

Residency Education

Dialogues in the Exam Room: Medical Interviewing by Resident Family Physicians

Kim Marvel, PhD; Gregory Major, MD; Kathleen Jones, MA; Carol Pfaffly, PhD

Background: Limited information exists about the application of the biopsychosocial model in medical practice. This study expanded our knowledge about the extent to which psychosocial content is included in medical interviews conducted by resident family physicians. **Methods:** Interviews of 180 patients conducted by six second-year family practice residents were audiotaped and transcribed. Physician statements were analyzed and coded as social talk, physician-centered statements, patient-centered statements, and discussion of patient affect, family, health promotion, and patient education. **Results:** The proportion of interviews in which specific physician interactions occurred were physician-centered statements: 100%, patient-centered statements: 66%, dealing with patient affect: 18%, information about family: 61%, initiation of health promotion: 33%, and initiation of patient education: 46%. Discussions of patient opinion/perception, patient affect, family information, and health promotion occurred most commonly during well-care visits and with female patients. **Conclusions:** In this sample of residents, providers extended the interview beyond a purely biomedical focus. However, the psychosocial focus often was brief and applied inconsistently across patients.

(Fam Med 2000;32(9):628-32.)

Based on Engel's¹ description of the biopsychosocial model in the 1970s, the scope of medical interviewing has expanded to include the patient's perspective and social context. Examples of the broader scope of interviewing include the patient-centered clinical method,² the three-function model,³ and family systems medicine.^{4,5} Medical providers are now encouraged to expand beyond gathering biomedical data to include patient perception, patient affect, and family context and to provide information that promotes patient health and autonomy. A growing body of research supports the practice of such collaborative, contextual care.

Despite the compelling evidence in support of the biopsychosocial approach, we have limited knowledge about the application of the model in medical practice. Observations of family physicians in practice have suggested that the patient's perspective and family context are discussed infrequently during medical interviews.⁶ Studies of interviews conducted by family practice

residents^{7,8} have suggested that the typical interview consists of physician-directed biomedical questions focused on the individual patient, with infrequent inquiry into the patient's perspective or social context. Bertakis et al investigated the association of resident physicians' interviewing style with several factors, including physician gender,⁹ initial versus return visits,¹⁰ and patient satisfaction.¹¹ The present study expanded and updated our understanding of the psychosocial content of medical interviews conducted by family practice residents by identifying the proportion of medical interviews devoted to different types of physician-patient interactions and various types of content.

Methods

This study was approved by the Human Subjects Committee of Poudre Valley Hospital. The project was conducted at Fort Collins Family Medicine Residency Program, an 18-resident program in north-central Colorado. We used a cross-sectional, descriptive design.

Subjects

Six residents and 180 patients participated in the study. Demographic information about the patients and physicians is shown in Table 1. A convenience sample

From the Fort Collins Family Medicine Residency Program, Fort Collins, Colo (Drs Marvel and Pfaffly and Ms Jones) and the Department of Family and Community Medicine, University of Toronto, Ontario (Dr Major).

of six second-year residents was selected. The physicians were informed that the purpose of the study was to better understand physician-patient interviewing. All six agreed to participate.

The selection of patients was based on the physicians' appointment schedules. On intermittent days over a 6-month period, all patients on the physicians' schedules were invited to participate regardless of presenting medical problem. This method of selecting patients, although not randomized, avoided preselection of patients and was most practical given the variations in physicians' schedules. Patients were informed that the purpose of the study was to better understand physician-patient interviewing. Of the selected patients (197), 180 (91.4%) agreed to participate.

Procedures

All data were collected during patient office visits at the residency outpatient clinic. Physician-patient interactions were audiotaped from ceiling microphones installed in examination rooms. Residents agreed that the audiotaping would be done without their awareness at intermittent times over several months. Prior to the physician entering the examination room, a research assistant informed the patient of the research study. For consenting patients, the research assistant recorded the entire visit via a tape recorder located in a nearby room. Using this method, 30 interviews were recorded for each resident physician.

Data Analysis

Transcripts were made from the audiotaped interviews. Each physician statement on the transcript received one of four possible codes: social talk, physician-centered statement, patient-centered statement, and dealing with affect. Examples of how statements were coded are shown in Table 2.

Each physician statement could receive an additional code from any of the following three categories: family-oriented discussion, health promotion discussion, or patient education discussion (Table 2). For the categories of "health promotion" and "patient education," each transcript received only one dichotomous code, indicating whether these topics were or were not discussed at some point in the interview. The criteria for "patient education discussion" required more than brief statements, such as information about medication side effects. Rather, a more in-depth discussion was required to meet the coding criteria.

All transcripts were coded by one of the investigators. To assess reliability of coding, 51 (28%) of the transcripts were randomly selected and coded independently by two other investigators. Using this method, inter-rater reliability was assessed for coding of statements about health promotion and patient education in 18 (10%) transcripts; reliability of coding patient-

Table 1

Demographics of Participating Patients and Physicians

Physicians' Characteristics

Gender, female—16.7% (1 of 6)
Age, average—30

Patients' Characteristics

Gender, female—61.7% (111 of 180)
Age, mean (range)—32.4 (1 to 90)

Reason for Visit

Acute problem—43.3%
Well care—31.7%
Chronic problem—25.0%

Table 2

Coding Categories Used to Analyze the Transcripts

Coding Category

- **Social talk**—physician statements unrelated to the patient's reason for visit
Example: Beautiful day, isn't it?
- **Physician-centered statements**—statements/questions aimed at collecting biomedical information related to the diagnosis/treatment of the problem
Example: When did the cough start? Any fever?
- **Patient-centered statements**—physician statements aimed at obtaining the patient's perspective (with three subcategories)
 - 1) **Identifying patient agenda, format, and/or goals**—physician inquires about patient's agenda, format, and/or goals for the visit.
Example: Is there anything else you wanted to talk about? Is this what you were hoping to get out of today's visit?
 - 2) **Eliciting patient's perspective of problem**—physician elicits the patient's opinion, explanation, or understanding of the problem.
Example: What do you think is causing this cough? Any idea what brought it on?
 - 3) **Involving patient in plan development**—physician elicits patient's opinions about the treatment plan.
Example: Would you rather try antibiotics or wait a few days to see if it goes away?
- **Dealing with patient affect**—physician identifies and/or responds to patient emotional concerns.
Example: Do you have any fears about what may be causing this cough?
- **Family-oriented discussion**—physician statements related to the patient's family
Example: Any history of lung problems in your family?
- **Health promotion initiated by physician**—physician discussion, reinforcement, or recommendations about the following lifestyle issues: smoking, nutrition, exercise, and child safety
Example: Have you cut back on your smoking? Great, good work.
- **Patient education initiated by physician**—physician statements aimed at increasing the patient's understanding of the problem and/or treatment
Example: It sounds like you're experiencing migraine headaches. Migraines can be related to . . .

centered statements, affect, and family discussion was assessed in 33 (18%) transcripts. The proportion of transcripts in which raters agreed that the targeted behavior occurred was: health promotion discussion—89% ($\kappa=.766$), patient education discussion—83% ($\kappa=.557$), patient-centered statements—85% ($\kappa=.667$), dealing with affect—82% ($\kappa=.507$), and family-oriented discussion—94% ($\kappa=.857$). The kappa values indicate a moderate-to-high association between the two raters.

Data were then analyzed using both descriptive and inferential statistics. Descriptive methods were used to present demographic information and the occurrence/nonoccurrence of all interview categories. Inferential statistics (χ^2 and ANOVA) were used to assess the degree of association between demographic variables and categorical variables, such as patient gender and reason for visit and to assess the relationship between physician-patient interaction and the length of interviews.

Results

The mean length of interviews was 14 minutes and 19 seconds, with a range of 2 minutes and 5 seconds to 43 minutes and 43 seconds. The mean visit length for chronic problems, well-care visits, and acute problems was 15 minutes and 25 seconds, 14 minutes and 52 seconds, and 13 minutes and 16 seconds, respectively ($F[df=2]=1.59$, nonsignificant).

Resident physicians had an average of 104 coded interactions with patients during each interview. Physician-centered statements occurred in all interviews, and social talk was coded in 91% of the visits.

Patient-centered Statements

Patient-centered statements were made by the physician in 65.6% (118) of the interviews. The majority of patient-centered statements were aimed at involving the patient in development of a treatment plan (48% of interviews) or involving the patient when identifying the agenda or expectations for the visit (38% of interviews). Inquiry into the patient's perception of the illness occurred infrequently (7% of interviews).

Physicians included all three components of patient-centered inquiry (identifying the agenda, soliciting patient's perception of problem, and involving patient in treatment planning) in only 2% of the interviews. A patient-centered statement was more likely to occur during well-care visits (73.7% of interviews) and visits for chronic problems (73.3% of interviews) than during visits for acute problems (55.1% of interviews) ($\chi^2[df=2]=6.629$, $P=.036$). The female resident included patient-centered statements in 93.3% of patient visits, compared with an average of 60.0% for the five male providers.

Affect

Patient affect was addressed in 17.8% (32/180) of the interviews. Discussions of patient affect typically were brief, consisting of a median of 4.5 physician-patient interactions. Most commonly, the physician initiated a direct inquiry about patient feelings ("Are you nervous about the delivery?") or family relationships ("How are you getting along with your husband?"). Less frequently, the physician responded to patient cues ("I sense that you've seen happier days"). In two interviews, the discussion of patient feelings evolved into an extended primary care counseling session involving empathy, facilitation, support, and exploration of coping and support systems. Patient affect was addressed more commonly during interviews with female patients (26.1% of visits), compared with male patients (4.3% of visits) ($\chi^2[df=1]=13.806$, $P<.000$). The likelihood of addressing patient affect was not associated with physician gender (male physicians: 16.0% and female physician: 26.7%, $P=.163$), nor the reason for visit (12.8%, 24.4%, and 19.3% for acute, chronic, and well-care visits, respectively, $P=.250$).

Family

The patient's family was mentioned in 61.1% (110/180) of the interviews. Inquiry about family medical information, such as family history or the health status of other family members, was the most common type of family-related interaction (43% of the interviews). Discussion of affect related to family occurred in 10% (18/180) of the visits, and the physicians solicited opinions/expectations of family in 7.8% (14/180) of the visits. A family member was present in the examination room during 42.2% (76/180) of the interviews. Not surprisingly, discussion of family was more likely during visits with family members present (80.3%), compared with interviews with individual patients (47.1%) ($\chi^2=26.33$, $P\leq.001$). Collaborative and affect-related discussion of family issues was more likely with female than male patients (26% versus 4%, respectively). Family discussions also were more likely during well-care visits (80.7%) than visits for chronic or acute problems (48.9% and 53.8% of visits, respectively).

Health Promotion

Physicians initiated discussion of health promotion in 32.8% (59/180) of the interviews. Topics discussed included smoking cessation (15.6%), nutrition (12.8%), exercise (9.4%), and child safety (5.6%). (The total does not equal 32.8% because in some interviews more than one health promotion topic was discussed.) Health promotion occurred more commonly during well-care visits (47.4% of interviews) than during visits for chronic or acute problems (33.3% and 21.8%, respectively) ($\chi^2(2)=9.78$, $P=.008$). Neither physician nor patient gender was associated with likelihood of discussing health promotion.

Patient Education

Patient education was initiated by the physician in 45.6% (82/180) of the interviews. Common topics included explanations about pregnancy during prenatal visits, discussion of viral versus bacterial infection for parents of ill children, and information about the use of an inhaler. The most common mode of patient education was verbal information provided by the physician. Written materials were provided in only 6.1% (11/180) of the visits. The likelihood of patient education was not associated with the reason for visit, physician gender, or patient gender.

The occurrence of the targeted interviewing behaviors varied among the six residents (Table 3); several residents emphasized specific behaviors. The highest mean (ie, upper end of the range in Table 3) in the five categories was attributed to four different physicians. For example, the physician who initiated patient education in 63.3% of interviews (the highest among the physicians) was not the same physician who showed the highest proportion of health promotion discussions.

Discussion

Overall, our results show that residents expand the focus of the interview beyond a purely disease-centered, data collection inquiry. Physicians solicited patient involvement in two thirds of the interviews, included family information in more than half of the interviews, initiated discussion of health promotion and provided patient education in slightly under half of the interviews, and discussed patient affect in about one fifth of the interviews. However, the psychosocial focus was often brief and not applied consistently across patients or problems. For example, the patient's perspective about problems was rarely solicited. Also, expansion of the interview to include patient opinion and affect, family information, and health promotion occurred less often with male patients and less frequently during visits for acute and chronic problems, compared with well-care visits. Appropriate inclusion of psychosocial issues in interviews will, of course, vary depending on the nature of the problem, the physician's familiarity with the patient, and time limitations. Nevertheless, the patterns that emerged in these results highlight the need for further investigation and suggest directions for medical educators.

The importance of involving the patient (ie, a patient-centered approach) in specific phases of the interview has substantial empirical support.^{2,12-14} Although the resident physicians in this study made patient-centered statements in 65.6% of the interviews, many of the inquiries were limited to brief interactions. Agenda setting, for example, was often characterized by a single open-ended inquiry into the patient's reason for the visit without further questions to identify additional concerns. Similarly, inquiry into the patients' perception of their illness occurred in only 7% of the

Table 3

Proportion of Interviews in Which Specific Physician Behaviors Occurred, Based on the Six Individual Physician Averages

	Mean (%)	Range
Patient-centered statements	65.6	46.7–93.3
Patient affect addressed	17.8	6.7–26.7
Family discussed	61.1	50.0–73.3
Health promotion initiated by physician	32.8	23.3–43.3
Patient education initiated by physician	45.6	26.7–63.3

interviews. Finally, the most common approach for involving the patient in the treatment plan was tagging a single question at the end of the physician's suggested plan (eg, "I think we should use an antibiotic—is that okay with you?"). Collectively, the results suggest that residents do not apply patient-centered interviewing skills with consistency and depth.

Family-related statements were made in more than half of the interviews, usually inquiries into the history or current medical health status of family members. Similar to other studies,^{7,15} these results show that basic family inquiry occurs most commonly during visits for well care. Compared to family physicians with fellowship training,⁶ the more advanced skills of discussing family relationships and soliciting views of family members are infrequently demonstrated by resident physicians.¹⁶

The six residents addressed patient affect at a frequency similar to experienced family physicians but at a lower rate than physicians with fellowship training.⁶ The appropriate level of dealing with patient affect cannot be determined with the data in this study. However, the difference found between fellowship-trained physicians and the residents suggests that the tendency to address affect is less dependent on the nature of the patient's problem than on the physician's ability and/or willingness to identify and acknowledge patient emotions.

Limitations

This study has several limitations. The generalizability of results is limited by the small physician sample size, the participation of only one female physician, and the use of one data collection site. Concern about the small sample size is moderated by similarities in the sample characteristics with studies of larger sample size. For example, the proportion of female patients in this study (61.7%) is identical to the proportion of female patients (62%) in a study of 4,454 visits.¹⁷ The mean interview length (14 minutes and 19 seconds) also is similar to other studies,^{6,15,18} and the patients' reasons for visit are similar to those cited in

larger studies.^{15,17} Also, the presence of family members in the examination room (42.2% of visits) is similar to other studies.^{19,20}

A second limitation is the method of data collection and analysis. Awareness of tape recording may have altered the interactions of patients and physicians, although this effect was minimized among the physicians by recording interviews at unannounced times. Non-verbal communication, such as facial expressions and body posture, could not be identified or coded from typewritten transcripts.

Finally, the analysis did not address the appropriateness of the physician interviewing behaviors. These include behaviors such as possible missed opportunities for dealing with patient affect or providing patient education.

Conclusions

Despite these limitations, this study suggests that residents are inconsistent in the integration of psychosocial elements into medical interviews. To further expand our knowledge of resident interviewing skills, additional studies with larger physician samples at diverse training sites are needed. Also, collection of medical outcome data and measures of patient satisfaction, along with resident interviewing behavior, would allow investigators to assess the association among these variables. If supported by other studies, these findings pose a challenge to medical educators. Because experience alone does not improve interviewing skills, and brief educational interventions are unlikely to make a lasting difference,²¹ further efforts are needed to demonstrate the long-term effects of educational interventions aimed at moving the biopsychosocial model from the classroom into the examination room.

Acknowledgment: The content of this manuscript was presented at the 2000 Society of Teachers of Family Medicine Annual Spring Conference in Orlando, Fla.

Corresponding Author: Address correspondence to Dr Marvel, Fort Collins Family Medicine Residency Program, 1025 Pennock Place, Fort Collins, CO 80524. 970-495-8840. Fax: 970-495-8891. E-mail: mkm@libra.pvh.org.

REFERENCES

- Engel GL. The need for a new medical model: a challenge for biomedicine. *Science* 1977;196:129-36.
- Stewart M, Brown JB, Weston WW, McWhinney IR, McWilliam CL, Freeman TR. Patient-centered medicine: transforming the clinical method. Thousand Oaks, Calif: Sage Publications, 1995.
- Cohen-Cole SA. The medical interview: the three-function approach. St Louis: Mosby-Year Book, 1991.
- Doherty WJ, Baird MA. Family therapy and family medicine: toward the primary care of families. New York: Guilford Press, 1983.
- McDaniel SH, Campbell TL, Seaburn DB. Family-oriented primary care: a manual for medical providers. New York: Springer-Verlag, 1990.
- Marvel MK, Doherty WJ, Weiner E. Medical interviewing by exemplary family physicians. *J Fam Pract* 1998;47:343-8.
- Crouch MA, McCauley J. Family awareness demonstrated by family practice residents: physician behavior and patient opinions. *J Fam Pract* 1985;20:281-4.
- Marvel MK, Morphew PK. Levels of family involvement by resident and attending physicians. *Fam Med* 1993;25(1):26-30.
- Bertakis KD, Helms LJ, Callahan EJ, Azari R, Robbins JA. The influence of gender on physician practice style. *Med Care* 1995;33:407-16.
- Bertakis KD, Azari R, Callahan EJ, Robbins JA, Helms LJ. Comparison of primary care resident physicians' practice styles during initial and return patient visits. *J Gen Intern Med* 1999;14:495-8.
- Robbins JA, Bertakis KD, Helms LJ, Azari R, Callahan EJ, Creten DA. The influence of physician practice behaviors on patient satisfaction. *Fam Med* 1993;25(1):17-20.
- Putnam SM, Lipkin M. The patient-centered interview: research support. In: Lipkin M, Putnam SM, Lazare A, eds. The medical interview: clinical care, education, and research. New York: Springer, 1995:530-7.
- Simpson M, Buckman R, Stewart M, et al. Doctor-patient communication: the Toronto consensus statement. *BMJ* 1991;303:1385-7.
- Tresolini CP and the Pew-Fetzer Task Force. Health professions education and relationship-centered care. San Francisco: Pew Health Professions Commission, 1994.
- Cole-Kelly K, Yanoshik MK, Campbell J, Flynn SP. Integrating the family into routine patient care: a qualitative study. *J Fam Pract* 1998;47:440-5.
- Crouch MA, McCauley J. Interviewing style and response to family information by family practice residents. *Fam Med* 1986;18(1):15-8.
- Stange KC, Zyzanski SJ, Jaen CR, et al. Illuminating the "black box:" a description of 4,454 patient visits to 138 family physicians. *J Fam Pract* 1998;46:377-89.
- Blumenthal D, Causino N, Chang YC, et al. The duration of ambulatory visits to physicians. *J Fam Pract* 1999;48:264-71.
- Botelho RJ, Lue BH, Fiscella K. Family involvement in routine health care: a survey of patients' behaviors and preferences. *J Fam Pract* 1996;42:572-6.
- Medalie JH, Zyzanski SJ, Langa D, Stange KC. The family in family practice: is it a reality? *J Fam Pract* 1998;46:390-6.
- Levinson W, Roter D. The effects of two continuing medical education programs on communication skills of practicing primary care physicians. *J Gen Intern Med* 1993;8:318-24.

Internal medicine faculty and residents gave written consent to allow us to contact their patients for participation in telephone interviews. Patients were called by one of three trained Research Assistants (RAs) (DS, LV, or OU) and invited to participate in the interview between December 2013 and August 2014. RAs were non-physicians and not previously known to research participants. Patients were consented to participate using a formal oral consent script. Computers in the exam room: differences in physician-patient interaction may be due to physician experience. *J Gen Intern Med.* 2007;22(1):43-8. Family practice; Physician-patient relations; Methodology; Gender differences; Verbal behaviour style; Communication; Language; Family members. Introduction. The cornerstone of general practice is the consultation, about which much has been written, from psychology to sociology, psychiatry and anthropology. The consultation focuses on an encounter between two people: the patient and the physician. Marvel K, Major G, Jones K, Pfaffly C (2000) Dialogues in the exam room: Medical interviewing by resident family physicians. *Fam Med* 32: 628-632. Main DS, Holcomb S, Dickinson P, Crabtree BF (2001) The effect of families on the process of outpatient visits in family practice.