Communicating Information to Patients

Patient Satisfaction and Adherence as Associated with Resident Skill

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A study investigated the degree to which residents' communication of specific information about medications and follow-up appointments had an impact on patient recall, satisfaction, and adherence. Twenty-nine interactions between patients and residents were taped and analyzed by two trained observers. Patients were interviewed immediately after their interactions with residents to assess their ability to recall instructions and to assess their levels of satisfaction with the visit. Patients' overall global satisfaction with their interactions was highly correlated with their ratings of resident information giving (Pearson r = .90, P < .001). Patients who expressed higher levels of satisfaction also had higher recall rates (Pearson r = .39, P < .01), although overall patient recall rate was only slightly above 50 percent. Observers' analysis of residents giving information reveals a mean performance rating of 40 percent. Only 31 percent of patients returned for their follow-up appointments. The study suggests that information itself may not be so important in determining patient satisfaction as are patients' perceptions that physicians attempt to give them information. Such information may, however, have greater impact on patient adherence with physician recommendations.

Patient satisfaction and adherence are two issues in medical care that continue to attract attention. Although how information given to the patient has an impact on either is yet to be determined, studies have indicated that the amount and form of information patients receive is one aspect of medical care about which patients express most dissatisfaction.[1] Studies also suggest that patients' ability to recall information given to them may in turn influence patient adherence.[2] The extent to which patient dissatisfaction and ability to recall instructions are related to physician's information-giving skills as such also is unknown. Information given by the physician appears to be linked to both satisfaction and adherence, however.[3–7] In addition to information, other factors that appear to influence patient satisfaction and adherence are the degrees to which physicians considered patients' concerns[4,8] and patients' views of convenience, necessity, or expense of the recommendations.[9]

A model proposed by Ley[4] predicts that increased understanding leads to increased memory, that increased understanding and memory lead to increased satisfaction, and that increased understanding and memory lead to increased compliance. Given Ley's model and additional research suggesting that adherence may be increased if specific concerns or problems are addressed,[4,8,9] it would appear that an obvious strategy to increase adherence may be to enhance the quality of information given, check patient understanding of the information, and identify potential barriers to adherence so alterations could be made as necessary. There is little evidence to indicate, however, that most physicians routinely incorporate these aspects of communication into their practice or that they may have been taught to do so in residency.

This study assessed the extent to which these content elements were routinely incorporated by residents into the interaction with the patient, and the extent to which these elements were related to patient satisfaction, recall, and adherence.

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METHODS

The study was conducted in a family practice residency clinic in rural southern Illinois. A resident training site was chosen for the study because of the availability of equipment to make a videotape of resident-patient interactions, thus enabling researchers to analyze tapes at a later date.

All patients presenting at the clinic for treatment of an acute condition were considered for the study. Participants in the study were the first 29 of these patients who met study criteria. Criteria for inclusion in the study were that the patient (1) had an acute condition for which he was being treated for the first time, (2) had received a prescription for medication at the visit, and (3) had had a follow-up appointment recommended. No attempt was made to screen patients based on age. Of the 29 patients meeting study criteria, 16 had otitis media, 5 had streptococcal pharyngitis, 5 had a urinary tract infection, and 3 had bacterial sinusitis. Patients meeting study criteria were similar demographically to patients as a whole who presented at the clinic for treatment of acute conditions. Nearly one half of the patients meeting study criteria were aged 17 years or younger. The range in age of the sample was 1 to 58 years.

Acute conditions were chosen as a criterion because (1) they would occur frequently in ambulatory practice, (2) there would likely be medication prescribed, (3) a follow-up visit would possibly be recommended, and (4) confounding factors associated with chronic disease, such as complexity and length of treatment, familiarity of the regimen, and associated psychosocial factors would be eliminated.

The variables of adherence with medication and adherence with follow-up appointments were chosen for the study because they occur frequently in ambulatory practice and because both provide accessible measures of adherence. The follow-up appointment adherence was assessed by direct observation, and medication adherence was assessed through the indirect measure of self-report at the follow-up visit. Although self-report has been criticized for the possibility of yielding overestimates of adherence, studies of medication adherence that compare self-report with other means of assessment have yielded substantial intercorrelations.[10]

Interactions between residents and all patients with acute conditions were videotaped. Both patients and residents gave their permission to be recorded. Both groups were told that the investigators were interested in learning more about physician-patient interactions but were given no further information about the study. Only five patients did not agree to be taped.

The 29 taped encounters used in the study involved 11 individual residents. Of the taped encounters, 11 were with third-year residents, 16 were with second-year residents, and two were with first-year residents. For the purposes of analysis, only the final segment of the tape, that dealing specifically with instruction, was evaluated.

The content elements investigated in the study were residents' verbal behaviors that related specifically to information given to patients about their medication and about their follow-up appointments. Target verbal behaviors relating to information about medication corresponded to those noted in the literature and included drug name, purpose, administration schedule, adverse effects, or special administration instructions.[11] Verbal behaviors regarding information about follow-up appointments included informing the patient when to return and of the purpose and importance of the follow-up visit. Additional content elements that were evaluated included whether the resident checked patient understanding of the instructions, whether the resident identified potential barriers to compliance and, if barriers were identified, whether the resident attempted to make appropriate alterations. Each verbal behavior evaluated had been defined behaviorally in a previous study.[12]

At completion of the appointment, an interviewer asked the patient to respond candidly to a questionnaire that elicited his or her impressions of the visit with the resident. If the patient was a child, the parent was interviewed. The questionnaire used for the study was the Patient/Doctor Interaction Scale (PDIS), the development of which is described in greater detail elsewhere.[13] Test-retest reliability of the instrument was 0.76 and internal reliability as measured by Chronbach's alpha was 0.85. Convergent validity of the scale was 0.74. The questionnaire contained 17 items, each of which was measured on a five-point agree–disagree scale. The questionnaire assessed patients' satisfaction with the encounter not only in terms of interpersonal skill and general health care delivery but also in terms of the physician's information-giving skill.

Upon completion of the questionnaire, patients were asked to recall the information given to them by the resident at the visit. The interviewer asked general, open-ended questions about what the resident recommended. If the patient related that he or she was to take a medication, the interviewer probed further to assess the patient's knowledge of the type of medication, dosage, time of administration, and purpose. Patient recall was calculated as the ratio of information correctly recalled and the amount of information given by the resident. For example, if the patient recalled three out of four specific aspects of instructions, the recall score would be 0.75. Perfect recall would be 1.0.

Although the patient was given the opportunity to relate instructions he remembered, the interviewer refrained from asking the patient leading questions. The interviewer did not provide the patient with supplemental information

if specific instructions could not be recalled. If the patient had requested further information, he was to be referred to the nurse for instruction and deleted from the study. No patient requested additional information or clarification of instructions.

Global patient satisfaction as measured by the PDIS was expressed as the ratio of the sum of patients' responses to all questions to the maximum rating the resident could have received on the questionnaire; for example, if a patient's summed rating of resident performance equaled 60 and the perfect score was 85, the satisfaction score would be 60/85 or 0.70. (Highest level of satisfaction would be 1.0.) Patient satisfaction with residents' information-giving skill was measured by extracting the five items from the scale that specifically evaluated information giving. Patient satisfaction with information giving was then expressed as the ratio of the sum of patient rating on the five items to the maximum rating the resident would have received on these items.

Tapes of interaction between resident and patient were analyzed independently by two trained observers using behavioral observation procedures as described by Bailey and Bostow.[14] Each taped verbal behavior to be evaluated was rated by observers on a three-point scale, with 0 signifying poor performance, 1 signifying performance that needs improvement, or 2 signifying perfect performance. The index of interrater reliability was determined for each tape by dividing the total number of agreements between observers by the total number of agreements and disagreements.[14] Mean interrater reliability across all tapes was 0.88 with a range of 0.80 to 0.95.

Level of resident performance for each tape was expressed as the ratio of the mean score from the two observers and the maximum score the resident could have obtained had each behavior been performed perfectly. Tapes were then audited independently by each observer so that the exact instructions the resident gave the patient could be monitored. Interrater reliability for the second audit was 0.98. No attempt was made to assess differences in resident performance according to year of training.

RESULTS

In general, patients were satisfied with their interactions with the residents. Overall patient satisfaction scores as measured by the PDIS ranged from 0.63 to 1.0 with a mean satisfaction score of 0.88, and a standard deviation (SD) of ±0.10. Satisfaction with information giving was also high, with a mean score of 0.87, SD ± 0.13. Resident performance with regard to information giving as rated by the two trained observers ranged from 0.05 to 0.65, with a mean rating of performance of 0.40, SD ± 0.15. Mean rating of resident performance regarding the degree to which they gave patients all information about medication prescribed was 0.56, SD ± 0.19. Most frequently the resident neglected to give the patient information about the duration of treatment (50 percent of the time) followed by neglecting to specify the amount of medication to be taken (38 percent of the time).

In no instance did the resident check for patient understanding of recommendations or attempt to identify potential problems or barriers that would preclude the patients from following recommendations. In six instances the resident failed to specify to the patient exactly when they were to return for the follow-up visit, although when to return was noted on the patient's chart as well as on the charge sheet the patient returned to the receptionist at the end of the visit. Likewise, in no interaction did the resident explain why the follow-up visit was necessary, nor did the resident emphasize the importance of the follow-up visit.

Patient recall of what they were told by the resident ranged from 0.10 to 1.0, with a mean recall score of 0.54, SD ± 0.30. Although the majority of patients knew the general category of medication that had been prescribed, such as antibiotic, most patients were unable to specify the medication name. When asked how they were to take their medication, most patients stated they were "to take their medication as prescribed" but were unable to recall specifically when or how to take the medication or what dosage they were to take. Only eight patients (27 percent) were able to recall how long they were to take their medication. Of the total number of patients in the study, five (17 percent) were able to recall all aspects of how they were to take their medication. Fourteen percent (n = 4) related that they were to return for a follow-up visit.

Only nine (31 percent) of the patients kept their follow-up appointments. The majority of these were under the age of 4 years. Of the nine patients keeping their appointments, five reported taking their medication as prescribed. The remaining four patients reported either discontinuing their medication prematurely or neglecting to take the medication at the time specified. Prior provisions and approval had not been obtained from the human subjects committee to check medication adherence except at the follow-up visit. Consequently, the degree to which patients not keeping their follow-up appointments adhered with their medication regimen was not determined.

The relationship between patients' ratings of resident information giving and global satisfaction with the encounter was not statistically significant, nor were observers' ratings of resident performance related to patient satisfaction or adherence. Patients' overall global satisfaction with the interaction was, however, highly correlated with their ratings of the resident information giving (Pearson $r = .90$, $P < .001$). Patient satisfaction with resident in-

formation giving was also correlated with the ability to recall instructions (Pearson $r = .39$, $P < .01$). There was no significant relationship, however, between patient recall and adherence.

Although demographics have not been shown to be related to adherence as a whole,[15,16] because there were nearly as many children (n = 14) as adults (n = 15) in the study, comparisons of the two groups with regard to recall, satisfaction, and adherence, as well as with regard to ratings of patients and observers, were made. There were no significant differences between adults and children in any instance, with the exception of adherence. Adherence with follow-up appointments was higher in the pediatric group $t(27) = 2.24$, $P = .03$.

DISCUSSION

As predicted by Ley's model, increased understanding and memory were related to higher levels of patient satisfaction. Findings from the study suggest, however, that information itself may not be so important in determining satisfaction as is patients' perceptions that residents attempted to give them information. Although those patients who had higher recall rates also expressed higher levels of satisfaction, overall recall rates were only slightly above 50 percent. Likewise, observers' ratings of resident performance regarding information giving was relatively low; however, patients' ratings were relatively high. Although patients' ratings of physician performance may in part be attributed to a tendency to rate physicians favorably, ratings may also be the result of patients' interpretations that the attempt to give information is an expression of interest and concern, thus raising their levels of satisfaction.

Noncompliance with appointment keeping was higher in the current study than is reported in the literature.[17] A myriad of factors has been cited as influencing appointment keeping, including failure to know about the appointment or misunderstanding about it, lack of transportation, time or work conflicts, or personal or family problems.[18–20] No attempt to assess reasons for nonadherence with appointment keeping was made in the current study. Nevertheless, it is of interest that, in 20 percent of the interactions, residents failed to tell patients when they were to return. In the majority of instances patients were neither told the reason for, nor informed of the importance of, the return visit; furthermore, in no instance did the resident attempt to identify potential problems that may have precluded the patient from keeping the appointment. Whether adherence with appointments would have been improved had this information been included is still in question, although it is interesting to note that all patients who did return for follow-up had been given specific instructions to do so by the residents. It is also important to note that the majority of patients returning for follow-up were in the pediatric age group and had new or continuing symptoms.

Although studies have not correlated age with level of adherence, the extent to which age of the patient influences the type of information given by the physician and how this in turn has an impact on adherence is yet to be determined. That returning patients had new or continuing symptoms causes one to speculate that, in at least some cases, patients who were feeling better may have seen no need to return. Whether adherence would have been improved by giving an explanation of why the return visit was necessary or important also remains in question.

Findings from this study are not necessarily generalizable to other practice settings, particularly in light of the relatively small sample size. Likewise, residents in the study may not be representative of residents as a whole or of physicians in practice. Despite these factors, however, the study does have several implications for future study.

Differences in information giving by the physician, as determined by the patient's age and the impact these differences may have on adherence, warrant further investigation. Furthermore, how information giving by the resident changes with experience and how information giving in turn may influence adherence remains in question. In addition, whether the time and effort spent by the physician in communicating instructions effectively to patients is outweighed by the benefit of increased adherence also warrants further discussion.

The study suggests that patients' perceptions of adequate physician performance may be quite different from an expert's point of view. In terms of patient satisfaction, patients may tend to place more importance on the process of information giving rather than on the quality or quantity of the information received. Using patient satisfaction as the sole indicator of a physician's ability to transfer information does not appear to be adequate. As with other aspects of medical care, patient satisfaction does not necessarily equate physician competence.

Communication is the central component of the physician-patient relationship. Accordingly, whether a first- or third-year resident or a five- or ten-year seasoned physician, communication skills play an important role in effective patient care; however, the extent to which these skills vary with level of training or practice or the extent to which these skills influence adherence remains obscure.

Although patient satisfaction may not be affected directly by information itself or by skill in relating instructions, adherence may be more dependent on these factors. The extent of influence is unknown, although it remains evident that an initial step in increasing patient adherence may be to assure that patients understand what they are

to do and that they are willing and able to carry out the recommendations prescribed.

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