Possibilities for Research in Emotional Disorders of Adolescents

Joseph Zubin
Principle Research Scientist
Biometrics Research, New York
State Department of Mental Hygiene
and
Professor of Psychology
Columbia University

Delivered at the Open House Conference at Linden Hill School,
Jewish Board of Guardians, February 12, 1957.

I. Introduction

It is much easier to discuss possibilities for research than to report results of research. I am reminded of the well-known story about the new young mother who confessed to her friend that it is far easier to conceive than to deliver. Yet, without the initial conceptual phase, no progress can be achieved. I shall, therefore, with your indulgence, restrict myself to possibilities, regardless of the immediate practica-
bility of any of the proposals. In the last analysis, no one can decide for someone else what research is most worthwhile; but often it is enough just to open doors that lead to unsuspected possibilities.

Let me first answer one question that lurks in many minds about the direction research should take. In a field as surfeited with generalizations and as free of guide-posts as this field of adolescent emotional disorders is, why not forget about systematic research and be satisfied with observation and collection of facts? Well, to paraphrase the preacher, of the gathering of facts there is no end and much observation is a weariness of the flesh. Science can not progress by observation alone. To be sure, the observations in the clinic are the raw material of progress, but unless schematization is introduced, uncontrolled obser-
vations will flood the laboratory, leaving the unsuspecting clinician,
like the sorcerer's apprentice, helpless to stem the tide. Without a
scheme for organizing observations, mere facts impede rather than ac-
celerate progress. That is why we need scientific models for integra-
ting and organizing the available information. Indeed, the most arrant
positivist probably selects what to observe with the aid of some implicit
though unrecognized, model. Even primitive man organizes his animistic
beliefs about nature into patterns of inter-relations. George Herbert
Meade has pointed out that early man was not only a careful observer,
but schematized his observations into explanatory models. Thus, the re-
fraction of light by water, as when a submerged fishing spear appears
bent, was explained by primitive fisherman as the work of water spirits;
who in their benign moods, bent the rod towards the fish; or, away from
the fish in more malignant moments. The continual see-saw between ob-
servations and schematization is the very basis of scientific progress.
The chief difference between primitive man and scientific man is that
while primitive man is an idealist who regards his model as the reality
behind the facts, to the scientist a model is merely a working plan
which suggests how to put together the tumbled pieces of nature into a
meaningful pattern. The usefulness of a model is in its capacity to
provide hypotheses which can be tested by experiment. Some models sub-
sequently found to be entirely untenable, such as alchemy or phrenology,
gave far reaching impetus to the extension of knowledge, for the exper-
iments which were set in motion to test their validity laid the foundations
for modern chemistry and for modern neurophysiology. Viewed in
this way, a good model is one which generates a series of experiments
that test its validity or its implications, while a poor model fails to
give rise to any testable hypotheses. Unfortunately, may of the con-
cepts which we value in psychopathology are too vague to be tested by scientific experimentation. Unless they meet this criterion of testability, however, they will have to be discarded despite any apparent clinical plausibility, even as we have already discarded the untestable concepts of spectral selves (in vogue when witchcraft was in flower); of animal magnetism; and of astrological influence.

What types of scientific models are available to us? First, we might examine the cultural model for the development of emotional disorders. There are two ways in which the cultural milieu can serve as the cause of emotional disorders. It can create them or it can elicit them from individuals who are prone to exhibit them under the influence of a stress-producing load. Thus, as Kardiner (Kardiner, A. Cultural aspects of diagnosis and etiology. In: P. H. Hoch and J. Zubin (Eds.) Current problems in psychiatric diagnosis. N.Y.: Grune & Stratton, 1953 pp.157-179.) points out, frigidity only became an overt problem in our culture after psychoanalytic concepts made some women realize that there was more to sex than mere procreation. Correspondingly, in certain primitive societies where polyandry is practiced and a woman's social esteem rises as she acquires more husbands and children, pseudocyesis, i.e. false pregnancy, is a common complaint. Probably in the early days of the industrial revolution, susceptibility to emotional disturbance was no less prevalent than it is now, but a shorter period of dependency and the earlier entrance into the labor market discouraged the expression of adolescent emotional disturbances. In today's society, the ever lengthening period of adolescent dependency and the mounting constraints on entry into the labor market increase the probability of emotional disturbance in those who are predisposed. Another social force which
provokes emotional disturbances is rapid cultural change. In a relatively static culture, such social institutions as the family and religion provide resources for coping both with external dangers and with the internalized threats of anxiety, emotional disturbance, etc. But in a rapidly changing society the adolescent tends to lose faith in the cultural resources which served his father and he may be left without a safe port for an emotional storm. The contrast between successive generations is illustrated by the sociologist Simmons. Simmons, L.W. The relation between the decline of anxiety-inducing and anxiety-resolving factors in a deteriorating culture and its relevance to bodily disease. Proc. Assoc. Res. Nerv. Ment. Dis., 1950, 29, 127-136.) An old Hopi Indian in Arizona whom he had questioned about spending a night in the cemetery, replied in a matter-of-fact manner: "I would say my prayers, sprinkle my sacred cornmeal to please the spirits, then lie down and sleep like a pig." But Simmons seriously doubted whether a younger Hopi man could do it. Experimental investigations of the effects of cultural forces in the production of emotional disorders could disclose the points at which our society provokes excessive emotional stress. Social engineering might then design buttresses to take up the strain and to prevent personal disintegration.

Another scientific model is provided by developmental psychology. The significance of early experience in infancy and childhood for the development of mental disorders has long been pursued but continues to avoid capture. The difficulties that lie in the path of a correct evaluation of the history of an organism from conception to death, or as the English would put it, from the womb to the tomb, are well nigh insurmountable. A far better course is to follow the development of a
group of children over a period of time, thereby assuring the adequacy as well as the pertinence and completeness of the observations. As the proportion of children who develop emotional disorders during adolescence is small, the cost of following a sample of the general population large enough to insure capturing, let us say, 30 emotionally disturbed adolescents is rather formidable. Nevertheless, there have been several attempts, notably at the Fells Institute in Antioch, Ohio and at the Institute of Child Welfare in Berkeley, California, at the following up of children from birth. Such programs, of course, are too ambitious for the Linden Hill School, but the Jewish Board of Guardians might well include a follow-up study in its plans, perhaps with the help of other agencies, since your organization has good research facilities and can tap a variety of population types.

Recent animal experiments have placed renewed emphasis on: 1. The significance of the intra-uterine environment for normal development and 2. The impact of early experience on personality. A prenatal study which has aroused considerable interest is that by Lillienfeld, Paesaman, et al., at the Johns Hopkins Hospital. In an investigation of approximately 1000 Baltimore public school children who developed behavior disorders, they found that the gestation periods, as recorded in the hospital records, were significantly different from those of children born the same day in the same hospital but who did not subsequently develop behavior disorders. The mothers of children who later developed behavior disorders showed a greater incidence of toxemia of pregnancy than those mothers whose children turned out normal. About 24 percent more of the mothers of future behavior problem children suffered from
toxemias of pregnancy than did the control mothers. Studies of this kind, even though they are retrospective, illuminate the variety of environmental influences which nurture whatever propensity an individual may have for behavior disorder. A careful investigation of the background and early history of behavior problem children as compared with normal children seems to be a very promising approach to this area. Perhaps we should supplement the report of the informant who ordinarily brings the child for treatment with extensive investigations into the records of the child, including hospital records of birth, early schooling, friends and relatives, teachers, classmates, etc. While such studies are expensive, they pay off in terms of deeper understanding of the inciting processes by which behavior disorders develop and become overt. Our school may not be equipped to do animal studies in this general area, but it seems to me that studies of deprived animals throw considerable light on the contribution of such deprivation to subsequent behavioral development. For example, dogs who are reared in the dark without exposure to nocuous stimuli take an immeasurably long time to learn how to avoid serious stimuli after they have reached maturity. Such animals will continue to butt their heads against the wall, will repeatedly explore a little toy car which shocks them upon touch, will thrust their noses again and again into the glowing tip of a stick. In contrast, animals raised as pets learn rather rapidly how to avoid such dangers. It looks as if the response to pain of these deprived animals is quite different from the response of normally raised animals. Whether analogous experiences in the lives of children will lead to corresponding results, is of course a very interesting question. Early deprivation has also been found to increase hearing behavior in animals. It remains to
be seen what implications this may have for early deprivation in childhood.

A third scientific model for behavioral disorders is provided by physiology. For one thing, the human organism possesses a variety of homeostatic mechanisms which operate so as to maintain a constant internal environment. These autonomic mechanisms are critical for the maintenance of emotional stability. The imposition of a load such as sensory deprivation, extreme temperature, or threat may produce stresses within the organism that will reveal significant differences between the functional capacities of the emotionally disturbed individual and the normal individual. In many instances the presence of emotional disturbance will constitute so severe a load that the addition of any further load may produce only a mild change in behavior, while in the normal, the experimental load may alter behavior considerably. In this area Selye's (Selye, H. Story of the adaptation syndrome.) work on hormonal balance has important implications for the understanding of behavior.

An important component of the physiological model to which I should like to call attention is the brain itself. Most of us tend to accept the dictum that the brain is the organ of the mind and that, therefore, brain dysfunction may underlie mental disorder. This hypothesis, however, will remain moot, until specific structures and functions within the brain can be related to behavioral deviation. Nevertheless, the fact that the new tranquilizing drugs can assuage anxiety, just as words too have long been known to do, seems to have cast a new light on the mind-body problem. We need no longer be content with Sherrington's fiat
that the mind is the mind and the body is the body and never the twain shall meet. As you perhaps know, Sherrington (Sherrington, C. Men on his Nature Cambridge Univ. Press, 1951.) insisted that the only thing the brain and the mind have in common is that both of them are mere concepts. Recent drug research has undermined this position and now there is hope that the human organism can be demonstrated to possess the unity of function which its structure proposes.

For this reason we present a new Mendelejeffable for psychological research aimed at tapping a variety of behaviors which can be expected to reflect the integrity of brain function. Beginning with the physiological area and ascending through the sensoric, perceptual, psychomotor and conceptual realms of behavior, we can select a stratified sample of activities in such a way as to get a spectrum of function for an individual. These behaviors may be elicited in a variety of ways. Broadly speaking, the stimuli which the experimenter may employ to induce behavior fall into two classes: 1. energy operators and 2. signal operators. Energy operators are stimulus variables that consist of narrow bands of energy varied in graded amounts. Energy operators are commonly used in psychophysical experiments where sensation is studied as a function of intensity. For example, by varying amount of illumination, we can determine threshold and just noticeable difference as functions of intensity. In the same way, the experience of loudness has been shown to be a function of the energy in sound. Signal operators, on the other hand, are stimuli whose intensity varies irregularly or even negligibly in successive presentations. Perceptual experiments characteristically employ signal operators as independent variables. Thus, a sequence of figure-ground stimuli may not differ from one another in amount of luminous energy, but
may vary in configuration. A test of color sensitivity presents stimuli which differ in frequency, but not in intensity. In the auditory modality, pitch discrimination involves changes in frequency, with loudness held constant. More complex signal operators may consist of signs, as in conditioning experiments where the CS is a sign for the US. The highest level of signal operators are symbols, as, for example, the stimulus words in a word association test.

In the light of the above analysis, it is interesting to speculate that paranoid tendencies may be related to a capacity for perceptual fluency resulting in a facility at decomposing figure-ground patterns and recombining the elements into unusual configurations. Paranoid trends might perhaps be investigated by techniques designed to explore this propensity for attaching sign or symbol significance to stimuli which normals experience as simple configurations.

Perhaps one of the most important questions facing the investigator in the field of psychopathology is the relation between age and behavioral deviation. A review of the field leads one to the conclusion that every age has its peculiar susceptibility to mental disorder. Beginning with infancy and going on to later maturity, there are junctures in the development of each person which lead to disaster if the critical combination of circumstances occurs. In other words, there is no age which is free of the potential danger of mental disorder and that painful time of adolescence which the 18th century dignified as the period of *Sturm und Drang*, presents no greater opportunity for the growth of mental disorder than the other "stages of man". The dangers of being an adolescent are only as grave as the dangers of being the oldest, the youngest, or the middle child of a family. The oldest is said to be more prone to develop disorders because
he is given too much responsibility too early; the youngest, because he is maintained in a too dependent status; while the middle child suffers because he is apt to be neglected. Thus, you can't win! Being an adolescent is truly a dangerous condition. The connection between abilities, disabilities and the aging process is of some relevance here. Man seems to reach the maximum of his capacities in certain areas during the adolescent period. For example, acuity of hearing is at its peak between 13 and 15 years of age. According to Kinsey, sexual potency, at least in males, reaches its maximum at about the age of 16. We still don't know the exact relations between age and most abilities, or even when they attain their maximum, or begin to decline. Normative studies of adolescents are needed to clarify whether some of the difficulties that arise may not be due to a lack of coordination between developing abilities, and to determine which abilities reach their maxima during adolescence, so as to make the best use of them for integrative purposes.

One of the intriguing questions that faces the psychopathologist is the question of the relationship between personality and psychopathology. Three possible answers suggest themselves: 1. an individual's psychopathology is his personality, 2. psychopathology disrupts and distorts the personality, and 3. psychopathology and personality are independent of each other.

According to the first hypothesis, psychopathology is merely the flowering of a certain type of personality. It should, therefore, be possible to identify individuals who will subsequently develop certain kinds of psychopathology. Studies of large groups of people would serve to isolate the syndromes that characterise those already sick or those who will eventually become ill. Such studies would cast light on both morbid and normal personality development. Concepts like schizoid and cycloid have
arisen from this approach. Sometimes the mentally ill have been regarded as extreme deviants along a continuum whose mean represents normality.

In the second view, psychopathology is an interruption of personality development. Mental disorder is thus likened to a sudden landslide in the path of a stream. The stream circumvents the obstacle in accordance with the strength of its current and the nature of the surrounding terrain. In the same way, personality development continues despite the disturbance, but its subsequent course is diverted by the changed assets and liabilities of the patient. Consequently, the premorbid characteristics of the patient determine to a large extent the course that the illness will take. While this approach has little to offer for the understanding of the normal personality, studies of patients can be expected to indicate how illness has modified their personalities.

For the third possibility, the incidence of mental illness cannot be predicted from knowledge of the premorbid personality. Any personality can develop any type of mental illness. Psychopathology may be dependent on hereditary predisposition or on early childhood events, but the personality of the patient will yield no indication as to whether he is likely to succumb to mental disease, or as to what type of illness he might develop. This hypothesis has little to offer for the problem of normal personality development. But studies of the personalities of the mentally ill may indicate how each type of personality responds to the illness, and what differences, if any, exist between the personalities of those who eventually recover and those who do not.

The relative usefulness of these three hypotheses depends on the kinds of experiments they lead to. Many studies have searched in vain for differences in personality between those who subsequently become ill and
those who do not. Some studies have suggested that "model" children tend to develop schizophrenia (Bowman, K. M. and Raymond, A. F. A statistical study of the personality in schizophrenic patients. Proc. Assoc. Res. Nerv. Ment. Dis., 1929, 10, 48-74.) But it is at least possible that their "model" behavior was attributed retrospectively, or that they were already schizophrenic when they first came to attention. Thus, the first hypothesis, which postulates that psychopathology and personality are synonymous, has not been supported by confirmatory evidence.

If, on the other hand, psychopathology is merely a disturbance of personality development, studies attempting to relate these disturbances to premorbid personality should yield significant results. Thus far, the investigations of premorbid personalities have not revealed any significant relationships with subsequent morbid manifestations.

If we adopt the third hypothesis, that personality and psychopathology are independent of each other, we give up any hope of finding relationships between premorbid and morbid personality or any reliable personality differences between those who become mentally ill and those who do not. Instead, attention is focused on distinguishing the types of personalities who eventually improve from those who fail to improve.

If the phenomena of mental disease are the outward manifestations of impaired brain function rather than aspects of personality, a systematic exploration of the various dimensions of behavior ought to reveal the extent and the depth of defect. Biometrics is the science with the necessary techniques to: 1. provide a map for such a survey by pointing out the main avenues along which progress may be expected; 2. integrate observations obtained at different levels of function; and 3. devise new tools for the extraction of significant information.
What practical suggestions can be made for continuing research in this area? In particular, what can a school such as yours accomplish in this area? There are three directions along which you can move: basic research, applied research, or service and treatment. It seems to me that your institution is certainly too small to carry an appreciable part of the service load. Your efforts would be much better devoted to the questions of what kind of service is needed; and to whom is such service of most value. In other words, I suggest that instead of letting the Linden Hill School be merely another place where children can be sent for treatment, you regard it as a research center where methods of treatment can be evaluated by reference to objective criteria of outcome. For this purpose you need not only the inventive intuition of therapists to devise newer and better treatments as well as to carry on the older therapies, but you also need to establish baselines by evaluating the child at the moment he enters the institution and at the time he leaves, or at some predetermined follow-up period if he becomes a long-term resident. Such baselines should go beyond the usual anamnesis, including early development, intra-uterine development, psychological functioning at time of admission, attitude towards illness, and attitudes of family and community towards illness.

One of the most shocking aspects of research in the area of mental disorders is the complete absence of follow-up studies on people who are released from treatment. Next to nothing is known about the fate of patients who have been in mental hospitals after their release. In order to evaluate the nature of mental illness or the effectiveness of a given therapy, we must be prepared to follow patients for at least five years after discharge so as to gauge the caliber of their adjustment by observing their employment records, the degree of care they continue to require, and
all the other factors that are so important in determining the nature of the outcome of treatment as well as the natural course of the mental illness itself. It is to this area of research that you might well consider lending your efforts and your energies. A most disheartening finding, when we do apply this criterion of five year follow-up is that the long-term outcome of treatment is no different from that of patients who received nothing but the custodial care so prevalent before the 1930's! I do not regard this finding as evidence that the therapies are inefficacious. Quite the contrary, I have a strong belief that each therapy is valuable for some patients. But how to specify the patients for whom a specific therapy is valuable remains a problem. That is why it's important for us to determine the baselines I have mentioned and to refer the characteristics of the patient on admission to eventual outcome. Only in this way can we ever hope to find the kind of therapy which is most suited for each type of patient. But if we do not yet the baselines to begin with, and simply look at the crude figures of outcome without relating them to the nature and characteristics of the patient to begin with, we are bound to come up with results that are disheartening and disappointing. Here again, institutions such as yours, working with small groups, may make an important contribution by classifying the patients admitted and by relating these characteristics to eventual outcome. Let me just indicate to you the promise that lies buried in attempts to relate prognostic indicators to eventual outcome. For about 80 percent of the prognostic traits which are available in the literature, the results of specific therapy were no different, that is, neither better nor worse, than the results of custodial treatment. A trait such as suddenness of onset predicted good outcome both before 1930 as well as after 1930, when specific therapies were intro-
duced. For 10 percent of the remaining traits and characteristics, some of the specific therapies show an advantage over custodial care in so far as they alter a poor prognosis under non-specific therapy to a good prognosis under specific therapy. However, for another 10 percent of the traits, some of the specific therapies do worse than what one would have expected before 1930 under non-specific therapy. In other words, the kind of therapy given to the patient is not always the one most likely to improve his status. This of course, is no indictment of present therapies. On the contrary, it is an attempt to ferret out which therapy is best for which patient.

Another example of what this kind of research can uncover is the relation between outcome and "goodness" of family. We have all made the tacit assumption that the better the family attitude towards the sick person, the better are his chances of recovery. In a follow-up study at the Brooklyn State Hospital, however, we found exactly the reverse to hold true. Patients from better families had poorer outcomes and higher relapse rates. Further investigation however, led to the realization that the observed relation was no mandate for mistreating one's relatives in the hope that they will improve. The negative correlation between family attitude and outcome was due to the fact that the better families usually sent sicker patients to the state hospital and of course, sicker patients generally have a poorer outcome than milder cases. Findings such as these should make us humble in the face of our vast ignorance about the factors that determine outcome.

Summary

I have tried to point out the need for a scientific model as a starting
point in research and have explored the implications of regarding mental
disorder as either culturally or developmentally determined, or as
derived from malfunction of the internal environment of the brain. I
have gone on to indicate that it is important to develop a systematic
sampling of behavior on the physiological, sensory, perceptual, psycho-
motor and conceptual levels. I have also tried to point out that
adolescence is no worse a period than is infancy or old age with re-
spect to the hazards of mental disease. Each age including adolescence
has its peculiar vulnerability to mental illness. I have also tried
to point out some possible connections between personality and psycho-
pathology and I have proposed that we explore the hypothesis that the
relation between the two is independent. For this purpose it is im-
portant to investigate the personality of the adolescent without par-
ticular reference to supposed etiological, constitutional, or heredi-
tary factors. This hypothesis does not deny the importance of these
variables, or of environment, but subordinates them to the thesis that
anybody can develop an emotional disorder regardless of his antecedent
or his present personality structure.

Lastly, I have tried to point out that one of the most fruitful
activities for the Linden Hill School might be to try out a variety of
therapies, but in each case to examine in detail the characteristics of
the patient at the time that he enters therapy, so as to permit a later
relation of outcome to status at beginning of therapy. Such baselines
should encompass not only environmental factors, including early intra-
uterine existence, but should also include psychological performance,
attitudes, family attitudes and the role in the family and community,
so that a comprehensive picture of abilities, disabilities and
potentialities is made available. Furthermore, such studies should not be dropped when the child leaves the institution, but should continue for a period of at least five years thereafter, so as to secure a definitive evaluation of the effectiveness of therapy and in terms of the patient's subsequent career.