

EFFECTIVE PHYSICIAN-PATIENT COMMUNICATION AND HEALTH OUTCOMES: A REVIEW

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Abstract • Résumé

Objective: To ascertain whether the quality of physician-patient communication makes a significant difference to patient health outcomes.

Data sources: The MEDLINE database was searched for articles published from 1983 to 1993 using "physician-patient relations" as the primary medical subject heading. Several bibliographies and conference proceedings were also reviewed.

Study selection: Randomized controlled trials (RCTs) and analytic studies of physician-patient communication in which patient health was an outcome variable.

Data extraction: The following information was recorded about each study: sample size, patient characteristics, clinical setting, elements of communication assessed, patient outcomes measured, and direction and significance of any association found between aspects of communication and patient outcomes.

Data synthesis: Of the 21 studies that met the final criteria for review, 16 reported positive results, 4 reported negative (i.e., nonsignificant) results, and 1 was inconclusive. The quality of communication both in the history-taking segment of the visit and during discussion of the management plan was found to influence patient health outcomes. The outcomes affected were, in descending order of frequency, emotional health, symptom resolution, function, physiologic measures (i.e., blood pressure and blood sugar level) and pain control.

Conclusions: Most of the studies reviewed demonstrated a correlation between effective physician-patient communication and improved patient health outcomes. The components of effective communication identified by these studies can be used as the basis both for curriculum development in medical education and for patient education programs. Future research should focus on evaluating such educational programs.

Objectif : Déterminer si la qualité de la communication médecin-patient a un effet important sur la santé du patient.

Sources de données : On a cherché, dans la base de données MEDLINE, des articles publiés entre 1983 et 1993 en utilisant l'expression «physician-patient relations» comme principale rubrique médicale. On a aussi passé en revue plusieurs bibliographies et actes de conférences.

Sélection d'études : Essais contrôlés et randomisés et études analytiques de communications médecin-patient où la santé du patient était une variable du résultat.

Extraction des données : On a consigné les renseignements suivants au sujet de chaque étude : taille de l'échantillon, caractéristiques du patient, contexte clinique, éléments de la communication évalués, résultats mesurés chez le patient et orientation et importance de tout lien constaté entre des aspects de la communication et les résultats chez le patient.

Synthèse des données : Sur les 21 études qui répondaient aux critères finals d'examen, 16 ont fait état de résultats positifs, 4 de résultats négatifs (c'est-à-dire peu importants) et 1 n'était pas concluante. La qualité de la communication à la fois pendant l'établissement de l'histoire de cas au cours de la visite et pendant la discussion du plan de traitement influe sur la santé des patients.

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Les résultats affectés étaient, par ordre décroissant de fréquence, la santé affective, le règlement des symptômes, la fonction, les mesures physiologiques (par exemple, tension artérielle et glycémie) et le contrôle de la douleur.

Conclusions : La plupart des études examinées ont démontré l'existence d'un lien entre l'efficacité de la communication médecin-patient et l'amélioration de la santé du patient. On peut se baser sur les éléments d'une communication efficace définie dans le cadre de ces études pour élaborer un programme d'études en médecine et un programme d'éducation des patients. Les recherches à venir devraient viser avant tout à évaluer ces programmes d'éducation.

According to a recent consensus statement on physician-patient communication,¹ "effective communication between doctor and patient is a central clinical function that cannot be delegated." On what basis should such a pronouncement be made? Where is the evidence that communicating well with patients makes any difference to outcome? The purpose of this systematic review of 25 years of research is to evaluate the effects of various styles of communication on patient health and to identify the characteristics of excellent communication. The studies reviewed were conducted in a variety of clinical settings, and their findings are of relevance to physicians in all areas of practice.

For years it was commonly thought that physician-patient communication was generally adequate and was not a cause for concern. More recently, however, evidence has mounted to the contrary. Numerous complaints stemming from breakdowns in physician-patient communication have been made to licensing bodies,² and headlines declaring an "urgent need for MDs to relate better to patients" and criticizing the "cold, hard" manner of physicians have appeared in the medical and popular press.³⁻⁵ Before we dismiss such claims as sensational, we must review the evidence of well-conducted studies on the nature and magnitude of physician-patient communication problems.

Some of these problems can arise during history-taking or during discussion of how the patient's problem should be managed. Some may be related to a lack of communication skills on the part of either the physician or the patient. In general terms, communication difficulties can be described with reference to problems of diagnosis, a lack of patient involvement in the discussion or the inadequate provision of information to the patient. Studies have shown that 50% of psychosocial and psychiatric problems are missed,⁶ that physicians interrupt patients an average of 18 seconds into the patient's description of the presenting problem,⁷ that 54% of patient problems and 45% of patient concerns are neither elicited by the physician nor disclosed by the patient,⁸ that patients and physicians do not agree on the main presenting problem in 50% of visits⁹ and that patients are dissatisfied with the information provided to them by physicians.¹⁰ These studies point to the conclusion that problems in physician-patient communication are common and worthy of our attention.

For the most part, the studies reviewed here described communication problems with reference to the flow of information from patient to physician during history-taking and from physician to patient during discussion of the management plan. However, most of the studies also point to the importance of emotional support as a dimension of communication. In addition, the distribution of power and control in the physician-patient relationship — particularly with reference to decision making — is an implicit or explicit concern in all of the studies reviewed.

Two constructive responses to the common — and complex — problems that arise in physician-patient communication are, first, to identify the main characteristics of these problems and, second, to mount educational programs aimed at solving them. Both of these responses are based on the premise that communication skills can be taught.¹¹

Previous reviews have yielded annotated bibliographies,^{12,13} focused on the relation between communication and patient satisfaction,¹⁴ dealt with research issues,¹⁵ linked communication with quality of care,¹⁶ described a framework for teaching and learning communication skills¹⁷ and reviewed patient compliance.¹⁸ Although these studies implicitly or explicitly endorsed good physician-patient communication, none reviewed work linking communication with patient health outcomes.

DATA SOURCES

A MEDLINE search was conducted of studies published from 1983 to 1993, and a review of six bibliographies was carried out.¹²⁻¹⁷ The MEDLINE search retrieved all articles indexed with the medical subject heading (MeSH) "physician-patient relations" and at least one of the following as a major aspect of the article: "communication," "medical history taking," "interviews," "recall," "consumer satisfaction," "patient satisfaction," "patient compliance," "referral and consultation," "outcome assessment (health care)," and "outcome and process assessment (health care)." The search excluded articles indexed with the MeSH term "psychotherapy" and its more specific associated terms as major aspects of the article. Retrieval was limited to articles in English

and excluded letters, editorials and news items. After titles and abstracts were scanned, papers were classified into six types: review articles, conceptual articles, descriptive studies of communication, observational studies without patient outcome measures, observational studies with patient outcome measures, and controlled intervention studies with patient outcome measures. This review of findings focuses on the observational and intervention studies that included patient health as an outcome variable.

SELECTION OF STUDIES

Studies were selected only if they met the following criteria.

- Design: Two design types were acceptable: those in which physicians or patients randomly received different interventions to improve communication approaches (using patient health outcomes as the standard for evaluating the interventions); and those in which communication behaviours were observed but not altered and in which naturally occurring variations in communication were evaluated in relation to patient health outcomes.
- Subjects: The subjects of the studies included in the review were patients (of all ages) and physicians (including residents) in community or teaching hospitals, walk-in clinics and private practices. No medical specialty was excluded.
- Communication measures and interventions: Each study's description of the aspects of communication examined had to be sufficiently complete to make replication of interventions and measurements possible. Communication could be measured directly, through evaluation of an audio- or videotape recording, or indirectly, through evaluation of the reported perceptions of the patient or physician or both. Interventions could be conducted with either the physician or the patient.
- Outcomes: Dependent variables were restricted to patient health outcomes as measured by physiologic status, functional status, symptom resolution and emotional status.
- Data analysis: Results were recorded as percentage differences between groups, mean differences between groups or statistical significance of findings.

CLASSIFICATION OF COMMUNICATION

Communication was classified as relevant either to history-taking or to discussion of the management plan. When communication was described in a way that could not be classified as relating to either of these it was categorized as "other."

ANALYSIS

Given the wide variety of communication approaches and health outcome measures used in the studies, a formal, quantitative meta-analysis was impossible. This review, therefore, presents tabulated summaries in which the level of statistical significance reported by the investigators is indicated. Results in the expected direction that achieved conventional statistical significance ($p < 0.05$) were considered "positive"; findings of nonsignificant differences in studies with sufficient power were considered "negative"; and findings of nonsignificant trends in studies with insufficient power to detect important differences were considered "inconclusive."

FINDINGS

The database and bibliographic search retrieved 143 relevant articles. These consisted of 41 conceptual articles, 14 review articles, 16 descriptive studies, 5 qualitative studies, 14 analytic studies of communication in relation to factors other than patient outcomes, 42 analytic studies reporting patient outcomes (10 reported health outcomes and 32 other outcomes such as patient satisfaction) and 11 randomized controlled intervention studies with health outcomes. The 10 analytic studies and the 11 randomized controlled trials (RCTs) met the final selection criteria.

STUDIES OF HISTORY-TAKING

Randomized controlled trials

Four of the studies¹⁹⁻²² were RCTs examining elements of communication during history-taking (Table 1); these provide level I evidence.²³ Interventions with relevance to history-taking were implemented with one or more randomly chosen groups; a control group received no intervention. The subjects were adults attending family practices or outpatient clinics. In two of these studies physicians were given training in communication skills; in the other two, patient education was provided. The association of these interventions with a variety of outcomes, including emotional status, role function and physiologic measures, were both statistically and clinically significant. These studies had a high degree of internal validity in view of their use of random allocation, the comparability between groups and the use of single or double blinding. However, their external validity or generalizability was not demonstrated.

Analytic studies

The results of the analytic studies of communication

during history-taking are summarized in Table 2. These were essentially cohort studies and therefore provide level II-2 evidence.²³ Communication was assessed either in light of the reported perceptions of the patient or by analysis of an audiotape of the patient's visit. Subsequently, health outcome was assessed through the patient's own report, the physician's report or a test administered by a third party. Health status measures focused on physical indicators and included symptom resolution^{24,25,26} and blood pressure.²⁷ Two of the studies used univariate analyses and found statistically and clinically significant associations between increased communication (i.e., the physicians asking more questions²⁵ and the patients making more statements²⁷) and symptom resolution. Multivariate analyses that controlled for other important clinical variables were used in the remaining two

studies. One of these,²⁴ involving patients presenting with a new episode of headache, found a highly significant association between patients' perceptions of how fully their headache had been discussed and the resolution of the headache after 1 year, adjusting for 15 other variables related to headache resolution such as duration, frequency, accompanying symptoms, organic diagnosis, other risk factors and psychosocial factors. The remaining study²⁶ found that the correlation of the frequency of patient statements with symptom status dropped to a nonsignificant level when baseline symptom status was controlled for.

Summary

In the studies that focused on history-taking, both

Table 1: Randomized controlled trials of physician-patient communication during history-taking*

Study feature	Evans et al ¹⁹	Roter et al ²⁰ †	Greenfield et al ²¹ †	Kaplan et al ²² †
No. of subjects	400	652	45	252
Subject group	Randomly selected patients with a variety of problems	Consecutive patients	Patients with peptic ulcer	Patients with breast cancer, diabetes, hypertension or peptic ulcer
Age of subjects	17-75 yr	Mean 40 (SD‡ 8.8) yr	Mean 55 (SD 12) yr	50 yr approximately
No. of physicians	40	69	8	Not specified
Setting	General practice	Family practice and primary care internal medicine practice	Outpatient clinic	Outpatient clinics
Intervention	Two 3-h seminars with physicians on history-taking	Physicians received 8 h training on verbal skills to handle emotion or 8 h training on verbal skills for problem solving, or no intervention	20-min session with patients to improve participation in the interview and information-seeking skills	20-min session with patients to improve participation in the interview and information-seeking skills
Communication measure	None	Classification of all physician and patient statements	Classification of all physician and patient statements	Classification of all physician and patient statements
Patient outcome measure	Anxiety level	Level of psychologic distress	Degree of role limitation and of physical limitation	Health and functional status; blood pressure and blood glucose levels
Results	Mean state anxiety scores on the State-Trait Anxiety Inventory for groups treated by trained and untrained physicians were 42.9 (SD 7.1) and 45.3 (SD 7.2) respectively	For the 311 patients with high distress at baseline, the respective mean reductions in distress at 2 wk were 6.55, 6.89 and 5.27 (out of 30) for the two intervention groups and control group respectively	Scores (out of 3) for role limitation were 0.12 (SD 0.66) v. 0.74 (SD 0.72) and scores (out of 5) for physical limitation were 0.25 (SD 0.72) v. 0.92 (SD 0.85) for the experimental and control groups respectively	Experimental group made more assertions and received more information from doctors than control group. Communication measures significantly affected patient health, functional status and physiologic measures
p value	< 0.001	< 0.05	< 0.005	< 0.05

*Level of evidence: I.²³

†Study also examined elements of communication during discussion of the management plan.

‡SD = standard deviation.

physician and patient education were found to improve patient health outcomes. Physician education was demonstrated to affect the patient's emotional status, whereas patient education was demonstrated to affect physical health, level of function, blood pressure and blood glucose level. Of these eight studies, seven obtained significant positive findings and one a negative (nonsignificant) result. Those aspects of history-taking that were found to have a significant association with patient outcomes are summarized in Table 3.

STUDIES OF THE DISCUSSION OF THE MANAGEMENT PLAN

Randomized controlled trials

Seven RCTs of elements of communication in the discussion of the management plan (level I evidence) met the final selection criteria. Three of these²⁰⁻²² dealt with history-taking as well and are summarized in

Table 1. The remaining four²⁸⁻³¹ are summarized in Table 4. In these seven studies an intervention relevant to the discussion of management was given to one or two groups of randomly chosen subjects; a control group received no intervention. The subjects were adults attending hospitals, outpatient clinics or family physicians' offices for a wide variety of reasons. Six of the interventions involved patients. Four of these^{21,22,28,29} were designed to help patients to improve their information-seeking skills; the other two^{30,31} were intended to provide the patients with information about treatment or the recovery period. In the remaining study²⁰ physicians were given training in handling emotions and exchanging information.

The outcomes that were found to be influenced by these interventions were emotional status, pain, functional status, blood pressure and blood sugar level. These studies were well designed and well executed; in three instances, the objective measure of outcome was blinded.

Table 2: Analytic studies of physician-patient communication during history-taking*

Study feature	Headache Study Group ²⁴	Haezen-Klemens et al ^{25†}	Putnam et al ^{26†}	Orth et al ^{27†}
No. of subjects	235	62	102	215
Subject group	Patients with a new episode of headache	Patients with coronary artery disease, gingivitis or tuberculosis	Women with a variety of conditions	Patients with hypertension
Age of subjects	> 14 yr	Not specified	Mean 33 (SD 11.9) yr	27-88 yr
No. of physicians	21	11	14	Not specified
Setting	Family practice	Specialist outpatient clinics	Walk-in clinic	Community health centres
Communication measures	Patient perception of how fully the headache was discussed with physician	Physician behaviours (i.e., asking questions, providing information and giving emotional support)	Frequency of patient statements in the medical-history segment and frequency of explanatory statements by physician	Frequency of patient statements in the medical-history segment and frequency of explanatory statements by physician
Patient outcome measure	Patient report of resolution of headache	Physician evaluation of symptom resolution and physical findings	Patient perception of symptom status 1 wk after visit	Blood pressure measured at home 2 wk after visit
Results	Patients who perceived their headache was discussed fully were 3.4 times more likely than patients who did not to report resolution of headache	Spearman rank correlations of physician behaviours with symptom resolution and physical findings ranged from 0.26 to 0.35	Correlation of patient statements with symptom status, controlling for baseline symptoms. Correlation of physician statements with symptom status	% of patients showing decreased blood pressure was 68.9% and 46.1% respectively for patients with a high and low frequency of statements. Findings were similar for high and low frequency of explanatory statements by physician
p value	< 0.05	< 0.05	> 0.05	< 0.05

*Level of evidence II-2.²³

†Study also examined elements of communication during discussion of the management plan.

Analytic studies

The design and results of analytic studies of communication regarding the management plan that met the review criteria are summarized in Table 5. Two of these^{32,33} were nonrandomized evaluations of interventions (level II-1 evidence²³). The others^{9,34,35} were cohort designs (level II-2 evidence). Three of the cohort studies summarized in Table 2 assessed variables relevant to communication regarding the management plan and also warrant discussion here.²⁵⁻²⁷ In the eight analytic studies a wide range of communication variables were considered: frequency of informative statements by the physician;²⁵⁻²⁷ whether the patient saw a presentation about radiation therapy;³² whether the patient was given a choice of surgical intervention;³³ whether the patient's surgeon permitted a choice of treatment;³⁴ and whether the physician and patient agreed as to the nature of the presenting problem.^{9,35} Outcome was measured with respect to the patient's emotional health, symptom resolution, physical problems and blood pressure. Six of the eight analytic studies found statistically and clinically significant associations between the aspect of communication examined and patient outcome. However, none of these used multivariate techniques to control for baseline health or other potentially confounding factors. One of the two studies whose results were not statistically significant used an analysis that controlled for baseline symptom status;²⁶ the fact that the remainder of the studies did not do so may be an important limitation. The other study that obtained nonsignificant results³³ involved a very small sample (20 patients who were given a choice of surgery and 10 who

were not). The magnitude of the difference in mean scores on the Rotterdam Symptom Checklist found between these two groups with regard to physical problems (6.0 v. 10.5) suggests that this study lacked sufficient power to detect meaningful differences.

Summary

In the studies that examined discussion of the management plan, patient education was found to influence both emotional and physiologic status, and physician education was found to influence emotional status. All seven of the RCTs and six of the eight analytic studies found significant correlations between communication interventions or variables and patient health outcomes. The aspects of communication relevant to discussion of the management plan that were found to significantly influence health outcomes are summarized in Table 6.

STUDIES OF OTHER ASPECTS OF COMMUNICATION AND PATIENT HEALTH OUTCOME

The design and results of three RCTs and one analytic study of aspects of physician-patient communication other than those relevant to history-taking and discussion of the management plan are summarized in Table 7. The analytic study³⁶ found a nonsignificant association between diabetic patients' recall of specific items of information given by the physician and diabetes control.

In one RCT³⁷ the physician randomly varied his approach to symptomatic patients for whom no definite diagnosis could be made: half of the patients were provided with a conventional, firm diagnostic label and a medication, whereas the other half were told that there was no evidence of disease and that no treatment was required. No significant difference in patient outcome was found between these two approaches.

In a second RCT³⁸ symptomatic patients with no definite diagnosis were randomly assigned to receive either a directive or a sharing style of communication. In the former, the physician made definitive statements about diagnosis, treatment, prognosis and follow-up. In the latter, the physician asked the patient's opinion about the problem, diagnosis, treatment, prognosis and follow-up. No significant differences were found between the two groups in their perception of outcome.

In a third, similar, RCT³⁹ symptomatic patients had either a "positive" consultation with the physician, in which they were given a firm diagnosis and a confident statement that they would be better in a few days, or a "negative" consultation, in which the physician said "I cannot be certain what is the matter with you" and either gave no treatment or said that it was not certain that the

Table 3: Elements of effective history-taking

Element	Patient outcomes affected
Physician	
Asks many questions about the patient's understanding of the problem, concerns and expectations, and about his or her perception of the impact of the problem on function	Patient anxiety ¹⁹ and symptom resolution ²⁵
Asks the patient about his or her feelings	Psychologic distress ²⁰
Shows support and empathy	Psychologic distress ²⁰ and symptom resolution ²⁵
Patient	
Expresses himself or herself fully, especially with regard to conveying feelings, opinions and information	Role limitation and physical limitation; ²¹ health status, functional status and blood pressure ^{22,27}
Perceives that a full discussion of the problem has taken place	Symptom resolution ²⁴

treatment provided would have any effect. Of the patients who received positive consultations, 64% felt significantly healthier after 2 weeks; of those who received negative consultations, 39% felt better after that time.

No clear indication of recommended communication styles emerged from these four studies.

DISCUSSION

Patient health outcomes can be improved with good physician-patient communication. The studies reviewed here suggest that effective communication exerts a positive influence not only on the emotional health of the patient but also on symptom resolution, functional and physiologic status and pain control. When taking a his-

tory, physicians should ask a wide range of questions, not only about the physical aspects of the patient's problem, but also about his or her feelings and concerns, understanding of the problem, expectations of therapy and perceptions of how the problem affects function. Patients need to feel that they are active participants in care and that their problem has been discussed fully. Patients should share in decision making when a plan for management is formulated. They should be encouraged to ask questions and given clear verbal information supplemented, when possible, by emotional support and written information packages. Agreement between patient and physician about the nature of the problem and the course of action appears to bode well for a successful outcome.

Table 4: Randomized controlled trials of physician-patient communication during discussion of the management plan*

Study feature	Thompson et al ²⁸	Greenfield et al ²⁹	Johnson et al ³⁰	Egbert et al ³¹
No. of subjects	102	59	84	57
Subject group	Women attending obstetrician/gynecologists for various reasons	Patients with diabetes	Men receiving radiation therapy for prostate cancer	Patients undergoing intra-abdominal surgery
Mean age of subjects, yr	30.0	49.0	67.9	52.0
No. of physicians	3	56	Not specified	Not specified
Setting	Private obstetrics/gynecology practice	Outpatient clinics	Not specified	General hospital
Intervention	Provision of either an information package asking them to write down three questions they wanted to ask, or an information package stating that they should feel free to ask questions	20-minute session with patients to improve participation in the interview and information-seeking skills	Four taped messages on radiation treatment planning, experiences during and after treatment and side effects	One preoperative and several postoperative visits by an anesthetist to educate patient about postoperative pain and its control
Communication measure	Patient recall of the number of questions he or she asked	Classification of all physician and patient statements; number of patient questions; patient effectiveness in getting information	None	None
Patient outcome measure	Anxiety level	Functional status and glycosylated hemoglobin level	Sickness Impact Profile for function; Profile of Mood States for emotional response	Objective (blinded) and subjective assessments of pain, use of narcotics, length of hospital stay
Results	Patients in intervention groups were less anxious than control subjects	Patients in intervention group had higher communication scores, better functional status and lower glycosylated hemoglobin levels than control subjects	Patients in intervention group had significantly better function, but not better mood, than control subjects	Patients in intervention group had lower pain levels and use of narcotics and shorter hospital stays than control subjects
<i>p</i> value	< 0.05	< 0.05	< 0.025	< 0.05

*Level of evidence: I.

The findings of this review may be subject to publication bias. An attempt to overcome this was made by the inclusion of unpublished papers presented at meetings or referred to in annotated bibliographies. None the less, studies that obtained negative results may have been more likely than those that obtained positive results to escape the wide net of the search.

The dimensions of communication that the studies found to be effective have also been described by clinicians and educators as valuable components of communication. Pendleton and associates¹⁷ and Levenstein and collaborators⁴⁰ focused on the need for the physician to attend to the whole of the patient's problems and to take his or her expectations, feelings and ideas into account. Weston, Brown and I⁴¹ have described this as exploring

the disease and the "illness experience" during history-taking.

Riccardi and Kurtz⁴² emphasized especially the importance of giving clear information during discussion of the management plan. Brown, Weston and I⁴³ called this component of the physician-patient interview "finding common ground," a phrase that suggests that agreement between patient and physician is the preferred endpoint; this contrasts with the use of the term "negotiation," with its confrontational overtones, to describe this segment of a consultation.

The striking similarities between the body of research reviewed in this paper and conceptual writings should encourage the medical profession to move toward a common understanding of excellent communication —

Table 5: Analytic studies of physician-patient communication during discussion of the management plan*

Study feature	Rainey ³²	Morris et al ³³	Fallowfield et al ³⁴	Bass et al ³⁵	Starfield et al ⁹
No. of subjects	60	30	269	193	94
Subject group	Patients beginning radiation therapy	Women with breast cancer	Women with stage I or stage II breast cancer	Family-practice patients with a variety of symptoms	HMO† patients receiving follow-up care
Age of subjects	21-75 yr	Adult	< 75 yr	18-70 yr	80% adults; 20% children
No. of physicians	Not specified	Not specified	22 surgeons	13	5 interns, 3 pediatricians and 2 nurse practitioners
Setting	Cancer treatment centre	Hospital	19 private and district teaching hospitals	13 family practices	HMO
Communication variable	Nonrandom intervention for patients to see a 12-min slide-tape program or not	Nonrandom intervention to give (n=20) or not give (n=10) patient choice of surgery	Seeing a surgeon who offered choice of breast surgery v. seeing one who favoured one or other of mastectomy or lumpectomy	Patient agreement or lack of agreement with physician opinion of the problem	Agreement or lack of agreement between patient and practitioner about which problems were to be followed up
Patient outcome measures	Emotional status during therapy as measured by anxiety level and mood disturbance	Patient report of physical and psychologic problems 2 and 10 mo after surgery	Anxiety and depression	Symptom resolution at 1 mo	Patient and physician perceptions of improvement
Results	Anxiety scores were 37.9 and 43.6 and mood scores 19.5 and 41.2 for the intervention and control groups respectively	Median scores on Rotterdam Symptom Checklist at 2 mo for physical complaints were 6.0 for the group given a choice and 10.5 for the group not given a choice; median scores for psychologic complaints were 5.0 and 5.5 respectively	Odds ratios for anxiety in patients treated by surgeons favouring mastectomy, lumpectomy or a choice were 1.0, 0.57 and 0.22 respectively; odds ratios for depression were 1.00, 0.55 and 0.30	Univariate analyses showed that 23% of cases were resolved when there was partial or no agreement and 54% when there was complete agreement. Multiple logistic regression confirmed this variable's importance	More patients perceived an improvement when the patient and clinician agreed than when only the clinician mentioned the problem (49.4% v. 26.7%)
p value	< 0.05	> 0.05	Anxiety: < 0.01 Depression: < 0.06	< 0.001	< 0.02

* Level of evidence II-1 or II-2.²³

† HMO = health maintenance organization.

Table 6: Elements of effective discussion of the management plan

Element	Patient outcomes affected
Patient is encouraged to ask more questions	Anxiety, ²⁸ role limitation and physical limitation ^{21,22,29}
Patient is successful at obtaining information	Functional ^{21,22} and physiologic ^{22,29} status
Patient is provided with information programs and packages	Pain, ³¹ function, ³⁰ mood and anxiety ³²
Physician gives clear information along with emotional support	Psychologic distress, ²⁰ symptom resolution, ²⁵ blood pressure ²⁷
Physician is willing to share decision making	Patient anxiety ³⁴
Physician and patient agree about the nature of the problem and the need for follow-up	Problem ⁹ and symptom ³⁵ resolution

one that can provide the basis for further education and research.

SHARING POWER

What are the implications of the understanding of effective communication suggested here? According to some authors,^{44,45} improvement in communication requires a shift in the balance of power between physician and patient. Some of the studies reviewed here dealt explicitly with the issue of power and control. In one,³³ the fact that a woman was able to choose the kind of breast surgery to have was not found to be related to emotional health outcomes. In another,³⁴ going to a surgeon who permitted (but did not force) the choice *was* found to be related to positive outcomes. I would suggest, therefore, that it was not simply the decision-making power of the patient that was effective but, rather, the provision of a caring, respectful and empowering context in which a woman was enabled to

Table 7: Studies of physician-patient communication other than during history-taking and discussion of management plan*

Study feature	Hulka et al ³⁶	Thomas ³⁷	Savage et al ³⁸	Thomas ³⁹
No. of subjects	242	200	200	200
Subject group	Patients with diabetes	Patients for whom no definite diagnosis could be made	Patients presenting with a variety of symptoms	Patients for whom no definite diagnosis could be made
Age of subjects	Mean 53 yr	All ages	16-75 yr	All ages
No. of physicians	42	1	1	1
Setting	Family practice or general internal medical practice	General practice	General practice	General practice
Intervention	Not applicable	Patients were randomly assigned to be told that there was no evidence of disease and that no treatment was required (group 1) or to be given a symptomatic diagnosis and a medication (group 2)	Patients were randomly assigned to receive a directive style of treatment (group 1) or to be invited to share in treatment decisions (group 2)	Patients were randomly assigned to be given a firm diagnosis and told they would get better (group 1) or an uncertain diagnosis and either given no treatment or told that the effect of treatment was uncertain (group 2)
Communication measure	Proportion of physician instructions actually given that patients said they had received 2 wk later	None	None	None
Patient outcome measure	Index of diabetes control	Patient perception of whether he or she got better 1 mo after visit	Patient perception of whether he or she felt better 1 wk after visit	Patient perception of whether he or she got better 2 wk after visit
Result	% of patients with good control was similar for the different levels of communication	61% of group 1 and 55% of group 2 got better	33% of group 1 and 26% of group 2 felt better	64% in group 1 and 39% in group 2 got better
p value	NS†	NS	NS	< 0.001

*Level of evidence II-2 for Hulka et al and I for Thomas and Savage et al.
 †NS = not significant.

make an important decision with both support and comfort. As well, agreement between physician and patient was found to be a key variable that influenced outcomes.^{9,35} In my view, such agreement implies that decision making was a shared, egalitarian process. These four studies taken together debunk the myth that the only alternative to the physician's total control of power in the therapeutic relationship is his or her total abdication of power. They indicate that patients do not benefit from the physician's abdication of power but, rather, from engagement in a process that leads to an agreed management plan.

EDUCATION

Curriculum development in the area of communication at all levels of medical education is warranted on the basis of the study findings reviewed here. It is certainly justifiable to identify physician-patient communication as a "central clinical function."¹

Patient education with regard to communication has been shown to be highly effective and deserves much more concerted attention in clinical settings. The provision of information packages and of waiting-room training sessions are two strategies that were proven to be successful in the studies reviewed.

FUTURE RESEARCH

Future research is recommended along three lines. First, initiatives in the domain of both medical and patient education are needed and will require rigorous evaluation. Effectiveness studies with regard to acceptability of the programs, behavioural change of physicians and patients, and patient outcomes are warranted.

Second, cohort studies are still needed to assess the association of communication measures not yet studied, such as the Davis Observation Code⁴⁶ and the Patient-Centred Measure,⁴⁷ with patient outcomes. This review has indicated the importance of controlling for baseline health and other potential confounding variables in research of this kind.

Third, because communication is an interactive process, qualitative studies would be particularly helpful. Shared decision making leading to agreement between patient and physician is one example of an interactive process that requires full description of the kind that is possible only in qualitative research approaches.

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