The Implications of Scientific Models of Psychopathology for Treatment

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Ever since I heard of GWAN I wondered how it got its name. While there are no doubts historical reasons for being nameless, I believe that there is a basic rationale for this situation which becomes clear as one puzzles over the program of this meeting. What group can be more appropriate for studying disorders without known cause than a group of researchers without a known name? As long as we realize our abysmal ignorance of the causes of mental disorders and continue our search we can hardly identify with a given name, for it is better to sail hopefully in search of one's identity than to pretend to have found it. This is the challenge that GWAN offers to its adherents and this is why I felt challenged by your invitation to participate.

The fact that your chairmen saw fit to select for the platform of this meeting the particular "as if" causes which I have been peddling as scientific models to my colleagues is not as significant as the fact that you felt the need for a classification of the causes and for regarding the full spectrum of possibilities, rather than limiting yourself to a particular discipline. I am sure that many of you would offer a different set or sets of models of equal or superior merit, but the
mere fact that you are still searching for the melody and are not satisfied that you have found it, is the important thing.

Most scientific fields are demarcated by the discipline that they live in, and a good deal of the progress in the natural sciences and in the biological sciences is due to the fact that each of these disciplines has developed guidelines for its adherents which are rarely trespassed. Once in a while, however, disciplinary research fails us and some brave souls break through the traces, and such hybrid fields as biochemistry, psychophysics, social psychology and psychopharmacology are born. But these are rare events and the training that most of us get unfit us for leaving the safety of our guidelines and the security they offer. Furthermore, society rarely rewards or reinforces the maverick who searches for greener fields outside the designated domain.

However, science rarely advances frontally, most of the advances occur at the seams. Perhaps the greatest advances are made when the research worker reaches the end of his tether in his own discipline and begins borrowing concepts from another. Thus, Einstein faced with the fact that the newly discovered method of measuring high velocities did not seem to correspond to the expectancies based on the measurement of low velocities, was forced to give up absolute time, independent of the velocity of the observer. By borrowing the concept of the observer from psychology, he was able to bring the high and low velocities into the same framework — relativity. Freud, similarly, when faced with the fact that his Helmholtzian concepts of the physical-chemical basis for behavior failed to explain hysteria, borrowed the concept of the unconscious from philosophy and developed his metapsychological system. Kraepelin, in search of an explanation for mental disorder, developed
the utilization of drugs to induce mental changes which simulated mental
disorder and thus became the forefather of modern psychopharmacology.
Adolf Meyer, faced with the incomprehensibility of patient behavior
borrowed the concept of family-relationships from his social-work friends
Jane Adams and Julia Lathrop and introduced them into the assessment of
psychopathology.

In the field of psychopathology, living within the preordained
boundaries leads to stultification and not to the solution of the prob-
lems facing mankind as a result of the presence of psychopathology. We
must realize that God did not make the disciplines. They are man-made,
and probably have arisen originally in response to some questions or
problems which man posed to nature. The quest for the solution of prob-
lems is what makes for progress and that is why problem-centered insti-
tutes or units make more progress in psychopathology than discipline-
centered departments in universities.

What are the disciplines which can cooperate in the solution of
the problems of psychopathology. I can not think of any field from
anthropology to zoology that has no potential in this direction and I
do not mean to limit myself to the sciences alone, for literature and
the humanities have an equal potential in reducing the burden. How-
ever, we can not simply invite everyone to come and picnic in the fields
of psychopathology since there are mines and pitfalls present in which
the unwary might stumble. Historically the following disciplines have
been involved: Anthropology, sociology, ethology, biochemistry, psy-
chology, psychiatry, internal medicine, neurology, neurophysiology,
neuropsychiatry and several others. In order to systematize the various
approaches I have proposed that the following scientific models for
psychopathology might be useful for covering the area of such knowledge as we now possess: (1) the descriptive model; (2) the ecological model; (3) the developmental model; (4) the learning model; (5) the hereditary model; (6) the internal environment model and (7) the neurophysiological model.

I have discussed this in a recent paper which some of you have seen (Zubin, J. Scientific models for psychopathology in the '70s. Paper presented at the American College of Neuropsychopharmacology, Las Vegas, 1972. Presidential Address. Seminars in Psychiatry, 1972, 4, 283-296), but briefly here are the assumptions underlying these models:

The ecological model refers to the variety of influences of the social-cultural-physical variety which impinge on the ecological niche that the person occupies and shapes his behavior. They can modify man's innate capacities for the better or for the worse. Capitalizing on the benign forces and minimizing the malignant forces is the goal of intervention according to this model. This model is largely in the hands of social scientists -- anthropologists, sociologists, economists, architects and others -- who view man's development as largely due to the field forces to which he is exposed.

The developmental model postulates that the transition periods between the various maturational stages that man passes through are the critical points in which his behavior is modified towards better or poorer adjustment. It is in these transitional points that the presence or absence of proper support and nutrient environmental supplies may make for better or poorer development.

The hereditary model stipulates that behavior depends upon the unfolding of the genetic endowment a person is born with. While this is a generally accepted truism, the implications of this model are not al-
ways clear and quite recently work based on this model has split the research community into two contending camps — the genetically oriented (Jensen and Hernstein) and the environmentally oriented. The simplistic assumptions underlying much of this controversy stem from the expectation that the relationship between heredity and environment is monotonic and holds universally for all traits, abilities and behaviors — assumptions which should be tested for their tenability rather than adhered to blindly on faith.

The internal environment model stipulates that the internal metabolism and body fluids and biochemistry are the determiners of behavior and that the biochemical control of development can be utilized for improving the learning process through nutritional advances, drug intake etc.

The neurophysiological or brain function model stipulates that the way the brain processes incoming information is the basis for learning and that knowledge of brain function is essential for guiding proper development in both normal and abnormal individuals.

These models do not operate independently, and their interactions are often more important than their main effects.

So much for the scientific models. What about the application of these models to choice of treatment?

Treatment may be defined as planned intervention into a disorder with the view of eliminating, or mitigating it, or arresting its progress. In order to intervene effectively we must first know (1) the nature of the disorder and be able to identify it, (2) know at which point in time to intervene, (3) know how to intervene, (4) what method to use most effectively and (5) how to evaluate the efficacy of the intervention. We
shall eliminate from consideration the preventive stance, since, thus far, little if any effective intervention for prevention of mental disorders has been established, though the current interest in high risk populations may provide an answer.

Let us take up each of the problems involved in successful intervention in turn. We have to confess at the very start that the five specified areas of knowledge which we require are in fact non-existent. We do not know the nature of the disorders labelled as mental, can not diagnose accurately, nor do we know the ideal moment for intervention or how to intervene, what method to use nor how to evaluate. Apparently, even when we are abysmally ignorant, we must make do with whatever pragmatic knowledge practitioners have collected in the course of time, but, we must not accept them at their face value. Careful examination of the alleged knowledge is the order of the day. As the old adage has it, "it ain't what folks don't know that causes most of the mischief; it's folks believing things that ain't so that gets us into trouble." This is our chief purpose — laying bare the knowledge we have inherited in order to examine its tenability.

With regard to the definition of mental disorders much ink if not blood has been spilled. In reviewing the history of the development of the concept we note a stress on the important fact that the process of the disorder must be perceived and understood if we are ever to make any progress in defining it. The current availability of systematic structured interviews may help in getting objective descriptions of the status of the patient and repeated application of these interviews in time may help in uncovering changes in status which may reveal the ongoing process. I would add that not only the description of status and process are
essential but the knowledge of the etiology is also essential. The next question we turn to is: Do each of these models dictate the kind of therapy most useful for treatment based on the assumed etiology?

There are several possible relationships between etiology and therapy. First, the two may be closely connected so that treatment of a given condition without reference to etiology would be doomed to failure. On the other hand, the two may be totally independent of each other as is often the case in medicine. Must a disorder arising from the ecological niche which a person occupies be treated ecologically by eliminating the noxious parameters of the environment or by manipulating them so as to mitigate the disorder? The answer to this question has to be determined experimentally but it is at least likely that biochemical intervention may be needed to stabilize the patient before the effective use of environmental manipulation can be introduced. Similarly, biologically based disorders may require environmental manipulation before the efficacy of biological intervention can be assured. These are empirical questions which each clinician has to answer on the basis of his experience, but systematic research may eventually provide safer guides.

The ecological model stipulates that the sources of mental disorder are to be sought in the ecological niche that the patient occupies in society, and that the causes are the stresses produced by poverty, educational and social deprivation, occupational limitations and the other channeled characteristics that interfere with participation in a free society, including being labelled as mentally ill. In truth,
some individuals labelled schizophrenic do indeed benefit from environmental treatment but that all schizophrenics would be highly debatable.

The developmental model stipulates that the sources of schizophrenia are to be sought in the transition of man from one stage of development to the next. When the supplies and nutrition and support required for helping in the transition from one stage to the next are missing or are inadequate mental disorder may develop.

What type of therapy is dictated by the developmental model? Since we can not regress the patient to a prior stage of development through which he has already passed in order to provide him with a better transition, we may have to utilize compensatory rehabilitation methods, psychotherapy, family and group treatment to reorganize his behavior.

The learning theory model would lead us to adopt behavior modification methods in which the assumption is made that there is no underlying disorder. All we have is the deviant behavior itself, be it phobic, depression, psychosomatic or what not. These become the target symptoms to be eliminated by behavior modification methods.

The internal environment model would stipulate that somatic and psychopharmacologic methods are the answer. This model has perhaps made the greatest demonstrable advances in the last few decades. The whole armamentarium of psychopharmacology has been turned loose on the mental disorders. While we have not yet found a biochemical basis, we have succeeded in mitigating the condition by the use of drugs.
No therapy has as yet been directed at the neurophysiological model and yet, biofeedback experiments may yet teach us how to control and perhaps abort the neurophysiological substrate of anxiety, depression and thought disorder. It is here where our practice falls short, primarily because these methods have not yet permeated practice and remain laboratory demonstrations for the time being.

The methods of evaluation suffer from the well known difficulty that we as yet have no objective criteria of outcome. The patient, his family and the therapist still remain the judge and jury and a more biased group of evaluators could hardly be conceived of. Furthermore, the agreement between these three evaluators is often rather low, and if the opinion of the community is also brought into the picture, the disagreements are multiplied. This is one of the challenges facing evaluation which must be overcome if we are to make scientific progress in our field.

The question might be raised why is mental disorder such a baffling disorder and why despite its formal recognition almost 100 years ago, has so little progress been made in its detection, diagnosis and treatment? As for myself, I blame our confusion between the terms of disorder and illness for our debacle. If we define the disorder (schizophrenia) as the focal process common to all those who have the disorder, and the illness
as the total picture presented by the focal disorder and the response of the organism to the disorder, it becomes clear why the picture presented by schizophrenia for example, is so heterogeneous and the variety of treatments so diverse. Until we can separate the focal disorder from the effect it produces on the premorbid personality, we shall be caught in an undecipherable puzzle. The solution may be in the study of premorbid personality prospectively as it is done on the high risk populations and in this way note how the different premorbid personalities respond to the disorder. It may very well be that our treatments do not even touch the focal disorder but merely modify the peripheral effects on the personality.

Once we adopt this distinction between the focal disorder and the illness, the question arises what should be the goal of therapy. To return the patient to his premorbid level, to bring him up to the average of the population to which he belongs, to optimize his capabilities to the fullest? A modest expectation is to at least return him to his premorbid level so as to eliminate the effect of the illness. But in many patients the premorbid level was insufficient to permit them to cope adequately. Should therapy for these patients consist of remoulding the premorbid personality so as to enable it to cope with life exigencies? These are all questions facing the competent therapist and the answer to these questions are not yet available. On the other hand, maybe schizophrenia is as diverse as the letters of the alphabet and that we come by the heterogeneity of the disorder and its treatment naturally. At all events, only further research can yield the answer.