

# Major Trends in Psychosomatic Medicine

## The Psychiatrist's Evolving Role in Medicine

HOYLE LEIGH, M.D.; and MORTON F. REISER, M.D.; New Haven, Connecticut

Three developmental lines are identifiable in psychosomatic medicine: (1) psychodynamic investigations, (2) psychophysiologic and psychosocial research, and (3) consultation-liaison psychiatry. Although psychodynamic understanding of medical patients remains important, "psychogenesis" is no longer the principal concern of psychosomatic medicine, which has shifted emphasis to a holistic understanding that includes the biologic, psychologic, and social systems of medical and psychiatric patients. Recent investigations along the second line indicate that all medical and psychiatric illnesses can be regarded as "psychosomatic," in that comprehensive understanding and care cannot be achieved without considering the three interrelated systems. Consultation-liaison psychiatry is the practice of this holistic approach in the general hospital. The essential role of the consultation-liaison psychiatrist as a bridge between the biologic and behavioral disciplines may become a major part of the role of the general psychiatrist in the future.

**D**URING THE LAST HALF CENTURY, there have been three lines of development in psychosomatic medicine in the United States. Although the areas of interest and work and the investigators themselves often overlap, each of these lines of development can be defined on the basis of theoretical orientation, tools of investigation, and the setting for investigation and practice. They are [1] psychodynamic investigations, [2] psychophysiologic and psychosocial investigations (although psychophysiologic and psychosocial studies can be considered two separate lines of investigation, we combine them here as a single developmental line on the basis that they are both accessible to experimental design in a way in which the psychodynamic area is not), and [3] consultation-liaison psychiatry. The first two are primarily concerned with research and theory, and the third with practical applications in the general hospital.

► From the Department of Psychiatry, Yale University School of Medicine; New Haven, Connecticut.

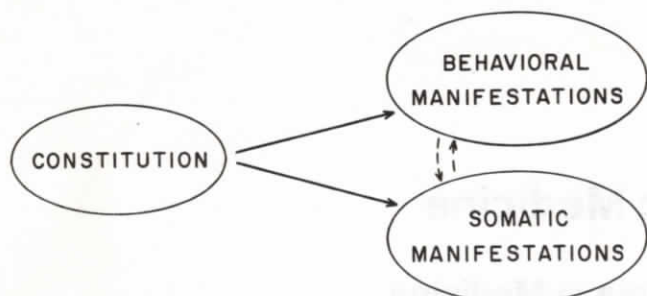
### Psychodynamic Investigations

In this line of investigation, psychoanalysts and psychoanalytically oriented physicians have focussed attention on the possible role of psychodynamic conflicts in the origin of certain medical diseases, in studies that have largely paralleled the development of psychoanalysis in this country. As an example of this approach, we shall discuss Franz Alexander's (1) work briefly, although many other investigators have also made important contributions to this line of research. (For other reviews of psychodynamic formulations, see 2-4.)

In the 1930s and 1940s, Alexander proposed a conflict-specific theory of "psychosomatic disorders" based on psychoanalytic investigations of patients with illnesses frequently observed to be related to psychologic stress and conflict. He theorized that specific unresolved psychologic conflicts were accompanied by prolonged specific autonomic arousal, representing the somatic concomitant of repressed and suppressed affects. For example, in the case of duodenal ulcer, he postulated that a life situation that activated conflicted longings for love would be accompanied by gastric overactivity and so contribute to duodenal ulceration in the presence of specific constitutional vulnerability. His investigations gave rise to the notion that psychologic factors played a major etiologic role in some diseases and that such diseases should be considered "psychosomatic."

This theoretical framework prompted treatment of these "psychosomatic diseases" with psychotherapy or psychoanalysis. It also influenced the character of the psychosomatic services that were established in general hospitals. This "psychosomatic approach" was practiced with almost the same kind of zeal that characterized psychiatry in general right after World War II. After peaking in the 1950s, it suffered a similar fate: the consequences of promising too much.

Inherent in this approach were certain methodologic and conceptual difficulties that arose chiefly because the data were based primarily on recollections of memories and associations during psychoanalysis. Almost everything we experience acquires symbolic psychic meanings. Thus, even physical symptoms can be meaningfully relat-



**Figure 1.** "Field" model of "psychosomatic illness." (Modified, with permission, from Figure 21-1 in "Changing Theoretical Concepts in Psychosomatic Medicine," by Morton F. Reiser in the *American Handbook of Psychiatry*, volume 4, 2nd ed., revised and expanded, Morton F. Reiser, editor, Silvano Arieti, editor-in-chief, © 1975 by Basic Books, Inc., Publishers, New York.)

ed to ongoing psychic life with its conflicts and needs, when investigated by psychoanalytic methods. This retrospective elucidation of meaning alone, however, could not clarify questions of proximal causation. Failure to recognize this fact often resulted in a premature closure of investigation into factors other than psychodynamic and psychosocial (for example, genetic, immunologic, infectious, or traumatic) that might contribute to the pathogenesis of an illness.

Current practice has now changed from the earlier notion that the presence of a "psychosomatic disease" per se was adequate indication for psychotherapy. As for any medical patients, psychotherapy for patients with a "psychosomatic disease" is indicated if the psychologic problems, in their own right, constitute valid reason for it. In the course of psychotherapy for cases in which psychological conflicts are activating pathophysiologic patterns, amelioration of the physical condition may occur as a consequence of reduced psychologic conflicts.

#### Psychophysiological and Psychosocial Investigations

This line of development is characterized by an empirical, experimental approach. In the early days, it focussed on the effect of nonspecific stress on the organism. Walter Cannon's work in the 1920s and 30s concerning the fight-flight reaction is a good example. Harold Wolff and Stewart Wolf (5), contemporaries of Alexander, made important contributions by bringing psychiatric questions into the research laboratory and promoting the addition of the experimental method to clinical methods. They formulated adaptive, defensive psychophysiological patterns, which might result in tissue damage and illness if prolonged. According to their theory, for example, the physiologic correlate of the psychologic defensive wish to get rid of an unpleasant idea might be associated with the hyperfunction of the organ for ejection-riddance—the colon—and resultant diarrhea.

Technologic developments of the past two decades ushered in a new blossoming of investigations along this experimental line. Such disciplines and methods as sophisticated biochemical assay techniques and computer science have brought about major developments in neurobiology and social sciences.

For example, in the classic psychosomatic diseases, such as peptic ulcer, it became possible to define and investigate the relation between constitutional or genetic vulnerability and psychosocial stress factors. Weiner, Thaler, Reiser, and Mirsky (6) showed in the late 1950s that increased serum pepsinogen level, which is genetically determined, could be used as an indicator of vulnerability to peptic ulcer under conditions of a nonspecific stress like basic training in the army. In their study, those who developed peptic ulcer were found to have the personality configuration that followed Alexander's formulations. In addition and without exception, they also had constitutionally high serum pepsinogen levels, and the stress of basic training for them was such that activation of the specific conflict described by Alexander ensued. It is clear that predisposing constitutional factors are present in such other illnesses as hypertension or coronary disease.

#### DEVELOPMENT OF A NEW MODEL

More recent experimental investigations have led to a change in the conceptual model of psychosomatic illness from a linear, multiple factor model to a nonlinear, interactional *field* or *systems* model. This model, which posits interactions between genetic "givens" and the environment, postulates phenotypic expressions and mutual feedback in both somatic and behavioral spheres (see Figure 1). According to this model, each individual's constitution includes genetic "givens" as well as the results of early experience, and his development is influenced by multiple biologic and psychosocial factors in his bio-psychosocial environment. The mutual feedback between the behavioral and somatic dimensions and between the individual and his environment continue throughout his development and adult life.

For example, it can be postulated that the same genetic trait may be expressed phenotypically in an infant by high serum pepsinogen levels in the somatic sphere and high "oral needs" in the behavioral-psychologic sphere. In the course of development and in interaction with significant others, such an individual would be likely to develop a psychologic conflict over "oral dependency," and at a time of stress, the activation of the conflict might result in psychophysiological consequences, which, given the existing vulnerability for peptic ulcer, might precipitate the disease. Once the disease developed, responses to the disease and its treatment, such as reactions to pain and hospitalization, might also affect its course.

This model clarifies the need to understand and evaluate all the major factors that might contribute to the pathogenesis of an illness and perpetuate it rather than attempting to isolate a single cause or a series of linear causal events.

#### GENERAL SYSTEMS MODEL FOR ALL ILLNESS

It may be useful and proper to extrapolate from this model to a general systems approach to *all* medical illness (see Figure 2). The general systems approach implies that multiple subsystems, such as constitution and personality, determine the state of the individual system through

constant mutual interaction and feedback. The individual, in turn, is a subsystem of the society, being in constant interaction and feedback with other individuals and groups within it. This approach emphasizes the interaction and feedback among a patient's somatic symptoms, behavior, and sociocultural milieu. For example, depression may be a behavioral symptom of a physical disease (for example, carcinoma of the tail of the pancreas). The depression may result in self-neglect and a tendency not to seek medical attention, thus allowing progression of the medical disease. If this model were applied to all medical illness, it would call for a comprehensive understanding of the various systems and their interactions, which would lead to judicious systems intervention as a part of treatment. We shall examine some of the important recent studies that have contributed to the development of this comprehensive approach.

#### BEHAVIORAL FACTORS IN MEDICAL ILLNESS

Established overt behavior patterns and psychologic states have been linked with certain physical illnesses. For example, Friedman and Rosenman's (7-9) well-known "coronary prone overt behavior pattern A" involves such characteristics as ambitiousness, hard-driving impatience, restlessness in individuals who always seem to function on a deadline basis, always with a sense of urgency. It still remains to be seen, however, whether treatment of the overt behavior pattern A, if it were possible, would result in a lowered risk of coronary disease. An alternative explanation of the correlation may be that the behavioral pattern and the vulnerability to coronary disease are both manifestations of the same constitutional trait (Figure 1).

Prospective studies have shown that individuals who have an elevation of the depression scale on the Minnesota Multiphasic Personality Inventory (MMPI) are more apt to develop myocardial infarction without pre-existing angina pectoris (10), and also have a bad prognosis once myocardial infarction occurs. Patients undergoing open-heart surgery have a poor prognosis if depressed before surgery (11, 12). Although these studies show the correlation of pre-existing psychologic states and morbidity, the data do not exclude the possibility that both the psychologic states and the physical manifestation might be a result of the same underlying process. Certainly, there are a number of disease processes that manifest behavioral disturbances before the specific organic symptoms appear. These include depression in occult neoplasms such as cancer of the tail of the pancreas, psychosis in pernicious anemia or lupus erythematosus, and many others.

#### ROLE OF PSYCHOSOCIAL ENVIRONMENT

While new investigations, starting in the late 1950s and continuing through the 1960s and 1970s, proved the importance of the constitutional factors in somatic illnesses, they also proved the importance of psychosocial environment in the development of a number of somatic illnesses. For example, Henry and his coworkers (13) were able to construct a psychosocial environment in which mice almost invariably developed hypertension, and another

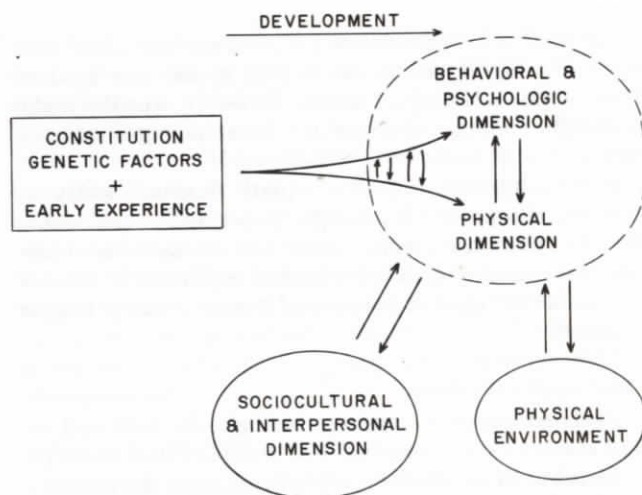


Figure 2. Comprehensive model for all diseases.

environment in which susceptible mice strains inevitably developed breast carcinoma (14). The hypertension environment was created by constructing a cage system in which the animals were under constant threat of dominance challenge and had to compete for food in a territorial manner. The cancer environment involved a situation of forced breeding, in which the mice were kept in a constant state of readiness to reproduce, while the offspring were always removed after delivery. This resulted in a disorganization of the social structure and 100% incidence of mammary cancer in the susceptible strain female subjects.

#### "PERMISSIVE STATES" FOR DEVELOPING ILLNESS

Epidemiologic studies have repeatedly showed the significance of grief after bereavement as an important psychosocial factor favoring the development of somatic illnesses, such as myocardial infarction. A 1967 study in Wales (15) showed that the mortality after loss of a first-degree relative was seven times that of the age-matched control group. Interestingly, the relatives of those who died away from home had a mortality rate double that of those whose relatives died at home.

George Engel and his colleagues (16, 17) have studied the psychologic states in which medical illnesses in general seemed to appear and hypothesized that a specific psychologic state, which they call the "giving up-given up complex," provided an especially favorable setting for morbidity. This psychologic state, characterized by feelings of helplessness and hopelessness, is presumed to be associated with a physiologic state of conservation-withdrawal, with anabolic metabolic balance, in contradistinction to the fight-flight reaction with adrenal activation described by Cannon. Such "permissive states" for the occurrence of somatic disorders may not be confined to conditions resembling depression and grief. Any type of life change, including change of residence, marriage, or even promotions, might contribute to a state of vulnerability to organic illness, according to the studies by Holmes and Rahe (18, 19). They were able to show, in a number of populations, that those individuals who had

experienced a large number of life changes, good and bad, had a higher risk of developing almost any kind of physical illness. Death of spouse, however, was the highest ranking among the stressful events, having a value of 100 life change units.

A major question in psychosomatic medicine today is, what are the psychophysiological states and mechanisms whereby, given the predisposition and favorable environment for development of disease, psychosocial events such as life changes or bereavement may actually trigger a disease?

#### BIOLOGIC RHYTHMS

A related question concerns biologic rhythms and altered states of consciousness. For example, do certain illnesses occur in conjunction with the changes in autonomic and neuroendocrine reactivity that are associated with specific central nervous system states that occur in cycles, that is, at certain times of the day or month? Before the dawn of the present century, Breuer and Freud (20) postulated that a "hypnoidal state" might be associated with the development of hysterical symptoms. Psychosomatic theories, however, with few exceptions (21-23), have not paid much attention to the possibility that distinct and definable central nervous system *states* may correlate with different states of consciousness as well as with altered physiologic reactivity that may be conducive or permissive to the development of disease. Rapid eye movement (REM) states, for example, occur every 90 to 120 min during sleep in man and are associated with vivid dreams and strong and variable physiologic arousal. Nocturnal angina, asthmatic attacks, and duodenal ulceration can occur during these periods of physiologic arousal. Now it is known that the REM-like 90-to-120-min periods ("ultradian rhythm") with concomitant psychophysiological variability occur during waking life as well. Thus, ultradian rhythm has been shown to be associated with gastric contractility (24), and "oral" behaviors such as eating, drinking, and smoking (25). If the ultradian rhythm is associated with changes in the mode of thinking, such as the "primary process," visual, nonlogical thinking as in dreams, it is possible that, indeed, such altered central nervous system states might provide a particularly favorable opportunity for certain pathogenic psychophysiological processes to occur.

Rhythmic activities are by no means confined to the ultradian. Most individuals are familiar with their circadian rhythms of sleep-awake cycles. Circadian rhythms are also found in a number of endocrine activities. Memory, drug sensitivity, and conditioned learning, among others, are also influenced by the time of the day. For example, psychotropic drugs were shown to be most effective when administered just before the rest period (26). Slower cycles, such as the menstrual cycle, are of course associated with physiologic changes. Manic-depressive cycles may be seen as an exaggeration of such a slow rhythm. Clearly, there is much need for more investigation in this field.

For psychosomatic medicine, the main implication of recent findings concerning biologic rhythms is that

changing psychologic and physiologic states associated with biologic rhythms should be taken into consideration in investigating the pathogenesis and treatment of illnesses.

#### STUDIES ON EARLY EXPERIENCE AND LEARNING

Laboratory behavioral experiments such as conditioning have also produced breakthroughs that have changed views concerning the human organism's learning potential. Autonomic conditioning experiments in the 1960s and 1970s clearly showed that the visceral organs and the circulatory system could "learn" from experience, and that they could be modified by reward and punishment (27).

Studies in early experiences and environments of animals have provided data showing that different early experiences can result in different physiologic and behavioral characteristics. Rats reared in groups were more prone to gastric ulceration after the stress of immobilization, as opposed to rats reared singly (28), who were more susceptible to such pathologic conditions as convulsions and mammary tumors. Leigh and Hofer (29) showed that isolation from peers in very early infancy in rats decreased cardiac reactivity to social intrusion but increased behavioral reactivity and fierceness. Whether the effects of early environment, and conditioned responses acquired then, might be incorporated into the constitution of human beings is an important question requiring further studies. For example, would an infant who was fed each time he blanched while crying "learn" that vasoconstriction was rewarded, and thus develop a tendency to vasoconstrict when encountering frustration?

Ader and Cohen (30) found that immunosuppression could be conditioned in rats by pairing an immunosuppressive agent to a saccharin solution, which was used as a conditioned stimulus. This opens up the possibility that some individuals may learn to respond to certain life events as if they were conditioned stimuli for an organic disease. Would such learning occur more readily in altered states of consciousness?

#### CONTRIBUTIONS OF MEDICAL SOCIOLOGY

Medical sociologists have made major contributions to a comprehensive understanding of the behavioral aspects of patienthood. Talcott Parsons (31) conceptualized the "sick role," the social expectations of the ill person. Mechanic's (32) studies concerning how a person behaves in the presence of a symptom, called illness behavior, showed the importance of a number of social factors such as social class and ethnicity. Recently, McWhinney (33) proposed a taxonomy of patient behavior, that is, the immediate reasons why a patient-physician contact occurs. His main classifications were [1] limit of tolerance (as of pain or disability), [2] limit of anxiety (for example, anxiety concerning the implications of hemoptysis), and [3] problems of living presenting as a symptom. The third category clearly calls for attention to the possibility that despite the presence of a physical symptom, the patient's immediate need might be in the area of psychosocial problem-solving.

## NEWER DEVELOPMENTS IN PSYCHIATRY

Advances in psychopharmacology have provided effective treatment modalities for a number of psychiatric syndromes seen in medical and psychiatric settings, such as severe anxiety, depression, and psychosis.

Newer treatment modalities, such as biofeedback, using the principles of operant conditioning, potentially provide the means by which individuals may be able to prevent certain disruptive effects of psychological stress, such as sustained hypertension, or even treat some disorders of the autonomic nervous system and skeletal muscles.

As the main theatre of research development in psychiatry shifted from the office to the laboratory, and the black box ceased to be quite so black, with rays of light penetrating into the neurons and the neural transmitters, the boundaryline between psychosomatic investigation and psychiatric investigation proper began to blur. For instance, a recent theory (1975) concerning affective disorders by Akiskal and McKinney (34) posits a model of interaction between the perceptual system related to psychosocial events and the biochemical state of the diencephalon, which may have a genetic vulnerability as a "given." Prange's and associates' (35) theory of affective disorders, with low serotonin level in the brain as a genetic marker, with catecholamine levels correlating with mania or depression, is the classic psychosomatic model along the lines of peptic ulcer (6).

Recent research on possible genetic markers of schizophrenia, such as eye tracking abnormalities (36), creatine phosphokinase levels in the serum (37), abnormalities of neural transmitters such as dopamine, developmental and family dynamics (38), and on the phenomenology and the switching process into psychosis (39), all suggest that the pathogenesis of schizophrenia is also compatible with the psychosomatic model.

### Consultation-Liaison Psychiatry

This third line of development has been an attempt to make practical application in the general hospital of the knowledge gained from psychosomatic research. As awareness of the importance of the psychologic factors in the course of medical illness increased, and as more and more psychiatric units were set up in general hospitals, psychiatrists were called upon more and more frequently for expert advice on medical patients who had concomitant psychiatric problems or whose medical illnesses were thought to be related to emotional stress. That this activity required experience and skills different from those usually expected of a psychiatrist was recognized during a time when psychiatry in general was drifting farther and farther away from other medical and surgical specialties and developing its own jargon and concepts not easily understood by those outside the profession. Thus, the need for careful observation rather than inspired guessing, for jargon-free communication, and for flexibility in the choice of therapy in general hospital psychiatry was acknowledged as early as 1929 (40).

In the 1930s, a number of psychiatric consultation-liaison

services appeared in general hospitals. During the early stages of development the dominant theoretic framework in which the liaison psychiatrist functioned was the linear approach of "psychogenesis" of psychosomatic disorders. Although this approach provided a conceptual framework that inspired confidence, it also gave rise to the unfortunate stereotype of the psychosomaticist who would try to find "the unconscious cause" of the medical illness. The idea of psychogenesis in illness also tended to serve the dualism of some nonpsychiatric physicians, who would unload a complex and difficult patient on the psychiatrist once a disease was suspected of being "psychosomatic."

### HOLISTIC SYSTEMS APPROACH

As Lipowski (41) pointed out in 1974, the essence of consultation-liaison psychiatry today is a holistic approach to the total patient, in his biologic, psychologic, and social dimensions. This approach is obviously inimical to simple reductionistic ones, whether to unconscious conflicts or twisted molecules. Later developments in psychosomatic medicine along the second line mentioned above have reaffirmed the holistic principle, and the modern liaison psychiatrist is a flexible, broadly based physician committed to this approach.

We have already mentioned that the second line of development in psychosomatic investigation is slowly emerging as the mainstream of psychiatric research. Clinical application of these findings in the treatment and evaluation of medical patients is, then, nothing but the practice of good psychiatric principles. Psychosomatic medicine and consultation-liaison psychiatry now ceases to be a separate set of assumptions concerning a limited number of illnesses, but rather an attitude on the part of the consultant psychiatrist. This attitude involves acceptance of all the complex aspects of an individual patient, the biologic, psychologic, and social, as well as their interactions. In the liaison role, the psychiatrist interprets and mediates among all the systems (such as other hospital services, patients, staff, and so forth) involved in the health care delivery system (41). For example, he may interpret the patient's behavioral characteristics to the medical staff, and mediate misunderstandings and differences between the patient and staff as well as within the medical staff, using his expertise in the assessment of human behavior.

An understanding of the sociology of the hospital and the influence of the milieu on the patient is essential for liaison work. Attitudes toward the sick role on the part of the doctor and the patient can result in severe misunderstandings and disagreements. For example, a patient whose life style is characterized by the need to control his own environment may have major difficulties in complying with the physicians' orders in the hospital, thereby evoking an angry reaction in the doctor, who may feel the patient is being personally antagonistic. The psychiatrist's interpretation for the primary physician of the patient's personality can help put his behavior in perspective, minimize personal antagonisms, and work out a rational management plan with maximal allowance for the

patient's adaptive defensive maneuvers.

Liaison work invariably includes educational activity, not only in specific areas such as the use of psychotropic medications or an approach to patients tailor-made to their personalities, but also in informing the medical staff of the complex interaction of biologic, social, and psychological factors in the pathogenesis and course of illness and steering them away from a Cartesian dualism of mind and body.

#### CONSULTATION-LIAISON RESEARCH

As more psychiatrists undertook work in consultation-liaison settings in the general hospital, it became clear that there were certain areas of investigation optimally suited for the liaison psychiatrist. These areas include the psychologic aspects of medical procedures, such as open heart surgery, organ transplantations, and the psychosocial aspects of the hospital environment. How such variables as psychologic defenses influence a medical course is another area of concern. For example, Hackett, Cassem, and Wishnie (42) found in 1968 that patients who were able to use the mechanism of denial effectively—and this was based simply on whether the patient admitted to feeling or having felt any apprehension or emotional upset in the hospital—had a better prognosis while in the coronary care unit with a myocardial infarction than those who did not deny anxiety. This is a good example of the need for special training for consultation-liaison psychiatrists because the approach to patients who use massive denial in an acute medical setting may be very different from the approach to those in long-term intensive psychotherapy. Clearly, denial in some acute medical settings and situations is advantageous to the patient in terms of the medical course and should be supported rather than “chipped away.”

Leigh, Hofer, Cooper, and Reiser (43) found that subtle changes in the general feeling tones of patients occurred when the coronary care unit of a general hospital changed from a noisy, open, four-bed room to closed, quiet cubicles. In the open, noisy unit patients tended to feel more mutilation and shame anxiety as measured by the Gottschalk-Gleser verbal sample technique, whereas patients in the closed unit felt more separation anxiety. Patients in the closed unit tended to deny and displace their hostile feelings, whereas patients in the open unit were able to express hostile feelings more directly. Of course, the amount of interaction with the staff was greater in the open unit. In addition, they found that regardless of the unit patients who had high separation anxiety, high hostility directed inward (which might be similar to depressive states), and low levels of overt hostility had a significantly greater risk of developing cardiac arrhythmias while in the coronary care unit. Studies such as these point to the need for studies designed to elucidate the interaction between the hospital environment, both physical and psychologic, the medical course of the patient, and the personality characteristics of the patient. It may thus be possible to effect optimal treatment of patients taking into account his personality and his optimal environment.

Increasing numbers of psychiatrists are called on to render opinions concerning issues falling into the domain of medical ethics and the law. These issues, familiar in the general hospital, include whether patients should be preferentially given or denied the opportunity for an organ transplant because of the personality characteristic, when a patient should be allowed to choose certain death rather than receive treatment, and when a patient is competent to sign out against medical advice or participate in an experiment that might be risky. In regard to some of these issues, we, the liaison psychiatrists, are able to contribute expertise; to others, we are not.

#### FUTURE ROLE OF THE GENERAL PSYCHIATRIST

We mentioned earlier that in terms of research the distinction between psychosomatic research and psychiatric research has become blurred. We might now say that the boundary line between consultation-liaison psychiatry and general psychiatry is also beginning to blur. What, then, is the appropriate role of the general psychiatrist of the future?

The answer to this question may lie in the recognition that there is a need for physicians who will bridge the gap between the medical and physical sciences on one hand, and the behavioral, social sciences on the other. It takes a doctor to be able to talk to doctors and to teach doctors; it takes a behavioral scientist to grasp the complexities of the social organization of the hospital, the personality of the patient, and the interactions between the psychosocial and medical factors. This is an important role, as neglect of the psychosocial dimension often results in ineffective or shortsighted medical treatment, such as simply treating the vital signs in a patient with an overdose with suicidal intent, and then discharging the patient without follow-up, or on the other extreme, treating a patient with depression associated with the carcinoma of the tail of the pancreas with psychotherapy alone.

This role as a bridge between medicine and behavioral science, and interpreter of both (44), may be the primary role of the future general psychiatrist. It is clearly the role of the liaison psychiatrist at present. In addition to this primary role, he may develop a secondary, specialized area, such as neuropsychiatry or depth psychotherapy. The liaison psychiatrist also functions as a member of a team of professionals consisting of the nurses, social workers, occupational therapists, and so forth. He works closely with the liaison nurse specialist who, in the expanded role of nursing, collaborates with and complements the psychiatrist in working with the patient, the nurses, and the liaison team.

#### Conclusion

The modern concept of psychosomatic medicine is, therefore, not of a subspecialty of either medicine or psychiatry that treats defined psychosomatic illnesses, but rather of an *attitude* that espouses a holistic medical practice, utilizing up-to-date psychiatric and neurobiologic knowledge and concepts as well as principles and information gained from the social and behavioral sci-

ences. (The new term, "behavioral medicine," might be useful to denote this modern concept. It has the advantage of eliminating the implied dualism in "psychosomatic" medicine [45].)

The major theater for the practice of this comprehensive attitude is the general hospital, and those of us who are involved in the practice and teaching of such approaches in the general hospital are practicing psychosomatic medicine. This is, however, only one theater of such a practice; wherever we treat our patients with psychotropic medications, while trying to understand the patient psychologically and his environment through study of family interactions, we are in fact practicing what is the essence of psychosomatic medicine: the integration of the biologic and behavioral sciences.

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► Requests for reprints should be addressed to Hoyle Leigh, M.D.; Department of Psychiatry, Yale University School of Medicine; 333 Cedar Street; New Haven, CT 06510.

## References

- ALEXANDER F: *Psychosomatic Medicine*. New York, W. W. Norton & Co., 1950
- REISER MF: Changing theoretical concepts in psychosomatic medicine, in *American Handbook of Psychiatry*, 2nd ed., vol. 4, edited by REISER MF. New York, Basic Books, 1975, pp. 477-500
- LIPOWSKI ZJ: Review of consultation psychiatry and psychosomatic medicine III. Theoretical issues. *Psychosom Med* 30:395-422, 1968
- KIMBALL CP: Conceptual developments in psychosomatic medicine: 1939-1969. *Ann Intern Med* 73:307-316, 1970
- WOLF S, WOLFF HG: *Human Gastric Function*, 2nd ed. London, Oxford University Press, 1947
- WEINER H, THALER M, REISER MF, MIRSKY IA: Etiology of duodenal ulcer. I. Relation of specific psychological characteristics to rate of gastric secretion (serum pepsinogen) *Psychosom Med* 19:1-10, 1957
- FRIEDMAN M, ROSENMAN RH: Association of specific overt behavior pattern with blood and cardiovascular findings. *JAMA* 96:1286-1296, 1959
- FRIEDMAN M, ROSENMAN RH: *Type A. Behavior and Your Heart*. New York, Alfred A. Knopf, 1974
- JENKINS CD: Recent evidence supporting psychologic and social risk factors for coronary disease, Parts 1 and 2. *N Engl J Med* 294:987-994, 1033-1038, 1976
- BRUHN JG, CHANDLER B, WOLF S: A psychological study of survivors and nonsurvivors of myocardial infarction. *Psychosom Med* 31:8-19, 1969
- KENNEDY JA, BAKST H: The influence of emotions on the outcome of cardiac surgery: a predictive study. *Bull NY Acad Med* 42:811-845, 1966
- KIMBALL CP: Psychological responses to the experience of open heart surgery. *J Psychiatry* 126:348-359, 1969
- HENRY JP, STEPHENS PM, AXELROD J, MUELLER RA: Effect of psychosocial stimulation on the enzymes involved in the biosynthesis and metabolism of noradrenaline and adrenaline. *Psychosom Med* 33:227-237, 1971
- HENRY JP, STEPHENS PM, WATSON FM: Force breeding, social disorder and mammary tumor formation in CBA/USC mouse colonies: a pilot study. *Psychosom Med* 37:227-283, 1975
- REES WD, LUTKINS SG: Mortality of bereavement. *Br Med J* 4:13-16, 1967
- SCHMALE AH: Giving up as a final common pathway to changes in health. *Adv Psychosom Med* 8:20-40, 1972
- ENGEL GL, SCHMALE AR: Psychoanalytic theory of somatic disorder: conversion, specificity, and the disease onset situation. *J Am Psychoanal Assoc* 15:344-365, 1967
- RAHE RH: Subjects' recent life changes and their near future illness susceptibility. *Adv Psychosom Med* 8(*Psychosocial Factors in Medical Illness*):2-19, 1972
- HOLMES RH, RAHE, RH: The social readjustment rating scale. *J Psychosom Res* 11:213, 1968
- BREUER J, FREUD S: Studies on hysteria, in *The Standard Edition of Complete Psychological Works of Sigmund Freud*, vol. 11, edited by STRACHEY J. London, Hogarth Press, 1955
- REISER MF: Toward an integrated psychoanalytic-physiological theory of psychosomatic disorders, in *Psychoanalysis—A General Psychology*, edited by LOWENSTEIN RM, NEWMAN M, SCHUR M, et al. New York, International University Press, 1966, pp. 570-582
- SCHUR M: The ego in anxiety, in *Drives, Affects, Behavior*, vol. 1, edited by LOWENSTEIN RM. New York, International University Press, 1953, pp. 67-103
- SCHUR M: Comments on the metapsychology of somatization. *Psychoanal Study Child* 10:110-164, 1955
- HIATT JF, KRIPKE DF: Ultradian rhythms in waking gastric activity. *Psychosom Med* 37:320-332, 1975
- FRIEDMAN S, FISHER C: On the presence of a rhythmic diurnal, oral instinctual drive cycle in man: a preliminary report. *J Am Psychoanal Assoc* 15:317-345, 1967
- STROEBEL CF: Chronopsychophysiology, in *Comprehensive Textbook of Psychiatry*, vol 1, 2nd ed. edited by FREEDMAN AM, KAPLAN HI, SADOCK BJ. Baltimore, Williams & Wilkins, 1975, pp. 166-178
- MILLER NE: Learning of visceral and glandular responses. *Science* 163:434-445, 1969
- ADER R: Effects of early experience and differential housing on behavior and susceptibility to gastric erosions in the rat. *J Comp Physiol Psychol* 60:223-238, 1965
- LEIGH H, HOFER MA: Behavioral and physiologic effects of littermate removal on the remaining single pup and mother during the pre-weaning period in rats. *Psychosom Med* 35:497-508, 1973
- ADER R, COHEN N: Behaviorally conditioned immunosuppression. *Psychosom Med* 37:333-340, 1975
- PARSONS T: Social structure and dynamic process: the case of modern medical practice, in *The Social System*. New York, Free Press Paperback Edition, 1964, pp. 428-479
- MECHANIC D: The concept of illness behavior. *J Chron Dis* 15:189-194, 1962
- MCWHINNEY JR: Beyond diagnosis—an approach to the integration of behavioral science and clinical medicine. *N Engl J Med* 287:384-387, 1972
- AKISKAL HS, MCKINNEY WT: Overview of recent research in depression. *Arch Gen Psychiatry* 32:285-305, 1975
- PRANGE A, WILSON I, LYNN CW, et al: L-tryptophan in mania: contribution to a permissive hypothesis of affective disorders. *Arch Gen Psychiatry* 30:56-62, 1974
- HOLZMAN PS, PROCTOR LR, LEVY DL, et al: Eye-tracking dysfunctions in schizophrenic patients and their relatives. *Arch Gen Psychiatry* 31:143-151, 1974
- MELTZER HY: Serum creatine phosphokinase in schizophrenia. *Am J Psychiatry* 133:192-197, 1976
- LIDZ T, FLECK S, CORNELISON A: *Schizophrenia and the Family*. New York, International University Press, 1965
- BOWERS MB: *Retreat From Sanity*. New York, Human Sciences Press, 1974
- HENRY GW: Some modern aspects of psychiatry in general hospital practice. *Am J Psychiatry* 86:481-499, 1929
- LIPOWSKI ZJ: Consultation-liaison psychiatry: an overview. *Am J Psychiatry* 131:623-630, 1974
- HACKETT TP, CASSEM NY, WISHNIE HA: The coronary care unit. An appraisal of its psychologic hazards. *N Engl J Med* 279:1365-1370, 1968
- LEIGH H, HOFER M, COOPER J, et al: A psychological comparison of patients in "open" and "closed" coronary care units. *J Psychosom Res* 16:449-458, 1972
- REISER MF: Psychiatry in the undergraduate medical curriculum. *Am J Psychiatry* 130:565-567, 1973
- SCHWARTZ GE, WEISS S: *Summary of Proceedings. Yale Conference on Behavioral Medicine*. Bethesda, Md., The National Heart, Lung, and Blood Institute, in press