Behavioral Medicine: The Challenge of Integrating Psychological and Behavioral Approaches into Primary Care

The effects of psychological and behavioral factors on physical illness are increasingly recognized. For example, depression and anger have repeatedly been reported as key predictors of a poor recovery following myocardial infarction, independent of specific disease indices.\(^1\)\(^-\)\(^3\) Depression, anticipatory nausea, and anxiety are often common in cancer patients.\(^4\)\(^-\)\(^8\) Depression and anxiety have also been associated with greater levels of physical disability, diminished quality of life, and increased health care utilization.\(^9\) In fact, psychological and behavioral factors are relevant to some of the most common chronic illnesses (e.g., cancer, chronic pain, cardiovascular disease, Crohn disease, diabetes, asthma/chronic obstructive pulmonary disease). With increased recognition of and empirical support for the contribution of psychological and behavioral variables in the development, maintenance, and/or exacerbation of disease comes the need for increased treatment options that incorporate not only the best of biomedical knowledge but also of biobehavioral science.

In this article, we present some thoughts on how "applied" behavioral medicine can be incorporated into health care, particularly primary care. To help readers understand behavioral medicine, we briefly review some of the evidence supporting behavioral medicine interventions for patients with cardiovascular disease and cancer. We then discuss how we have applied a conceptual model to implement behavioral medicine interventions into care at our own institution. Our goal is to encourage further dialogue on how to integrate behavioral medicine interventions into evidence-based health care.

A Brief History of Behavioral Medicine

Initially formulated as a reaction to psychoanalytic psychosomatic medicine and buttressed by the more empirically grounded behaviorist movement,\(^10\) behavioral medicine was developed in the 1970s to address psychobehavioral risk factors in health and disease.\(^11\) At the time, the prevalent view of health and disease was biomedical, with a reductionistic focus on organs and organ systems. While the biomedical approach allowed for successful treatment of many acute conditions, it did little to address many chronic conditions in which lifestyle and behavioral factors played a crucial role.\(^11\),\(^12\) Thus, the limitations of a purely reductionistic approach to disease management gave impetus to a new perspective fostered by the publication of the "biopsychosocial" model of health and illness by Engel in 1977.\(^13\)

As behavioral medicine expanded during the late 1970s to explore the interaction between behavior and illness more systematically, diverse and innovative behavioral medicine techniques were effectively applied to various medical populations. Two areas where research and clinical activity have been most active and fruitful are cardiovascular disease and cancer.\(^14\)\(^-\)\(^41\) Research in these areas over the past 25 years has led to the development of effective behavioral medicine interventions that are now incorporated into evidence-based health care.
years has shifted from a search for personality types or traits linked with disease to an emphasis on modifiable risk behaviors that fluctuate across people and situations. Despite the continued impact of biobehavioral issues on medical illnesses (e.g., adherence, costs), numerous practical, social, and economic barriers for integrating clinical behavioral science into mainstream health care have yet to be overcome. Indeed, how the health care system can best utilize the conceptual approaches and proven treatments of behavioral medicine in order to adequately implement and integrate them into evidence-based clinical delivery remains unresolved and unspecified.

State of the Evidence

One potential reason for limited utilization of behavioral medicine may be concerns about whether it really works. Like most research literature dating back some years, the quality of the data that support the therapeutic efficacy of behavioral interventions varies. Nevertheless, there are enough studies with good methodologic rigor and positive outcomes to warrant mention. Although a comprehensive critical review of this literature is beyond the scope of this article, a number of excellent reviews are available for the interested reader.

The evidence supporting the effectiveness of treating complex problems involving stress, depression, and coronary-prone personality is more questionable. Nevertheless, several studies have demonstrated that behavioral medicine interventions can have a positive effect on outcomes. Table 2 reports a brief summary of some randomized clinical trials in cardiovascular disease that examined psychological and behavioral treatments.

Studies in Cardiovascular Disease

Behavioral medicine interventions in cardiovascular disease have focused on lifestyle issues as well as anxiety and depression. Given the general acceptance that lifestyle behaviors, such as smoking, inactivity/lack of exercise, and diet, are significant and modifiable risk factors for cardiovascular morbidity and mortality, many current cardiac rehabilitation efforts have demonstrated that behavioral risk factors can be modified while problems with adherence and maintenance are common. One study found that up to 80% of patients did not adhere to therapeutic recommendations. Another study in cardiac rehabilitation had a 50% drop-out rate in the first year. Rates of nonadherence reported in the literature have remained essentially constant over time.

The evidence supporting the effectiveness of treating distress, depression, anxiety, nausea, and/or pain in cancer patients. These studies have been summarized in several comprehensive review articles. Treatments evaluated typically include either cognitive-behavioral therapy, relaxation training, coping/problem-solving skills training, or a combination of these. For example, a study by Fawzy and colleagues provided a structured group intervention that included behavior therapy, relaxation training, coping skills training, and emotional support in a randomized study of melanoma patients. Improved psychological functioning as defined by improved coping skills and positive effects on mood, quality of life, and even immune functioning was observed after treatment and at 6-month follow-up assessments. Their findings and those of others provide support for the efficacy of psychological interventions for improving emotional and physical well-being and perhaps even survival in cancer patients. The ability of a psychological support intervention to reduce mortality, however, remains equivocal, as a recent trial failed to find a mortality benefit. Table 1 presents some frequently cited cancer studies that have examined psychological and behavioral treatments.

Study Limitations

The limitations of the existing literature on behavioral medicine include the paucity of replication studies, the use of heterogeneous patient groups within the same treatment study, small sample sizes, variable control groups, use of treatments that were not codified or standardized, and potential differences in the pretreatment
psychological well-being of patients. Despite these limitations, this literature can be used to select promising interventions for more rigorous study in the future. Indeed, regarding cancer in particular, the National Comprehensive Cancer Network has developed guidelines to promote the investigation of ways to manage psychological distress and related issues.75

Cost-Effectiveness

More recent research efforts have begun to explore the cost-effectiveness of behavioral medicine interventions. The utility of behavioral medicine does not lie in revenue generation but in offsetting costs and increasing quality of life. The incorporation of biobehavioral expertise into daily practice holds the promise of substantial cost savings over time, particularly by reducing inappropriate utilization of services. In a recent meta-analysis of the impact of psychological interventions on medical cost offset, Chiles and coworkers76 reported that, on average, psychological intervention reduced length of hospital stay by over 2.5 days and resulted in per-person savings of $2205. Behavioral medicine interventions in particular were found to produce benefits significantly greater than other forms of psychotherapy.76

There are considerable data from methodologically rigorous studies that support the effectiveness of behavioral medicine interventions for relieving distress, depression, anxiety, nausea, and pain and modifying the lifestyle factors, such as smoking, exercise, and diet, that are associated with cancer and cardiovascular disease. While there are limitations to the published literature, the data that do exist are promising and argue for devising stronger studies. One of the most pressing issues is how to integrate behavioral medicine interventions into current clinical practice.

A Model for Practice (The 4 Ts)

In an attempt to provide comprehensive data-driven behavioral medicine services that focus on the relation-
Ships between medical and behavioral health problems, the University of Michigan Behavioral Medicine Clinic has developed a heuristic model of clinical research and practice that seems to work well. We believe the model described here is parsimonious, has clinical utility, and complements those described by others.77

Our operational approach is as follows.

- **Target a clinical need where there is sufficient evidence**
  that psychological or behavioral variables influence outcome in a patient population that is missed or underserved with respect to these variables. This step should reflect both what is known about the clinical problem and the particular mission of the service-delivery unit.

- **Triage through the development of an identification system**
  for problematic cases; this system should function as an integral part of everyday, ongoing clinical care. Here, while academically developed diagnostic interviews, in-depth staff-rating scales, and exhaustive questionnaires may be empirically sound, they may also be impractical and inefficient in the context of clinical care. Brief, reliable, and clinically valid measures may need to be developed and tailored to the needs of an individual clinic or patient population.2, 78–83

- **Treat by deploying evidence-based behavioral medicine approaches to target populations.** Such treatment involves careful integration of both biomedical and biobehavioral interventions in order to provide comprehensive and appropriate patient care.

### TABLE 2
Frequently Cited Randomized Trials of Behavioral Medicine Interventions in Cardiology*

<table>
<thead>
<tr>
<th>NUMBER OF PATIENTS/TYPE OF DISORDER/REFERENCE</th>
<th>INTERVENTION</th>
<th>LENGTH OF FOLLOW-UP</th>
<th>OUTCOME MEASURE</th>
<th>FINDING</th>
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<tbody>
<tr>
<td>117 patients with mild essential hypertension70</td>
<td>12 sessions, 45 minutes twice weekly, of breathing–relaxation training and biofeedback</td>
<td>1 year</td>
<td>Patients whose systolic or diastolic blood pressure decreased by &gt;10% from baseline (%)</td>
<td>66%</td>
</tr>
<tr>
<td>48 patients with mixed coronary heart disease71</td>
<td>Lifestyle program of diet, exercise, stress management, smoking cessation, and group psychological support</td>
<td>5 year</td>
<td>Cardiac hospitalizations per patient</td>
<td>0.82</td>
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<tr>
<td>585 patients with myocardial infarction72</td>
<td>Scheduled interaction between case managers and patients after discharge: 14 nurses initiated telephone contacts; progress reports mailed to patients; and 4 individual nurse sessions of exercise testing, diet–drug therapy for hyperlipidemia, and smoking cessation</td>
<td>6 months after MI</td>
<td>Smokers who quit 2 months after MI (nonsmoking status was biochemically confirmed) (%)</td>
<td>70%</td>
</tr>
<tr>
<td>52 patients with mixed coronary artery disease73</td>
<td>3 weekly groups of pain management and relaxation training, cognitive reframing, and problem solving</td>
<td>1 month</td>
<td>Weekly chest pain frequency (range 0 to &gt; 5 times/day)</td>
<td>1 less episode/week</td>
</tr>
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*CABG = coronary artery bypass grafting; METS = multiples of energy consumption; MI = myocardial infarction; PTCA = percutaneous transluminal coronary angioplasty.

†P <0.01
‡P value not available.
Tracking patient outcomes after treatment is complete. This is a critical and necessary step for systematic evaluation and quality improvement. Ideally, tracking should be aligned with triage to correct and improve the system as a whole. The data should describe the patient’s morbidity and mortality, level of function, and quality of life as well as provide an assessment of the fiscal impact of the intervention.

An ideal approach would fit into a broader model, such as that described by Hayes and colleagues, and would employ longitudinal approaches (e.g., repeated measures, multiple-baseline designs), many of which can be adapted readily to the clinic setting. We are currently assessing the feasibility of this approach in an ongoing clinical research study with the University of Michigan Multidisciplinary Melanoma Clinic. The goal is to target and treat distressed non–stage IV melanoma patients while taking care not to disrupt ongoing medical practice. Figure 1 illustrates how the 4 Ts model is guiding this treatment study.

To date, patient response to cognitive-behavioral therapy has been encouraging, and no major disruption in the daily practice of the clinic has been reported. The major difficulties with the study have included patient attrition for personal reasons and problems in recruiting.

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**Target Patients in Need of Services**

Target: Distressed non–stage IV melanoma patients

Method: Administer survey to all eligible patients seen in Multidisciplinary Melanoma Clinic to identify distressed patients. Distress is defined as a score of >60 on the GSI calculated from the Brief Symptom Inventory instrument.

2 months

**Triage to Appropriate Interventions Based on Distress**

Triage: Randomly assign distressed patients to treatment*

Method: Administer same survey 2 months later to identify persistent distress. Randomly assign distressed patients to standard medical care with or without psychological therapy; assign patients without distress to no intervention.

**Treat Patients with Interventions Based on Triage Needs**

Treatment: Cognitive-behavioral therapy

Method: 4 structured individual sessions of cognitive-behavioral therapy that include relaxation training, cognitive challenging, and problem solving.

2 and 5 months

**Track Patient Outcomes**

Tracking: Periodic patient surveys

Method: Administer same survey 2 and 5 months after therapy (these follow-up surveys are given to all patients—those with and without distress at baseline). Compare change in distress for both treated and untreated group.

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*The randomization step is only necessary for the study. Ordinarily, in implementing the 4T model, patients are assigned to appropriate treatment based on assessment during triage.

**FIGURE 1.** Study design using the model for practice (4 Ts). Global Severity Index (GSI) scores ranged from 38 to 80 (mean, 50, SD±10). We defined distress as a GSI score above 60. Patients with scores in this range reported such symptoms as nervousness or shakiness, poor appetite, anxiety, or depression “quite a bit” or “extremely.” The randomization step is only necessary for the study. Ordinarily, in implementing the 4T model, patients are assigned to appropriate treatment based on assessment during triage.
patients because of the exclusion criteria and because it is difficult for patients who work full-time or who must travel a distance to the hospital to participate in the treatment. Future applications of the model will need to identify ways to overcome these problems, possibly using repeated follow-up phone calls to patients, brief interventions in the context of scheduled patient visits, or interventions that can occur without requiring that the patient travel to the hospital or clinic (e.g., phone, CD-ROM, or Web-based interventions). An ultimate objective in obtaining evidence for the efficacy and effectiveness of the 4 Ts model is to provide a sound basis for integrating this approach into standard clinical practice. Demonstrating the effectiveness of behavioral medicine treatment would also strengthen the argument for third-party reimbursement of such services; lack of such reimbursement currently constitutes a significant economic disincentive for integrated care.

We believe that the success of the 4 T approach at our institution has been based, in part, on two important factors. First, we received support from pertinent medical services (i.e., internal medicine and psychiatry). To carry out the desired integration, medical services with relevant patient populations had to recognize and support the call for adjuvant care. Second, our medical center was willing to invest in improving service delivery by providing start-up funds for internal clinical research projects. Funding has come from group practice revenues and, while the allocations represented a relatively small proportion of the total budget, the investment has encouraged innovation and interdisciplinary, interdepartmental collaborations.

**Looking to the Future**

It is now reasonably well established that psychological and behavioral factors contribute to health outcomes and service utilization. Nevertheless, we also know that in practice these factors often remain unidentified, misidentified, or undertreated in standard practice, resulting in suboptimal triage and diminished treatment effectiveness. A critical challenge for health care, therefore, will be to integrate new biomedical and behavioral medicine knowledge and practice in clinically relevant and economically prudent ways. Also, there is a real need to provide an adequate basis for persuading health care administrators to cease economic disincentives for integrated biobehavioral treatment. An example of such a disincentive is the practice of subcapitimating mental health services, which perpetuates the mind–body dualism that has limited the integration of biomedical and behavioral medicine approaches in the past.

To obtain the benefits of more comprehensive integration, it will be necessary to test fully integrated services that manage the needs of the patient at several levels. Models for developing such services have been promulgated and include the 4 Ts approach described here. Approaches that integrate behavioral services into the overall cost structure should help counter past tendencies to separate biomedical and behavioral medicine health services and will be more in keeping with the new Health and Behavior Current Procedural Technology (i.e., billing) codes released in 2002. These codes provide a mechanism for billing and tracking all services provided to patients. There is also the possibility that these new codes will help counter the managed care practice of pitting economic activities of service delivery units against one another. Given the stated objective of fostering cost-effective and efficacious treatments, it is more than academic to question how managed care will manage biobehavioral risk, prevention, treatment adherence, chronic disease, rehabilitation, and quality of life.

Although the future of health care reform is currently unclear, it is our thesis that a close rapport between biomedical and biobehavioral approaches will be essential and that thoughtful redesign will require systematic testing to provide guidance for payer systems as well as for regulatory agencies and clinician providers. The objective should be to develop a medical care system that is based on comprehensive interventions of demonstrated efficacy, with long-term investments in health that take into account the whole person.

**References**


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