

class 8

READING # 49

Hierarchical Issues in a Systems Approach to Illness and Health

W. Robert Beavers, M.D.

This paper is an effort to select one necessary and highly significant aspect of a systems approach—that of conceptualizing and integrating many levels of systems, from single cell to broad social organizations, and focusing on level awareness as vital in understanding and treating deviations from the normal that represent commonly defined states of illness.

The existence of this Journal is a powerful statement that a systems approach is vital to understanding human illness and human health. It is probable that every reader has at least a sensitivity, if not a commitment, to this viewpoint. However, a systems viewpoint is complex enough, and often ambiguous enough, that even systems-oriented clinicians who desperately want to understand and agree with each other may not be sure of what constitutes a "systems" approach and what deviates from it. This is certainly understandable, and even advantageous, in a young field which is busily defining itself.

Miller in his many presentations of a systems model of illness (15, 16) has been clear and emphatic in emphasizing the importance of multiple levels as necessary to the systems orientation. Engel has similarly emphasized this vital aspect of the systems approach to physical illness (7).

In his last book, *Levels of Schizophrenia*, Schefflen (19) performed a great service to medicine, psychiatry, and systems thinking by describing the schizophrenic illness in its many levels from cell to human culture, showing how these different levels of phenomena influence one another, and suggesting the importance of assessing and intervening at several levels, from the biological through social systems.

It is probable that a multilevel approach to medical illness has been neglected because of an historical emphasis on acute illness which can tolerate a purely biological single level model. Much of the improvement in medical care according to this simple model has been in the treatment of these acute illnesses—to such a degree, in fact, that most of medicine is now treating *chronic* illness, such as the diseases of the aging, and the failure-to-thrive infant. These chronic illnesses, in common with most psychiatric

W. Robert Beavers, M.D., is Executive Director of the Southwest Family Institute, Dallas, Texas.

illnesses, simply do not lend themselves to the limited scope of a single level approach. Success in the treatment of our patients increasingly requires as much attention to higher social system factors as to biological phenomena.

A few years back, I began a paper addressed to a general medical audience as follows:

A physician treating pneumonitis in a seventy-five-year-old woman, bed-ridden, with a recently fractured hip, long addicted to cigarettes, habituated to alcohol, and whose husband died six weeks before, knows intuitively that he must deal with a complex array of variables, and if he is successful it will be due to the orchestration of many skills addressed to altering these variables favorably (2).

This physician will approach his patient with an attention to biology, individual patterns and characteristics, family factors, and social realities. It is regrettable that such an important systemic integrative orientation must be obtained incidentally rather than as an intrinsic part of medical education.

Engel contrasts the multilevel systems view of illness with what he terms the "biomedical" model. The latter has molecular biology as its basic scientific discipline, and "assumes disease to be fully accounted for by deviations from the norm of measurable biological (somatic) variables" (7). It demands that disease be dealt with independently of social behavior, and further demands that behavioral aberrations be explained on the basis of disordered somatic processes. The biomedical model is reductionistic, and participates in a false mind/body dualism.

This obsessive focus on one system level to explain illness is not limited to biology, unfortunately. Recently a colleague visited a family therapy institute known for its strategic therapies, and observed the institute director and a trainee jeering at the mother of a 20-year-old manic patient for allowing the medical establishment to give her son poison. These therapists coerced her into reading the warning material from the lithium container, with the apparent goal of enlightening her and abolishing the "irrelevant" and dangerous lithium treatment. Such a procedure is as antithetical to a systems paradigm, which emphasizes many levels interacting, as is the previously described biomedical model.

PERSONAL INVOLVEMENT WITH THE MULTILEVEL SYSTEMS APPROACH

As a pharmacologist/internist who entered psychiatry some 22 years ago, I was already becoming aware of the importance of multiple levels in coping with illness. From one of my medical school teachers, Alvin Shapiro, in the early 1950s, I learned that people with heart disease, whose cardiac output was being monitored, exerted more cardiac effort going down steps when they didn't want to than going up steps when they did! He also showed me that adrenalin would lower blood pressure or raise it depending on the patient's mental set. Shapiro (who was later to work with Mirsky in Pittsburgh) implanted irrevocably in my mind the idea of systems level interrelationships, although the concepts were not so labeled at that time.

Later, while in pharmacology, I was struck with the fact that studies comparing phenobarbital and minor tranquilizers had failed to show a difference between the two until middle-class patients were used; lower socioeconomic patients were more ac-

cepting of phenobarbital's side effects. Social class was a relevant variable in drug administration and response!

In pharmacology, I also learned some of the rational mechanisms by which symbolic stress, i.e., social data, could be converted into biological events. Such measures as steroid and adrenalin output, and vagal and sympathetic stimulation were marvelously affected by the social and symbolic world. The mindset of physiology, already systems-oriented, was easily and logically extensible to the social world outside the integument.

In psychiatry residency, though we were taught an individual and organic model of psychiatric illness, I began a study of communication patterns in family members of schizophrenic adolescents (1). These early research efforts led me to a concern with the relationship of family patterns to individual illness and to the extension of these studies to include a coherent multilevel systems approach to treatment.

THE NEXT MEDICAL REVOLUTION

Illness is not defined by the language of molecular biology; this is one important language level, but illness exists on as many levels as does *health*. We surely do not try to understand President Reagan or the Secretary of State at the molecular level but at the symbolic level; however, when Reagan was shot, the biological interest came to the fore. There is good reason to believe that we will see the same soaring of interest in social levels in future dealings with what is currently considered "biological" illness.

Though medical schools have been resistant to teaching a multilevel systems approach, there are other related fields which are quite advanced in such thinking and teaching. Many social work schools consider general systems theory as a basic science and the American Association for Marriage and Family Therapy officially states that systems theory is expected to be the basis for training and practice (13).

I believe that psychiatry is an ideal training ground for multilevel systems experts. Knowledge of biology in sickness and health can be blended with shrewd assessment of individual qualities. Information about dyads, about family dynamics, and about social variables, including social class and institutional patterns, can create a "healer for all seasons," one who can shift intelligently from one level of human reality to another, and who can guide other health professionals to the most effective working level.

SPECIFIC ILLNESSES APPROACHED FROM THE SYSTEMS PARADIGM

Six illnesses—three nonpsychiatric and three psychiatric, are presented with evidence for interaction between levels, the impact of illness at several levels, and the vital significance of multilevel intervention. These disease processes are:

- 1) diabetes in children and adolescents;
- 2) adulthood coronary disease;
- 3) renal insufficiency;
- 4) manic-depressive illness;
- 5) schizophrenia; and
- 6) suicidal attempts in adolescence.

Diabetes in Children and Adolescents

There is probably no chronic illness in which more dyadic, family system, and social factors play a significant role than diabetes. Issues of boundaries, power, control, and autonomy in the family are as significant to successful chemical management of the disease as those of purely medical expertise.

In one of our family institute videotapes of a family with an adolescent diabetic, the patient has had many episodes of severe ketosis and impending coma. It is clear from observing the family therapy sessions that the conflict and power struggles between mother and identified patient, as well as obvious social institutional factors (for example, the family "doctor shops," playing one health care provider off another), must be dealt with in order for the child to remain healthy.

Salvador Minuchin (17) described an interesting experiment that included measuring free fatty acid levels in the parents and two diabetic adolescent offspring (the only children) in the Collins family. Dede was a brittle or super-labile diabetic; Violet was a well controlled diabetic, but had behavioral problems disturbing to the parents. Minuchin's group arranged to have the parents subjected to a stress interview while the children watched them through a one-way mirror. After one hour, the children came into the room with their parents, where Violet was sidelined and Dede was quickly placed in the middle of her conflicted parents. Everyone's FFA levels rose during the stress interview; the children's went even higher when they joined their parents. The parents' FFA levels dropped when the children joined them — assuming parental roles helped them become more comfortable. FFA levels of Violet (the untrapped child) quickly returned to baseline; Dede's levels, however, remained elevated for an hour and a half. This experiment illustrated the interdependence between body chemistry, individual subjective feeling states, and family dynamics.

Treatment limited to family therapy or individual psychotherapy for such patients would be foolhardy, unheard of; yet good diabetic management limited to efforts at regulating insulin dosage and diet would have little more potential effectiveness. Diabetes is a disease expressing itself in the body, in the dyads, in the family, and in the social structure.

Adulthood Coronary Disease

Engel describes the clinical course of a 56-year-old man who has a second myocardial infarction beginning with his entry to the hospital, a cardiac arrest and resuscitation (8). In this narrative, he pinpoints the deficiency of a biomedical model that focuses on tissue damage and excludes highly significant information regarding the personality of the patient, and the relationships of patient to employer, to family, and to hospital personnel.

An interesting highlight of the description was the repeated failure of ICU personnel to obtain an arterial blood sample; this failure immediately precipitated the cardiac arrest. Even in an acute medical emergency, we physicians ignore multiple system level factors at our patients' peril and to our disadvantage as healers.

After the acute disability, medical management of the months of convalescence will require attention to many levels of reality. A study of wives of male coronary occlusion victims (14) reports a highly significant increase in psychiatric symptoms of these wives. In the acute phase of the patient and family problems, employers and neighbors characteristically rallied around the beleaguered wife as she tried to cope with frequent trips to the hospital, money problems, child care, and her own stark

fear. But when the patient returned home, these support factors diminished, and patient, wife, and other family members often sank into a state of deteriorated social functioning.

It becomes apparent that management of post-coronary patients requires an attention to several levels of reality, and family counseling and/or couples' groups offer the possibility of increasing social as well as physical recovery from myocardial infarction.

Renal Insufficiency

An interesting systems study of medical illness was carried out by Steidl et al. (20) on patients receiving long-term dialysis treatment and on their families, using a modified form of the Beavers/Timberlawn Scales (12). High correlations were established between patients' adherence to prescribed treatment and families that 1) exhibited respectful shared adult leadership, 2) had strong parental coalitions, 3) were able to take individual responsibility, 4) problem solved well, and 5) had an open, responsive stance to others.

The specific aspects of family functioning that correlate most closely with the medical condition of the patient seem to be those that involve strong positive ties between family members.

This is a significant study as it relates specific characteristics and behavior of the ill person to family processes.

Manic-Depressive Illness

The first of the psychiatric illnesses to be discussed is bipolar illness, in which lithium treatment has been a godsend for patients with the disease, for physicians who treat them, and for their families. However, there is compelling evidence that individual functional impairment persists, along with disruptions in family, occupational, and social life, despite adequate drug treatment (3, 4).

Individual psychotherapy, nearly impossible and certainly limited in effectiveness in the years before lithium, can now be utilized more frequently. But its effectiveness appears limited in comparison to group therapy, marital group therapy, and marital and family therapy (4).

Davenport has participated in a series of studies of marital group treatment of bipolar disease which suggest that patients in this group receiving multiple level intervention do much better than those who are treated only with pharmacotherapy. There were no major life disruptions in the patients receiving attention to their social network, while in the drug treatment group of 53, 18 were rehospitalized, 14 divorced, 39 suffered occupationally, and three committed suicide (5).

There are strong indications that spouses of manic-depressive patients have character patterns and world views similar to those of the patients (6).

My clinical work with manic-depressive patients is purposely limited to couple and family intervention. Results have been encouraging, with few disruptions in social, family, or job functioning. Treatment consists of maintaining adequate lithium levels, and increasing boundary clarity, personal acceptance of responsibility for actions, and improved self-esteem resulting from successes of family members in obtaining their personally defined social goals.

These patients and their families consistently respond to the manic episodes with extreme ambivalence. Both patient and spouse understandably fear recurrence of these tragic episodes which are so costly emotionally and financially. But the patient is

often wistful about the "rush," the high that came with the mania. It is apparent that the spouse, also, has been gratified by the manic episodes, which served family function much as a flagrantly misbehaving teenager might in other families—deplored, yet needed in order to avoid awareness of the depression and distancing usually present in the family.

My work with these patients is a multilevel approach; after six months free of manic episodes, the patients are invited to control or stop the lithium themselves. I monitor their use of lithium but make no attempt to direct it. As the couple's relationship improves, there is a greater sense of closeness, and the frustration level of family life is lowered. When this occurs, the use of lithium becomes intermittent and infrequent and sometimes absent. This suggests the important circular relationship between biological factors and interpersonal events, each influencing but not controlling the other.

Schizophrenia

Schefflen (19) has illustrated systems thinking and its concern with defining schizophrenia in multiple interrelating levels. Rather than reiterating some of this material, I urge the reader to seek out and enjoy this pioneering work.

It should be noted, however, that, as in manic illness, adequate drug treatment does not eliminate the deficits in family, occupational, and social functioning. Further, attention to social variables along with adequate psychotropic drug treatment does decrease the multiple effects of this major psychosis for the patient, allowing better function and less frequent return to the hospital. The excellent study by Goldstein and co-workers at UCLA (9) showed a reduction of recidivism of first- and second-break schizophrenic patients from 30% in six months with drug treatment alone to 0% with the addition of family therapy. This therapy consisted of only six sessions, with four points made:

- 1) accept that the patient has had a mental illness;
- 2) identify with the family members those stressors that contributed to this illness;
- 3) anticipate stresses in the future; and
- 4) plan ways to reduce the negative effects of these stresses.

Suicidal Attempts in Adolescence

A good model for the multilevel systems approach to a psychiatric illness can be seen in the situation of an adolescent who has made a suicidal attempt, regardless of the individual diagnosis of such a patient. In these cases, the limits of the biomedical model are stark, real, and potentially disastrous.

I suggest that the suicidal adolescent represents a real psychiatric illness, and not a "problem in living" to be defined outside of a working model of illness. If the choice is to redefine the medical model to include multiple systems impacting on each other, or to slavishly fit psychiatric disease into a biomedical model insufficient even for most obviously nonpsychiatric illness, then carrying the banner for the multilevel systems approach to all illness is obviously necessary.

In evaluating the potential of an adolescent to attempt suicide again, there is much evidence that attention to dyadic, family, and social factors will be more helpful than any narrow focus on individual symptoms and dynamics, or biology.

Tiecher (21) has reported a high correlation between family factors that produce an adolescent with no defined role in the family and repeated suicidal efforts. In addition, the lack of a social role, such as enrollment in school or a satisfying job, is a significant factor in suicidal potential.

Rosenbaum and Richman (18), interviewing family members of suicidal adolescents, draw dramatic attention to the importance of family members who wished the patient dead.

A recent article by Holinger and Offer approaches adolescent suicide from a demographic sociological perspective (10). This fascinating study shows a high correlation between the incidence of adolescent suicide and the percentage of adolescents in the population. "No room in the inn" as a message from society leads to more hopelessness, despair, and opting out of entry into adulthood.

Interestingly, the suicide rate of our aged population varies inversely with the percentage of aged in the population—the very opposite of adolescent trends.

These studies of suicidal adolescents refute a frequently held concept that suicide is a result of a momentary or temporary unhooking of the psyche, an assumption that leads to a meticulous search for a "thinking disorder" as a significant factor in the suicidal potential. Such a search is misguided; these sufferers are indeed possessed of a depressed mindset, but so are many other troubled adolescents who do not attempt suicide. Vulnerable adolescents frequently think about suicide for a long time and approach it with a very clear and unfragmented mental state. Mental status per se is of little help in assessing the lethal potential; evaluation of higher level factors is necessary.

Current clinical data point strongly to the necessity of a physician's attending the multiple factors in the patient's life when planning intervention, and the extreme significance of working with the family to establish clear, satisfying roles for the patient and for the other family members.

In addition, individual psychotherapy with a patient will best be focused on increasing his or her social skills and assisting him or her in finding a niche in the world outside the hospital and beyond the family.

In particular, a family dynamic assessment in intervention will see the illness or symptom (depression or suicide attempt) as one factor in the family's life, with the identified patient expressing the despair, hopelessness, and impotent rage of all the family members. Whatever brand of family intervention is used, the goals will be to reestablish the sense of importance, of significance, in the lives of all family members. Such an approach does not negate the potential value of appropriate medication for any individually diagnosed emotional illness; rather, it will be synergistic with such biological intervention. Treating the adolescent as if in a vacuum increases the alienation and lethal potential.

RESISTANCE TO THE MODEL

There are resistances to embracing such a multilevel systems approach to illness. These resistances are usually from three sources:

- 1) *The belief that it is unscientific.* This derives from the erroneous assumption that science deals with concrete things, with tissue—the "wet lab" approach. Von Bertalanffy, Engel, and Schefflen have dealt with this resistance by becoming students of the scientific method. It is clear that science has models or paradigms, no more

right or wrong than any others, but dependent only on their usefulness. Kuhn (11) has explicated this view of science and scientific progress; he suggested that the conventional model is held tenaciously until there is such a pileup of contrary data and inadequate functioning of the paradigm that a revolution occurs, and a new model becomes the orthodox. It is just such a revolution that is brewing in medicine and psychiatry.

2) *The belief that it is complicated and hard to understand.* Nobody wants complications, particularly unnecessary ones. It is likely that this resistance was as significant as the shock of sexuality in making the Freudian revolution difficult. Freud said to an age of reason that people are irrational, that one must take into account the complex unconscious to understand emotional illness and to treat it effectively. It was only with the increasing frustration of using an inadequate mental illness model that the Freudian complexities came to be accepted. A similar evolution can be expected with the multilevel systems paradigm of illness. Good clinicians cannot be trained with the reductionist model. They train themselves painfully without good direction. Consumers of medical care see the "scientific" doctor more and more alienated from their needs and their pain; they consider (rightly) that this brand of science is anti-humanistic. It is only by embracing the multilevel systems perspective that science can again be in the service of people, of humanism, rather than squared off in opposition to the needs of patients.

3) *There is a resistance from "lack of time."* The Emergency Room surgeon, the cardiologist dealing in acute infarctions, sometimes even the busy psychiatrist, insist that dealing with such system levels is all very well, but "who has time?" It is ironic that a profession responsible for the development of enormously expensive (in money and time) procedures to save a life at any cost is jealous of the time and cost necessary to make that life productive. Therefore, the necessary attention to many system levels in illness requires therapeutic teams—the development of competent professionals who can deal with at least one systems level that expresses the patient's illness, and the training of experts in multiple levels who can coordinate their work.

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Requests for reprints should be sent to W. Robert Beavers, M.D., 3613 Cedar Springs Road, Dallas, Texas 75219.