# The Relationship of Physician Medical Interview Style to Patient Satisfaction

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The results of previous studies on the relationship between patient satisfaction and specific interviewing behaviors have been difficult to generalize because most studies have examined small samples of patients at one clinical location, and have used initial or acute care visits where the patient and physician did not have an established relationship. The present collaborative study of medical interviewing provided an opportunity to collect interviews from 550 return visits to 127 different physicians at 11 sites across the country. Tape recordings were analyzed using the Roter Interaction Analysis System, and postvisit satisfaction questionnaires were administered to patients.

A number of significant relationships were found between communication during the visit and the various dimensions of patient satisfaction. Physician question asking about biomedical topics (both open- and closed-ended questions) was negatively related to patient satisfaction; however, physician question asking about psychosocial topics was positively related. Physician counseling for psychosocial issues was also positively related to patient satisfaction. Similarly, patient talk about biomedical topics was negatively related to satisfaction, while patient talk regarding psychosocial topics was positively related. Furthermore, patients were less satisfied when physicians dominated the interview by talking more or when the emotional tone was characterized by physician dominance.

The findings suggest that patients are most satisfied by interviews that encourage them to talk about psychosocial issues in an atmosphere that is characterized by the absence of physician domination.
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Effective physician-patient communication is central to the delivery of high-quality health care. Several studies have shown that physician behavior during the medical interview is directly related to such patient outcomes as satisfaction, recall of information received, and compliance.[1-17] Early research in the field revealed that the outcome of the medical interview was positively influenced by a physician who was friendly, engaged in some general or nonmedical conversation, and offered information freely without patients having to request it or feel excessively questioned.[3]

Stewart[11] analyzed 140 physician-patient interactions using Bales' interactional analysis[18] and found that interviews in which physicians demonstrated more patient-centered behavior were related to significantly higher patient satisfaction. She defined *patient-centered* interactions as those in which the patient's point of view is actively sought by the physician, and the patient is facilitated in expressing himself openly and asking questions.

Buller and Buller[14] described two general styles displayed by physicians during medical visits. The first style, affiliation, is composed of communication behaviors designed to establish and maintain a positive relationship between physician and patient such as friendliness, interest, empathy, a nonjudgmental attitude, and a social orientation. The second style, control, includes behaviors that establish and maintain the physician's power, status, authority, and professional distance in the medical interaction. In their survey study of 219 patients, satisfaction was significantly higher when physicians adopted a more affiliative communication style. On the other hand, physicians displaying more dominant communication styles produced less satisfaction with medical care. Hall and colleagues[17] recently summarized 41 independent studies containing objectively measured provider behaviors in

medical encounters. Provider behavior process categories (information giving, question asking, competence, partnership building, and socioemotional behavior) were correlated with patient outcome variables. Meta-analysis revealed that patient satisfaction was related to the amount of information given by providers, greater technical and interpersonal competence, more partnership building, more social conversation, more positive and less negative talk, and more communication overall.

Bartlett and colleagues[10] aptly noted that previous research in the area of physician-patient communication has focused on initial or acute care visits, where the patient and physician had no previous relationship that might affect the observed results.[1–6,8,12,13,16] Other researchers have studied mixed populations of both new and established patients, without specifying relative numbers or differences in outcomes.[7,9,11,14] Such methodologies have limited generalizability, however, since the majority of ambulatory visits in this country are by patients who have established relationships with their physicians. Few studies have focused on the satisfaction of patients in established ongoing relationships with their physicians. Still fewer have employed multiple practice sites to examine how various elements of physician communication style in the medical interview affect patient satisfaction. The purpose of the present study was to examine the relationship between physician communication styles and satisfaction in established patients in a number of primary care practice sites.

## Methods

A collaborative study group (group members listed at end of article) conducted medical interviews at 11 geographic areas around the country and in Canada, including outpatient department clinics and solo and small-group practice settings. Responsibility for data collection at each geographic site was assumed by a study collaborator who either supervised data collection or collected the data directly.

### Participants

*Physicians.* Background information from completed questionnaires was available for 98 of the 127 physicians who volunteered for participation in the study. Twenty-nine physicians (23%) did not return the questionnaires requesting demographic and other physician information. Included in the responding group were 35 (29 internal medicine and 6 family practice) second- and third-year residents, 60 physicians board certified in internal medicine, and 3 certified in family practice. This

group was predominantly male (79%), white (95%), and young (mean age, 34 years). The majority of physicians (75%) were audiotaped in urban hospital-based clinic settings, while the remaining 25% were in solo or small-group practices.

*Patients.* Adult patients with chronic diseases who were known to their physicians, having made at least two prior visits, were included in the study. Patients with an ongoing problem and well-known to their physician were selected to limit the heterogeneity of the patient group and to obtain a sampling representative of primary care. Across sites, there was an estimated patient refusal rate of 10% to 20%. The 550 individual patients in the study were predominantly female (58%), white (55%), and poor (65% earned less than $10,000 per year, 15% earned $10,000 to $20,000, 9% earned $20,000 to $30,000, and 10% earned > $30,000). They ranged in age from 21 to 94 years (mean age, 60 years). The most common medical problems identified by the physician were hypertension (n = 204), cardiac disease (n = 141), diabetes mellitus (n = 93), and chronic obstructive pulmonary disease (n = 75). Psychosocial problems were included; however, they were not one of the major problems. These categories are not mutually exclusive, as one patient could have multiple problems. In addition, both the patient and physician assessed the patient's physical health status (ranging from poor to excellent).

The medical visits of each patient who consented to participate in the study were audiotaped, and both physicians and patients completed questionnaires immediately upon conclusion of the visit.

### Statistical Evaluation

*Independent variables.* Audiotapes of the medical visit were coded for communication process variables using the Roter Interaction Analysis System.[19] This system codes each phrase or complete thought in the visit, by either patient or physician, into one of 34 mutually exclusive and exhaustive categories. Coding is done directly from audiotapes and follows the sequence of the medical visit so that subtotals across all categories may be calculated separately for the history, examination, and concluding segments of the visit. In addition, coders rated the emotional tone of the visits (in regard to anger, anxiety, dominance, friendliness, and interest) on a six-point scale after listening to the entire audiotape.

As in several prior studies[16,20,21] the coding system demonstrated adequate intercoder reliability. Seven coders were trained with 20 hours of instruction and 20 hours of practice. Using a random sample of 30 audiotapes, a Pearson correlation coefficient between random pairs of coders was calculated for all categories with a

mean frequency greater than 2. All coders were represented in the reliability check. The overall average correlation was .78. The 21 physician categories had a mean correlation of .76 (range .58 to .90). The average correlation for the 11 patient categories was .81 (range .71 to .99).

*Dependent variables.* After the medical appointment, patients responded to a questionnaire that included 43 items related to different aspects of patient satisfaction and one global satisfaction item. Each item was measured on a five-point Likert scale and scored so that a low score indicated more satisfaction. Questionnaire items were adapted from items included in the work of Inui et al[21] and Roter et al.[16]

## Results

In the preliminary analysis, the original 43 satisfaction items* were subjected to a principal components analysis with orthogonal rotations to see whether conceptually distinct factors of satisfaction would emerge. Five factors did emerge from the factor analysis, and subscales were developed by selecting those items that loaded at least 0.15 higher in the same direction on one factor than on other factors. Of the items meeting this criterion, five patient satisfaction subscales were constructed and reliability coefficients (alpha) computed. The subscales and the reliability coefficients are (1) task-directed skill (10 items, $\alpha = .90$), (2) interpersonal skill (8 times, $\alpha = .87$), (3) attentiveness (5 items, $\alpha = .81$), (4) partnership (9 items, $\alpha = .76$), and, (5) emotional support (3 items, $\alpha = .71$). The factor analysis revealed 55% of the variance in the patient satisfaction response was accounted for by the five identified factors. The eigenvalues and percentage of variance for the factors are (1) task-directed skill 11.97, 35.2%; (2) interpersonal skill 2.8, 8.1%; (3) attentiveness 1.7, 5.0%; (4) partnership 1.3, 3.7%; and (5) support 1.1, 3.2%. The average interscale correlation is .51 (range .29 to .65).**

The distribution of scores on the satisfaction measures was positively skewed, with mean scores for the subscales ranging from 1.5 to 2.1 on a 5-point scale, where 1 reflects high satisfaction. Task-directed satisfaction reflected the highest satisfaction scores and the most limited range, while partnership had the lowest relative satisfaction and widest range of responses. These mean scores suggest a relative ranking of aspects of satisfaction as listed on Table 1; however, Table 1 does not neces-

Table 1. Mean Scores and Ranking of the Aspects of Satisfaction

| Satisfaction Subscales | Mean Score | SD | Range* | Average Rank Over 11 Sites |
|---|---|---|---|---|
| Task-directed skill | 1.56 | .45 | 3.00–1.00 | 1.45 |
| Interpersonal skill | 1.64 | .53 | 4.80–1.00 | 2.18 |
| Attentiveness | 1.63 | .50 | 4.13–1.00 | 2.27 |
| Emotional support | 1.87 | .61 | 4.67–1.00 | 4.09 |
| Partnership | 2.12 | .71 | 5.00–1.00 | 4.90 |

*Minimum to maximum.

sarily reflect the consistency of the relative ranks across the 11 study sites. The relative ranks were calculated by simply ranking each of the five aspects of satisfaction relative to one another within each site and summing the rankings over all 11 sites. The last column on Table 1 reveals that satisfaction with partnership was virtually always ranked last and supportiveness ranked fourth. On the other hand, the highest ranked aspect, task-directed skill, fell midway between the first and second ranks (1.45), and both the interpersonal and attentiveness aspects were often ranked interchangeably in the second position (2.18 and 2.27, respectively). These average rankings would indicate greater consistency across study sites in the two lowest-ranked aspects of satisfaction than in the three top-ranked aspects.

Table 2 shows that the correlations between the components of satisfaction were moderately related to the single item reflecting global satisfaction. The relationship between the task-directed focus subscale and global satisfaction was significantly stronger than the other subscales ($Z = 3.2$ $P < .0001$). As another method to determine the relative contribution of each subscale to global satisfaction, the subscales were entered into a multiple regression equation with the one-item global satisfaction measure as the dependent variable. Once again, it was observed that task-directed satisfaction was the most important factor affecting patients' overall satisfaction. The task-directed score contributed virtually all of the explained variance in global satisfaction (31%).

The relationship between actual communication during the visit and the various dimensions of patient

Table 2. Correlations of Global Satisfaction with the Satisfaction Subscales (N = 546)

| Satisfaction Subscales | Global Satisfaction | |
|---|---|---|
| | r | P* |
| Task-directed skill | .56 | <.0001 |
| Interpersonal skill | .35 | <.0001 |
| Attentiveness | .35 | <.0001 |
| Partnership | .40 | <.0001 |
| Emotional Support | .34 | <.0001 |

*2-tailed P values

*A copy of this questionnaire is available from the authors upon request.
**A listing of the 35 satisfaction questionnaire items in each subscale is available from the authors on request.

Table 3. Correlation Between Frequency of Physician-Patient Communication Characteristics and Various Dimensions of Patient Satisfaction

| Satisfaction Subscales | Biomedical Closed-Ended Questions (Excluding Psychosocial Questions) $r(P\dagger)$ | Biomedical Open-Ended Questions (Excluding Psychosocial Questions) $r(P\dagger)$ | All Psychosocial Questions, Both Open- and Closed-Ended $r(P\dagger)$ | Physician Counseling of Psychosocial Topics $r(P\dagger)$ | Patient Gives Information, Biomedical $r(P\dagger)$ | Patient Gives Information, Psychosocial $r(P\dagger)$ |
|---|---|---|---|---|---|---|
| Task-directed skill | −.09(.050) | −.09(.041) | .13(.004) | .13(.002) | −.09(.035) | .11(.011) |
| Interpersonal skill | −.10(.030) | −.07(.102) | .13(.003) | .13(.002) | −.12(.007) | .13(.002) |
| Attentiveness | −.07(.114) | −.03(.472) | .10(.018) | .10(.020) | −.06(.183) | .10(.019) |
| Partnership | −.13(.002) | −.14(.001) | .15(.000) | .14(.002) | −.16(.000) | .19(.000) |
| Emotional support | −.02(.665) | −.08(.077) | .10(.026) | .07(.128) | −.10(.017) | .07(.122) |

*The direction of coding satisfaction subscales was reversed for ease of interpretation (here, lower satisfaction scores correspond to lower patient satisfaction and higher satisfaction scores correspond to higher patient satisfaction).
†2-tailed P values

satisfaction was explored, which revealed a number of significant relationships (Table 3). Of all the categories of physician communication, only communication regarding psychosocial topics was consistently related to satisfaction. Notable is the inverse relationship between question asking (both open- and closed-ended questions) about biomedical topics, compared with psychosocial topics. The former is negatively related to virtually all aspects of satisfaction, while the later is positively related. Counseling for psychosocial issues was positively related to satisfaction. Two categories of patient communication were related to satisfaction; patient talk about biomedical topics was negatively related to satisfaction, while patient talk regarding psychosocial issues was positively related.

Furthermore, neither the total amount of talk during the visit nor the amount of physician or patient talk was associated with satisfaction; however, the ratio of physician to patient talk was related. The more the physician talked relative to the patient during the visit, the less satisfied patients were on all satisfaction dimensions, regardless of how long the visit was or how much each participant spoke (average Pearson correlation of overall aspects of satisfaction, .1271, P = .002).

The emotional tone of the visit relationships between patient satisfaction and affective ratings of the interview was also assessed by coders (Table 4). Physician dominance had a significant negative effect on patient satisfaction. Friendliness and interest expressed by either physician or patient were positively related to patient satisfaction, but these relationships were not nearly so strong or consistent as the relationship to physician dominance.

Demographic variables were related to several aspects of satisfaction, as shown in Table 5. Overall, older white patients evidenced the greatest satisfaction.

Women were more satisfied than men only on the emotional supportiveness dimension; patients with higher income were more satisfied than less affluent patients on interpersonal skill, but less satisfied with supportiveness.

A multiple regression entering communication and demographic variables explained 10% of the variance (multiple $R = .32$; $R^2 = .10$) in patient satisfaction (averaged over all five aspects). Sociodemographic variables accounted for 2% of this variation (multiple $R = .15$; $R^2 = .02$).

Other variables having no direct effect on patient satisfaction included physician sex and patient-rated or physician-rated health status.

## Discussion

As Bain[22,23] confirmed, physicians initiate more of the verbal interaction than do patients. Since physicians control the content, pace, and length of the medical interview, it is appropriate to continue to study which physician communication behaviors most influence patient satisfaction. Unfortunately, the impact of context has

Table 4. Correlation Between Patient Satisfaction and Affective Ratings of Interview

| Affective Ratings | r | P* |
|---|---|---|
| Positive correlations | | |
| Physician friendliness | .10 | .036 |
| Physician interest | .09 | .098 |
| Patient friendliness | .13 | .008 |
| Patient interest | .10 | .060 |
| Negative correlations | | |
| Physician dominance | −.12 | .012 |

*2-tailed P values

Table 5. Correlation Between Demographic Variables and Various Dimensions of Patient Satisfaction

| Satisfaction Subscales* | Race (White) $r(P\dagger)$ | Sex (Females) $r(P\dagger)$ | Income (Wealthier) $r(P\dagger)$ | Age (Older) $r(P\dagger)$ |
|---|---|---|---|---|
| Task-directed skill | .10(.026) | −.02(.587) | .03(.530) | .004(.925) |
| Interpersonal skill | .12(.006) | .06(.200) | .11(.014) | .10(.025) |
| Attentiveness | .14(.002) | −.001(.988) | .08(.089) | .13(.004) |
| Partnerships | .13(.004) | −.02(.696) | .03(.522) | .11(.009) |
| Emotional support | −.01(.846) | .13(.003) | −.12(.008) | .08(.069) |

*The direction of coding satisfaction subscales was reversed for ease of interpretation (here, lower satisfaction scores correspond to lower patient satisfaction and higher satisfaction scores correspond to higher patient satisfaction).
†2-tailed P values

often been neglected in patient satisfaction research. Methodological variations, in addition to different study settings and patient characteristics, may result in conflicting results with limited generalizability.[10,15,24] These points were considered in the present study, which examined satisfaction with medical interaction for established physician-patient relationships in multiple primary care sites.

When discussion during the medical visit includes psychosocial topics, patients appear more satisfied than when their visit is restricted to biomedical exchanges. This finding was particularly striking in regard to physician question-asking. The more questions asked of patients regarding psychosocial topics and the fewer questions asked in the biomedical realm, the more satisfied patients appeared. Further, certain patient exchanges were associated with satisfaction; the more psychosocial talk the patient engaged in and the less biomedical talk, the more satisfied the patient was. It was also found that the more the physician dominated the talk of the visit, either in actual talk or in emotional tone, the less satisfied the patient was.

These findings reflect some additional insights into patient satisfaction. Five factors underlying patient satisfaction were uncovered. It is interesting to note that one of the five, satisfaction with the physician's task-directed skills, was most closely associated with global satisfaction, reflecting its prominence for patients when asked for their general assessment of satisfaction. While this aspect of satisfaction was more salient than others for patients, however, it had the highest ratings and the most narrow range of all the measures. It also showed the weakest association with sociodemographic variables. This finding suggests that patients refer to task-directed skills more than other physician attributes when thinking of a global assessment, and that they are less critical of performance in this dimension than on other dimensions of satisfaction, particularly reflections of support and partnership.

The aspects of satisfaction for which patients are most critical appear to be partnership and support, while

patients are most satisfied with aspects related to task-directed skills, interpersonal skills, and attentiveness. In their meta-analysis of the patient satisfaction literature, Hall and Dornan[25] found that patient satisfaction with attention to psychosocial problems and informativeness were ranked lowest among five aspects of physician behavior, while overall quality, humaneness, and competence were highest ranked. While these aspects of satisfaction are not directly parallel to those measured in this study, they do have a general likeness and consistency.

Hall and Dornan make several observations in regard to their conclusions based on meta-analysis, which are pertinent to the present findings, as well. First, they suggest that relative satisfaction with different aspects reflects actual performance of the medical system, such that the medical system might actually emphasize some aspects of care over others, eg, technical skills compared with psychological support. Another interpretation of the relative ranking is that patients are less critical of technical skills than other aspects of physician behavior because patients think they cannot judge it very well or because it is threatening to contemplate that their care in this domain is less than optimum. Patients do appear more discerning in terms of other satisfaction domains, however, and it may be these other elements upon which decisions regarding physician-shopping and utilization are made.[25]

A relationship was demonstrated between patient satisfaction and sociodemographic characteristics. It was found, as has been found in other studies, that white patients are more satisfied than nonwhites[12] and older patients are more satisfied than those who are younger.[7,12]

In this study, the selection criteria (adult patients with chronic diseases who were known to their physicians, having made at least two visits) created a study population with a higher mean age (60 years) than usually found in adult, primary care practices. These selection criteria were felt to be important in order to study established physician-patient relationships. Moreover, the generalizability of results found in the study is

strengthened, as approximately 80% to 90% of all medical encounters are return visits between a physician and patient who have seen each other previously.[10] That general and family physicians, as well as general internists, are the largest single source of care for older patients amplifies the importance of studying adults with chronic diseases.

The multiple primary care sites used for data collection in this study greatly enhance the generalizability of its findings. While a comparison of differences between the 11 practice settings might prove interesting, it is not the focus of the present paper.

The findings in this study suggest that patients want to be able to address psychosocial concerns during the course of their medical visit. Yet, on average, less than 10% of all the talk of the medical visit is devoted to psychosocial topics, including questions and counseling.[26] This situation is unfortunate, for it is frequently noted that psychosocial issues underlie many problems patients bring to their physicians, especially in the ambulatory setting. Most estimates are that 30%[27-30] of patients seen in primary care practice have some significant psychosocial problem deserving of physician attention. When standard questionnaires such as the General Health Questionnaire are used to assess psychosocial problems, reported rates of probable disorders are higher, averaging near 40%.[29,31,32] Estimates of probable disturbance even higher than the above were found by Stoeckle and others.[27] Using two independent sets of criteria, one sociological and the other based on medical consensus, about 85% of primary care patients were consistently identified as being psychologically distressed. It is clear that this patient population takes a substantial share of physician time and resources.[33]

These results show that many factors may determine patient satisfaction besides interviewing behaviors, for the correlations were low. Nevertheless, it is clear that patients are most satisfied by interviews that encourage them to talk about psychosocial issues in an atmosphere characterized by interest and friendliness and the absence of physician domination. Communication skills can be learned. Consequently, most medical school curricula include medical interviewing training to facilitate the development of these skills. Future research might focus on the effect such instruction programs have on improving provider practice style and subsequent positive patient outcomes. While patient satisfaction remains an important outcome measure for judging the effectiveness of physician-patient communication, health outcomes are also gaining prominence as validators of medical care quality, particularly since the development of brief summary measures of functional status and well-being.[34,35] Future studies of the impact of practice styles on patient outcomes should be able to evaluate the relative effects on both patient satisfaction and health outcome.

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