Understanding Mental Illness

WHAT CAUSES PSYCHIATRIC DISORDERS?

Nancy C. Andreasen M.D., Ph.D.

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e-Book 2015 International Psychotherapy Institute

From *Understanding Mental Illness* by Nancy G Andreasen

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What Causes Psychiatric Disorders?

Where there is much desire to learn, there of necessity will be much arguing, much writing, many opinions; but opinion in good men is but knowledge in the making.

AREOPAC1T1CA, JOHN MILTON

It is only natural for the person suffering from a psychiatric disorder or his relatives to ask the question "Why me?" Only one hundred years ago people would have replied to themselves that they were somehow being punished for a sin they or their forebears had committed. As we will see in the final chapter, there may be some sense in which sin and guilt do contribute to the development of illness. But ordinarily, though religion may do much to help the individual suffering from psychiatric illness, it can do little to explain its cause. Psychiatry does have a variety of theories and hypotheses concerning what causes psychiatric illness but it also has much to learn still.

The Medical Model

According to the medical model, psychiatric disorders should be considered as medical illnesses analogous to diabetes mellitus or coronary artery disease. The emphasis in this model is on carefully diagnosing each specific illness from which the patient suffers, just as

an internist would carefully determine what specific illness is causing shortness of breath in the patient who comes to see him with this complaint. It is assumed that a specific cause for each specific disease will eventually be discovered, and in the meantime the search for that specific cause is aided by carefully observing the symptoms of the illness, its course, response to treatment, and the family history of the person suffering from the illness. The search for specific causes of specific illnesses has to this point focused on two areas, biochemical aspects and genetic aspects.

Much of the thrust of current psychiatric research has been directed toward finding a chemical factor which causes psychiatric illnesses. In internal medicine, for example, the diagnosis of diabetes is made through simple blood and urine tests which give a clear-cut indication of whether a person is seriously diabetic or borderline diabetic. At present, no such clear-cut and simple technique exists in psychiatry. Psychiatrists at the present time must rely on careful observation of symptoms, clinical observations, and family background in order to determine a diagnosis. The dream of most psychiatrists is to find a laboratory test which will provide an accurate diagnosis and possibly also help identify susceptible individuals, just as the glucose tolerance test does in diabetes.

Since the early days of psychiatry, specific brain abnormalities have been sought for in individuals with psychiatric disorders. But postmortem examinations of individuals suffering from psychiatric disorders disclose no such abnormalities except in individuals suffering from organic brain syndrome, alcoholism, or syphilis. The two major psychiatric illnesses, schizophrenia and affective disorder, as well as the neuroses, show no such abnormalities. Consequently, most people feel that the problem must be at a smaller, finer level, which leads them to believe that it is probably biochemical.

The search for biochemical origins of psychiatric disorders is necessarily slow. In the first place, we have come to realize that the brain, rather than the heart, is the true physical source of life, and one dare not tamper with the brain in human beings for experimental reasons. Unlike other illnesses, such as tumors, psychiatric illness is limited to human beings and animal research yields little reliable data. Furthermore, the brain is extremely complex. Even if one were able to examine blood traveling to and from the brain, techniques for which are rather hazardous and therefore constitute unethical experimentation in human beings, one might not obtain a great deal of insight in any case. For the biochemical factors producing disorders are most likely located in a particular area of the brain and measurement of blood samples would not necessarily isolate them.

For example, we now know that Parkinson's disease, a neurological disorder, is probably due to a biochemical malfunction in the area of the brain known as the substantia nigra, which is deficient in a chemical known as dopamine. But in psychiatric disorders the malfunctioning area could be in the temporal region, which controls speech and memory, in the frontal lobe which is thought to control subtle personality functions and emotions, in the hypothalamus which controls appetites and emotions, or in the "associative" regions which interconnect various parts of the brain. As yet, none of the psychiatric disorders has been specifically localized in the same manner that Parkinson's disease has been.

A number of specific hypotheses are currently being applied in the search for a biochemical factor in psychiatric disorders. One of the most popular is the "catecholamine hypothesis" for affective disorders. Catecholamines are chemical substances stored at the ends of nerve cells connecting one cell to another, known as synapses. The release of catecholamines causes a nerve impulse to be conducted from one nerve to the next; therefore, they are known as "neurotransmitters." Unusually large amounts of catecholamines have been found in the blood and urine of people suffering from mania. Decreased amounts have also been noted in people suffering from depression. Therefore, the catecholamine hypothesis suggests that mania results from a

biochemical abnormality in the brain due to excessive amounts of catecholamines. This causes nerves to fire too often and too much, thereby leading to manic energy and excitement.

On the other hand, in depression a catecholamine deficit would produce a generalized depression of the central nervous system and thereby the psychological symptoms of depression such as decreased energy. The catecholamine hypothesis is at present simply a hypothesis and has not been definitely proved. It is to some extent borne out by the action of antidepressant drugs, which increase amounts of catecholamines in the brain.

In the case of schizophrenia, a variety of competing theories are currently operating. Since schizophrenics often are quite agitated and excited during the early stages of their illness, catecholamines have also been suggested as a possible cause of schizophrenia. A "pink spot'' has been found in the urine of acute schizophrenics and a catecholamine-like substance has been found to produce this pink spot. Taraxein (Greek, *tarassein,* meaning "to disturb") is another chemical factor which has been implicated as a cause for schizophrenia. Taraxein is a substance extracted from the blood of schizophrenics which has been claimed to produce psychotic symptoms when injected in monkeys. Yet another theory, perhaps the

most promising, suggests that the biochemical abnormality in schizophrenia is a defect in the enzymatic apparatus involved in adding methyl groups to amino acids. This hypothesis has been given partial confirmation through studies of the mechanism of action of drugs such as chlorpromazine, which is quite effective in counteracting schizophrenic symptoms and also inhibits methylation. Ultimately, the defect in schizophrenia is probably due to improper activity of neurotransmitters in a specific area of the brain, probably one of those areas which controls personality or emotions, although the defect could be diffuse.

If some psychiatric disorders are due to biochemical abnormalities in the brain, then what causes these biochemical abnormalities to occur? As in the case of other medical illnesses, this more distant cause is probably due to some type of abnormal interaction between heredity and environment. That is to say, there may be a genetic factor predisposing to psychiatric disorder which is activated by some type of disturbance in the environment. For example, diabetes mellitus tends to run in families and, therefore, a genetic factor may be involved. And yet a person with a positive family history for diabetes mellitus has a greater likelihood of developing it himself if he has poor eating habits, becomes obese, or uses alcohol excessively.

Observers have long noted that psychiatric disorders, especially schizophrenia, tend to run in families. An investigator named Kallmann did one of the earliest studies in which he attempted to determine the role of heredity. Examining twins, he found that identical twins had a 58 percent concordance rate for schizophrenia. In other words, if one twin develops the illness, then the other identical twin has a 58 percent chance of also developing it eventually. Most of the remainder show some schizophrenic traits but about 10 percent are quite normal. On the other hand, non-identical twins have only a 15 percent concordance rate. Since identical twins have the same genetic material and fraternal twins do not, these data strongly suggest that the genes play a significant role in producing schizophrenia. Of course, one wonders why 10 percent of identical twins show no symptoms of schizophrenia. This clearly implies that an environmental factor, broadly defined, must also interact with the genetic factor to produce schizophrenia. This might include a variety of factors, such as intrauterine or birth trauma, upbringing, or the stresses of adult life.

Only in schizophrenia has the genetic factor been so clearly demonstrated. There are no carefully designed twin studies or adoption studies as yet for other psychiatric disorders but family studies have been done which imply familial patterns of illness in

affective disorder, alcoholism, and hysteria. Since they have not separated environmental and hereditary factors in the experimental design, they at present do no more than suggest that hereditary factors may be involved.

What are the implications of these findings for the families of people suffering from psychiatric disorders? They will inevitably wonder whether they or their children will also inherit the disease from which their relatives suffer. There is, of course, some chance of this but one should not be unduly concerned. First of all, the odds are low, even in those disorders in which a genetic relationship has been "proved" by relatively pure research. Only about 15 percent of the siblings of schizophrenics develop the illness, and only about 16 percent of their children develop it. Secondly, environmental factors seem to play a significant role, even in individuals whose heredity may indicate a tendency to psychiatric illness. To some extent, environmental factors can and may be manipulated in order to prevent the development of the illness just as they can be in diabetes. Thirdly, the prognosis of psychiatric illnesses is no longer dismal, should such an illness develop. Relatively successful treatment programs have been developed for the illnesses in which hereditary factors may play a role, particularly affective disorder.

The Psychodynamic Model

The psychodynamic model coexists with the medical model and does not necessarily contradict it. Since drugs or shock therapy have emerged as effective ways of managing schizophrenia or depression, the psychodynamic model has begun to restrict itself to such areas as the neuroses.

Freud evolved his psychodynamic theories while in the process of treating Viennese women suffering from conversion symptoms. Usually these women had visited one neurologist after another, and none had been found who could cure their complaints. Freud received a tip from a fellow physician, Breuer, that simply letting the patient talk about her fears and concerns had been effective in treating one woman Breuer had seen. Breuer was frightened off from trying it in further patients when the woman fell in love with him and made sexual overtures to him. Freud was somewhat braver than Breuer. Although he had similar experiences with a few of his patients, he was not frightened by their infatuation with him and learned to use it as a way of explaining and interpreting to them their symptoms.

As Freud developed the “talk it through” therapy that was to become the international science of psychoanalysis, he began to develop a conceptual system to explain what he found. Basically,

Freudian theory operates on three foundations.

The first of these is the theory of the unconscious. This implies that a large proportion of our behavior arises from sources that we are not consciously aware of. For example, our dreams express unconscious wishes or thoughts which would be unacceptable to us on a conscious level. Slips of the tongue are another way that the unconscious may express itself.

A second foundation of Freudian theory is psychic determinism. This means that nothing in the mind happens by chance or at random. Each thought and action is determined by prior events or thoughts. Practically speaking, this means that adult behavior is strongly influenced by experiences in early childhood.

The third foundation of Freudian theory is the belief in infantile sexuality. Prudish Victorians, including Freud himself, were quite hesitant to accept this theory, for they preferred to think of young children as innocent and pure. And yet Freud himself, and eventually other psychologists and psychiatrists, began to see overwhelming evidence that young children are indeed aware of their sexuality and can have sexual feelings toward other people such as family members. For example, a young boy can feel a strong attachment to his mother,

be quite jealous of his father, and yet fear that his father will punish him by castration for competing with him for maternal love. Freud called such an attachment the "Oedipus complex."

In practice, these theories suggest that psychiatric disorders in adults are due to the continuing pressure of traumatic events or fears which occurred in childhood. Ordinarily, the events producing a neurosis were so traumatic that they were "repressed" and forced to operate unconsciously rather than consciously. Psychoanalytic treatment encourages the patient to "talk it through" so that he finally recovers the unconscious memory which has been repressed and thereby releases the energy which has been tied up through the repression and has produced neurotic behavior. For example, the man who never outgrew his oedipal period will in adult life have trouble establishing healthy normal relationships with male authority figures and with a woman whom he loves. He continues to unconsciously relate to other women as if they were his mother and to men in authority as if they were his father. As he relives the childhood origins of these unconscious feelings, he is eventually able to conquer them.

Psychodynamic theories are not "provable" or "testable" to the same extent that genetic or biochemical hypotheses are. They tend to be more philosophical than quantitative. Nevertheless, psychodynamic

theories have been used effectively to understand the workings of the human mind and to treat psychiatric disorders such as hysteria or anxiety neurosis. Until something better has been discovered, they perhaps provide the best explanation for the origin of the neuroses and the best insights concerning methods of treating them.

The Behavioral Model

Behaviorism developed in reaction to the Freudian psychodynamic approach. Behaviorists such as Skinner, Wolpe, or Eysenck argue that the model used by Freud and his patients to understand the human mind was "unscientific." They maintain that the proper study of mankind is human behavior rather than human thought processes. Only that which could be objectively observed and measured is allowed as evidence in understanding or treating psychiatric disorders.

Behaviorism also stands in rebellion against the medical model, with its emphasis on carefully defined diagnostic entities and on determining the cause of illness. Behaviorists believe that pathological behavior is governed by the same rules as those which govern normal behavior. From the point of view of the behaviorist, neurosis and psychosis are simply abnormal behaviors that have been learned in

the same way that normal behavior is learned. If they were more flexible or less extreme, they would be indistinguishable from normal behavior.

Behavioral theories also differ from those previously discussed in that they place no great emphasis on the causes of different kinds of behavior. Behavior theory states that a behavior is maintained by an individual because of a learned system of rewards and punishments; for example, the schizophrenic tends to withdraw and to hallucinate because he has learned that by behaving this way he will either gain positive effects or avoid negative ones. From the point of view of the behaviorists, then, treatment simply consists of teaching the individual new behavior. By rewarding the schizophrenic for more normal behavior, such as participating in social activities, and by punishing him for withdrawal, such as by giving him less appetizing meals, they feel they can teach the schizophrenic to function more effectively in society.

Just as the medical model applies most neatly to serious psychiatric disorders such as schizophrenia or depression, and the psychodynamic model applies most neatly to neuroses, the behavioral model is also applicable to certain areas. The behaviorist's emphasis on reinforcing good behavior with rewards and diminishing

unacceptable behavior through punishment is useful in child rearing, the management of alcoholism, the treatment of anxiety and phobias, and handling antisocial or criminal behavior. Although it is doubtful that behavioral techniques can cure schizophrenia, many chronically hospitalized schizophrenics have improved in social skills as a result of behavioral modification techniques. Overall, however, it offers more promise as a mode of treatment for specific sorts of disorders than as a general explanation for the cause of psychiatric disorders.