597)\), 10 to 20 minutes; and 4.61 \pm 0.70 \((n = 604)\), more than 20 minutes \((P = .02)\). Thus, visit duration did not correlate with satisfaction scores when analyzed in this way, possibly because of a “ceiling effect,” in that most patients are satisfied with their clinic visit and that discerning a significant difference between groups may be problematic.

To address this, we then compared only the most satisfied patients in each time group. To do this, we studied only the responses in which patients noted that they strongly agreed with the statement “Overall, I am satisfied with this visit” as a function of their postvisit estimate of time spent with the physician. These scores (mean \pm SD) were 4.42 \pm 0.90 \((n = 85)\) when patients indicated they had spent less than 10 minutes; 4.50 \pm 0.70 \((n = 597)\), 10 to 20 minutes; and 4.61 \pm 0.70 \((n = 604)\), more than 20 minutes \((P = .02)\). Thus, visit duration did not correlate with satisfaction scores when analyzed in this way, possibly because of a “ceiling effect,” in that most patients are satisfied with their clinic visit and that discerning a significant difference between groups may be problematic.

Meeting or exceeding patient expectations has been found to be a determinant of overall patient satisfaction.\(^{20}\) We therefore examined patient satisfaction when the previsit time expectations were met. As is apparent in Figure 3, significantly more patients rated their overall visit satisfaction at the highest level when their postvisit estimate of time spent with the physician was more than the previsit estimate of time needed \((4.56 \pm 0.90, n = 1104)\) was higher than the score when the previsit estimate was greater than the postvisit estimate \((4.42 \pm 0.70, n = 142; P = .06)\).

We next assessed whether there were differences in 6 demographic and health status variables when patients who expected a longer visit were compared with those who expected a shorter visit. In this analysis, we compared the frequency of the following variables in patients who did and did not expect to spend more than 20 minutes with the physician: self-rating of poor or fair health, agreement or strong agreement with the statement that the patient is worried about his or her health, self-perceived need for specialist referral, whether the patient was seeing his or her usual physician, sex, and age. As seen in the Table, worry about health, self-perceived poor or fair health status, and seeing one’s usual physician were significantly more common in patients expecting to spend more time with the physician. Not noted in the table is the absence of a significant sex distribution difference in those expecting a longer vs a shorter visit \((P = .59)\). Also not depicted in the table is the complex association we found between age and anticipated visit duration. In this regard, patients younger than 40 years and 60 years or older were slightly more likely (33% in both age groups) than patients aged 40 to 59 years (29%) to expect to spend more than 20 minutes with the physician.
Physician appeared to be rushed and in 18.6% of visits rushed; were no significant differences in overall patient satisfaction when physicians did and did not feel rushed (4.5±0.8 rushed vs 4.5±0.9 not rushed; P=.62). When physicians felt rushed, physician (P=.007) and patient (P≤.001) postvisit estimates of time spent were significantly greater than when physicians did not feel rushed. Patients perceived the physician appeared to be rushed in 3% of visits in which physicians did not perceive themselves to be rushed and in 7% of visits in which physicians did perceive themselves to be rushed (P=.02).

One hundred seventy-four (11.7%) of 1486 visits were directly timed by a trained professional research assistant. Patient and physician postvisit estimation differed from time actually spent in 38.5% and 40.8% of encounters, respectively. The differences were usually modest in degree. Patients (58% of differences) and physicians (52% of differences) alike underestimated actual time spent. The weighted k statistic applied to actual vs patient postvisit estimates was 0.41, and the test for symmetry was not significant (P=.76). The weighted k statistic when applied to actual vs physician postvisit estimates was 0.43, with a nonsignificant test of symmetry (P=.85). When physician postvisit estimates of time spent were compared, the weighted k statistic was 0.38. The test of symmetry was statistically significant (P<.05), indicating that the patient's postvisit estimate of time spent was typically less than the physician's estimate (45 [70%] of the 64 differences).

**Selected Variables in 1009 Patients Estimating Needing 20 Minutes or Less and 477 Patients Estimating Needing More Than 20 Minutes With the Physician**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Patient Expectation</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree or strongly agree with statement that patient is worried about his or her health</td>
<td>31</td>
<td>45</td>
</tr>
<tr>
<td>Patient seeing his or her usual physician as poor or fair</td>
<td>77</td>
<td>85</td>
</tr>
<tr>
<td>Self-ratings of overall health</td>
<td>34</td>
<td>47</td>
</tr>
<tr>
<td>Possible or definite self-perceived need for specialist referral</td>
<td>44</td>
<td>51</td>
</tr>
</tbody>
</table>

*Data are given as percentages unless otherwise indicated.

Physician (P=.04). We attempted a multivariate analysis of these variables to ascertain whether 1 or more were independently associated with expectation of longer visits. However, because of the collinearity of many of these variables, we were unable to develop a satisfactory model.

There were no correlations between physician age and time spent with patients in our sample. It would be unlikely that there would be a difference in time spent, given a standard patient schedule (20-minute visits) for all physicians in this clinic. We also performed additional statistical analysis (mixed linear model) to ascertain that there was no clustering effect by physician.

We also analyzed patient expectation of time needed as a function of physician classification of the type of visit (new patient visit, continuity visit, or other). Patients classified as “new” estimated a need for more than 20 minutes in 59% of cases and a need for less than 10 minutes in 2% of cases. Among those classified as continuity patients, 50% estimated a need to spend more than 20 minutes and 7%, less than 10 minutes. Patients classified as “other” likely represented patients with urgent concerns who were unable to see their usual primary care physician because of scheduling constraints. This group of patients had the lowest (P<.001) estimated need for more than 20 minutes (20%) and highest (P<.02) estimated need for less than 10 minutes (18%).

Patient perception of the physician’s being rushed may be associated with adverse consequences. We therefore ascertained how often the patients perceived the physicians to be rushed and how often the physicians perceived themselves to be rushed. We found that patients perceived physicians to be rushed in 3% (43/1310) of visits, while physicians felt rushed in 10% (146/1483) of visits. When visits in which patients perceived the physician was rushed were compared with those in which the patient thought the physician did not appear rushed, there were no significant differences in overall patient satisfaction with the visit (4.3±1.0 rushed vs 4.6±0.8 not rushed; P=.67). Physicians perceived themselves to be rushed in 8.2% of visits when the patient did not feel the physician appeared to be rushed and in 18.6% of visits when patients noted the physician appeared rushed (P=.09). Patient perception of time spent did not differ significantly when patients did or did not perceive that the physician was rushed. When physicians felt rushed, they ranked patient satisfaction lower (3.9±0.6 rushed vs 4.2±0.4 not rushed; P<.001), while patient self-ranking of satisfaction was comparable when physicians did and did not feel rushed (4.5±0.8 rushed vs 4.5±0.9 not rushed; P=.62). When physicians felt rushed, physician (P=.007) and patient (P≤.001) postvisit estimates of time spent were significantly greater than they were when physicians did not feel rushed. Patients perceived the physician appeared to be rushed in 3% of visits in which physicians did not perceive themselves to be rushed and in 7% of visits in which physicians did perceive themselves to be rushed (P=.02).

Time spent with the physician in the ambulatory primary care setting has important cost and quality-of-care implications. Recent studies indicate that ambulatory visits to family medicine physicians average 9 to 18 minutes, while ambulatory visits to internal medicine physicians average 15 to 24 minutes. A preliminary report by Watanabe et al, based on data from the National Ambulatory Medical Care Survey, indicates that the mean duration of new patient visits to internists declined from 29 to 17 minutes from 1980 to 1996, while return visit duration decreased from 19 to 16 minutes during the same interval. In other countries, even remarkably shorter intervals (5 to 10 minutes) are the norm in general practice. In our study of ambulatory internal medicine clinic patients, we found that most patients perceived a need to spend 20 minutes or less with the physician. However, nearly 30% felt a need to spend more than 20 minutes with the physician. Moreover, patients' postvisit estimate of time actually spent with the physician significantly exceeded the previsit estimate.

We found that several elements were significantly related to anticipated need for longer visits, including patient worry about his or her health, self-rated lower overall health, seeing one's regular physician, and the first visit of a patient to the physician. These factors are not surprising inasmuch as patients with lower health status may have more concerns to discuss with the phy-
sician. Anticipated need for longer visits with their regular physician may relate to the comfort level patients feel in discussing their concerns in an established relationship. We also found a tendency for patients with concern about a referral to anticipate a need for greater time with the physician. Such an association may reflect the patient’s desire to fully discuss such a concern and to justify the referral with the physician. Other studies demonstrated additional factors, such as advancing age and interaction with non–English-speaking patients, that contribute to increased duration of ambulatory visits. Physician characteristics and medical practice organizational issues (support staff, number of examination rooms, schedule, and number of patients to be seen), which were not analyzed in our study, also contribute to duration of patient visits with physicians.

Longer ambulatory visits have been directly related to increased patient satisfaction in family medicine ambulatory settings. We also found an association between longer patient-estimated duration of the time spent with the physician and higher overall patient satisfaction. A unique finding of the present study is that patients were significantly less satisfied with their visit when their postvisit estimate of time spent was less than their previsit estimate of time needed. This observation is consonant with the findings of another study, indicating the importance of meeting patient expectations in optimizing ambulatory care visit satisfaction. Not only patient satisfaction but also several other aspects of quality of medical care that were not addressed in the present study, such as attention to preventive services, addressing substance abuse and psychosocial issues, careful prescribing of medication, risk of malpractice claims, and appropriate use of referrals, may be adversely affected by shorter time spent with the physician.

Although patient perception of time spent is one determinant of satisfaction, there are many other determinants, the most important of which is the physician-patient relationship. This is based on communication skills, such as engaging the patient and developing empathy with the patient. In fact, physicians who underwent training in communication skills were rated by standardized patients as better able to handle emotion and more proficient overall.

Our study also assessed the frequency and impact of physicians’ feeling rushed and patients’ perceiving their physician was rushed. A previous study found that obstetricians who had more malpractice claims were more commonly perceived as rushed than were obstetricians without such claims. In our study, although physicians felt rushed in about 10% of visits, patients perceived physicians to be rushed in only 3% of visits, and neither patient nor physician perception of being rushed had major impact, according to our observations. We are unsure what contributes to a physician’s sense of being rushed. It appears that this internal sense is not often communicated to the patient, as is evidenced by the lack of correlation in the patient’s perception of the physician’s being rushed. On the other hand, it is curious that patients will sometimes perceive that a physician is rushed when the physician does not note this. It is possible that nonverbal behaviors may communicate an unintended message. We are reassured that only 3% of patients in our study expressed this misperception. These are areas deserving of further study.

Several caveats are important in interpreting our results. Our study was conducted at only a single site, and thus our results may not be generalizable in other settings. The number of visits that were actually timed was small, and thus a substantial proportion of our data is based on patient and physician perceptions of time spent. However, such perceptions rather than actual time are relevant to the practice setting.

The time frames that we used were ordinal, not continuous, and fairly broad in range. These ranges were chosen because they represented reported ranges for duration of the visit and because we believed that neither patients nor physicians could accurately estimate less than 10-minute intervals. We analyzed only the duration of visits and not the actual content of the visit.

There is difficulty in measuring differences in patient satisfaction because of a ceiling effect, in that most patients in this study noted they were either satisfied or very satisfied. It is difficult to state the clinical significance of our analysis, but showing a significant increase in most satisfied patients seems relevant. Without analyzing a larger population of patients, it would be unrealistic to expect significant statistical differences when analyzing the entire Likert satisfaction spectrum.

Also, although it would have been interesting to analyze time spent with older patients (a particularly challenging population) as a subgroup, we did not assess the time spent in enough of these visits to be able to conduct this analysis.

Our physicians knew that a study was being performed and that we were inquiring about the amount of time they spent with individual patients. Because we do not have observed visit-duration data available in a non-study setting, it is possible that the amount of time that we measured physicians’ spending with their patients was not representative of usual practice.

Our results with regard to rushed visits should be viewed with caution because the numbers were small. Patient satisfaction is undoubtedly multifactorial, and our overall patient satisfaction was high. We were, however, able to find further increments in patient satisfaction as a function of visit duration. Furthermore, because of brevity considerations, we used a nonstandard measure of patient satisfaction despite the existence of standard measures. Unfortunately, we did not assess physician visit satisfaction as a function of visit duration. Finally, although patients were not informed as to the scheduled duration of their visit, this information was available and, in many cases, known to physicians. This information, in addition to data on the number of patients scheduled in a given clinic, could have influenced physicians in agenda setting and duration of the visit.

Cost-containment pressures in the current ambulatory care environment may contribute to the reduction in the amount of time physicians spend with patients. Our findings and those of others document that time spent with the physician is a major factor in patient satisfaction and in quality of medical care. Sicker
and more worried patients and those seeking specialist referrals tend to anticipate needing more time with the physician. Visits during which physicians felt rushed were not significantly associated with decreased patient satisfaction in our study.

Accepted for publication October 3, 2000.

This study was funded in part by a grant from the University Hospital Board of Directors, Denver, Colo.

John Steiner, MD, MPH, provided valuable input regarding statistical analyses and data interpretation. Mary Miller provided expert secretarial assistance.

Corresponding author and reprints: Chen-Tan Lin, MD, Division of General Internal Medicine, Department of Medicine, University of Colorado Health Sciences Center, 4200 E Ninth Ave, Box B-180, Denver, CO 80262 (e-mail: ct.lin@UCHSC.edu).

REFERENCES