

Efficacy of a One-month Training Block in Psychosocial Medicine for Residents:

A Controlled Study

ROBERT C. SMITH, MD, GERALD OSBORN, DO, RUTH B. HOPPE, MD,
JUDITH S. LYLES, MS, LAWRENCE VAN EGEREN, PhD,
REBECCA HENRY, PhD, DOUG SEGO, MS, PATRICK ALGUIRE, MD,
BERTRAM STOFFELMAYR, PhD

Study objective: *To determine the efficacy of a comprehensive, one-month psychosocial training program for first-year medical residents.*

Design: *Nonrandomized, controlled study with immediate pre/post evaluation. Limited evaluation of some residents was also conducted an average of 15 months after teaching.*

Setting: *Community-based, primary care-oriented residency program at Michigan State University (MSU).*

Subjects: *All 28 interns from the single-track MSU residency program during 1986/87-88/89 participated in this required rotation; there was no dropout or instance of noncompliance with the study. In the follow-up study in 1989, all 13 available trainees participated. Of 20 untrained, volunteer controls, ten were second/third-year residents in the same program during 1986/87 and ten were interns from a similar MSU program in Kalamazoo, MI, during 1988/89.*

Teaching intervention: *An experiential, skill-oriented, and learner-centered rotation with competency-based objects focused on communication and relationship-building skills and on the diagnosis and management of psychologically disturbed medical patients.*

Measurements and main results: *The two subsets of the control group were combined because residents and training programs were similar and because means and standard deviations for the subsets were similar on all measures. By two-way analyses of variance (group \times gender), the trainee group showed significantly greater gains ($p < 0.001$) on questionnaires addressing knowledge, self-assessment, and attitudes; a mean of 15 months following training, there was no significant deterioration of attitude*

scores. All trainees were also able to identify previously unrecognized, potentially deleterious personal responses using a systematic rating procedure. Residents' acceptance of the program was high.

Conclusions: *Intensive, comprehensive psychosocial training was well accepted by residents. It improved their knowledge, self-awareness, self-assessment, and attitudes, the latter improvement persisting well beyond training.*

Key words: *psychosocial teaching; medical interviewing; residency training; education evaluation; resident attitudes; physician-patient relationship. J GEN INTERN MED 1991;6:535-543.*

THE AMERICAN BOARD OF INTERNAL MEDICINE has affirmed that psychosocial/humanistic training is essential for resident physicians.¹ While present teaching efforts focus on interviewing, it is also recognized that diagnosis and treatment of medical patients' psychological problems require attention in the future.²⁻⁴ Although the knowledge, attitudes, and skills needed for mastery of the human dimensions of medicine have been identified,⁵ few residency programs have implemented the extensive, comprehensive training required to teach them.^{6,7} Inadequate financial and faculty resources and a perceived lack of time are among the reasons.⁶ Also, research has yet to identify the curriculum, teaching methods, and evaluative tools necessary to implement training in psychosocial medicine.^{2,8}

Comprehensive programs have been described by Strain et al.⁴ and implemented by others.^{2,9-12} Evaluation of their impact, however, was rare in our review of the literature. We used the following criteria, met by the program to be reported here, in an extensive literature search for evaluations of comprehensive psychosocial training programs: 1) intensive psychosocial teaching (at least three weeks per year entirely devoted to psychosocial medicine), whether in a concentrated block or spread throughout the year; 2) a curriculum with specific objectives and a multidimensional focus including both interviewing and supervised patient care; 3) a summative evaluation that included a control group; and 4) assessment of acceptance by the residents. These features describe the type of intensive teaching program that is likely to attract attention in the future,^{2,4} and they include the requirements for suc-

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Address correspondence and reprint requests to Dr. Smith: Department of Medicine, B220 Life Sciences Building, East Lansing, MI 48824.

cessfully evaluating an educational program.¹³⁻¹⁶ Our search included obtaining references from prominent review articles,^{2, 3, 17, 18} consulting with known authorities for additional reference material (personal communication with Steven A. Cohen-Cole, MD, and David E. Kern, MD, MPH), and computer searches by three different people that included the following bibliographic sources: MEDLINE (1966 to present), Psychological Abstracts (Psychinfo, 1967 to present), and Educational Resource Information Clearinghouse (ERIC, 1966 to present).

Prior evaluation studies without a multidimensional focus, objectives, a control group, or an evaluation of residents' acceptance showed minimal or no effect in spite of intensive teaching.^{8, 19-21} On the other hand, the two studies that met all the review criteria showed significant improvement after intensive teaching interventions. Cohen-Cole et al. reported improvement in knowledge, psychosocial charting, and interviewing in training residents.⁹ Roter et al. also found significant improvement in interviewing skills, although residents knew they were being evaluated at the time of the interviews.¹⁰

The study reported here is, thus, one of the early attempts to systematically develop and evaluate a comprehensive psychosocial training program. It is similar to the program reported by Roter et al., relying on training in a medical setting and on a consultation-liaison (CL) service, by internists and psychiatrists, respectively. The program of Cohen-Cole et al. occurred entirely on a CL service and was taught only by psychiatrists.

METHODS

Subjects

During 1986/87–88/89 (the program continues and has been expanded to include family practice interns), all 28 interns in the single-track, primary care-oriented Michigan State University (MSU) internal medicine residency program received a one-month training block in psychosocial medicine; because this was one of three rotations during the year when they could take vacations, 18 took two to five days off during the month of the rotation. Interns rotated singly or in pairs according to scheduling needs. The teaching experience was required and was devoted entirely to psychosocial medicine. Participation in the research was voluntary and met institutional review requirements; there was no dropout or instance of noncompliance. Early evening work sometimes occurred, but there was no night call.

A quasi-experimental design¹⁴ was used because random assignment of residents was not possible. The control group consisted of ten untrained postgraduate year- (PGY-) 2/3 residents from the same program in

1986/87 and ten untrained PGY-1 residents from a very similar primary care-oriented MSU program in nearby Kalamazoo, MI, during 1988/89; the Kalamazoo program was well known to our program director, who recommended it because of its close resemblance to our training program. The two subsets of control subjects were combined because they were similar in type of training, age, gender, relationship to all later-described summative measures, and means and standard deviations; the small number of subjects in each subset precluded meaningful statistical comparison. The training group contained 14 men, mean age 29.2 years, and 14 women, mean age 32.2 years; the control group had 15 men, mean age 29.9 years, and five women, mean age 29.0 years. As recommended by Burra et al., interns were informed that they would not be graded or otherwise rated on their performances and that the tests would be treated only in aggregate at the end of the year.²²

Teaching Program

Each resident was presented with objectives in psychosocial medicine derived from Lipkin et al.⁵ Residents also were encouraged to develop personally relevant, individualized objectives; many were formulated by considering personally difficult patients where residents believed changes in their approaches might help. These learner-centered objectives, derived from residents' own experiences and needs, have been important to learning.^{23, 24} All objectives were formulated into competency-based, clearly stated behavioral objectives.¹³ A safe, supportive learning environment was provided by establishing rapport, by self-disclosure by teachers of their own difficulties with the material, by recognizing and reinforcing residents' strengths, and by nonjudgmental feedback in behavioral terms. An outline of the teaching program follows, and Figure 1 shows the schedule for a typical week; more detailed information about the curriculum and teaching methods is available from the authors.

Seminars. Each of two weekly seminars was facilitated by one of the authors (RCS, GO), was resident-led, and was based on the assigned readings that were provided. The goal was to develop a knowledge base in what we believed to be essential topics for primary care: biopsychosocial model, physician–patient relationship, personality structure, countertransference, somatization, attachment/loss behaviors, mental status evaluation, organic mental syndromes, depression and suicide, anxiety, psychiatric diagnoses, and practical psychopharmacology.

Interviewing. The resident was expected to achieve three goals by the end of the rotation: 1) the ability to elicit, understand, and manage the psychoso-

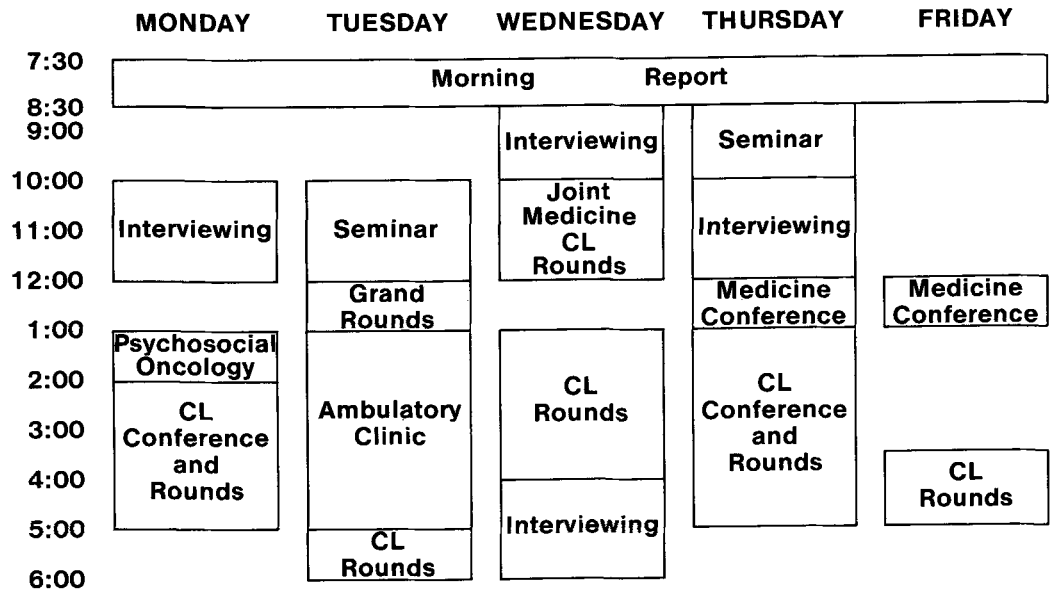


FIGURE 1. Weekly schedule for rotation on psychosocial medicine. CL = consultation-liaison service.

cial problems and emotions of most medical patients; 2) the skill and insight to develop awareness of at least one personal characteristic, during each patient interaction, that could interfere with the physician – patient relationship; and 3) the ability to accomplish these goals in 10 – 15 minutes with most new patients.

To provide a minimum cognitive base, the residents read and discussed a brief summary of what we considered some salient features of the interview.²⁵ The vast majority of the teaching, however, was experiential and skills-oriented. At the beginning of the block, basic skills and techniques,^{25, 26} e.g., open-ended questions, empathic responses, and a patient-centered closing, were reviewed. Demonstrations, role-play, and feedback were teaching methods used throughout the training.^{27, 28}

Interns (residents) conducted interviews in the outpatient clinic or hospital and used real, often their own, medical patients with a wide range of psychosocial problems. Teaching occurred in a joint faculty-intern critique under the supervision of one of the two authors who are internists (RCS, RBH). The supervisory critique concerned either direct observation of the learner at the bedside or, most often, an audiotaped interview. There were three to four supervised interviews weekly, each session lasting approximately 60 minutes (per intern).

In addition to feedback concerning data-gathering skills, considerable time during supervisory sessions was devoted to developing skills in detecting and managing patients' emotions,^{29, 30} e.g., recognizing and then handling anger or sadness. Finally, we taught understanding of the meaning of the information generated by the interview and development of a treatment plan,⁴ e.g., appreciating and then managing problems attendant upon an unwanted retirement.

Unrecognized, potentially deleterious responses

by physicians are nearly universal³¹⁻³³ and can interfere with the interview and humanistic interactions.³¹⁻³⁵ Therefore, we also taught awareness of them during supervisory critiques. Interns' personal responses to their patients were addressed using a method (described below) recommended by Smith.³⁶ A particularly useful way to begin changing unwanted, previously unrecognized responses was role-playing new, more desirable behaviors.

Consultation-liaison service. Training on the CL service occurred around psychiatric consultations on distressed medical patients. Residents spent approximately half of their time in this practical, clinical domain, an often-missing dimension of training programs.^{2, 3} The goal was full diagnostic expertise and the therapeutic expertise required in primary care in all of the following: 1) common psychiatric problems that present in the medical setting — substance abuse, somatization, organic mental syndromes, depression and suicide, anxiety, and characterologic disturbances; 2) problems experienced by otherwise normal medical patients when under severe stress — adjustment disorders (e.g., loss of loved ones and grieving, retirement, and loss of function); and 3) problems where the psychological dimension of organic disease is problematic (e.g., AIDS, compliance problems). Interns also received some training in crisis management, other psychiatric diagnoses, psychiatric referral, basic psychopharmacology, and the use of community resources (e.g., social services, Alcoholics Anonymous). Finally, they gained additional supervised interviewing experiences, thus extending their expertise to medical patients who were more mentally disturbed.

After observing consultations during the first week, residents began seeing patients primarily. They took charge of therapeutic as well as diagnostic consid-

erations, always under close supervision of one of the authors (GO), the psychiatrist leader of the CL service. Approximately three to five new patients weekly were seen. In addition to these primary responsibilities, residents learned from the following regular activities: daily rounds on all patients, ongoing conferences (e.g., psychosocial aspects of cancer, AIDS, or renal dialysis), psychological testing services, and the remainder of the CL team.

Evaluation

Instrumentation. In the absence of measures designed for evaluating this type of teaching program, three MSU instruments were developed for testing the training and control residents immediately before and

after training. They were tailored to assess the process and content of the teaching intervention. The first measure, The MSU Test of Psychosocial Knowledge, consisted of 62 multiple-choice items. The second instrument, the MSU Self-assessment of Psychosocial Skills questionnaire, contained eight items that asked subjects to evaluate their skills and knowledge regarding psychosocial medicine. The third, the MSU Attitudes toward Psychosocial Medicine questionnaire, had 12 items that assessed general attitudes toward psychosocial medicine. Both the second and the third measures had seven-point Likert-type scales in which 1 indicated the lowest agreement possible and 7 the highest. Table 1 contains sample items from the MSU self-assessment, attitude, and knowledge questionnaires.

In addition the MSU measures, two instruments developed at the University of Michigan (UM) were also administered in a pre-post fashion to training and control residents: the 48-item true/false Test of Psychiatric Knowledge (personal communication with Dr. T. E. Dielman) and the 80-item Attitudes toward Psychiatry in Medicine scale.³⁷ The latter employed a six-point response scale, which ranged from 6 ("very strongly agree") to 1 ("very strongly disagree") and comprised eight subfactors: liking of mentally disturbed patients, interest in psychological medicine, attitude toward psychiatrists, perceived source of mental problems, patience with patients, value of psychological intervention, and two general orientation-to-psychiatry factors. Complete copies of all instruments are available upon request from the authors.

Additional assessments of the training group. When completing the posttest self-assessment questionnaire, training group residents also were asked to answer a paired companion question for each of the eight questionnaire items. These companion questions asked the residents to reassess their abilities prior to the rotation.³⁸ For example, they were asked not only to rate the degree to which their knowledge of psychosocial principles was sufficient following the rotation, but also to rate retrospectively how sufficient their knowledge had been before the rotation.

Members of the training group also were evaluated for their recognition of previously unrecognized emotional responses to patients during all supervisory sessions.^{31, 32, 36} These nonquantitative data were systematically elicited by the supervisor (RCS) in four sequential, learner-centered steps: open-endedly facilitating awareness of the emotion in the resident, identifying its behavioral response, jointly deciding whether the emotion/response had been previously recognized and whether it was harmful or helpful, and working with the resident to change harmful responses. The supervisor rated residents' responses in one or more of the following categories of emotions:^{31, 32, 36} Fears of losing control, addressing psychological material, ap-

TABLE 1

Representative Items from the Michigan State University Self-assessment, Attitude, and Knowledge Questionnaires

Self-assessment of psychosocial skills

1. My skills in psychosocial medicine are sufficient.
2. My understanding of the biopsychosocial approach to the patient is adequate.
3. My level of personal self-awareness is sufficient.
4. My interviewing skills are adequate.

Attitudes toward psychosocial medicine

1. I think psychosocial instruction is more appropriate to family practice and psychiatry.
2. The "touchy-feely" aspects of psychosocial medicine detract from its interest to me.
3. I would like to take this rotation even if it weren't required.
4. Psychosocial medicine and interviewing are really not all that complicated.
5. What is wrong with medicine the way it is? Why change and add psychosocial medicine?

Knowledge of psychosocial medicine

1. One of the following is not true about depression in somatizing patients.
 - a) It is unresponsive to antidepressants.
 - b) Somatic symptoms may "mask" its presence.
 - c) Severe affective changes may be present.
 - d) Severe vegetative changes may be present.
 - e) The risk of suicide is significant.
2. One of the following is not a treatment principle in somatizing patients.
 - a) Establishing a good physician-patient relationship
 - b) Using full doses of antidepressants
 - c) Raising issues of stress in the patient's life
 - d) Prescribing medications or return visits as needed
 - e) Using agents that work and are not more harmful than helpful
3. Helpful way(s) to differentiate true dementia from pseudodementia is (are):
 - a) careful history
 - b) serial mental status evaluation
 - c) response to a trial of antidepressants
 - d) two of the above
 - e) all of the above
4. True/false. Tricyclic antidepressants act slowly and have a number of unpleasant side effects. This dictates their use in equally divided daily doses, usually with meals.

pearing unpleasant, harming the patient, or becoming involved; and a range of other emotions, from anger, depression, anxiety, and a preference/liking for biomedicine to personally unique issues.

Overall acceptance of the training was evaluated four ways. First, a six-item, seven-point response scale measuring rotation satisfaction was completed by all residents in the training group; item content and mean scores on the items are shown in Table 2. Second, midway through the rotation, residents were systematically interviewed by medical faculty. Third, each resident was interviewed at the conclusion of the rotation by faculty who used a semistructured format. The latter interview included perceptions of the program's aims, schedule, and procedures; agreement with program objectives; assessment of individual teaching components; and opportunities for open-ended response. Finally, four weeks after rotation, a telephone interview was conducted with eight randomly selected subjects by a person not known to them.

Several additional measures were unsuccessfully explored as evaluative tools. The Medical Interview Satisfaction Scale³⁹ produced such high baseline ratings of patients' levels of satisfaction with residents that detection of change was precluded. An attempt to develop a word-counting procedure to determine the number of psychosocial entries made by residents in patients' charts failed to achieve appropriate levels of reliability. Similarly, ratings of residents' interpersonal skills by clinic personnel on the Blurton Mazzaferri Scale⁴⁰ yielded inconsistent, unreliable results.

Statistical analyses. Although positively and negatively worded statements were divided on the Likert-type scales, all negatively worded items were recorded so that high scores represented desirable outcomes. With both the true-false and multiple-choice knowledge tests, correct answers were summed to form subjects' scores. On the summative attitude scales, individual items were combined to produce a single mean score; for the UM Attitudes toward Psychiatry in Medicine questionnaire, scores on each of the eight subfactors were computed.

Preliminary comparisons of training and control groups' pretest scores by independent groups t-tests indicated no difference between the groups, except for the MSU multiple-choice knowledge test ($P = 0.005$), on which trainees scored higher than did controls. However, although not statistically significant, on two other measures the training groups' pretest scores were slightly higher than those of the control group. To eliminate the influence of any pretest differences, change scores (pretest to posttest) were used as the dependent variables in two-way analyses of variance (group \times gender) on each measure. The larger proportion of females in the training group made consideration of gender effects essential.

TABLE 2

Rotation Satisfaction Questionnaire Responses*—Acceptance of Program by Residents

	Mean	SD	Range
Seminar work with Dr. X was valuable	5.96	0.79	5–7
Seminar work with Dr. Y was valuable	5.0	1.38	5–7
Interviewing instruction was valuable	6.0	0.76	4–7
Experience on the consultation-liaison service was valuable	5.32	1.07	3–7
I would take this rotation even if not required	5.64	1.5	2–7
I would like to take more training next year in psychosocial medicine	5.36	1.38	2–7

*Seven-point Likert scale, 1 = disagree, 7 = agree.

RESULTS

Using Cronbach's alpha as a test of the reliability of the major assessment scales, the following values were obtained: MSU Test of Psychosocial Knowledge, 0.59; MSU Self-assessment of Psychosocial Skills, 0.79; MSU Attitudes toward Psychosocial Medicine, 0.83; UM Test of Psychiatric Knowledge, 0.35; and UM Attitudes toward Psychiatry in Medicine, 0.95.

Analysis of Variance

The complete results of the two-way analyses of variance on all measures of pre-post change are found in Table 3. A significant main effect for groups was found on the MSU multiple-choice knowledge test ($F = 20.02$; $df = 1,44$; $p = 0.001$), the MSU self-assessment questionnaire ($F = 18.93$; $df = 1,41$; $p = 0.001$), and the MSU attitude toward psychosocial medicine scale ($F = 12$; $df = 1,36$; $p = 0.001$). An examination of the group means indicated that the trained group made significantly greater gains in knowledge, self-assessment, and attitude on these measures than did the control group.

No significant main effect for groups was found on any of the remaining measures. Furthermore, neither significant main effects for gender nor significant gender \times group interactions were found for any measure. This indicates that the difference between the control group and the trainee group in gender composition was not responsible for the training group's significantly greater gain in knowledge, self-assessment, and attitude that accompanied the psychosocial rotation.

Additional Training Group Assessments

The mean rating of the training group's retrospective self-assessment of psychosocial skills (how skillful they felt they were before the rotation) was significantly lower [M (mean) = 3.33; $p < 0.01$] than their

TABLE 3
Change in Resident Performance on Measures of Knowledge, Attitudes, and Skills: Means and F Test Results

	Trained		Control		Trained vs. Control		Males vs. Females		Gender X Group		Total df
	Male	Female	Male	Female	F	p	F	p	F	p	
MSU* knowledge (multiple choice)	7.07†	7.79	2.47	-2.40	20.02	0.001	<1		3.30	0.080	47
MSU self-assessment	1.14	1.21	0.35	0.10	18.93	0.001	<1		<1		44
MSU attitude	0.67	0.58	0.07	0.08	12.00	0.001	<1		<1		39
UM‡ knowledge (true/false)	3.36	1.92	1.00	0.25	1.73	0.200	<1		<1		41
UM psychiatric attitudes											
Orientation to psychiatry 1	0.12	0.29	0.17	-0.12	<1		<1		1.38	0.260	20
Orientation to psychiatry 2	0.21	0.11	0.17	-0.03	<1		2.43	0.130	<1		29
Liking disturbed patients	0.18	-0.05	0.01	0.08	<1		<1		<1		39
Attitude toward psychosocial medicine	0.46	0.17	0.10	0.23	2.80	0.100	<1		2.40	0.130	41
Perceived source of problems	-0.03	-0.14	0.10	-0.10	<1		<1		<1		45
Attitude toward psychiatrists	0.23	0.26	0.25	-0.25	<1		1.24	0.270	2.82	0.100	36
Patience with patients	-0.10	-0.35	0.08	0.00	1.38	0.250	<1		<1		45
Value of psychological intervention	0.23	-0.29	-0.06	0.10	<1		2.71	0.110	3.35	0.070	45

*MSU = Michigan State University.

†Mean change from pretest to posttest.

‡UM = University of Michigan.

prospective ratings of themselves on the pretest ($M = 4.0$). A possible explanation for this result is that as the residents learned more about psychosocial medicine, they better recognized their limitations before training. These findings are similar to those of an interviewing course evaluation by Levinson et al., who proposed that the retrospective pretraining assessment may be a better measure of learning than is the prospective pretraining assessment when both are compared with a posttest.³⁸

Each resident in the trainee group was able to identify at least one previously unrecognized response to patients during physician-patient interactions. Although many were able to recognize more than one response in themselves, further quantification might not be meaningful in this nonlinear aspect of learning,⁴¹ e.g., recognizing a single, particularly troublesome response is likely to be more important than recognizing several less serious ones. Self-response recognitions were difficult to quantitate in this study, in contrast to our previous work involving just one interview,^{31, 32} because many observations were made over the course of one month; multiple responses were usual, although they varied considerably from day to day and from week to week. The following were the most commonly expressed emotions; examples of their behavioral impact on the patient are noted in parentheses. 1) Fear of losing control (overcontrol) and fear of

psychological material (avoidance) occurred in almost all residents at one time or another and almost always were of primary importance to the physician-patient relationship. 2) Personal issues unique to the individual resident, such as a recent divorce, occurred in approximately three-fourths, of instances, but were judged of primary importance in only about one-fourth of instances. 3) Fear of being perceived as nonpleasing (unnecessarily pleasant behavior) and fear of harming the patient from addressing psychological material (avoidance) were two additional fears, affecting approximately one-half of residents, and of primary importance in about one-fourth of cases. Observed less than 10% of the time but never problematic were sexual attraction (seductive) and desire for biomedical data (avoidance of psychosocial material). The following emotional reactions were prominent and troublesome less than 5% of the time, but often were very pervasive: anger (overt expression, passive-aggressive), fear of involvement (detachment, passivity), intimidation by the patient (withdrawal), feeling inadequate (withdrawal), and overt identification with the patient. Severe anxiety (difficulty interfacing) and depression (withdrawal) were not seen. Performance anxiety affected most residents, but in no instance did it interfere with patient encounters or with training.

The mean ratings on the seven-point Rotation Satisfaction Questionnaire (Table 2) ranged from 5.0 to

6.0. It was our impressionistic judgment from the qualitative feedback gathered through the semistructured exit interviews, the faculty-conducted mid-rotation interviews, and the telephone survey that residents favored and accepted the program. Still less quantifiable, but of equal importance, was residents' frequent, unsolicited praise to faculty unassociated with the teaching, typically the residency program director and the department chairperson.

Follow-up Results

An opportunity to conduct a follow-up survey of skill self-assessment and attitudes toward psychosocial medicine was possible with 13 of the trained residents many months ($M = 15$ months) following the posttest measures. It was of interest to find that there was no significant decline in attitudes toward psychosocial medicine ($M = 5.37$; $SD = 0.69$; $p = 0.12$) compared with the posttest results ($M = 5.59$; $SD = 0.55$). Self-assessment scores, however, significantly declined ($M = 4.63$; $SD = 0.62$; $p < 0.005$) from the posttest ($M = 5.34$; $SD = 0.57$).

DISCUSSION

An intensive, comprehensive psychosocial training program for all interns during a three-year period was well accepted, resulted in more realistic self-assessment of skills, and produced significant improvement in knowledge, self-assessment, self-awareness, and attitudes, the latter improvement persisting well beyond the training period. Combined, the Roter et al.¹⁰ and Cohen-Cole et al.⁹ results and the present results provide evidence that intensive, comprehensive programs can produce significant changes in several basic educational domains: skills, knowledge, attitudes, and self-awareness.

The shortcomings of this study were myriad, particularly viewed against the standards of an ideal or "perfect" study. Here, we comment only on some specific issues pertinent to this limited study. Later in this report, in discussing future research directions, we address the additional, more difficult problems to be considered. We tried to diminish our problem of a non-equivalent control group by using interns from a very similar program and senior residents from the same program as our controls. Another problem was the absence of an evaluation of the duration of learning of knowledge and self-awareness beyond the training period.^{2, 3, 42} Alternatively, where we did have follow-up measures (of self-assessment and attitudes), it is possible that factors other than one month of training were important (e.g., maturation of the resident, other exposure and experience); moreover, fewer than half the trainees were involved in follow-up. Next, we attempted to obtain nonreactive measures where the resi-

dent was unaware that the information was being collected,⁴³ measures of residents' skills, and a measure of patient outcome.^{3, 17, 44} Sadly, methodologic and other problems precluded the development of meaningful data, not unlike the experience of others.⁴¹ It also is important to note that the measures demonstrating an effect were in the developmental phase and, while reliabilities were acceptable for most important measures, more work is necessary before conclusive statements and generalizations can be made. Moreover, research has not established the validities of these instruments, although the reader can consider their face validities from the examples in Table 1.

It is important also to consider why the UM knowledge and attitude questionnaires did not show an effect of the teaching intervention. The UM scales were developed by psychiatrists, were focused on issues of psychiatry in medicine, and assessed functions that were not specific to the present program. The MSU questionnaires, however, were developed specifically for the present program. They highlight attitudes toward integrating the psychosocial and biomedical dimensions of primary care, address attitudes toward teaching psychosocial medicine, and were designed to assess a change in attitude as a result of teaching (Table 1).

In considering why the present study was successful when compared with earlier negative reports,^{8, 19-21} we believe that the following were important to that success: the institutional milieu, internist teachers with training in psychosocial medicine, highly structured teaching, explicit behavioral objectives, a learner-centered approach, teaching specifically about dimensions of the physician-patient relationship, and acceptance of the teaching by residents. We believed that the latter was influenced particularly by internist teachers who were integral to other parts of the residents' training, and by systematically teaching personal self-awareness, which was highly valued by most residents.

How applicable to other programs are these results? Beyond the already noted methodologic issues affecting generalizability, the residency program during the period reported was characterized by: a primary care orientation, no university hospital, training in three community hospitals, use of community practitioners as well as MSU faculty for teaching, residents trained predominantly in the United States who were well above average in both scores and success rates for American Board of Internal Medicine examinations, and residents who in equal proportions favored careers in primary care and subspecialties. With respect to the psychosocial training, one internist faculty has had considerable additional training in psychosocial medicine, and both have done special work with the Task Force on Doctor and Patient (Society of General Internal Medicine). We believe that the intensive type of training available through the Task Force and elsewhere is es-

essential for medical faculty who wish to conduct this teaching. The psychiatrist leader of the CL experience has had some training in internal medicine and is an adjunct member of the department of medicine.^{2, 11} Finally, the institutional attitude toward psychosocial medicine at MSU is extremely favorable.

When an ideal full-scale research project is conducted, random assignment of residents to the training and control groups will be required. This will ensure that otherwise confounding factors do not affect assessment of the teaching intervention (e.g., educational milieu, quality of faculty, backgrounds and selection criteria for trainees, and exposure to consultation-liaison psychiatry throughout training). Equally important will be measures of residents' skills when they are unaware of the evaluation,⁴³ e.g., interpersonal skills ratings by clinic personnel or patients, interviewing skills assessment using a hidden microphone on a simulated patient believed by the resident to be real. Next, demonstration of change in the patient, including health status benefit, will be required, i.e., it must be shown that the intensive educational intervention translates into something meaningful for the patient. Finally, alternative teaching interventions will have to be compared with the block rotation, e.g., modeling and mentoring alone, longitudinal programs, and block rotations combined with periodic reinforcement.

CONCLUSION

Program evaluation of comprehensive psychosocial teaching is in its infancy, and more rigorous evaluation is clearly required. Nevertheless, the study reported here provided support for the hypothesis that intensive, comprehensive psychosocial teaching during a block rotation is effective. This is important because, without programs of demonstrated effectiveness, it will be difficult to specify curricula, teaching methods, and evaluative tools.¹¹ For the present, these early data can assist both in identifying curricular and methodologic guidelines and in reinforcing recommendations for increased training in psychosocial medicine.¹

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REFLECTIONS

Rather than rely exclusively on statistical tests to confirm the results of an obtained effect, researchers should rely more on independent replications of results. . . . "One replication is worth a thousand t-tests." However, "replication research" tends to conflict with the scientific norm for originality, and is rarely rewarded. — R. PLUTCHIK, in *Foundations of Experimental Research*, 1968