

EPIDEMIOLOGY OF MENTAL DISORDERS¹

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THE mental health movement is concerned with several different things and consists of a number of different parts. One concern, for example, is with the general welfare of children and the improvement of children's opportunities for personality development, education, and general happiness. Another part of the mental health movement is concerned with the prevention of mental diseases.

In my mind, and in this talk, these two parts of mental health work are different. What I will discuss with you today has to do only with the prevention of mental diseases. The conscious prevention of disease is accomplished when we knowingly change people's conditions of life so as to reduce the likelihood of their becoming sick. This may be done for the individual either by decreasing his tendency to react to life in pathological ways or by removing him from circumstances which tend to produce pathological reactions. For groups of people, prevention can also pursue either of these courses: groups of people can be changed so as to reduce the likelihood of a pathological reaction or, through social action, the conditions of living can be so changed that conditions which produce disorder are eliminated or made less common.

The situation regarding the prevention of mental diseases contrasts with the situation regarding the prevention of physical diseases. Millions of people die prematurely because of a failure to put knowledge to work through strong government and voluntary public health programs. We suffer because the public health movement is not as strong as its knowledge and techniques. The mental health movement, in contrast, is stronger than its knowledge. There is a readiness for mental health programs and a willingness of government to pay for

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mental health programs capable of mobilizing greater resources than are needed to prevent those few mental diseases we know how to prevent. We suffer from a shortage of established techniques for the prevention of disease. We suffer from a shortage of knowledge regarding the circumstances which favor the development of mental disorders. Our colleagues who concern themselves with physical public health, see that increased life expectancy and freedom from preventable disease could be achieved for all people if only we could find ways of bringing public health techniques to bear on every community. They, too, would like more knowledge: they would like to know how to prevent cancer, the common cold, arteriosclerosis. We who are interested in mental public health wish we had established mental health techniques with which to arm the existing mental health movement, both the voluntary associations and the government agencies. We, too, would like to see more widespread and vigorous mental health movements in more communities. Both groups need more techniques and more organized health movements. But the main problem for those concerned with physical health is the development of organizations and administration, while our main problem is the development of knowledge and techniques for the control of disease in populations.

To prevent disease one must know what changes need to be made. This means that one must know what states of the organism are likely to react pathologically and what conditions of life are likely to produce pathological reactions. To get this knowledge one must find out what kind of people develop pathological reactions and what circumstances favor the development of pathological reactions. This means that we must understand the distribution of diseases in populations. The study of the distribution of diseases in populations is called epidemiology. Because preventive work depends on this kind of knowledge, epidemiology has been correctly called the basic science of preventive medicine. What I wish to discuss with you then, is the basic science of preventive psychiatry.

It might seem to some of you that using the name “epidemiology” to describe this field of research makes obscure what would otherwise be very clear. I do not myself, think that it helps very much and there is a danger that a new combination of words encourages magical thinking instead of common sense. But I think it does help to recognize that the basic science of preventive psychiatry is epidemiology because then we can learn something from epidemiologists—we can use the experience gained in studying the epidemiology of nonpsychiatric conditions in tackling our own problems. It may help those unfamiliar with this public health term to realize that it comes from the Greek term meaning “upon the people.” This root gives us the word “epidemic” which refers to a disease suddenly imposed on a people. It also gives us the term “epidemiology” which is the study of the patterns of occurrence of disease among the people. Explosive epidemics is only one such pattern of occurrence; endemic diseases common to a large proportion of a population is another pattern. Epidemiologists have developed rather refined techniques for characterizing the patterns of occurrence of various diseases in populations. I believe that epidemiologists have a contribution to make to mental health work and a few are beginning to show some interest in making their contribution.

We sometimes forget that mental health programs always make epidemiological assumptions. For example, if a preventive program calls for the home delivery of babies whenever possible in order to strengthen the relations between mother and child, and calls for this in the name of prevention, this program assumes that children born at home will have fewer of certain mental disorders than children born in hospital. If we ask what the evidence for this assumption is we will find no direct evidence at all. Instead, we find a series of inferences based on clinical experience with sick children and adults, elaborated in the framework of some general theories of personality development, family relationships and the conditions favoring mental disorders. The facts themselves are open to

suspicion, the inferences do not flow with watertight logic from the supposed facts, and the general theories are more a fashion than established knowledge. This does not mean that the assumption is wrong in fact. It does not mean that the program is a bad program. It means we do not know, and that we need more information before we can be sure. If we were to try to find out whether children born at home had a lower frequency of mental disorders than children born in hospital, we would have to make an epidemiological study. This could be done with our present technical skills, but it has not been done yet.

The same can be said about most mental health preventive programs. Whenever we undertake to prevent disorder we assume we know the conditions which favor the disorder and the conditions which make it unlikely to occur. If we wish to make our programs effective we will need much more information than we now have as to what those conditions are.

In this talk I am going to speak first about epidemic phenomena in psychiatry. Later I will speak about mental disorders which are related to special events. After that I will discuss some of the work which suggests that the distribution of certain mental disorders is affected by the general environment in which a population lives. I take it for granted that these matters are of importance to those who are interested in preventing mental disorders.

Some of the disorders of mental life have the characteristics of outbreaks, of mass disorders, of herd pathology, of epidemics. One such was described by J. F. C. Hecker (1) as "Die Tanzwuth, Eine Volkskrankheit im Mittelalter." These dancing manias have a particular value in this discussion because they were mass illnesses of a particular time and place, had a seasonal distribution, and were of a definitely epidemic nature. They were well recorded both by physicians and other observers. Sigerist (2) abstracts contemporary description as follows:

The disease occurred at the height of the summer heat, in

July and August, and particularly during the dog days. People, asleep or awake, would suddenly jump up, feeling an acute pain like the sting of a bee. Some saw the spider, others did not, but they knew that it must be the tarantula. They ran out of the house into the street, to the market place, dancing in great excitement. Soon they were joined by others who like them had just been bitten, or by people who had been stung in previous years, for the disease was never quite cured. The poison remained in the body and was reactivated every year by the heat of summer. People were known to have relapsed every summer for thirty years . . .

Thus groups of patients would gather, dancing wildly in the queerest attire. "Sometimes their fancy leads them to rich clothes, curious vests and necklaces and suchlike ornaments [reported Baglivi]. They are most delighted with clothes of a gay color, for the most part red, green and yellow. On the other hand, they cannot endure black; the very sight of it sets them asighing and if any of those that stand about them are clad in that color, they are ready to beat them and bid them be gone." Others would tear their clothes and show their nakedness, losing all sense of modesty. . . . Some called for swords and acted like fencers, others for whips and beat each other. Women called for mirrors, sighed and howled, making indecent motions. Some of them had still stranger fancies, liked to be tossed in the air, dug holes in the ground and rolled themselves in the dirt like swine. They all drank wine plentifully and sang and talked like drunken people. And all the while they danced and danced madly to the sound of music.

Music and dancing were the only effective remedies, and people were known to have died within an hour or a few days because music was not available. A member of Dr. Ferdinandus' own family, his cousin Francesco Franco, died thus within 24 hours because no musician could be found after he had been stung.

Sigerist has shown that this epidemic illness of the past can be analyzed retrospectively and that hypothetical explanations of the outbreaks may be constructed from the existing records. The advantage of discussing a disease which has not

occurred in the last hundred years, is that it impresses on us the fact that mental disorders change with time, that they are changeable; the disadvantage of discussing a disease unknown for the past century is that no one in the room has seen a case and no modern psychiatric examinations were made. For this reason I will not describe these fascinating outbreaks further. However, the great epidemiologist Hecker also dealt briefly with other mass phenomena, particularly the convulsionnaires and the epidemics of fainting which occurred in a number of settings. Bechterew (3) also described many similar epidemics in his monograph of 1905. Epidemic outbreaks of fainting and other phenomena still occur and can be studied. For example, Kräupl Taylor (4) recently described an outbreak of delusional thinking on a ward at the Maudsley Hospital, London. An outbreak of suicide was reported from Paris a few years ago. In the United States an outbreak of hysterical paralysis with delusions of poisoning occurred during the early years of the Second World War. (5) And we must not forget the possibility that some of the events at Lourdes and some of the fashions in medical treatments, as described by Penrose, (6) may well be capable of the same kind of analysis.

A more modern form of group psychopathology occurs in household outbreaks. I use the term household outbreaks here to avoid assumptions implied in the clinical terms "folie à deux," "folie communiquée," "folie simultanée," and folie imposée." It is perhaps of interest that our clinical terms for these small-scale outbreaks are all French and derive from descriptions of groups of cases which appeared in the French literature during the 19th century. This is not the place to enter into a description of the types of disorder and patterns of relationships which occur in these outbreaks. Examples occur from time to time and are reported in the literature. There is reason to believe that many more instances occur than are reported. Etiological explanations and treatment programs are not agreed upon by clinicians. In fact, the ideas about mental disorders which dominate clinical work make it hard to account

for these cases, since the symptomatic disorder is generally regarded as a product of the patient's history—that is either by the nature of the genes which combined at the time of conception or of his later physical or interpersonal history. In fact, many clinical psychiatrists resist the idea of an epidemiology of mental disorders because they wrongly believe that epidemiology deals only with epidemics, and absolutely wrongly believe that epidemics of mental disorder do not occur. The whole history of mankind to the contrary notwithstanding, there is a tendency to think that ideas, attitudes, ways of thinking, and patterns of behavior are not communicable from man to man! There is also an unwillingness to give full recognition to the obvious fact that no man develops an idea, an attitude, or a pattern of action all by himself with no help from anyone else—that these things are developed within groups of people and within cultures, sometimes very special and small intimate cultures. It is striking that in many of the case reports in the literature of household outbreaks different members of the epidemics receive different diagnoses by the psychiatrists. It is important to ask, when this happens, what relationship the diagnosis has to the disturbance for which the patient is seen clinically. Many reports imply that only one of the group was really sick and that the others only appear to be sick, or have their sickness (or its appearance) “imposed” on them by the primary case. In reading over these case reports I have often been led to ask myself whether the “primary” case would have become disturbed if he had been living with different associates.

The function of suggestion in mental illness requires much more extensive investigation, not only because we need to understand the epidemics of mental disorder referred to above, but for other reasons as well. The role of suggestion in hypnosis is in a way obvious. Its role in other forms of psychotherapy is also often clear—sometimes clearer to outsiders than to the psychotherapist! A more subtle form of suggestion exercised by psychiatric facilities is well described by Cam-

eron in the following discussion of open and closed psychiatric hospitals, which obviously derives from Pinel:

Those who have worked both in maximum-security, locked hospitals and in open hospitals can have little doubt that many of the more difficult problems are created by the methods used in handling patients. Throughout the entire life of an individual, society is actively engaged in rendering that individual as responsive as possible to the restraints and the imperatives imposed by his group: capacities for experiencing guilt and shame, capacities for responding to motivations, longings for conformity and acceptance are set up in everyone with the greatest assiduity from the time he is born, and this process is continued throughout his whole life. If an individual, thus heavily conditioned to respond to the anticipations of his group, is reset in a closed, maximal-security hospital, then all his surroundings — the stripped-down room, the protected window, the innocuous cutlery, the counting-in and counting-out, the continuously watching attendant and nurse — all must conspire to convey to the patient the anticipation that what the group now expects of him is uncontrolled, irresponsible, impulsive, and destructive behavior. And, as is well known, this often is just precisely what happens. (7)

It is clear that such ideas, patterns of thinking, patterns of behavior, attitudes and what is often called “defense mechanisms” may be transmitted through suggestion and spread through groups. Only the most primitive types of studies have been done on this kind of phenomenon, although the literature is fairly extensive. It is important to realize that an understanding of the conditions under which healthy and unhealthy patterns are transmitted and gain currency would be of enormous values even if one remained powerless to change the distribution of diagnoses in a population. The diagnosis in itself is often not disabling, but the behavior or thought pattern can be. As Pinel showed long ago, and others are showing every day in the best mental hospitals, people with serious diseases can either be encouraged to have symptoms destructive to themselves or others or encouraged to live relatively undis-

turbed and useful lives. Undue preoccupation with the diagnosis blinds us to a recognition of what is modifiable in behavior and mode of functioning. At the present time I can see no reason for assuming that attitudes, ideas, thinking patterns, and behavior patterns are transmitted to and among mentally ill persons by different means, or according to different laws of interpersonal relations than the same things are transmitted among people who are not mentally ill. I believe that it will be fruitful for future research to follow the dictum of Albrecht Haller which was used by Virchow: *Pathologia physiologiam illustrat.* (8)

Another pattern of occurrence of mental disorders which has been successfully investigated, to a limited extent, has to do with previous special events in the life of the organism. I would like to cite two examples of this type of research, of which much more is needed. Pasamanick, Lilienfeld and Knoblock (9) have shown that there is a relationship between certain complications of pregnancy and mental deficiency and behavioral disturbances. Since the relationship between rubella during pregnancy and congenital malformations was discovered by Gregg (10) there has been much speculation regarding other insults during fetal life which could permanently affect brain development without causing death. Available evidence suggests strongly that there are a wide variety of such insults—malnutrition, temporary anoxia, trauma, intercurrent infections, metabolic disorders—which may have such effects. The nature of the insult is not apparently relevant while the stage of development of the fetus appears more important. The effects on intellectual development, emotional stability and so forth require further investigation. However, the work done so far in epidemiology by Pasamanick and his colleagues and on experimental teratology by Ingals, are of prime importance for two reasons: first, they open up new vistas for the prevention of various forms of congenital brain disorders and second because they are fine examples of how such studies may be carried out.

Bowlby's (11) summary of the evidence regarding institutionalized children is, of course, known to all of you. This work, and those which have followed it, contain a number of epidemiological hypotheses which need further investigation. One such hypothesis is stated by Laurretta Bender in an article titled "There is No Substitute for Family Life." (12) She says that children can only learn to have deep affectionate ties during the first years of life and can only learn this by reflecting the affection emanating from a continuing nurturant mother figure within the framework of family life. Only through the pattern set up by families can children learn to regulate their daily lives, acquire a sense of time and of timeliness, of space and of personal identities. Only with such an armamentarium can a child govern his feelings and behavior by a concept of the future and of future relationships. This is a credible and testable hypothesis. Although it is difficult to unravel all the intriguing side issues—such as what is the consequence of *bad* (that is, disorganized, nonaffectionate) family life—this can be done.

Some workers have related the findings on the primary psychopath who has been deprived of familial upbringing during his early years, to the presumed effect of abrupt and disturbing separations from a loving mother and an affectionate home. This is dramatized in the film by Bowlby and Robertson "A Two-Year-Old Goes to the Hospital." Hospital separations from mother are often unnecessarily disturbing to children; this is an undoubtable fact for anyone who looks around him. Separations can be made less disturbing; this is obvious to anyone with imagination. They should be made less disturbing by all possible means; this is obvious to anyone with any human sympathy. The effect of disturbing separations from mother is permanent, serious and later disabling; this proposition is credible and testable. We should know. We do not know. We know how to find out.

Some mental health moralists have found encouragement in the Bowlby monograph for the belief that mothers should

be enslaved by young children and ought not to leave young children with sitters while they go to the movies. This viewpoint is not supported by any studies cited by Bowlby but is supported by certain professional attitudes of hostility towards mothers and by ideas that children are and should be incapable of having any affectionate relations with anyone else. It is also supported by feelings of inadequacy and guilt in many young mothers. As a part of mental health programs it is completely unsupported by evidence of harmful effects following such separations of mother and child. Since we are ignorant of the facts it is not possible to say that leaving young children for an evening or a weekend is unrelated to later mental disorders. We do not know whether or not this is the case. It is possible, however, to be reasonably suspicious of the idea, since it is so obviously a product of certain social trends which see women's role defined by the phrase "*Kinder, Kirche und Küche.*"

If we believe that treatment programs sometimes improve community mental health, we make the same kind of assumptions and these assumptions may be tested by the same epidemiological methods. Instead of the belief that prenatal damage leads to mental deficiency, or the assumption that lack of a primary mother relationship leads to primary psychopathy, we focus on the belief that a sick population provided with a certain treatment will have less pathology than another equally sick population not exposed to this treatment. The methods of research are the same and the findings can be of great importance. Professor Paul Hoch has recently pointed out that the disability suffered by epileptics and diabetics can be greatly reduced by the suppression of symptoms. Even when we cannot prevent the occurrence of disease we can sometimes develop techniques for the control of the most destructive symptoms. Dr. Hoch suggests that this may turn out to be the case for some forms of chronic schizophrenia when treated with the so-called tranquilizing drugs. It is also reasonable to hope that the systematic provision of re-education for

community living can reduce the disability suffered by people with various chronic psychoses and character disorders.

The effect of the environment on the distribution of various mental disorders has been the subject of a few studies, but of even more speculation.

There are two simple and important ways of sorting populations so as to compare the occurrence of different forms of pathology. One is by sex and the other is by age. In the extreme form observations regarding the differential distribution of disorders state that a form of pathology known to occur in one population does not occur in another population. Thus some have said that hysteria is confined to females. This, however, we know not to be true. Schizophrenia was thought for a time to be characteristic of certain age periods; but this is now open to doubt. These extreme distributions are, of course, of enormous value if well established since they would give us crucial information on the situations which favor the development of pathology. Intercultural studies would be of great value if they were of a high enough quality to yield reliable information. To know that going amok only occurs in certain populations would be very valuable if first, we knew it to be true, and second, we knew just what form of pathology it represented. A clear understanding of the clinical condition is necessary to know what it is which has this peculiar distribution. But it is also needed if we are to know that the peculiar distribution occurs, since without a clear clinical picture we cannot know whether the same or similar forms of disorder do occur in other cultures. Another difficulty—which certainly can be overcome—has to do with the application of the same criteria in different cultures. Those who are seeking for cases in two different cultures must be equally familiar with the two cultures and be able to recognize that informants in two different cultures may react differently to the same disorder and so provide the investigator with information of unequal intensity regarding the presence of the disorder. It is not necessary to go to the far ends of the earth or to primitive cultures

to gain experience with this kind of variation. Tietze gives an instructive illustration from the attempts to study the prevalence of disorders in Baltimore over a period of years. In the first survey, more cases were found in men than in the second survey, which occurred in 1936. Tietze attributes this to a changing attitude on the part of informants. In the earlier survey the informants assumed there must be something wrong with all men who were unemployed, and found psychopathological explanations to their own and the investigators' satisfaction. By 1936, however, the informants began to realize that unemployment could have other than psychopathological causes and no longer saw the unemployed men as having something wrong with them. (13) Variation by age and sex presents the same problem. The more one studies the puzzling distribution by age of mental retardation (14), the more clearly one will see that we do not have the same definition of mental deficiency for different age groups and that we have not yet done the necessary job of defining mental retardation in terms equally applicable to all age groups. The same may be said for schizophrenia, involuntional melancholia, reactive depressions, and a number of other syndromes. Suicide, which is easier to define so that it may be studied equally intensely in both sexes and at different ages shows some marked regular patterns with age and sex. Although the studies of Durkheim, Halbwachs, Sainsbury, and Murphy on variations in suicide rate by different social groups have received more attention, it is highly worthwhile to pay careful attention to variations by age and sex.

Variations by social class are currently receiving increasing interest in the United States. The prevalence of a number of pathological states in different class groups has been shown to be higher in populations with lower socio-economic status. Schizophrenia in Chicago, Providence, New Haven, Buffalo, and other places has been shown to have this overall pattern by various methods of study. Alexander Leighton and the late Thomas Rennie have both shown such variations to be true of

a large number of symptoms, one in a small village and the other in a large metropolitan area. The studies with which I have been associated in Syracuse have shown a similar pattern for psychoses among people over 65. (15) Studies in Syracuse have also tended to show a higher prevalence of reported mental deficiency in the most economically and socially depressed section of the City. Sainsbury's recent London Studies on suicide, Murphy's studies in Singapore, Sundby's and Ødegaard's studies in Norway, and others have shown variations with various features of the social environment. (16)

It is important to recognize that this pattern does not hold for all forms of illness. It does appear to be the case for some. Such general relations, while they do not give us detailed insight into the mechanism by which disorders develop are useful. They help to give us perspective in interpreting other more detailed studies. They also help to provide some orientation regarding prevention programs.

Illnesses of populations, we have seen, may be studied in terms of relationship between cases, in terms of a common previous experience, and in terms of disease distribution in different populations. This classification of relationships is not suggested as of fundamental importance, but simply as a convenience for the present discussion. Without going into detail I have assumed the privilege of referring to schizophrenia, suicide, hysteria, mental deficiency, and other categories of pathology as if they were all equally good objects for epidemiological investigation. It seems to me that they are. These terms refer to different disordered states or to different features of disordered states and the basic principles of epidemiological study are equally applicable to all of them. On the other hand, each has a different meaning and epidemiological knowledge has different values depending on what we have studied. It is not always easy to relate epidemiological findings to clinical or theoretical problems. There is a certain amount of luck involved in acquiring bits of information which fall into a pattern as soon as they are acquired. Because the

field of mental health is so broad and is at such an early stage of development, it may be worthwhile to sketch out a general framework for relating various forms of pathology to one another.

First, we would like to be very scientific and concentrate on etiologically defined disease entities. Such studies are useful in the transition from the discovery of etiologically defined entities to the development of systematic preventive programs. Unfortunately, in psychiatry, such entities have not yet been identified for the most part. Some mental disorders are related to etiologically defined diseases such as general paresis, pellagra, cretinism, post-traumatic psychoses. In each such instance the mental disorder is but one of many consequences of the disease, so that epidemiological research into the etiologically defined disease treats the mental disorder as but one of the many manifestations of the disease. In such an instance we are dealing with a simple cause which has multiple consequences. The studies on prenatal brain injury referred to earlier are similar in this respect, except that it would appear that psychological manifestations are sometimes the main evidence of the diseased state. One recent suggestion in psychiatry has the merit of advancing the proposal that there may be a disease defined etiologically in terms of the total absence of a primary emotional relationship in early childhood. Although the evidence for the existence of such an etiologically defined psychiatric entity is insufficient, it is a possibility capable of further investigation. Whether or not such investigation confirms the existence of such an etiologically defined disease, the suggestion is laudable because it draws attention to the need to advance straightforward etiological hypotheses.

Then there are a group of "diagnoses" we make in psychiatry which are descriptive in nature. We group cases together because of a common set of signs and symptoms and historical development of the illness. These descriptive diagnoses can also be studied. The epidemiology of schizophrenia, manic-depressive psychoses, motor-hysteria, obsessive-compulsive neuroses,

etc., can be studied. Many of the studies which have been made have been preoccupied with genetic relations between cases. These descriptive entities stand midway between the etiologically defined diseases (where we are interested in all the manifestations of a single cause) and the symptoms which are worth studying in themselves.

Certain symptoms are of great importance in themselves, either because they are so disabling or are in themselves damaging. For example, the epileptic convulsion is extremely disabling and many convulsions can be damaging in the long run to mental functioning. This single symptom is known to have many causes. Yet it is worthwhile to know how commonly the symptom occurs and under what circumstances the symptom is common as this helps to gain mastery over the symptom. The same can be said for hypoglycemia due to diabetes, even though the range of diseases causing hypoglycemia is much smaller. Epidemiological study of certain psychiatric symptoms is likewise of importance. It is well known for example that there is a vast range of diagnoses, etiological as well as descriptive, associated with suicide. Yet suicide is a vitally important symptom and many studies attest to the fact that this symptom has epidemiological characteristics rather independent of the distribution of psychiatric diagnoses. The same may be said for juvenile delinquency, alcohol addiction, opium addiction, school failures, reading disabilities, low intelligence test performance, paranoid thinking, phobias, etc. These symptoms may be characterized as patterns of behavior, patterns of thinking, attitudes, or ideas. Sometimes these are studied under the name of traits, symptoms, or defense mechanisms. Examples of such studies may be seen in recent Scandinavian work by Ekblad and others. (17) Opler (18) has recently shown in New York that young schizophrenic men from Italian families have different symptoms than young schizophrenic men from Irish families and that these differences are similar to the differences in characteristic personality patterns of the nonschizophrenic young

men from these two national groups. Two obvious characteristics are worthy of some attention. First, many people exhibit these symptoms without exhibiting either an etiologically defined disease or a descriptive psychiatric entity—this means that their distribution in the population overlaps people who are not suffering from mental diseases. Secondly, behavior patterns, thinking patterns, ideas, and attitudes are socially developed and this is undoubtedly true of those associated with disease as well as those not associated with disease. For this reason, it is sensible when studying the epidemiology of symptoms to pay particular attention to the social and cultural environment and to the relation between cases. The occurrence of the symptom can probably be understood only if all the instances of symptom formation are studied, those in people who have diagnosable diseases as well as those who do not. It is worth reemphasizing that great good can be done by reducing the frequency of certain behavior patterns in a population even when one is powerless to control the distribution of etiologically defined diseases or descriptive diagnostic entities. Alcohol and opiate addiction are obvious examples, as are suicide and juvenile delinquency.

Symptomatic responses to inner or outer stress, whether or not they are connected with the existence of disease, are particularly suitable for epidemiological searches for connections between cases and for relationships with the social and cultural environment of cases.

Etiologically defined diseases are particularly suitable for prospective studies which start with a population known to have been exposed to the cause of the disease compared with a population known to have been spared such an exposure. Such studies can bring out the many manifestations of the disease. They can elucidate the natural history of the disease. Pasamanick's studies on the consequences of complications of pregnancy have been mentioned. Dr. Hilda Lewis (19) in England has studied the relationship between separations and later psychopathology. In Holland, studies are being made on

the consequences of separations from families during the floods several years ago. Etiologically defined diseases need to be studied in terms of the conditions under which populations become exposed to the cause, and there are needs for studies of the distribution of the causes. Only if there is reason to suppose that the causative agent may be transmitted from one person to another is it necessary to study the relationship between cases.

Descriptively defined entities do not call for any particular type of study, but are amenable to any type which is in conformity with reasonable suspicions about the nature of the disease. Outstanding studies have been made by Lin (20) in Formosa; Bremer (21), Ødegaard (22), Larson and Sjögren (23) and others in Scandinavia; Murphy (24) in Singapore; Mayer-Gross (25) in England, and by others in various countries. One of the commonest faults of studies which have been made of the descriptively defined disease entities is a failure to distinguish between social inheritance and gene inheritance: there has been a fascination with familial patterns of disease. (26) Another fault, to which studies of descriptive entities are particularly prone is a failure to eliminate built-in epidemiological hypotheses from the definition of the disease. Thus morbidity surveys have been made on the assumption that schizophrenia is a life-long, usually progressive disorder, but find that the prevalence of cases falls off with age.

Our colleagues who are concerned with the prevention of physical diseases are way ahead of us because they know so much more about the etiology and the epidemiology of some of the major physical diseases. Only by recognizing that we need knowledge of these characteristics of disease can we mobilize the energy and work necessary to correct this situation. Generally speaking, research is of world-wide value. This is always true of laboratory research and clinical research and is commonly so with epidemiological research. However, each community must study the pattern of occurrence of mental disorders in its own population since the mental health problems

of each community are special. Only if we know what the special problems are in our own community can we plan our programs intelligently and effectively. There are many hopeful signs that the next few decades will produce vast amounts of new knowledge regarding the epidemiology of mental diseases, and as this knowledge increases we will be able to plan and execute definite programs for the prevention of mental diseases.

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