Development of a Psychosocial Concern Index from Videotaped Interviews of Nurse Practitioners and Family Physicians

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The delivery of primary health care involves a complex interactive process between the provider and patient. One important feature of this interaction is provider concern for psychosocial issues. A study was undertaken to examine provider's actions with the patient and to describe the factors influencing the provider's concern with psychosocial issues. A total of 412 provider-patient clinic visits, including 276 with physicians and 136 with nurse practitioners, were videotaped and analyzed using a provider psychosocial concern index developed specifically for this study. Data from exit and follow-up interviews with patients plus a provider questionnaire were analyzed to identify factors associated with a provider's psychosocial concern. The results show that an interactional analysis focusing on clinician activities can be useful in describing important process-outcome relationships such as psychosocial concern. Factors such as type of visit, visit history, type of provider, and sex of patient and provider were associated with the amount of psychosocial concern displayed by providers and perceived by patients. **J Fam Pract 1990; 30:321-326**

The delivery of primary health care is a complex interactive process between the provider and patient. Describing the features of this interaction is important to understand more completely aspects of primary care.

A research project evaluating primary health care delivery by physicians and nurse practitioners (joint practice) across the nation provided a large data source in the form of videotaped provider-patient interactions during a clinic visit. The study sought to describe the content of provider's interactions with patients.[1] Of particular interest were the factors influencing a provider's approach to the patient's psychosocial issues.

The importance of psychosocial issues is evident, as studies show that up to 50% of patient visits to primary care providers include psychosocial complaints.[2-4] In addition, primary care training increasingly emphasizes psychosocial assessment skills, therapy, and intervention.

The purpose of this study was to examine provider's actions with the patient and to describe factors associated with pursuing psychosocial issues.

METHODS

Observation, interview, and questionnaire data were gathered from 60 ambulatory clinic sites located in four regions of the country: the Midwest, West, East, and South. Physicians and nurse practitioners were randomly selected from a pool of known joint practices in Missouri, North Dakota, South Dakota, Iowa, California, Pennsylvania, Delaware, New York, Kentucky, and Tennessee. These joint practices were identified by nurse practitioner training programs. A total of 412 provider-patient clinic visits were videotaped, including 276 with physicians and 136 with nurse practitioners.

At each clinic site, a video camera was positioned in the examination room to record behaviors of patients and providers. The videorecorder was placed in an adjacent area so that researchers could control the taping in an unobtrusive manner. A lens cap was furnished to the

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provider to cover the camera lens during sensitive examinations.

Both provider and patient consent were obtained before videotaping. Providers and patients were informed that the purpose of the study was to describe joint practice. They were not informed about the specific types of behaviors to be examined, nor about the type of coding system to be employed. When interviewed after the videotaping sessions were completed, most providers and patients said they had not altered their behavior for the taping, and many stated that they soon forgot about the camera entirely.

A major task was to develop a method for describing the clinical interaction. The Bales Interaction Process Analysis system is the best-known method employed for the study of small-group interaction.[5] Inui et al[6,7] used this system in a study of 101 new patient visits to a general medical clinic. Inui et al also evaluated Roter's modification of the Bales System[8] and Stiles' Verbal Response Modes.[9] Inui et al concluded that none of these interactional analysis systems was ideal for the study of clinician-patient encounters because these methods were too specific for effectively describing general clinician activities such as taking a history or teaching.

An objective-oriented taxonomy for provider verbal behavior was developed to describe the content of the provider's interaction with the patient. Fifty provider-patient encounters were videotaped and used to develop and modify the coding scheme for verbal behaviors. A preliminary coding form was developed by the project staff using the following resources: a standard outline for obtaining a complete patient history and physical examination[10]; medical textbooks describing the typical set of activities involved in primary care[11,12]; and interviews with physicians, nurse practitioners, and behavioral scientists about the possible universe of primary care activities. The coding form was then pretested on the 50 videotaped encounters. Use of the form to code these encounters allowed the research team to revise the coding taxonomy and clarify the activity categories included. The revised form was further reviewed by physician and nurse practitioner consultants.

Scores for individual items on the coding form were combined to form indices. Because the clinical encounter is a specific type of interaction with interpersonal and instrumental goals, the indices were constructed to represent these components. Five indices were constructed from the individual items to represent these interpersonal (indices of affiliation and control) and instrumental (indices of somatic diagnosis-treatment, information provision, and psychosocial concern) goals. Based on interaction models found in the literature,[13–17] the psychosocial concern index was constructed from the subset of coding categories shown in Table 1.

TABLE 1. PSYCHOSOCIAL CONCERN INDEX TAXONOMY FOR PROVIDER BEHAVIOR

Current life situation	Health beliefs and behavior
Home environment and activity	Beliefs
Composition of current household	Self-care practices
Division of labor within household	Nutritional patterns
Interpersonal relationships	Personal habits
Family relationships	
Socioeconomic status	Mental health history and examination
Community commitments and resources	
Work environment and activities	Counseling on psychosocial issues
Psychological and personal adjustment	
Sexual activity	Therapeutic listening to psychosocial issues
Past development	
Childhood development	Intervention-behavior change with regard to lifestyle
Educational, military, occupational history	
Family history (social)	

The psychosocial concern index score for each provider was obtained by coding the number of times a provider engaged in an activity corresponding to each category and adding the frequencies for all categories that made up the index. A provider's absolute score on the index was affected by the length of the patient encounter; thus psychosocial concern index scores were expressed as a proportion of the total number of behaviors coded for the encounter. It was possible, therefore, to determine the relative emphasis placed on different types of activities by providers.

Intrarater and interrater reliabilities were calculated for agreement on the behavior categories selected and for the behavior frequencies recorded by the coder(s). Thus, when a specific behavior occurred one or more times, reliabilities were calculated for coder agreement for both the selection of the behavior category and the number of times the behavior occurred. Agreement for category selection was calculated using Cohen's[18] formula for kappa controlling for chance agreement. Frequency agreement was calculated as an overall percentage. Interrater and intrarater reliabilities were found to be 0.75 or above for both behavior categories and frequencies coded.

A semistructured exit interview with the patient provided information on the patient's perception of the provider's concern with psychosocial issues. For patients under the age of 10 years, the parent or guardian was interviewed. During this interview, patients were asked such questions as, "What did you like about the visit?"

and "What was done during the visit?" Responses were recorded by the interviewer and later coded for inclusion in a patient-perceived psychosocial index. Each time the patient mentioned a psychosocial issue in response to the exit interview questions, it was recorded as a score of 1, and the total number of issues mentioned formed the index of patient-perceived psychosocial concern.

The exit interview was also used to construct an index of patient satisfaction. The index was constructed from patient responses to several interview questions: What did you like about the visit-provider? What did you not like about the visit-provider? Did you feel comfortable asking questions? Were you satisfied with the answers to your questions? Would you have preferred to see another provider? Was the care you received today better, the same, or worse than usual? Each positive response was given a positive score and each negative response was given a negative score. A 1 to 10 satisfaction rating scale (1 = very dissatisfied, 10 = very satisfied) was also included. The satisfaction index score was the sum of all scores from these questions. Since previous studies have found that most patients indicate high satisfaction with a clinic visit,[19] the mixture of questions comprising the index was developed in an attempt to increase the amount of variation in patient satisfaction scores.

In addition, a questionnaire was distributed to the providers who were videotaped. The first section of the questionnaire asked providers to rate the satisfaction they derived from a list of activities. Each activity was rated on a scale ranging from 1 (minimum amount of satisfaction) to 5 (maximum satisfaction). The second section of the questionnaire asked providers to rate the relative contribution to overall quality of care of several different aspects of care including "concern with psychosocial aspects of care." A rating scale of 1 (minimum contribution to quality of care) to 5 (maximum contribution) was used. The final section asked providers to rate the proficiency of family physicians and nurse practitioners for several skills such as psychosocial assessment and counseling patients for psychosocial problems.

A brief follow-up telephone interview with patients was conducted about 1 month after the videotaped visit. This interview obtained information on outcome, including recovery from the original problem, current symptom status, number of days to recovery, recall of information given by providers during the videotaped visit, and compliance with provider recommendations.

RESULTS

The mean age of providers in the sample was 37 years, with the average for nurse practitioners being 35 years and for physicians 38 years. Two hundred thirty-five clinic visits were with male providers (including 14 with male nurse practitioners) and 136 were with female providers (including 55 with female physicians). Eighty percent of the physicians were trained in a residency program in family medicine. The nurse practitioners had been in practice for an average of 6 years, while the physicians' average length of practice was 9 years.

The mean age of patients was 26 years with 176 (43%) male and 236 (57%) female patients. The type of visit was categorized as acute-care, chronic illness, well-care, or follow-up. Acute-care visits were those in which the patient's problem had a sudden onset and short course demanding immediate attention. Chronic illness visits were those in which the problem was of long duration or frequent recurrence. In well-care or health maintenance visits, the reason for the consultation was not related to disease. Well-care visits included normal pregnancy checks, well-child examinations, and yearly physical examinations. Follow-up visits were for monitoring an acute problem. There were 155 (37%) acute care visits, 118 (29%) chronic illness visits, 74 (18%) well-care visits, and 65 (16%) follow-up visits.

Since it was possible that providers with extreme scores could skew the results, cases for which psychosocial index scores were at least two standard deviations above or below the mean for the whole sample were identified. Few providers appeared in the extreme score group. Thus, elimination of these cases from analyses would not significantly alter the results, and they were included.

The analysis of observed provider-patient encounters showed that on average 35% of all providers' behaviors involved medical diagnosis and treatment, 27% involved giving information to the patient, and 7% consisted of activities associated with psychosocial issues. The remaining 31% of the activities were unrelated to the above and included introductory remarks, plans for the current visit, and casual conversation.

Examination of provider activities associated with psychosocial issues showed that 60% of this activity pertained to patients' current life situation and 31% pertained to health beliefs and behavior. Very little time was spent on patients' past development, mental health history and examination, counseling, therapeutic listening, and intervention associated with changing a patient's lifestyle.

When comparing differences by type of visit for all providers combined, Table 2 shows that psychosocial concern index scores were highest in well-care and chronic illness visits and lowest in follow-up and acute-care visits, while patient-perceived psychosocial concern index scores were highest in chronic illness visits followed by follow-up, well-care, and acute-care visits.

There were significant differences in the amount of

TABLE 2. ANALYSIS OF VARIANCE OF PROVIDER PSYCHOSOCIAL CONCERN INDEX (PCI) AND PATIENT-PERCEIVED PSYCHOSOCIAL CONCERN INDEX (PPCI) SCORES BY TYPE OF VISIT

	No.	Mean PCI Score	*df*	F Value	*P*	Mean PPCI Score	*df*	F Value	*P*
Acute-care visits	155	.053	3	9.88	.000	.52	3	9.65	.000
Chronic-care visits	118	.072				1.19			
Well-care visits	74	.096				.82			
Follow-up visits	65	.057				1.11			

psychosocial activity engaged in by the two types of providers. Nurse practitioners had higher mean psychosocial concern index and patient-perceived psychosocial concern index scores than physicians for all types of visits combined. When type of visit was controlled, the differences in mean scores failed to reach significance. Nurse practitioners' scores on the psychosocial concern index and the patient-perceived psychosocial concern index, however, were consistently higher than physicians' scores for each of the four types of visit.

The number of times a patient had seen a provider (visit history) was less important than type of visit in determining the provider concern with psychosocial issues. While there were no significant differences between nurse practitioners and physicians on either observed provider psychosocial concern or patient-perceived psychosocial concern, they both displayed more psychosocial concern during second visits than during initial or later visits.

Female providers showed more psychosocial concern than male providers, particularly with female patients. Table 3 reflects that observed exploration of psychosocial issues and patient perceptions of provider psychosocial concern were greatest for female provider–female patient interactions and lowest for male provider–male patient pairs.

The correlation between scores on the provider psychosocial concern index and patient satisfaction index scores was significant ($P = .05$), indicating that as the amount of provider psychosocial concern in a clinic visit increases, the patient's level of satisfaction with the visit also increases. There was also a relationship between patient perceptions of the provider's psychosocial concern and recall of both self-care and prevention-related information on follow-up 1 month after the videotaped clinic visit (Table 4). Patients who reported more psychosocial content at the time of the visit also recalled more self-care and prevention-related information on follow-up and were more likely to indicate that they had followed the provider's suggestions for prevention ($P = .01$). Comparison of the observed information given during the initial visit with information recalled on follow-up interviews showed that patients who recalled information did so with 70% accuracy. Provider psychosocial concern, however, was not found to be related to patient-reported medical outcome measures such as recovery from problem, relief of current symptoms, or number of days to recovery.

Sixty-nine percent of the providers returned the questionnaire. There were no differences between responders and nonresponders on provider characteristics. Responses showed that nurse practitioners differed significantly from physicians in their attitudes toward psychosocial aspects of care. Nurse practitioners expressed more satisfaction in dealing with the psychosocial aspects of care and were perceived by all respondents to be more proficient in psychosocial assessment and counseling than physicians. In addition, nurse practitioners felt that inclusion of psychosocial aspects of care made a greater contribution to the quality of care than physicians.

DISCUSSION

Research linking process and outcome is one of the most pressing needs in medical quality assessment.[20] The re-

TABLE 3. ANALYSIS OF VARIANCE OF PROVIDER PSYCHOSOCIAL CONCERN INDEX (PCI) AND PATIENT-PERCEIVED PSYCHOSOCIAL CONCERN INDEX (PPCI) SCORES BY PROVIDER AND PATIENT SEX

	No.	Mean PCI Score	*df*	F Value	*P*	Mean PPCI Score	*df*	F Value	*P*
Female provider, female patient	106	.077	3	5.36	.001	1.11	3	4.44	.004
Female provider, male patient	62	.073				.66			
Male provider, female patient	106	.063				.96			
Male provider, male patient	98	.047				.60			

TABLE 4. ANALYSIS OF VARIANCE OF PROVIDER PSYCHOSOCIAL CONCERN INDEX (PCI) AND PATIENT-PERCEIVED PSYCHOSOCIAL CONCERN INDEX (PPCI) SCORES BY RECALL OF INFORMATION

	No. (N = 412)	Mean PCI Score	*df*	F Value	*P*	Mean PPCI Score	*df*	F Value	*P*
Patient-recalled self-care information	184	.068	344	1.39	.160	1.34	344	7.75	.000
No self-care information recalled	162	.059				.44			
Patient-recalled prevention-related information	64	.063	98	.82	.420	1.78	254	5.34	.000
No prevention information recalled	192	.071				.86			

sults of this study show that a content-based analysis system can capture and distinguish clinician activities in provider-patient encounters. Using videotaped clinical encounters and an objective-oriented taxonomy, it was possible to distinguish clinician activities and link these activities to specific outcome measures. The ability to make these distinctions and to link the encounter process with important outcomes provides the clinician and the medical educator with a mechanism for evaluating the complex interactive process between the provider and patient.

While these distinctions were possible, the results of the study were limited by several factors. The small number of female physicians and male nurse practitioners, for example, made it impossible to control for both sex and provider type when comparing scores by type of visit or visit history. A research design controlling for provider and patient sex, type of provider, visit history, and type of visit would help to clarify the results.

Similarly, the differences between physicians and nurse practitioners could be confounded by a case-mix bias wherein nurse practitioners were more likely to see patients with psychosocial problems. Evidence from the questionnaire, however, indicates that most physicians and nurse practitioners saw patients based on provider availability, convenience, or patient preference. In addition, the relative proportion of all visits accounted for by each type of visit was almost identical for physicians and nurse practitioners.

Although this study did not address the limitations imposed by the sample composition and case mix, the methods adopted for analysis of the clinical encounter did generate several findings that may be of interest to both clinicians and medical educators. They show that providers generally concentrated on medical diagnosis and treatment and on giving information while devoting a small percentage of time to activities pertaining to psychosocial issues. Furthermore, when focusing on psychosocial issues, providers were more concerned with a patient's current life situation and health beliefs than with a patient's past development.

The type of visit and, to a lesser extent, visit history were important factors influencing provider actions and patient perceptions. Provider psychosocial concern was greater in chronic-illness and well-care visits and lower in follow-up and acute-care visits. This finding appears understandable given the need for providing comprehensive care in chronic-illness and well-care visits. Patients, however, perceived more psychosocial concern in chronic-illness and follow-up visits than in well-care or acute-care visits. From the patients' perspective, the greater perception of psychosocial concern in chronic-illness and follow-up visits may reflect their recognition of continuity of care. It is also possible that patients who were more compliant, in terms of returning for scheduled visits, were more likely to be sensitive to provider activities that were psychosocially oriented. Although the possibility of a case-mix bias may confound these results, another possible explanation for this finding may be that providers focus primarily on the chief complaint that prompted a first visit. After the initial visit, providers then focus on psychosocial issues.

In general, nurse practitioners exhibited more psychosocial concern than physicians when interacting with patients. Patients also perceived more psychosocial concern by nurse practitioners. Because of the potential confounding effects of provider sex, an analysis of variance examining the separate and combined effects of sex and profession on the observation and interview-based indices of psychosocial concern was performed. The results show that sex was not a significant influence on observed provider actions or patient perceptions of providers' actions. This finding suggests that the differences between these two types of providers could be the result of differing professional orientations.

Results from the provider questionnaire show that both physicians and nurse practitioners believe that nurse practitioners are (1) more proficient in psychosocial assessment and (2) more comfortable with this area. These findings are compatible with a nursing perspective valuing

a holistic approach to patient care as opposed to the traditional biomedical model.[21–23]

A more striking finding was the effect of provider-patient sex on concern with psychosocial issues. The female provider–female patient interaction received the highest scores on both provider psychosocial concern and patient-perceived psychosocial concern, whereas the male provider–male patient combination received the lowest scores. Sex can affect the content of provider-patient interaction in several ways.[24] Both male and female providers could be conforming to the feminine stereotype that women are more interpersonally oriented than men. They might expect their female patients to be more concerned about social and psychological issues than their male patients. The expectations of patients could, likewise, affect provider behavior. Patients may expect female providers to be more interested in psychosocial issues than male providers.

The data show that patients who perceived more psychosocial concern were more likely to recall provider information and follow suggestions for prevention, but the medical outcome measures incorporated in the follow-up interview showed no relationship to provider concern with psychosocial issues in the clinic visit. Although the ability to generalize these findings to other patient populations is limited by the subjective nature of the outcome measures and the mix of patient diagnosis and severity of illness, these findings are suggestive of possible process-outcome relationships, which merit further exploration.

This study shows that the development of an interactional analysis system that focuses on clinician activities can be useful in describing important process-outcome relationships. The use of similar analytical approaches in describing the delivery of primary care may be a significant step toward improvement of health care and enhancement of the sensitivity and capability of providers.

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