STUDIES OF DOCTOR-PATIENT INTERACTION

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INTRODUCTION

Discussion between doctors and patients has long been regarded as the vehicle by which much of the curing and caring of medicine is conveyed. Sometimes regarded as the art or heart of medicine, its importance was well noted in antiquity and is recognized in modern times. However, it is only since the mid-1960s that the actual dynamics of the therapeutic dialogue have been observed in any systematic manner and that an attempt to recast this aspect of medicine as science has been made. The evolution of methodological and technological sophistication has made observation and analysis of the medical visit easier over the years, and, indeed, the number of empirical studies of doctor-patient communication doubled between 1982 and 1987 to over 60 (47).

Several reviews of this body of work have been undertaken (28, 39, 51, 55, 57), but a resulting synthesis has been lacking; this is a difficult body of work to review. The predominantly exploratory nature of this research, which is largely of the kind in which everything gets correlated with everything else (24), contributes to an overwhelming number of results with which to contend. The results appear so confusing that Inui & Carter (28), in reviewing this literature, characterized the findings as a “Rorschach test” for readers in which overall interpretations are as apt to reveal something about the reader as about the results themselves.

We have elected, therefore, to supplement a selective review of the litera-
ture with results of a meta-analysis of communication studies, in an attempt to achieve a more comprehensive understanding. Meta-analysis involves the application of quantitative methods to summarizing a body of research findings (20, 33, 43). We highlight patterns of results that may not otherwise be obvious and demonstrate that the collective body of research has greater order and consistency than prior reviews suggest.

We limit this review almost entirely to studies of actual communication processes, thus excluding many studies based solely on patients’ and physicians’ reports of events in the medical visit as well as measures of attitudes and expectations. Furthermore, we do not review the growing body of research involving discourse analysis or the analysis of language in its social context (40). This is a rich literature in its own right, but represents a quite distinct methodological tradition. Rather than do injustice to this literature, we refer the reader to works of Mishler (36), Frankel (15), and West (58).

FRAMEWORKS FOR CODING MEDICAL INTERACTION

Interaction Process Analysis Methods

BALES’ PROCESS ANALYSIS SYSTEM Concerned with group dynamics, Bales (2) developed an analysis scheme for assessing patterns of interaction, communication, and decision-making processes in small groups. Since its conceptualization, Bales’ scheme has been more widely applied and modified than any other single approach to describing the dynamics of the medical encounter. The Bales approach focuses on ways in which the process and structure of communication among persons in a group reflect how they differentially participate in problem solving.

According to the theoretical rationale of the Bales method, all interpersonal statements can be classified as falling into one of two domains, the task and the socioemotional. Interaction is described in terms of 12 mutually exclusive categories; six are conceived as affectively neutral and are ascribed to the task dimension (e.g. gives suggestion or asks for orientation) and six are equally divided into positive and negative affective categories and are ascribed to the socioemotional dimension (e.g. agrees or disagrees; shows tension release or shows tension).

Analysis using Bales’ method is based on literal transcripts of the verbal events of the encounter, which are operationally defined as the smallest discriminable speech segment to which the rater can assign classification. A unit may be as short as a single word or as long as a lengthy sentence; compound sentences are usually divided at the conjunction, and sentence clauses are scored as separate units when they convey a single item of thought or behavior.

Studies of medical encounters in which Bales’ process analysis system was
applied in the late 1960s have become the most often cited studies in the field. In the first study to apply Bales’ system to medical interactions, Davis (10, 11) audiotaped the concluding segment of 154 doctor-patient visits at their first encounter, and subsequently recorded the entire follow-up visit for 80 of these pairs. Based on a Bales analysis of the audiotape transcripts, Davis manipulated the basic 12 category scores to derive indexes of communication difficulty and used factor analysis to reveal underlying dimensions of communication. These variables were then correlated with drug compliance.

First visits, probably because they were recorded only in part, were unrelated to compliance. However, for revisits, Davis found that patients’ drug compliance was greatest when patients and physicians engaged in joking and laughter and when patients sought and received physicians’ suggestions. Noncompliance was more likely when patients and physicians expressed disagreement.

Furthermore, visits characterized by physicians’ seeking information from patients without giving them any feedback were more likely to promote noncompliant behavior than were visits marked by any of the other communication patterns identified. Davis termed this type of exchange “nonreciprocal informativeness” and concluded that the imbalance in information exchange during the medical encounter was probably viewed by patients as a physician failure to meet expectations regarding normal interactive exchange. This failure, Davis suggested, inspired a retaliation through patient failure to adhere to therapeutic recommendations.

In a second study using a slight modification of Bales’ original approach, Freemon, Negrete, Davis & Korsch (16) analyzed transcripts of 285 audiotapes of pediatric walk-in visits. Patterns of communication in which physicians were friendly and approving, informative, and not excessively questioning were positively associated with patient satisfaction and drug compliance. Again, a finding consistent with Davis’ nonreciprocal informativeness was found. Physicians who did not allow their question-asking to dominate the visit, and who provided information to their patients, inspired the best results in terms of patient satisfaction and drug compliance.

ROTER’S INTERACTION ANALYSIS SYSTEM In three important ways, Roter (45) modified the Bales approach to studying interaction dynamics in routine medical encounters. In this system of coding, first of all, identification and classification of verbal events are coded directly from audiotapes, making transcription unnecessary. The unit of analysis remains quite similar to Bales’, but now coders unitize speech as they listen to the audiotape.

Second, since coding is done from audiotapes rather than transcripts, assessment of the tonal qualities of interaction is possible. These tonal qualities transmit the emotional context of the visit, as do the words spoken.
Coders rate both the patient and physician on global affective dimensions such as anger, anxiety, dominance, friendliness, and interest.

Finally, categories of interaction are more finely tailored to the substance of the medical encounter than in Bales’ system, but generally reflect similar groupings. For instance, categories of information-giving, instructions and directions, and counseling are substituted for Bales’ original categories of giving orientation, suggestion, and opinion.

This system was used to evaluate a health education intervention to increase patient question-asking during routine medical encounters (45). The intervention consisted of encouraging patients to make a list of questions and concerns before going into the doctor’s office. Findings revealed that question-asking was doubled in the experimental group but that this increase was achieved at some emotional cost. Increased question-asking was associated with reduced patient sympathy and greater patient anger and anxiety during the encounter. It was also associated with reduced provider sympathy and increased provider anger and matter-of-factness. Moreover, experimental patients were less satisfied with their physician at an exit interview.

Nevertheless, over the subsequent six months, experimental patients had a significantly better rate of appointment-keeping than the control group. This increased rate of appointment-keeping suggests that the task-focused behavior engaged in within the visit (e.g. question-asking) generalized to task-focused behavior subsequent to the visit, in the form of appointment-keeping compliance. Further, it was notable that patient satisfaction with the medical encounter was independent of the patient’s commitment to task-focused behavior.

THE VERBAL RESPONSE MODE  An alternative approach to Bales’ Process Analysis and its derivatives, based on reference to linguistic theories, was introduced by Stiles (48, 49). The Verbal Response Mode (VRM) is a system in which segments of language, defined grammatically to be equivalent to one psychological unit of experience, form a taxonomy that implies a particular interpersonal intent or microrelationship between communicator and recipient. The taxonomy is based on the assignment of language segments to eight mutually exclusive categories by the source of experience, frame of reference, and focus. The categories include disclosure, questioning, edification, acknowledgment, advisement, interpretation, confirmation, and reflection.

The taxonomic groupings were used to identify communication patterns related to patient satisfaction (41, 49). These studies found that patient satisfaction was associated with communication patterns characterized by information exchange. Satisfaction was enhanced when patients were allowed to relate fully their medical history in the early part of the visit, without being impeded by closed-ended questions, and when their physicians ended the visit with information-giving.
COMPARISONS ACROSS CODING SYSTEMS  A comparative study of process analysis schemes was undertaken by Inui and associates (29). Bales’ original process analysis scheme, Roter’s modification, and the VRM were applied to 101 new-patient visits to a general medical clinic for which patient knowledge, satisfaction, recall of prescribed medications, and compliance had been measured.

The investigators found that the explanatory power of the three systems differed. For instance, the Bales system explained 19% of the variation between patients who took prescribed drugs correctly, compared to 28% for the Roter system, and none for the VRM. Explanation of variation in knowledge was somewhat better for Roter than Bales and the VRM, and satisfaction favored the Roter and Bales systems. Specific findings were: physicians’ giving directions and orientation to a patient negatively predicted knowledge; expressions of tension (verbally or nonverbally through global ratings of anxiety and assertiveness) were negatively related to satisfaction; and patient bids for clarification and physician anxiety (global ratings) were negatively related to compliance.

Drawbacks associated with all systems were also identified. Although the authors recommended the use of the Roter method, they noted that none of the interactional systems is ideally suited for capturing the medical encounter at a relatively holistic level or for providing an accounting of sequence in the visit.

CODING AND ABSTRACTION OF INFORMATION EXCHANGE  Though the influence of Bales and other process analysis systems has been considerable, other approaches to coding interaction have been taken. A common alternative has been a more substantive, content-based identification and coding of a particular kind of communication within the visit, most often information exchange.

Information statements are generally counted in these investigations and, to varying degrees, the quantity of information and its presentation are examined in relation to recall (1, 6, 8, 27, 30, 32). These investigators, and others, conclude that the minority of patients are given adequate information about the drugs they take or their medical condition. What is worse, patients forget a great deal of what they are told; in fact, on average most estimates of patient recall are only about 50% of the facts communicated by the physician. Strategies for improved patient recall resulting from these studies are summarized in Table 1.

One methodological issue emerging from this literature is the relative merit of scoring recall in terms of the percentage of facts recalled versus the absolute amount recalled. At least two studies (30, 46) show that as the amount of information offered increases, the proportion recalled goes down. At the same time, there is a strong positive relation between the amount offered and the absolute amount recalled. Studies reporting only the pro-
Table 1 Strategies for improved patient recall

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<th>Strategy</th>
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<tr>
<td>Summarize information at the close of the visit</td>
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<tr>
<td>Ask for feedback from the patient on understanding</td>
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<tr>
<td>Organize information into clear blocks</td>
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<tr>
<td>Repeat the most important information</td>
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<tr>
<td>Be specific rather than general in instructions</td>
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<tr>
<td>Be early in presenting information during the visit</td>
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Proportional data may therefore paint a misleading picture of how much information patients actually come away with. Paradoxically, a group of patients receiving the most information and remembering the most in absolute terms could have a lower percentage score than a group receiving less to begin with.

These results also point to other issues deserving further attention. The simple counting up of informative statements leaves the applicability, importance, and accuracy of those statements unaddressed. Future research may show that the form and content of informative statements are as important as their sheer number, and that what is remembered matters more for patient outcomes than how much is remembered.

An early and important pilot study that attempted to move in these directions was conducted by Waitzkin & Stoeckle (56). In that study the number of explanations and the "depth" of information given by the physician to the patient were both quantified. Depth of information was coded in such a way as to discriminate the more from the less technical explanations and to account for explanations that were reworded in nontechnical language. In a later study, Waitzkin (54) used this methodology to analyze over 300 medical encounters. He found that doctors devoted an average of 1.3 minutes to information-giving, providing seven informative explanations per encounter. Most explanations were rated in the mid-range of technicality, and 12% of these were reworded in nontechnical language.

Other investigators have also addressed the issue of information exchange and its meaning for patients. Tuckett and associates (52, 53) put less emphasis on how information was conveyed and more on how informative the visit was for the patient. They examined what doctors actually said in the consultation, but did so with explicit guidelines for a judgment of the intent of the statement. A judgment was made for each statement as to what the patient was supposed to grasp, that is, what the key point was. Three topics, diagnostic significance, treatment action for the present, and preventive action for the future, were rated separately.

Svarstad (50) made most explicit the assessment of adequate information-giving regarding prescribed drug regimens during the medical visit. She coded (a) whether the physician specified the purpose and name of the drug;
(b) how long each drug should be taken, (c) the dosage schedules that should be followed, and (d) how regularly the drugs should be taken. The level of instruction thus obtained was examined in relation to patient recall and compliance. Patients who received adequate instruction were more likely to have an accurate perception of the treatment plan than others, and were more likely to conform to the doctor’s recommendations. Svarstad noted that only 37% of her sample was adequately informed about their drugs.

Svarstad also considered the motivating strategies that physicians engaged in (both verbal and nonverbal) to enhance patient understanding and compliance. These included such things as the approachability of the doctor, the extent to which a rationale was provided for the advice given, and the degree to which the doctor monitored past compliance. These factors also explained a high proportion of patient noncompliance.

**Coding of Affect in the Medical Visit**

Affect, or feeling, can be rated by observers, though it sometimes requires several judges whose ratings are averaged to achieve acceptable levels of reliability. The simplest approach is to administer global rating scales to judges of video or audiotapes (as in the Roter system described above). One can also segregate verbal from nonverbal channels of communication.

Verbally expressed affect is studied implicitly in content analysis schemes whenever they count occurrences of “gives approval,” “disagrees,” and so forth. The expression of affect is not, therefore, limited to nonverbal communication as is sometimes assumed. Indeed, when judges were asked to make ratings of typed clips of physicians’ speech on rating dimensions such as anxiety and sympathy, they were able to do so with good reliability (22).

Purely nonverbal behavior in medical visits is recognized to be important (17) but has been infrequently studied; particularly rare are studies of the visible channels of doctor-patient nonverbal communication such as facial behavior and posture (26, 31). Somewhat more often, the tonal or other features of vocal communication have been assessed. Ratings of content-masked speech have produced promising results beginning with Milmoe’s (35) study of the association between doctors’ voice quality when talking about their alcoholic patients and their success in referring those patients to treatment. Since then, it has been demonstrated that the particular vocal affects expressed when talking about patients are reflected in clinicians’ talk to the same patients (44), and also that a physician’s voice tone relates to various patient effects (22, 46).

The work of DiMatteo and colleagues (13, 14) on physicians’ nonverbal communication skills also has important implications for our understanding of affective communication. In a testing session, these investigators measure physicians’ abilities to express emotions through the face and voice and to
decode the meanings of nonverbal cues of the face and voice. These skills have been shown to be related to both patient satisfaction and appointment-keeping compliance. Although it is not yet known exactly how these nonverbal skills are put to use in the medical visit, it is clear that they play an important role.

THEORETICAL ISSUES

Conceptual Groupings of Process Variables

In an attempt to summarize the common features of the medical communication literature, we applied methods of meta-analysis (24, 47). Because of the quantitative nature of this type of summary, stronger conclusions can often be drawn regarding the state of the literature than through traditional literature reviews (43). These methods included three kinds of analytic activities: exhaustive literature searches; the identification and conceptual grouping of variables addressed in the literature; and statistical summary of research results.

The literature review, conducted through 1985, included a diligent search for published, English-language studies of nonpsychiatric medical encounters for which there was neutral observation (nonparticipant observers, audiotape, or videotape). We located 60 independent studies that provided quantitative data on the nature of doctor-patient communication (47), and 41 that related this communication to patient or provider variables external to the visit (24).

Though we described in a preceding section the best-established coding systems, in fact the literature includes some 28 systems by our count, no one of which has appeared in more than a handful of studies. These systems generated a very large number of variables. In the meta-analysis, we identified over 200 different communication process variables addressed in the studies reviewed. To uncover underlying similarities and make this large number of variables suitable for statistical analysis, it was necessary to reduce them to conceptually meaningful groupings.

To do this, each of us (D. R. and J. H.) independently sorted the variable descriptions into groupings of conceptually like behaviors. We then compared our groupings and negotiated a consensus on six mutually exclusive categories. The categories were: 1. information-giving, which includes all categories that imply the proffering of any material that might increase understanding or knowledge; 2. information-seeking, which includes all requests for information, clarification, or further understanding; 3. social talk, which includes all varieties of nonmedical and social conversation; 4. positive talk, which includes all exchanges with a positive affective tone or intent; 5. negative talk, which includes all exchanges with a negative affective tone or intent; and 6. partnership-building, which includes exchanges of two kinds, those in
which the physician facilitates patient participation and those which reflect the physician’s role as interpreter and synthesizer. Although one can think of a parallel partnership category applying to patients, variables that might have fit in this category were simply not reported in the studies reviewed. Therefore, this category applies only to physician communication.

Listings of illustrative variables and their assignments within the six categories are shown in Table 2.

**A Framework for Viewing Communication Behaviors**

We have found that a framework for viewing the therapeutic relationship based on task-focused and socioemotional dimensions of behavior is useful for organizing this complex field.

**Task-Focused Behavior in the Medical Encounter**

Physicians’ task behaviors are defined as technically based skills used in problem solving that comprise the base of the “expertness” for which a physician is consulted. These are essentially those behaviors which define the role of the physician and are close to the role conceptualizations proposed by Parsons (38) and others (4, 7).

Much less attention has been devoted to a conceptualization of patient behavior within the medical encounter. We suggest that patient behavior also has a task dimension that reflects problem solving. For instance, patient task behaviors include accurate and full reporting of current and past symptoms and medically relevant experiences, attentiveness, comprehension, recall, and active participation in the care process. Further, although not directly expressed within the medical encounter, behaviors such as compliance and

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**Table 2 Illustration of variable assignments to process categories**

<table>
<thead>
<tr>
<th>Process category</th>
<th>Specific variable</th>
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<tbody>
<tr>
<td>Information-giving</td>
<td>Gives information, opinion, suggestion, feedback, explanation; advises; counsels and persuades; teaching statements; discusses medication; instructs and encourages patient to follow instructions</td>
</tr>
<tr>
<td>Question-asking</td>
<td>Asks questions, short questions, nonleading questions; asks for information; takes medical history</td>
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<tr>
<td>Social talk</td>
<td>Greeting and discharge; personal remarks; casual conversation</td>
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<tr>
<td>Positive talk</td>
<td>Tension release; doctor uses humor; shows approval, sympathy; agrees; doctor-patient friendly rapport; gives encouragement</td>
</tr>
<tr>
<td>Negative talk</td>
<td>anger-irritation; disagrees; criticizes; negative affect; tension; boredom</td>
</tr>
<tr>
<td>Partnership-building</td>
<td>Reflects patient’s statements; interprets; blocks conversation (-); facilitates patient responses; amount of physician initiative (-); requests questions, opinion</td>
</tr>
</tbody>
</table>

Note: “(-)” indicates reversed pole.
utilization of care or services are influenced by the dynamics of the encounter and may also be considered as part of the patient’s task functions.

SOCIOEMOTIONAL BEHAVIOR IN THE MEDICAL ENCOUNTER The socioemotional dimension of behavior is more difficult to operationalize than the task dimension. Although patient behavior has received almost no attention in this regard, the role of affect in physician behavior has been considered from several viewpoints. Conceptualization of the appropriate expression of physician affect has varied tremendously from Parsons’ (38) view of affective neutrality, in which affect is controlled or ignored, to models in which expression of affect and task are distinguished as different types of communication that are both present during an interaction but are largely independent of one another (7).

Our conceptualization differs from these models, and is premised on the belief that all face-to-face behavior, even that which is ostensibly neutral, carries affective content. This is true for both physicians and patients. The affective character of the interaction may be defined on three levels: (a) intrinsic, (b) conveyed, and (c) interpreted. The intrinsic level comprises verbal exchanges with explicit socioemotional content such as social conversation, agreements, criticisms, statements of concern, reassurance, legitimation, partnership, and empathy. The basis of identification for these exchanges is face validity, that is, the literal content of a communication.

The conveyed level of affect concerns the manner of communication, not its content. Voice quality and other nonverbal cues convey affect. Affect is also conveyed verbally; aside from a verbal communication’s intrinsic meaning (see above), the innuendo, choice of words, and so forth in the verbal channel can convey affect (22). Conveyed affect occurs during verbal exchanges that are intrinsically affective, but also during the performance of task behaviors, e.g. giving information, counseling, and asking questions.

One interesting methodology for assessing vocal affect is to obscure the verbal content from audiotapes by passing them through an electronic band-pass filter (22, 35, 46). This process preserves voice qualities such as pitch contour and variation, rhythm, and speed. When listening to filtered speech, one perceives voice qualities but not verbal content.

Finally, the interpreted, or attributed, level of affect reflects the total impression created in the receivers of a communication. Through attribution or interpretation, communications may gain affective significance that they do not possess either intrinsically or by the manner of expression. Affective interpretations are often consistent with intrinsic and conveyed affect, but they need not be, as when a patient concludes that the doctor’s social pleasantries are insincere. The most interesting form of interpretation, from our point of view, occurs independent of either intrinsic or conveyed com-
communication. As an example, physicians who give more information may be perceived as interested or friendly simply because they give information and the patient makes a positive attribution for such behavior (46).

A heuristic for investigating task and socioemotional domains of the medical visit is displayed in Table 3. The two dimensions distinguish physician from patient behaviors, as well as task from socioemotional domains. Examination of this table suggests many important and largely uninvestigated relations both between and within the four cells formed by these two factors.

**GENERAL CONCLUSIONS DRAWN FROM THE LITERATURE**

This framework has helped to guide our own understanding of behavior in the medical visit and its consequences. In the meta-analysis (24), the effects most often measured were patient satisfaction, recall of information and/or un-

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**Table 3 Exploration of the medical encounter**

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<tr>
<th>Domain</th>
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<tr>
<td></td>
<td>Physician</td>
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<td></td>
<td>Intrinsic communication of affect</td>
</tr>
<tr>
<td></td>
<td>Conveyed affect (e.g. warmth, anxiety, empathy, dominance; nonverbal cues)</td>
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<tr>
<td></td>
<td>Interpreted affect</td>
</tr>
<tr>
<td></td>
<td>Liking</td>
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<tr>
<td></td>
<td>Satisfaction</td>
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<tr>
<td></td>
<td>Feelings of efficacy, confidence</td>
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<tr>
<td>Task-oriented</td>
<td>Question-asking</td>
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<tr>
<td></td>
<td>Information-giving</td>
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<td></td>
<td>Counseling</td>
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<td>Management</td>
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<td>Treatment</td>
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<td>Referral</td>
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<td>Concordance on problem identification and treatment</td>
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understanding of the medical problem, and patient compliance. Satisfaction was considered a socioemotional outcome; recall and compliance were considered task-related outcomes.

Of all the patient variables considered, satisfaction had the most consistent relation to provider behavior. Satisfaction was best predicted by the amount of information given by providers during the medical encounter. It was also positively related to more communication overall, and particularly social conversation, conversation that could be construed as partnership-building, more immediate and positive nonverbal behavior, and positive talk, and was negatively related to negative talk (excluding negative voice quality). Satisfaction was also related to technical and interpersonal competence. Of the variables considered, only physician question-asking showed no relation to satisfaction.

Patient compliance was associated with patterns of provider behavior during the medical encounter, including more information-giving, fewer questions overall (but more questions about compliance in particular), more positive talk, and less negative talk. Finally, patient recall was best predicted by information-giving, less question-asking, more positive talk, and more partnership-building.

Comparison of Results Between and Within the Task and Socioemotional Domains

Using our framework, we found the strongest provider-patient relations between corresponding domains of communication. The median absolute correlation between physician task behaviors (information-giving and question-asking) and patient task behaviors (compliance and recall) was 0.21; the median correlation between physician socioemotional behaviors (positive, social, and negative talk, interpersonal competence, and partnership-building) and patient socioemotional reaction (satisfaction) was 0.26.

For provider-patient correlations between domains, we found an asymmetrical pattern. The median correlation between physician task behaviors (information-giving, question-asking, and technical competence) and patient satisfaction was 0.22, but the correlation between physician socioemotional behaviors (partnership-building, positive and negative talk) and patient task behaviors (compliance and recall) was only 0.10.

Toward a Theory of Reciprocity in the Medical Encounter

We believe than an explanatory mechanism for this pattern of results may be provided through the broad concept of reciprocity. Simply put, behaviors generate reciprocal, or like, behaviors. Physician task behaviors and patient task behaviors reciprocate one another as do physician and patient socioemotional behaviors.

We suggest, however, that such reciprocated exchange is not equally
operative between different domains of communication. We believe that physicians' task behaviors carry socioemotional significance for patients and that because of this one may expect to see correlations between physician task behaviors and patient socioemotional behaviors. Task behavior can take on socioemotional meaning in two ways: through conveyance (voice quality, for example) and through interpretation, as defined above. As examples, physicians who provide more medical information have been found to speak with an interested voice quality (23); or, a physician who is proficient or otherwise active in the task domain may be interpreted as interested and caring regardless of what he or she expresses through specifically socioemotional behaviors (46), because the patient makes a positive inference about the physician's motivation for engaging in the task behaviors.

This view is consistent with a growing literature demonstrating the efficacy of information-giving for a variety of therapeutic effects, including shortened hospital stays, decreased use of analgesics, and reduced patient anxiety (12, 37). We suggest that the mechanism by which information achieves its therapeutic effects is through both the informative content per se and through the interpreted message of interest and caring. Because of the generalization of positive affect from the task domain, socioemotional reciprocation by the patient, expressed in satisfaction or other affective behaviors, can be expected.

In contrast, the weaker relation between physicians' socioemotional behaviors and patients' task behaviors, found in the meta-analysis, can be seen as a lack of reciprocity between these domains. In our view, physicians' socioemotional behaviors do not have sufficient task or technical significance to lead strongly or frequently to reciprocal task-relevant responses in patients; in other words, consistent with the simulation study of Willson & McNamara (59), we believe patients do not typically make task attributions (e.g. competence) on the basis of socioemotional behavior. The physician who is positive socioemotionally may inspire friendliness or liking in the patient, but no, or only weak, task responses such as attending to information, modifying lifestyle, or adhering to a therapeutic regimen.

CHANGING PATIENT AND PHYSICIAN BEHAVIOR

Descriptions of which aspects of communication are related to positive effects are not highly meaningful if communication cannot be improved as a result. Intervention studies attempting to change behavior, particularly physicians'
communication behavior, have been increasing over the past several years, and many of these report positive results (9). In a very simple but effective intervention, Bertakis (6) found that training physicians to implement a five-minute concluding statement to the visit that included summarization and a request for patient feedback was well accepted by residents and incorporated into their visits. The intervention significantly increased patient satisfaction and recall of information.

A more complex study by Goldberg and associates (18) demonstrated that key behaviors such as directive question-asking and clarification of the presenting complaint, as well as the demonstration of empathy and the reading of verbal and nonverbal cues, could be taught to residents and that the behaviors continued to be practiced at least three months after training was complete. Moreover, the researchers found that given this special training, residents were better able to detect psychiatric illnesses among their patients.

More recently, Maguire and associates (34) found that similar skills taught to medical students were still evident in their practice styles some five years later when these young doctors were established in their own practice. These researchers were also able to demonstrate that the quality of diagnostic information obtained from patients when these skills were used was superior to that commonly gained by practicing physicians.

Also demonstrating that empathy skills can be effectively taught to physicians and that these are incorporated into their practice was a recent Dutch study by Bensing & Sluijs (3). After training, the physicians were more informative, more empathic, and less directive. However, there was no impact on the outcome of care. A similar success in training, but failure in impact, was reported by Putnam and colleagues (42). These investigators found that training of residents was successful in increasing the amount of explanation given to patients and the amount of active listening (which increased patient giving of information to the doctor); however, these changes were not related to other patient effects.

Less common than attempts to change physician behavior have been interventions to change patient behavior in the medical visit. Two such studies are noteworthy. The first was described in some detail above (45). A more recent study by Greenfield and colleagues (21) intervened with patients, again in the waiting room prior to their medical visit, to increase their involvement in care. This was done by having a health educator assist patients in reading their medical record and coach them to ask questions and negotiate medical decisions with their physicians. The intervention succeeded in changing patients' involvement in their care; experimental patients were more verbally active, more interpersonally engaged, and, though they did not ask significantly more questions, they made other attempts to control the conversation and elicit information from physicians. Six to eight weeks after the interven-
tion, experimental group patients reported fewer limitations in physical and role-related activities and preferred a more active role in medical decision making than did members of the control group.

In sum, communication can be effectively changed and these changes do make substantive differences in a variety of outcomes, including the quality of diagnosis and treatment, patient recall, satisfaction, and compliance. Moreover, it appears that functional outcomes are also affected.

FUTURE DIRECTIONS

The field must contend with a number of fundamental issues for progress to continue. The need for guiding theoretical models, current methodological limitations, the application of research methods and results to physician training and assessment, and the changing nature of the therapeutic relationship are among these important considerations.

Primary among these issues is the lack of theoretical models to guide investigators. This deficit has contributed to the largely exploratory nature of this work, resulting in a proliferation of findings with little conceptual framing of their meaning.

Methodological limitations are evident in all systems of interactional analysis. There has yet to be developed a practical approach to accounting for interaction sequence. A basic assumption has been that summary profiles based on frequencies of verbal behaviors engaged in during the encounter adequately reflect the communication process. However, as pointed out by Inui & Carter (28), this is analogous to describing "Hamlet" as a play in which the principal characters include ghosts, witches, lords, ladies, officers, soldiers, sailors, messengers, and attendants—one of whom is already dead, one of whom dies by drowning, one by poisoned drink, two by poisoned sword, and one by sword and by drink!

The design of research in the field has been quite narrow, and almost entirely cross-sectional. Only two studies followed patient-physician dyads prospectively, and that was only through two visits. Forty percent of the studies did not even specify whether the patient and physician were previously acquainted. Better specification of the ongoing relationship can be accomplished through more conscientious reporting by investigators and through more creative research designs.

Investigators have some responsibility to make their research methods and findings accessible to the clinical audience. Seven studies reflect some form of physician intervention, usually medical student or resident training. More intervention studies are needed in which teaching methods are evaluated in light of actual changes in physicians' communication style and, further, validated against changes in patient outcomes. Those physicians responsible
for training in clinical interviewing courses could particularly benefit from this area of work by collaborating with researchers to develop analysis schemes pertinent to quality of care assessment.

We believe much greater progress has been made in the measurement of conventionally defined technical performance quality than in the measurement of interpersonal performance quality. Research on the interpersonal domain clearly has evaluative as well as descriptive overtones, but that evaluation tends to embrace the "more is better" principle (or less, depending on the behavior in question), rather than being based on explicit criteria for what should and should not be done. Furthermore, less evidence is available for establishing such criteria. Much work is needed in this area.

Application of research to patient interventions is also an important and relatively underdeveloped focus. Studies that employed patient interventions have found favorable effects. This is clearly an area that needs further elaboration and has tremendous potential for health education trials.

One further issue is worthy of consideration: the basic characteristics of the provider-patient relationship may be undergoing substantial evolution (28). There is considerable evidence that patients are becoming more consumerist in orientation, and particularly the new generation of patients is likely to challenge physician authority directly within the medical encounter (25). There is likewise evidence that physicians may be accommodating their patients with a more egalitarian relationship and tolerance for patient participation in decision making. The implications of these changes are tremendous and they must be given full and serious consideration in conceptualizing how the patient-physician relationship may be articulated in the medical encounter.

In sum, important strides have been made in the understanding of doctor-patient relations but challenges remain. The most significant of these challenges is to push forward our conceptual and methodological imagination to approach the field in new and even more meaningful ways.

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