Realizing Engel’s Vision: Psychosomatic Medicine and the Education of Physician–Healers

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Many of the exciting conceptual and scientific advances in the field of psychosomatic medicine are not taught in United States medical schools. This article, based on the Presidential Address given at the Annual Meeting of the American Psychosomatic Society in Phoenix, Arizona in March 2003, reviews the rationale for integrating psychosomatic medicine into medical curricula, identifies educational needs, proposes a core curriculum, and suggests how American Psychosomatic Society members can be instrumental in curriculum development and implementation.

APS = American Psychosomatic Society; AAMC = Association of American Medical Colleges; OBSSR = Office and Behavioral and Social Science Research.

INTRODUCTION

George Engel was a young man when he was president of the young American Psychosomatic Society (APS) 50 years ago. Although he was a pioneer in psychosomatic research, he is perhaps best known for his articulation of the biopsychosocial model. He envisioned that physicians trained in this model would include biological, psychological, and social factors in their scientific understanding of disease pathogenesis. They would understand, from the molecular to the societal level, how stressful events, hopelessness, grief, and lack of social support could all contribute to a patient’s illness, and this knowledge would lead them to a more comprehensive and holistic treatment of illness (1, 2). His vision is embodied in the mission of the American Psychosomatic Society “...to promote and advance the scientific understanding of the interrelationships among biological, psychological, social and behavioral factors in human health and disease, and the integration of the fields of science that separately examine each, and to foster the application of this understanding in education and improved health care.”

Although the members of our society have made enormous progress in advancing our scientific understanding of psychosomatic processes, we have been less successful in the second part of our mission, which has led to this question asked by many of our senior members over the years, “Why is it that the great science presented at our meetings does not make its way into medical school curricula?” This question suggests a more basic question, “What can psychosomatic medicine contribute to the education of physicians?”

Before approaching these questions, I would like to offer more questions, those posed by Mark Lumley in our APS fund brochure: (1) a man has a heart attack after getting into a fight with his boss. How does this happen?; (2) two men of the same age have heart attacks resulting in equal damage to their hearts. One is depressed and single, the other married and not depressed. Why is the first man more likely to die of heart disease within the next year than the second man?; (3) a woman’s rheumatoid arthritis flares up when she has a conflict with her grown child, but her disease is quiescent when her life is calm. Why?; (4) why is social isolation as hazardous to your health as smoking, hypertension, obesity, and low physical activity?; (5) why do some patients with asthma have better lung functioning after they write about stressful experiences in their lives?; (6) why do workers with little decision-making latitude have more heart attacks and gastrointestinal disorders than their supervisors?; (7) why do people of low socioeconomic status have a much higher mortality rate than people of high status?; (8) how can we help those large numbers of people who seek medical care for pain and other symptom problems, when current medical tests can find little that is abnormal?; (9) how can we inform the current approaches to low back pain, fibromyalgia, chronic fatigue syndrome and other poorly understood illnesses, and return people to health and work sooner?; (10) how can we design behavioral interventions for a variety of chronic diseases that will enhance patients’ natural healing processes, improve well being and prolong their lives?

These kinds of questions and their answers are the stuff of everyday discourse at our meetings. Would you not want your physician to be curious about these questions and to know the scientific evidence that begins to answer them? Yet there is evidence that medical school curricula do not present, in any kind of organized and systematic way, much of the science of psychosomatic medicine (3,4). Despite broad endorsement of the biopsychosocial model by medical educators, United States medical education is still predominantly biomedical in focus. Partly because of that biomedical focus, the United States health care system is in crisis. Here are a series of facts, culled by Mark Ketterer from two recent books on our health care system (5,6), and also enumerated in our APS fund brochure: (1) America spends 14% of its Gross Domestic Product on health care while the other industrialized countries average approximately 8%; (2) the proliferation of high-tech, high-cost diagnostic and therapeutic procedures, untested by randomized controlled trials for efficacy, safety, and cost-effectiveness continues apace; (3) the current reimbursement system(s) reward either overuse or underuse of technology; (4) the use of scientifically unproven folk remedies has increased to approximately one third of Americans; (5) the number of visits to alternative practitioners in 1997 exceeded the number of all visits to primary care practitioners; and (6) patient satisfaction is dead last among industrialized countries.
I would add: *modifiable behaviors are etiologic in mortality.* Perhaps 50% of the most common causes of death in this country are related to modifiable behaviors (7). Yet medical students receive relatively little instruction on effective behavioral counseling (3) and practicing physicians often make little headway in their efforts to induce patients to change their behaviors.

**There is great underrecognition of depression, anxiety and psychosocial problems in primary care.** Depression and anxiety are quite common among primary care patients and are associated with considerable morbidity and mortality, yet these disorders are frequently unrecognized and undertreated (8–10). Major psychosocial problems such as domestic violence are often not recognized, and then approached with unnecessary diagnostic workups. When correctly identified, many physicians give inappropriate or even potentially dangerous advice (11).

**Pain is often undertreated.** While much is known about effective pain management, many patients with chronic pain suffer needlessly because their pain is inadequately treated (12–14).

**Somatization is common and ineffectively managed.** In Kurt Kroenke’s study, somatic symptoms are one of the leading reasons for medical outpatient clinic visits, with the most common symptoms having a prevalence of 10% or more. However, the usual diagnostic workups are often unproductive, with less than one in five symptoms having an organic explanation after the initial physical examination and laboratory testing (15).

**Ineffective management of chronic diseases is widespread.** Nearly 100 million people in this country are coping with chronic diseases. There is much evidence that physicians’ practices and the (dis)organization of health care delivery result in care that is in many ways inadequate to meet the needs of these patients (16).

**THE IDEAL MEDICAL SCHOOL GRADUATE**

Recognizing that medical education is not adequately preparing students for the realities of practice, the Association of American Medical Colleges (AAMC) initiated a Medical School Objectives Project to delineate the goals and objectives of medical education and to define the ideal medical school graduate (17). Their conclusions (and my comments in parentheses):

Physicians must be: altruistic—compassionate, empathetic, trustworthy, truthful, professional, and aware of personal limits; knowledgeable—biomedical knowledge related to diseases pathogenesis (psychosomatic mechanisms are not mentioned); skillful—eliciting histories and performing physical examinations, technical procedures, critical care, communicating, ie, exchanging information, relieving pain; and dutiful—this includes knowledge of nonbiological determinants of poor health. (Note that social, psychological, and behavioral factors are relegated to this “nonbiological” category).

The dutiful category also covers knowledge of risk factors for disease or injury, ability to practice evidence-based medicine, knowledge of the organization, financing, and delivery of health care, and a commitment to provide care to the underserved.

While this description of the ideal graduate is laudable, the AAMC report described this graduate mostly in terms of biomedical knowledge and skills. While it is critical to be able to diagnose and cure disease, it is just as critical to be able to understand patients’ illnesses, to be able to form healing relationships, and to relieve suffering. If the AAMC had asked the APS Professional Education Committee to add our objectives to the list, we would have strongly advocated for the following: physicians must understand mind/brain/body/social interactions in health and disease; physicians must practice within a biopsychosocial model of care; physicians must be able to heal as well as cure.

Healing has always been a part of the physician’s art, especially through the ages when most theories of disease were wrong and most remedies worthless or harmful. However, in the modern era the many advances in scientific knowledge and technology have captured the greatest portion of medical school curricula and focused physicians’ attention on the processes of diagnosing and curing disease. Yet, patients come to physicians with illnesses that may or may not involve disease processes, and seek healing—to be made “whole” again, to be restored to health.

It has long been considered part of the physician’s “art” to be able to promote healing of patients’ illnesses, to help patients to better cope with and manage chronic conditions, or to come to terms with terminal illnesses. Engel observed that there is a science to the physician’s art that is found within a biopsychosocial perspective.

Physicians must be able to answer this question: Why is the patient ill now? In my experience as an inpatient medical attending, this question is rarely asked.

During attending rounds on my most recent inpatient rotation, one of the residents on my team had just finished presenting the case of a 38-year-old woman who was recovering from a severe bout of asthma. She had been critically ill and intubated during her last hospitalization 3 months previously, but this time was recovering more rapidly. She was now out of the intensive care unit for 2 days and would start that day using oral medications and perhaps be ready to leave the hospital in approximately 1 day. I asked my team, “Why does this patient keep getting sick?” There was a stunned silence among the 8 or 10 medical students and residents who were in the room. Finally, one of the medical students ventured, “she is a smoker, that probably contributes.” After a few more moments of silence, I told them the answer. I knew, because I had asked the patient. She had explained to me that she had been a crack addict but had been clean for a dozen years, until 2 years ago, when her mother died suddenly. She felt tremendous guilt that she had not done enough for her mother and had resumed her crack addiction. She was now homeless, had no health insurance, and could not afford her medications. Her medical team had been so focused on curing the acute attack of asthma that they had not sought to understand her illness. Once they better understood the sources of her illness, they
were able to initiate strategies that included inpatient drug rehabilitation, counseling, and social work intervention to help with housing and insurance.

There are other objectives that I would want to see added to help create the ideal medical school graduate: physicians must have basic and advanced communication skills; physicians should be self-aware of attitudes, biases, and emotional reactions to patients; physicians should attend to their own personal growth and well-being.

Physician–patient communication is a burgeoning field education and research. Many thousands of articles have been written in the past 25 years, including many research articles relating various aspects of communication to improved patient outcomes (17). There have been several consensus conferences with broad agreement about skills that need to be taught (18, 19). Most medical schools are now doing a reasonable job in teaching basic skills (4, 20). We and others have worked on defining basic and advanced communication competencies. In addition, my colleagues and I in the American Academy on Physician and Patient have emphasized the importance of physician self-awareness, growth, and well-being in being an effective clinician. Physicians who are aware of their personal attitudes, biases, and emotional “hot buttons” can use their emotional responses to patients to inform the clinical process. Also, physicians who are distracted by the stress and personal problems cannot devote their full attention to patients. Depression, substance abuse, and other mental health problems are all too common among medical trainees and practicing physicians (21, 22). A recent study found that 76% of residents in one program met the criteria for burnout, and these residents were more likely to self-report suboptimal patient care (23). My colleagues and I have defined a “curriculum” in physician personal awareness for medical education (24). We have also proposed specific goals and objectives in personal awareness and well-being that should be included as exit objectives for medical curricula, and have suggested both curricular and extracurricular activities that can help achieve those objectives (25).

ARE MEDICAL SCHOOLS NEGLECTING CLINICAL SKILLS?

In 1976, George Engel wrote an article with the title, “Are medical schools neglecting clinical skills?”, suggesting that medical schools were generally neglecting the systematic teaching of clinical skills and were especially deficient in teaching medical interviewing (26). To investigate whether his assertions were still correct 20 years later, my colleagues and I conducted a survey of curricular deans of United States medical schools (3). Ninety six of 126 (76%) schools returned the survey. This survey attempted to perform a “biopsy” of clinical skills, teaching, and assessment by requesting information about 15 skills, sampling a range of interpersonal, psychomotor (physical examination or an instrumental) skills, and more cognitive (laboratory or diagnostic) skills. We found many deficiencies in clinical skills teaching and assessment, especially as related to physician-patient communication and behavioral counseling. For example, it appears that only approximately half of United States medical school deans can say with confidence that all of their graduates are able to perform minimally competent breast and pelvic examinations. Similarly, medical schools appear to devote little time to teaching and ensuring competence inpatient education and various counseling skills for behavioral change (smoking, diet, and exercise), despite the centrality of counseling skills to patient care and impact a healthy lifestyle patients health and well-being. As another example, the mean number of hours devoted to teaching the skills of cigarette smoking cessation counseling is one! We asked the deans to list the most important barriers to instituting effective teaching and assessment, and the answers were these: faculty are too busy (58%), lack of financial resources (28%), and too few faculty with expertise (9%). Lack of faculty interest was not a problem (only 5% listed this as their number 1 barrier).

To further assess the quality and quantity of teaching of psychosomatic medicine in United States medical schools, the APS Professional Education Committee, with Shari Waldstein taking the lead, conducted another survey (4). We found that although most respondents taught a variety of topics in biopsychosocial medicine, only 20% called their courses, “psychosomatic medicine.” This survey also revealed a number of deficiencies in education. There was variable coverage of topics in psychosomatic medicine: coverage of specific some topics ranging from 33% to 98%. There seemed to be particular deficiencies in teaching students the roles of psychosocial influences in the pathogenesis of illnesses, psychophysiology, and behavioral treatments. For example, only approximately half of the respondents said they taught about headaches, diabetes mellitus, and infectious diseases from a biopsychosocial perspective. Approximately 50% of medical schools endorsed less than 40 hours of total instruction in psychosomatic/behavioral medicine out of the 7000 to 8000 hours in the average medical school curriculum. It appears that psychophysiology is especially underrepresented. A perusal of major texts in physiology reveals that they offer only a cursory treatment of psychophysiology (27–29). This lack of attention to basic psychophysiology is underscored by a national consensus statement on topics that should be included in medical school physiology courses, a joint project of the American Physiological Society and the Association of Chairs of Departments of Physiology. This document, while requiring students to learn the basics of neurophysiology and endocrinology, does not require a systematic understanding of how development, cognitions, emotions, stress or allostatic load are related to neurophysiologic, neuroendocrine, and immune processes (30).

A CORE CURRICULUM

The APS professional education committee has been working with several directors of the Office and Behavioral and Social Science Research (OBSSR), in an effort to develop educational Request for Proposals (RFPS), grant offerings to fund model curricular in psychosomatic medicine, an initiative started during Norman Anderson’s directorship. In support of
this idea, the Professional Education Committee issued a white paper, subsequently published in the newsletter of the American Academy of Physician and Patient, Medical Encounter. This white paper was entitled, “Designing and implementing a comprehensive, integrated, longitudinal medical school curriculum in biopsychosocial medicine” (31). The essentials of this suggested curriculum are described.

Core Content

A curriculum in psychosomatic medicine is necessary. Students should understand psychosomatic interactions from the molecular and physiologic to behavioral and social perspectives. It should include broad basic topics in psychophysiology such as psychoendocrinology and psychoneuroimmunology. Along with teaching various diseases and their underlying pathologies, teachers should introduce the many symptom complexes and illnesses—fatigue, panic disorder, fibromyalgia, functional bowel disorders, headache, back pain, anxiety, depression, etc.—that constitute so much of medical practice, also speaking to their pathophysiologies. This curriculum would also cover the impact of emotions and social stress on disease pathogenesis, onset, maintenance, and recovery.

Psychosocial epidemiology, e.g., the impacts of SES, social support, job stress, culture, and so forth on health and illness is also necessary.

Psychosocial aspects of acute and chronic diseases—AIDS and other infectious diseases, cardiovascular diseases, renal diseases, etc. should be covered.

A comprehensive behavioral science curriculum that includes essential behavioral and psychodynamic principles in medical care, psychopathology, personality types and disorders, psychiatric diagnoses, and behavioral theory and treatments should be required. It should also include psychological and behavioral principles and techniques that can be applied by medical clinicians, as well as knowledge of therapeutic techniques used by behavioral medicine specialists.

A longitudinal curriculum in doctor–patient communication that includes basic skills such as data gathering, patient education, and communicating empathy, as well as advanced skills, such as giving bad news, communicating with patients with terminal illnesses, recognizing and treating anxiety and depressive disorders, alcohol counseling, and others is needed. This curriculum should provide opportunities for students to interview patients and families from the start of the first year on, focusing on the social, economic, family, and personal factors that promote health and are associated with the onset, course, and outcomes of ill health, disease, depression, and so forth, always enhancing students’ appreciation of the importance of the doctor–patient relationship.

Integration and Reinforcement of Teaching in Both the Preclinical and Clinical Years

Teachers in physiology, biochemistry, microbiology, pathology, community health, clinical skills, and other preclinical courses should have segments of their curricula or topics in specific lectures that present basic psychosomatic concepts. These presentations should be complimentary and coordinated to enhance student understanding. Behavioral science clinicians should have a role in teaching activities on inpatient wards, ambulatory care settings, and in conferences in all clinical rotations, including surgery and obstetrics/gynecology.

Programmatic attention should be given to medical students’ personal and professional growth and well-being throughout medical school.

Attention to the educational process is necessary. Written goals and objectives should be developed for each educational endeavor. Development of high-quality teaching materials should be implemented. Development of standardized procedures for oral presentation, clinical evaluations, and documentation that explicitly require gathering, integrating, and using psychosocial data is needed. These procedures would be required in all clinical rotations and teaching activities. Faculty development should be required to ensure consistency and quality of teaching. A comprehensive assessment that includes: student evaluations of the teaching; assessment of student knowledge and skills, using content examinations, structured faculty observations, and/or standardized patient examinations; assessment of the impact of the curriculum on student attitudes toward psychosocial aspects of care and on students personal growth and well-being; and assessment of the outcomes of such teaching on patient care.

Identification of Potential Barriers to Implementing This Curricular Reform and Creating Strategies for Overcoming These Barriers

One potential outcome measure of students’ abilities would be the quality of their biopsychosocial diagnoses, as suggested by Don Oken in a recent article in Psychosomatic Medicine (32). He suggested that physicians should be able to make multiaxial diagnoses for medical problems, similar to DSM-IV diagnoses. These multiaxial diagnoses would have the following components: a person who had been functioning more or less “normally” at a quantified stable level, perhaps, made vulnerable by a certain preexisting chronic conditions; has become acutely maladapted in a certain way; because of exposure to certain stressors, both biological and psychosocial; now is functioning at a new, quantified impaired level of overall adaptation.

We are happy to report that the most recent director of OBSSR, Raynard Kington, along with the Robert Wood Johnson Foundation, commissioned an Institute of Medicine study to delineate the ideal social and behavioral sciences curriculum for United States medical school education. Two of our members, Neil Schneiderman and I, were asked to be on this committee. We will work to ensure that core psychosomatic topics are included in the final report.

THE RISE AND FALL, AND REBIRTH, OF PSYCHOSOMATIC MEDICINE

Recently, noted medical historian Theodore M. Brown gave a talk for the New York Academy of Medicine, entitled “The Rise and Fall of American Psychosomatic Medicine”
(33). While Professor Brown presented a thoughtful and scholarly account of the people and important ideas that shaped our field, he concluded that our field is now “mori-bund.” He stated, “American psychosomatic medicine as a research field with a clear focus, optimistic outlook, and strong sense of clinical mission is gone” (his italics). Of course, we who belong to the APS know that Professor Brown’s conclusions could not be more wrong. The field of psychosomatic medicine is vibrant, exciting, and young. With each annual meeting, and with each new issue of Psychosomatic Medicine (and other related journals), we learn of important new research that advances our understanding of how mind/brain/body and social context interact in health and in illness. Now we, as individuals and as a society, must also focus on the important task of integrating our concepts and scientific advances into the medical school curriculum.

There are many reasons to re-double our efforts in medical school curricular reform. The first reason is simply that George Engel was right: health and illness can only be fully understood within a biopsychosocial framework. We need to teach psychophysiology because human beings were not created as a collection of independently functioning physiologic processes. An appreciation of organismal physiology can only be accomplished by fully understanding how our thoughts, emotions, and behaviors shape and are shaped by physiologic processes. Physicians need to understand specific concepts, such as allostatic load, how risk factors such as social isolation and depression contribute to morbidity and mortality, and many other psychosomatic concepts and research findings, because they help in understanding why and how patients become ill. If a physician understands how genetic predisposition, early childhood experiences, stress, behaviors and social context may contribute to a patient’s current depression, that physician can better explain the diagnosis of depression to the patient and can fashion effective therapy.

The American Psychosomatic Society has experienced a decline in the number of physician scientist members in recent years. Physician scientists add much to our society, take leadership roles in clinical trials, and benefit greatly from their association with basic researchers. Integrating psychosomatic medicine into the medical school curriculum could do much to reverse the decline in their numbers.

There are other advantages to integrating psychosomatic medicine into medical school curricula: effective teaching should inspire the next generation of educators who will teach their students to practice within a biopsychosocial model. This teaching may inspire more social activists. Students who learn to practice in this model may be more dissatisfied with local and national health care systems that mitigate against delivering the more comprehensive and holistic care that patients need. These physicians may be more likely to work for useful change. Finally, and most importantly, students who learn to practice within a biopsychosocial framework will deliver improved patient care.

WHAT CAN I DO?

We all have a stake in the integrating our science into medical school curricula. All of us can contribute to the effort. Those who teach individual lectures to medical students can work with course directors to explore ways of coordinating lectures with others that reinforce your teaching. You may be able to work with other lecturers to add new data to their lectures that highlight important psychosomatic ideas and research. You could join your medical school curriculum committee and advocate for more inclusion and better coordination of psychosomatic topics throughout the educational continuum. The American Board of Medical Specialties has recently deemed liaison psychiatry the specialty of Psychosomatic Medicine. This new status should allow for funding for fellowship programs, lead to the creation of textbooks and other teaching materials, and potentially create new teachers and teaching services. Those of you who are liaison psychiatrists will be contributing to these efforts and those of you who are primarily researchers can work with liaison psychiatrists to improve psychosomatic education in your medical schools. Some of you might want to become faculty advisers for student mind/body interest groups. The APS gave seed money to a group of students, led by Chris Degnon, at Hershey medical school to form such a group 3 years ago. A group of almost 30 students has been meeting monthly to discuss articles from Psychosomatic Medicine and is still going strong. After the Institute of Medicine report is issued, there will likely be government and foundation sponsored RFPs in social and behavioral sciences education. Members of the APS should be active participants in the medical school teams that respond to those RFPs. Finally, there is much to do within the APS that can promote educational efforts both locally and nationally. The newly created APS Fund will raise money for the number of educational efforts, including visiting professorships, grants to young scholars to attend our meetings, mind–body interest groups in medical schools, creation of curricular materials, educational consultation to medical schools, and more. Please consider donating to the APS fund, and joining the Fundraising Committee or the Professional Education Committee.

I have been an active member of the American Psychosomatic Society since 1977. I have never experienced a more exciting time than the present in the variety and quality of the research presented at our meetings. There has never been a more propitious time for influencing the next generation of physician scientists and practitioners than now. I believe that, with our collegial and determined efforts, we can all contribute to realizing Engel’s vision. With the integration of Psychosomatic Medicine into medical curricula, medical schools will begin graduating physicians who can heal as well as they can cure, practicing their craft within a biopsychosocial model of care.

REFERENCES