

Does A Behavioral Science Rotation Change Residents' Self-Assessed Psychosocial Attitudes and Behavior?

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ABSTRACT: *The purpose of this study was to determine changes in self-assessed resident psychosocial attitudes and behavior after participation in a month-long behavioral science rotation. The four areas specifically investigated were 1) Personal Attributes, 2) Attitudes toward the Practice of Medicine, 3) Basic Psychosocial Skills of interviewing and assessment, and 4) Complex Psychosocial Skills, including counseling and brief psychological intervention. A total of 17 male and 9 female residents participated sequentially in 4–6 consecutive weeks of a specially designed behavioral science curriculum. Results demonstrated change in the positive direction in only two of the four areas, Personal Attributes ($p < .05$), and Psychosocial Assessment Skills ($p < .000$). Findings suggest that certain basic psychosocial assessment skills, especially those in which residents initially evaluate themselves as lacking mastery, can be successfully taught through a structured format. However, overall lack of clinically relevant improvement points to significant limitations in using structured coursework to address issues of values and attitudinal change. Further, such a structured approach does not seem to have been effective in teaching the skills requiring actual patient intervention.*

KEY WORDS: Medical Education, Resident Psychosocial Performance, Behavioral Science Rotation

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Epidemiology studies point to the large numbers of behavioral and/or psychological diagnoses in primary care(1), with some estimates ranging as high as 33% of all family practice diagnoses(2). It has also been established that many people are more likely to share emotional problems with their family doctor than with a mental health professional(3). Other research documents that significant overutilization of medical care is associated with patients carrying psychosocial diagnoses, while brief psychological intervention is correlated with significant decreases in the frequency of such patient visits(4).

Psychosocial skills in medical practice have also been linked to increased patient satisfaction(5) and improved patient compliance(6). They have been advocated as mitigating the emotional and economic costs of the "difficult patient"(7) and have been explored for their intrinsic therapeutic potential(8). Other research has identified a strong link between successful referral for psychotherapy and the referring physician's own familiarity with psychosocial assessment and short-term counseling skills(9,10).

A study by Schwenk et al(11) raised the issue whether behavioral science curricula encouraged inappropriately high levels of family physician involvement with patients' psychosocial problems based on patient assessment of self-perceived needs. However, subsequent investigations concluded that patients' desire for physician involvement and guidance in various psychosocial areas was in fact higher than indicated by earlier research(12). Further, although at times patients might prefer referral rather than ongoing physician involvement in some areas, such as interpersonal or work-related problems, nevertheless psychosocial skills remain necessary to diagnose and treat medical problems that patients and doctors both agree fall within the domain of the family physician's performance(13).

This evidence has led to the introduction of psychosocial or behavioral science training at both the medical student(14,15) and resident(16) levels. Innovations in behavioral science education have been documented(17). But what competence do physicians have in applying the methods of behavioral science in the assessment, diagnosis, and treatment of patients' psychosocial issues(18)? Despite the widespread existence of behavioral science teaching programs in family medicine, for example, we still have insufficient data on the effectiveness of transmitting knowledge and skills in these areas to residents.

At the medical student level, considerable evidence indicates that there can be significant decay over time in student psychosocial performance(19). Anecdotal evidence from physicians suggests that they often find such psychosocial interventions to be frustrating and nonproductive(20) and that, even after training, they still show significant deficits in handling psychosocial aspects of patient care(21). Physicians who recognized an absence of psychosocial involvement with their patients most commonly cited lack of skill as the major reason(13). We do not know enough about either the immediate impact or the long-term effects of psychosocial training.

The present study was undertaken to assess the short-term impact of a month-long behavioral science rotation on a group of 26 residents. The behavioral science rotation was designed to impact four areas of resident attitudes and behavior: a) personal skills and qualities that were considered to enhance medical practice; b) attitudes toward the practice of medicine; c) basic psychosocial patient assessment and evaluation skills; and d) more complex, sophisticated psychosocial intervention skills. It was hypothesized that a comparison of pre- and post-rotation data would demonstrate significant improvement in resident skills in all four areas.

METHODS

Participants were 3 groups of first-year residents or a total of 26 residents. There were 17 male and 9 female residents. Three residents failed to complete the post-test, so final statistical analyses were performed on a sample of 23 residents. Residents were assessed over the period 1986–89. The rotation was structured to assure that each resident, on an individual basis, spent approximately 4–6 consecutive weeks during the course of the year on the rotation. This closely follows the traditional format for structuring rotations used in residency training.

The rotation was taught by three behavioral science faculty, two psychologists, and one social worker, each with a family systems orientation. In addition, residents received training from community-based programs specializing in substance abuse and family therapy. Residents attended these programs 2–3 times a week in an observational capacity. Individualized tutorials focused on personal development, discussion of resident views about the nature of medical practice, specific case discussion, and response to video stimuli of simulated patients.

The personal development tutorial focused on increasing resident awareness of and comfort with such general interpersonal skills as being a good listener; cultivating self-awareness; becoming sensitive to others' perspectives; dealing with ambiguous situations and resolving problems; being sensitive and open; functioning as part of a team and participating comfortably in groups; and being willing to talk about feelings. These interpersonal skills were examined not only for their relevance in a medical setting, but also in terms of how they might operate in the daily life of the resident.

The unit examining the nature of medical practice was designed to clarify and expand on residents' views regarding disease prevention/health promotion approaches to patient care; the value of a biopsychosocial understanding of the patient(22); and the appropriate balance between biotechnical knowledge and humanistic sensitivity in the practice of medicine(23). Residents were encour-

aged to explore their own value systems and to consider the sources of potential rewards in the profession they had chosen.

In addition, other tutorial time included introduction to the diagnosis and treatment of adult depression; alcoholism and substance abuse; sexual and marital dysfunction; eating disorders; and smoking. Residents also received training in the psychosocial management of geriatric patients, family planning and abortion counseling, death and dying, family functioning assessment and intervention, child and adolescent behavior problems, and nonspecific brief counseling and referral skills.

A total of 4 self-assessment instruments were developed de novo by the behavioral science faculty, drawing on similar unpublished questionnaires previously utilized in resident training and medical school curricula. Each questionnaire originally consisted of 25–30 items and was designed to address a specific focus. All items were forced choice, and all were rated on a disagreement-agreement Likert-type scale of 1–5 (1 = poor skills, 5 = excellent skills). Following the lead of Amos and Teter(24), the developers felt it important to measure not only resident attitudes, but residents' self-assessment of their psychosocial behaviors as well. Questionnaires were pilot-tested for clarity and relevance on a group of 5 second-year residents. However, because of the small numbers involved, no validity analyses were attempted. Post-hoc reliability analyses(25) conducted on the same sample of 23 residents identified the following scales: 1) Personal Attributes had 21 items, with an alpha coefficient of .87. This scale consisted of items such as being a good listener, being able to help people resolve problems, being interested in families, and being able to talk about feelings. 2) The Attitudes toward Medicine scale consisted of 21 items, with an alpha coefficient of .89. Typical items in this scale advocated the importance of disease prevention and health promotion, emphasized the interrelationship of stress and illness, and highlighted the importance of intimate, "human" relationships between doctor and patient in the treatment of disease. 3) Psychosocial Assessment Skills was a scale comprising 20 items, with an alpha coefficient of .88. This scale emphasized basic knowledge and assessment skills in such areas as depression, death and dying, geriatrics, substance abuse, and family problems. 4) The Psychosocial Intervention Skills scale had 25 items and an alpha coefficient of .88. This scale represented mastery of more difficult psychosocial skills and particularly stressed resident proficiency in actual counseling situations. The scale queried residents about their ability to intervene in such areas as depression/suicide ideation, marital conflict and sexual dysfunction, alcohol and substance abuse, and family problems.

Cross-validation of pre-test reliability through statistics performed on the post-test scales yielded reliability coefficients of .92, .85, .74, and .84, respectively, providing additional confirmation of the dependability of the scales. Scales were generally moderately intercorrelated, with coefficients ranging from .35–.46. The Intervention Skills pre-test was moderately correlated with

all 3 other pre-tests that, however, were not correlated with each other. The post-tests of all 4 scales were correlated with at least 2 and sometimes 3 other post-tests. Pre- and post-tests for the Assessment Skills and the Intervention Skills scales were also correlated ($r = .56$, $r = .46$, respectively), but there were no pre- and post-within-scale correlations for the other two scales.

Residents were asked to complete the 4 instruments on the first day of the behavioral science rotation. At the conclusion of the rotation, they were given the same packet, with questionnaires arranged in a different order from that on the first administration. Time necessary to complete the entire packet was approximately 30–40 minutes.

RESULTS

The pre- and post-results of the 4 questionnaires were compared for all residents. Results indicated that 2 of the scales, Personal Attributes and Assessment Skills, showed significant improvement (see Table 1). The Intervention Skills scale improved nonsignificantly in the expected direction. There was no significant change in the Attitudes toward Medicine scale, although scores declined slightly on the post-test administration.

On the basis of significance achieved in 2 of the 4 scales, individual items from the Personal Attributes scale and the Assessment Skills scale were examined for pre-post changes. For the Personal Attributes scale, most pre-post item changes were positive but nonsignificant. Only 4 items (nonverbal communication, ability to establish rapport, comfort in participating in groups, and interest in why people behave as they do) achieved significance at the .05 level.

By contrast, over half the items on the Assessment Skills scale achieved significance. These items are summarized in Table 2. In general, residents re-

Table 1. Pre- and Post-Scores of Resident Psychosocial Attitudes and Behavior

Scale	X_1	s	X_2	s	t
Personal Attributes	3.76	.39	3.97	.45	-2.01*
Attitudes toward Medicine	3.78	.49	3.70	.44	.65
Psychosocial Assessment Skills	3.96	.41	4.37	.27	5.34**
Psychosocial Intervention Skills	3.25	.26	3.31	.29	-.76

* $p = .05$.

** $p < .000$.

Table 2. Psychosocial Assessment Skills: Pre-Post Comparisons

Item	Pre-Test		Post-Test		t
	\bar{X}	s	\bar{X}	s	
Family functioning	2.4	.75	3.8	.72	9.2***
Effects of illness on family	3.9	.86	4.3	.74	2.1*
Influence of family issues on clinical problem	3.2	.89	4.3	.81	4.8**
Family issues that can be treated early	2.3	.71	3.7	.87	9.8***
Issues that need referral	3.1	.97	4.0	.83	3.8**
Alcoholism	4.3	1.0	4.5	.66	1.1
Smoking	4.5	.73	4.7	.57	1.7
Child behavior problem	4.1	1.0	4.6	.58	-2.5*
Child development	4.3	.75	4.5	.57	1.5
Child abuse	4.8	.42	5.0	.20	1.4
Adolescent acting out	4.0	.83	4.7	.57	-3.7**
Marital problems	3.5	.99	3.9	.99	2.7*
Sexual problems	3.8	1.2	4.0	1.0	1.6
Spouse abuse	4.6	.80	4.7	.56	.47
Adult depression	4.3	.78	4.1	.75	-1.1
Psychosocial	3.8	.78	4.3	.75	2.3*
Educational/counseling strategies for individuals	2.3	.78	3.7	.81	10.4***
Psychological disorders	4.1	1.0	4.3	.62	1.2
Schizophrenia	4.2	.95	4.1	.74	-.40
Paranoid ideation	4.1	.85	4.0	.64	-.55
Death of spouse	4.4	.57	4.8	.42	2.2*

* p < .05.

** p < .001.

*** p < .000.

ported a significant improvement in their ability to assess child and family problems, in their understanding of the relationship of psychosocial factors to disease processes, in their estimation of which counseling strategies might be appropriate in what situations, and in their ability to discriminate the need for psychological referral. Areas not significantly impacted by the experience of the behavioral science rotation were the assessment of eating disorders and smoking, alcoholism, depression, child abuse, and mental illness. It should be noted, however, that residents evaluated themselves highly in these areas according to the initial assessment, with item means ranging from 4.0 to 4.8 (4 = very good skills, 5 = excellent skills).

DISCUSSION

The results of this study suggest that changes in resident psychosocial attitudes and self-assessed behavior are possible. Because of methodological limitations, including the lack of a control group, it is impossible to attribute

the identified changes to behavioral science teaching per se. Many additional factors, such as other teaching encounters and experience, might have influenced the results. Better-controlled studies are indicated to identify more reliable predictors of change. However, it is worth noting that residents at both early and late assessment points during the year noted similar improvements, suggesting that time in the residency program per se did not explain improvement in resident scores. Also, visual inspection of individual scores suggests that generally results were attributable to cumulative changes in the scores of most residents, rather than large changes in the scores of a few.

The area of greatest change was in the residents' confidence in their basic psychosocial assessment skills, which was also the area in which they regarded themselves as having most initial competence. Significance between pre- and post-testing in this category reached significance at the .000 level. In other words, between pre- and post-administration, residents felt they had acquired significantly improved psychosocial diagnostic and assessment skills. In terms of individual item analysis, resident evaluation of their assessment skills improved significantly in such areas as child and adolescent behavior, family functioning, influence of family issues on clinical problems, family issues that can be treated early, issues that require referral, marital problems, and appropriate education/counseling strategies. Interestingly, in many cases it was in the areas of relatively poor initial performance, such as assessment of appropriate patient counseling strategies and family problems, that residents felt they had achieved most improvement.

However, in the other areas of desired movement, changes were not evident. Even on the Personal Attributes scale, which achieved a significant difference between pre- and post-test scores at the 95% confidence level, examination of the actual shifts in means was clinically not impressive. There were no significant changes in the desired direction on either the Attitudes toward Medicine scale or the Psychosocial Intervention Skills scale.

The Personal Attributes scale measured qualities of openness, self-awareness, communication and problem-solving skills, values orientation, and interest in others. In general, items showed small improvements or no change. Areas of greatest change had to do with greater ability to establish rapport, increased attention to nonverbal communication, improved personal openness, and greater comfort in group participation.

The Attitudes toward Medicine scale measured the degree of biopsychosocial, humanistic, and whole-person orientation of the resident. In general, higher scores reflected a higher biopsychosocial identification. It is apparent that residents assessed themselves as having an initially rather high orientation in this direction. However, overall, the data showed a slight, although nonsignificant, decline in biopsychosocial identification on the post-test for residents. This decline was in part the result of one highly significant pre-post change. On pre-testing, the item associating stress and illness received a mean score of 4.3,

which was significantly above the group mean, and indicated a strong endorsement of the relationship between these two variables. On post-testing, the score for this item had fallen to 1.7, significantly below the group mean. It is difficult to know how to interpret this drastic decline, although it might have reflected a shift toward more strictly biomedical interpretations of illness, or a dissatisfaction with the imprecision of the term "stress". Informal discussions with residents suggested that they, in common with other interns, tended to increase in cynicism and disillusionment over the course of the year(26).

The scale measuring Psychosocial Intervention Skills was designed to assess residents' perception of their ability to actually engage in basic counseling with patients. Resident degree of comfort and expertise in dealing clinically with depression and suicide, patient death, abortion, alcoholism and substance abuse, sexual dysfunction, marital and family counseling, counseling families of aged patients, making referrals, and engaging in brief psychotherapy were all evaluated. Residents evaluated themselves initially as having least mastery and confidence on this scale and the scale showed only small and nonsignificant changes pre- and post-test. Although the behavioral science rotation specifically taught these areas, in terms of discussing hypothetical and actual clinical cases, as well as brief exposure to modeling of actual psychotherapeutic techniques, in general little change was noted from the resident perspective.

This study suggests both validations and modifications in approaches to resident psychosocial education based on the rotation model. First, it suggests that residents were able to master basic psychosocial skills of interviewing and assessment, taught by behavioral science faculty, in a relatively short period of time (at least in their own estimation) and feel relatively confident of their ability to execute such skills. The skills included in this scale were relatively simple, straightforward, and behavioral. Their somewhat limited goals included heightening resident awareness of psychosocial issues, and providing techniques for the residents to gain more information about such issues from their patients. The skills in this category tended to lend themselves well to "cook-book"-like formats of instruction and practice. Based on the results of this study, it is possible to conclude that using a focused, tutorial format for conveying these skills is effective, and that the teaching of these skills can successfully be conducted by behavioral science faculty.

This study also provided information about self-perceived areas of relative resident strengths and weaknesses. Thus, for example, in terms of personal attributes, residents tended to evaluate themselves as most deficient in openness, sensitivity to nonverbal communication, and awareness of psychosocial issues, but strong in appreciating others' perspectives, being a caring person, and being a good listener. Regarding psychosocial assessment skills, residents tended to rate themselves as performing better when dealing with depression, alcoholism, smoking, child abuse, and mental illness, and somewhat worse

when handling marital and family problems. Finally, residents felt least confident about their counseling abilities in areas such as substance abuse, marital and family therapy, referral and brief psychotherapy skills, but more competent in terms of counseling geriatric patients, families of dying patients, and family planning counseling. There also appeared to be a trend of improvement in areas initially evaluated by residents as least well mastered. This information provides important feedback that can be incorporated in the design of resident teaching programs. It suggests that both physician and behavioral science faculty should first identify areas of psychosocial weakness in residents, then direct the learning experience toward those areas, as these are the ones most likely to show meaningful change.

Disturbingly, however, it appeared that more ambitious efforts to make a major impact on the "person" of the residents, in the sense of orienting them toward greater sensitivity toward others, increased self-awareness, and generally improved interpersonal skills, were difficult to accomplish within the constraints of a brief, intensive rotation. This objective was approached in this teaching program through individual tutorials and directed reading (eg, Carmichael, Stephens, McWhinney) and, while associated with some degree of statistical success, did not appear to have a dramatic effect on residents. One might speculate that while the intimate, personal atmosphere created by the one-to-one teaching facilitated residents' willingness to engage in introspection and self-examination, the limited exposure to reevaluating highly personal characteristics and styles was ultimately ineffective. Most psychotherapy research suggests that lasting personal change, even when employing brief therapies, cannot be accomplished in the space of a month(27).

It is also possible that instruction about highly personal and intimate topics coming exclusively from behavioral science faculty lacked credibility. While residents have much to learn from behavioral scientists, ultimately these individuals are not, and can never be, residents' role models. Thus, behavioral scientists teaching about personal values and humanistic attitudes toward medicine may provoke a response of skepticism and perceived irrelevance in the resident. Such a goal might be better accomplished through resident participation in Balint-style groups(28), which have the advantage of continuity over time, as well as the presence of a physician role model.

The tutorial format further appeared insufficient to counteract signs of cynicism reflected in the Attitudes toward Medicine questionnaire. Disillusionment with the medical system is a complex and pervasive issue(29) that does not fall completely within the domain of behavioral science. However, it is possible that formats that allow the sharing of frustration and helplessness, such as a required intern support group(30), might be more successful in addressing this concern.

Again, in retrospect, significant limitations become evident in assigning

this task to exclusively non-M.D. faculty. While behavioral science faculty have a contribution to make in this area, an authentic physician perspective seems indispensable. Also, as in the realm of personal values, teaching in an office setting, however personalized and intimate, may appear excessively ivory-tower and removed from the day-to-day concerns of residents. This possibility makes it especially important that physicians, both full-time attendings and volunteer faculty, take the risk of integrating issues of values and attitudes into their precepting functions. It is possible that strong and self-reflective modeling in this area by physicians, complemented by insights from behavioral science faculty, might allow for more substantial change in residents during the course of their training.

Finally, it appears from this study that the teaching of actual psychosocial intervention skills also may require a different format from the one utilized in the behavioral science rotation. Surveying these residents over a 3-year period indicated that in general they did not feel confident about their ability to master brief counseling skills within the limitations of this structure. This finding is similar to those from studies examining outcomes of efforts to teach family therapy to family physicians. These studies indicate that, despite a well-structured, theoretically based instructional program using incremental learning and behavioral rehearsal, and participants who were enthusiastic about the material to be mastered, skills in this area were replicated only haphazardly, incompletely, and idiosyncratically(31).

There are several possible explanations for this study's lack of success in teaching psychosocial intervention skills to residents. First, in comparing this finding to the area of greatest change, assessment skills, it should be recognized that assessment skills are essentially more cognitive in nature. Thus, it is possible that they were learned more readily in a format that encouraged absorption of didactic material. By contrast, intervention is by definition basically a "practice skill"(32), which evolves and matures over time. While tasks that are simple and relatively highly structured are based on explicit knowledge, the more complex, "ill-structured" problems that require psychosocial intervention rely on a different kind of knowledge(33). This implied or tacit(34) knowledge generally cannot be transmitted in a "reconstructed" manner in which exemplars present cognitive reconstructions of their process of problem-solving. Rather, more authentic modes of discovery are necessary in these situations, which pay close attention to actual, in vivo constructions of solutions to such ill-structured psychosocial problems. Clearly, this is a process that cannot be conducted by behavioral scientists alone. Rather, it requires close cooperation with physician faculty to ensure that the solutions arrived at are useful, sensible, and ethical in the actual situations to which they are being applied(35).

Secondly, although assessment involves some patient interaction, it is somewhat more structured and predictable than intervention. Much assessment,

even psychosocial assessment, can be conducted in a manner that remains essentially physician-centered, with the physician retaining control of the interaction(36). By contrast, effective intervention is a much more mutual affair and involves a sharing of needs and agendas. This process potentially may result in a certain level of anxiety in the physician(8) who is forced to relinquish some measure of control to promote certain therapeutic ends. It seems likely that a didactic, discussion-oriented pedagogical approach could not adequately address the anxiety of residents inherent in actual interactive counseling with patients.

There are indications from this study that basic, more technical aspects of psychosocial patient interviewing and assessment may be taught successfully through didactic, tutorial coursework, and that such coursework seems most successful in improving skills initially evaluated by residents as areas of poor mastery. However, efforts to change personal values and attitudes, and to give residents more complex, practice skills of intervention with patients, are not likely to be effectively transmitted through structured coursework, even when it is highly individualized and interactive. It is speculated that to effect such subtle and complex changes in residents, new multidisciplinary approaches are needed, which emphasize collaboration of physician faculty and behavioral scientists; ongoing and explicit modeling of concern for biopsychosocial values and orientation by physician faculty; and integration of such concerns with the actual, daily execution of clinical patient care.

With these insights in mind, this department's behavioral science program has recently revamped its structure to reflect some of the above concerns. Faculty development has stressed prominent physician involvement in teaching psychosocial aspects of patient care, both in terms of identifying resident deficits and modeling appropriate attitudes, values, and interventions. In addition, the department has incorporated year-long, continuity counseling clinics to be implemented at the third-year level. These clinics, used in conjunction with regular didactic teaching, are designed to tackle some of the more subtle psychosocial counseling skills in a format better suited to their mastery, by emphasizing continuity of patient care, incremental learning, and modeling by behavioral science faculty. It is hoped that experimental innovations such as these may provide more fruitful models for transmitting psychosocial practice skills to residents.

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