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**EPIDEMIOLOGY  
OF MENTAL DISORDERS**

**Eighth Report  
of the Expert Committee on  
Mental Health**

	Page
1. The epidemiological approach in psychiatry . . . . .	4
2. Epidemiology and psychiatric classification . . . . .	7
3. Epidemiological methods in operational studies . . . . .	10
4. Epidemiological methods in clinical studies . . . . .	13
5. The conduct of field surveys . . . . .	14
6. The place of experiment in epidemiological studies . . . . .	19
7. Staffing for epidemiological work . . . . .	19
8. Suggestions for research . . . . .	22

WORLD HEALTH ORGANIZATION

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## EXPERT COMMITTEE ON MENTAL HEALTH

Geneva, 8-13 June 1959

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## **EPIDEMIOLOGY OF MENTAL DISORDERS**

### **Eighth Report of the Expert Committee on Mental Health \***

The WHO Expert Committee on Mental Health met in Geneva, from 8 to 13 June 1959, to discuss the epidemiology of mental disorders.

The meeting was opened by Dr P. M. Kaul, Assistant Director-General of the World Health Organization. After welcoming the members of the Committee, Dr Kaul said that effective prevention of mental disorders must be based on accurate knowledge about prevalence and incidence, and on reliable information about the absolute and relative weight of various causal factors. As it was generally accepted that one of the most promising ways of obtaining such data was through the study of the mass aspects of diseases and the comparative investigation of disease distribution in time and space, it seemed time to pay attention to what was nowadays called the "epidemiology" of mental disorders. Dr Kaul pointed out that a great deal of preparation had preceded this meeting and mentioned in this connexion the assistance rendered by several consultants and by the Milbank Memorial Fund in New York. He also referred to a previous technical meeting held in September 1958, at the London School of Hygiene and Tropical Medicine, which had been sponsored jointly by the Milbank Memorial Fund, the British Medical Research Council, the World Federation for Mental Health, and the World Health Organization, and to another technical meeting held in February 1959, in New York, which had been organized by the American Psychopathological Association with the assistance of the National Institute of Mental Health of the United States of America, and in which the World Health Organization had collaborated. Dr Kaul expressed the hope that the present Expert Committee meeting would help to define the practical goals which, with sound methodology, could be reached in this field, and stressed its significance for national planning and for the development of preventive activities which would be based on definite and unquestionable facts.

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\* The Executive Board, at its twenty-fifth session, adopted the following resolution:  
The Executive Board

1. NOTES the eighth report of the Expert Committee on Mental Health (Epidemiology of Mental Disorders);
2. THANKS the members of the Expert Committee for their work; and
3. AUTHORIZES the publication of the report.

(Resolution EB25.R9, *Off. Rec. Wld Hlth Org.*, 1960, 99)

Dr Ö. Ödegaard was elected Chairman and Dr E. Stengel, Vice-Chairman; Dr A. H. Leighton and Dr Tsung-yi Lin were elected Rapporteurs. The draft agenda was adopted.

### 1. THE EPIDEMIOLOGICAL APPROACH IN PSYCHIATRY

Historically, psychiatry has been predominantly concerned with the care of the individual patient. But it has become increasingly evident that, in the words of the second report of the WHO Expert Committee on Mental Health,<sup>1</sup> it is "equally incumbent on psychiatrists to recognize their responsibility to public health practice". The same report states that "the public health worker needs the support of the psychiatrist . . . in handling those problems which are beyond his competence" and rightly deplores the fact that comparatively few psychiatrists "have shown interest in the opportunity for preventive mental health work which the public health services present". Not all psychiatrists, however, have been exclusively preoccupied with the clinical problem of the individual patient. Prominent among the psychiatric pioneers who tried to view mental disorder in the wider setting of the community were Rush, Pinel and Esquirol. In the last decade of the nineteenth century, Kraepelin stimulated some of his collaborators like Koller and Jost to compare the frequency of insanity in the families of hospital patients and in the relatives of healthy individuals. Later he himself compared the mental pathology of Indonesians and Central Americans, on the one hand, and of Europeans, on the other. Members of his school, such as Rüdin, Weinberg, Luxenburger, Brugger and Schulz, continued research in this field mostly from the point of view of the etiological significance of genetic factors. Simultaneously, similar interests developed both in Scandinavian and in English-speaking countries. Although at first the orientation of this work was mainly genetic, it soon spread into the wider field of the distribution of mental disorder within communities and in differing circumstances; and there was an increasing interest in causal factors of an environmental nature.

At the same time, it became increasingly apparent that the problems of studying personal susceptibility and the modifying effects of environment or habits on the risks of attack were essentially similar in the communicable diseases and in other kinds of human illness. Consequently, the methods which had been used so successfully in uncovering the origin and mode of spread of diseases associated with microbial infection came to be increasingly applied in the study of mental disorders and the use of the term "epidemiology" to imply the study of their distribution and

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<sup>1</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1951, 31

behaviour in differing conditions of life in human communities became widely accepted.

### 1.1 Potential uses

The epidemiological approach in psychiatry can be used for two main purposes, which are, of course, to a certain extent inter-related. It can be employed in what may be called "operational research" to elicit facts about treated and untreated disease in the community which are needed for the intelligent administration of psychiatric services. It can also be used in clinical work to discover those features of the habits, organization or environments of human populations which may affect the onset or course of mental disorders, and to assess their relative importance in the etiological structure of such conditions.

Public health administrators must have estimates of both present and future demands and needs for psychiatric services, and these requirements differ according to geographical conditions, the social organization, and the age and structure of particular populations. Moreover, they must study the functional efficiency of psychiatric services, existing or planned, in relation to these demands and needs. The epidemiological approach will therefore be necessary for assessing the prevalence and incidence of psychiatric disorders in specified population groups, the use made of existing services by the population concerned, and the changes in this use that are likely to result from projected changes in the existing arrangements. This type of approach is clearly of special importance in those areas where psychiatric services are not yet either numerous or varied. But it is hardly less important in other regions where the services are already more or less highly developed, since the progress of psychiatry demands constant adaptive changes—affecting both material facilities and staffing—in the organization of services.

The role of epidemiology in clinical research is to seek clues to the causation of disease. The comparison of the disease experience of population groups in relation to various factors—time, space, sex, age, occupation, social situation, etc.—should allow the contrasting of groups which are similar in many respects and dissimilar in only one or two. In this way, it may be possible to identify the social or other groups which are particularly affected and to suggest etiological factors which might explain specific susceptibility to diseases, or the forms in which they are manifested. When such factors can be changed by human action, methods of disease control based on their probable role can be put to the test by trials in the field. This sort of approach is clearly of less immediate utility than operational research. In the long run, however, its practical importance may be even greater. In fact, only when the "natural history" of a disease—that is, its evolution over long periods in clearly defined circumstances—

has been determined in a particular population will there be possibilities for devising measures for its control and prevention which are not based on mere speculation. Experience in the field of epidemiological research in malignant or cardio-respiratory disease, for example, suggests the immediate usefulness of investigations of this type in public health practice ; and there is reason to believe that much benefit can be derived from the use of this approach in psychiatry.

### 1.2 Specific problems

Since mental disorders are in some ways different from other diseases, their epidemiological investigation presents a number of special problems. One is that there are individual factors in the causes and manifestations of many psychiatric diseases which, for instance, because, they belong to the sphere of values, cannot be fully quantified. However, all psychiatric disorders have, at the same time, general and undoubtedly quantifiable aspects and, as these are usually the most important for medical action, it will be possible to disregard the strictly individual aspects, at least from the public health point of view.

A more serious difficulty is that the etiology of mental disorder is essentially multifactorial in nature, probably to a higher degree than that of most other diseases. In few branches of medicine are genetic, physiological and psychological factors as evenly distributed in the origin and evolution of disease as in psychiatry. Incongruities in the diagnostic appraisal in different countries and schools are thus hardly surprising. There is in many places a tendency to base diagnosis not on the describable characters of the disorder but on a theoretical genetic or psychodynamic interpretation of etiology and pathogenesis. The resulting confusion is occasionally enhanced by a tendency to use technical terms in different senses according to the theory favoured.

Again, there are considerable social and cultural differences in what is considered psychically abnormal in different surroundings, and in the way such abnormality is treated. This depends on the attitude of the community to unusual behaviour, its opinions about the value of psychiatric care, and the facilities for such care which are actually available. Moreover, recent studies have shown that the social background of the psychiatrist may affect his diagnosis of patients of other classes. Diagnostic usage in the appraisal of mental disorder also appears to vary between psychiatrists working in hospitals and those in private practice, and between psychiatrists and physicians engaged either in general practice or in other branches of medicine.

Finally, it must be pointed out that human character and behaviour deviations show infinite variations ranging from severe psychosis to mild personality disorders which many would not consider to be the concern of

psychiatry. Particularly in cases of a non-psychotic nature the question often arises whether information on factors making for mental health is not more important than information on the possible causes of mental disorder. Since this field is as yet very little explored, the fact must be faced that the epidemiology of mental disorder lacks all too often the complement of what has sometimes unfortunately been called the "epidemiology of mental health".

The Committee realizes that these problems may make it difficult to advance in the study of the epidemiology of mental disorders as quickly and consistently as might be hoped. On the other hand, it believes that a full awareness of the problems mentioned should help in avoiding the more obvious pitfalls and allow for the useful application of epidemiological principles in the field of mental health.

## 2. EPIDEMIOLOGY AND PSYCHIATRIC CLASSIFICATION

One of the basic requirements of epidemiology is a generally accepted system of statistical classification which allows data obtained by various investigators to be confidently compared. The lack of a common classification of mental disorders has repeatedly defeated attempts at comparing psychiatric observations and the results of treatment undertaken in various countries and even in various centres in the same country. Although a great deal of time and effort has been spent on seeking a generally acceptable system, no satisfactory solution has yet been reached.

One reason for this failure is that the problem of classification is often confused with that of nomenclature. Though linked with each other the two are not identical and in some respects are even opposed to each other. The function of a nomenclature of diseases is to provide a list of terms for describing morbid conditions as clearly and fully as possible. It therefore has to be extensive and unlimited in scope and detail to allow for the recording of the manifold variations of ill health. A classification, on the other hand, particularly if drawn up for vital statistical purposes, is designed to group pathological conditions which have essential characteristics in common. It therefore contains only a strictly limited number of categories chosen for their usefulness in the numerical study of disease phenomena.

Another obstacle to a common classification is that psychiatrists tend to make individualized diagnoses and therefore oppose any scheme which seems to force them into diagnostic generalizations. This attitude is unjustified since a statistical classification, which may be provisional and based on agreed definitions adopted for specified operational purposes, is normally only used as a tool of communication. The usefulness of a generally accepted classification scheme is not diminished by the fact

that the classifications which are in current use today neither establish a coherent arrangement of disease entities (such as general paralysis), nor can they give proper attention to the uniqueness of every individual case.

### 2.1 The International Statistical Classification of Diseases (ICD)

Some critical comments on Section V of the International Statistical Classification of Diseases (ICD),<sup>1</sup> which deals solely with mental disorders, will help to clarify the matter further. This section is unique in having been ignored or rejected in most countries; in fact it has been widely used only in connexion with the classification of causes of death.

A survey of experience in the few countries which have used the ICD for psychiatric disorders showed that, apart from its general nosological orientation, the following points gave rise to dissatisfaction: lack of comprehensiveness of the relevant section of the ICD, i.e., the fact that a number of psychiatric disorders are not listed there but elsewhere together with non-psychiatric diseases; absence of certain categories which to some groups of psychiatrists appeared important; lack of consistency in respect of the classificatory principle used.

It was not the Expert Committee's function to propose a revised international classification of mental disorders. After full discussion of the principles on which such a classification could be based, it has been agreed that it ought to use non-controversial concepts which are communicable in unambiguous terms and thus make for a high degree of comparability. The importance of a glossary giving operational definitions for all diagnostic and other concepts used in the classification is emphasized. Translation of this glossary in as many languages as necessary is an important requirement.

To be generally acceptable, a revised international classification will have to continue to use the diagnostic concepts of current psychiatric practice but each concept will have to be clearly characterized as to content and limits. The Committee welcomes the coding exercise on routine reports concerning mental disease diagnosis carried out by the National Statistical Offices of Canada, the United States of America, and England and Wales, and expresses the hope that more such studies will be carried out. They should provide valuable information to be used in the revision of the international classification. The possibilities of a dual system using clinical and etiological criteria were considered and it is hoped that the usefulness of such a system for an international classification will be explored.

The Committee also considers that it may sometimes be fruitful to base a classification in the first instance on simple and unambiguous clinical syndromes, such as those of excitement, depression, confusion, demen-

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<sup>1</sup> World Health Organization (1957) *Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death, 1955 revision*, Geneva, p. 115

tia, etc., or even single abnormal behaviour patterns, such as suicidal acts or violence, irrespective of current diagnostic practice, together with other factual data such as age, sex, evolution of the disorder, etc. In that case, also, operational definitions would be essential. The practical experience of psychiatrists, statisticians and public health authorities with schemes of this type would have to be taken into account when their usefulness for an international statistical classification came to be considered.

Those concerned with a revision of the ICD will have to decide how Section V can be made comprehensive, so as to include all psychiatric categories. The objections to this section in its present form have been so general and emphatic that comprehensiveness is clearly essential if the classification is to be made internationally acceptable. Theoretical objections to such a change are far outweighed by the practical disadvantages of the present arrangement.

Child psychiatry has, during the last few decades, emerged as an important sub-speciality of psychiatry. There has been a growing tendency to specialization in this field which has many problems of its own. Child psychiatrists are generally dissatisfied with the existing classifications. No satisfactory up-to-date classification serving the requirements of this special field exists. A comprehensive psychiatric classification has to provide for these requirements, either in a special sub-section, or in the various categories relevant to the mental disorders of childhood. Child psychiatry is a very new area of study, and, unlike the psychiatry of adults, has not yet developed a tradition of classifications. Child psychiatrists have only just started ordering their material and designing tentative classifications. It is open to query whether the disorders of childhood can be classified according to the principles used for those of adults.

To be acceptable internationally, a statistical classification of mental disorders will have to avoid the impression that it aims at directing psychiatrists along certain lines which many of them may not wish to follow. This requirement of neutrality in the controversies between various schools of thought imposes considerable limitations. In fact, a classification has to be based on points of established agreement and must be a servant of international communication rather than its master. This is why it cannot be ahead of its time, nor should it be its purpose to take the place of regional or local classifications which will often stimulate the study of new relationships and thus advance knowledge. The only proviso to be made for regional or local classifications would be their easy convertibility into the international system. That this is practicable has been proved in several countries.

The Committee is of the opinion that, whatever the nature and extent of the revision of the ICD concerning mental disorders may be, it should not be carried out without previous consultation of representatives of all persons and agencies concerned with this problem.

The Committee endorses the recommendations of the WHO Expert Committee on Health Statistics<sup>1</sup> that :

“(1) the World Health Organization keep in close touch with and co-ordinate national efforts aimed at the revision of the section of the International Classification dealing with mental disorders ;

(2) the World Health Organization provide in due course for one or more combined sessions of psychiatrists familiar with the principles of classification for statistical purposes and of statisticians working in the mental health field to review developments and to suggest further action in respect of the revision.”

### 3. EPIDEMIOLOGICAL METHODS IN OPERATIONAL STUDIES

In operational studies the current demands for psychiatric care made on the medical services of an area are compared with the total or true frequency of cases as already defined in that area. In practice, this usually means the comparison of data from the routine records of hospitals or out-patient departments with estimates of the presumptive true incidence or prevalence of disabling disorder derived from special population surveys. At the same time, the methods of data collection used in either case must produce a truly representative picture either of the present pattern of the functioning of the services concerned or of the true incidence of disease in the area. Demands and needs must be related to such important demographic factors as age and sex structure, geographical distribution, marital status and general social circumstances of the population of the area concerned. Census data are thus essential for the calculation of comparative rates. Operational studies also attempt to measure the functional efficiency of a service, to make predictions about future demands on it and to study the relationship of changing therapeutic regimes, admission and discharge policies, community attitudes or social circumstances to the use of hospital and other psychiatric care. In these tasks, some of the basic methods of epidemiological inquiry may be used to good effect.

#### 3.1 Use of mortality data

The analysis of mortality data is the traditional first step in epidemiological studies of the distribution of fatal diseases. While recognizing the clinical interest of studies of death from suicide or general paresis, the Committee considers that death-rates generally give little useful in-

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<sup>1</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1959, 164, 13

formation about the frequency of frank mental disorder in different social or other population groups.

### 3.2 Use of hospital records

Hospital admission data are of first importance in assessing demands for psychiatric care and the functioning of the hospital as a therapeutic unit in a community setting. Unfortunately, they are frequently not very adequately collected or recorded. Nevertheless, there are various means of correcting the most outstanding errors to make such data more valuable for research.

Hospital admissions can be usefully related back to the particular section of the population from which they came to discover comparative risks of admission according to age, sex or place of residence. But the material can be handled by other analytical techniques commonly used in survey work. Recurrent admission to hospital, for example, is an aspect of individual experience which merits statistical analysis. Where the recording system allows the counting of the frequency of admission to hospital or of recurrent acute exacerbations of chronic psychiatric disorders in the history of the same patient over a period of time, it may be profitable to identify the individuals who are unduly prone to such relapse and the characteristics of their personal or social environment which distinguish them from the remainder of the population.

"Life-table" methods describe in numerical terms the fate (whether discharge, retention in hospital, or death) of "cohorts" of patients admitted to hospital for the various types of mental illness. They are particularly appropriate in the study of the more severe long-lasting disorders since they give a picture of the likely outcome of these disorders at regular intervals after patients are admitted to hospital. The comparison of such "expectations" of survival, cure or death under differing hospital regimes may be crucial in making decisions on policies of hospital administration. A wider use of these life-tables is therefore to be commended.

Follow-up studies of similar "cohorts" of patients after discharge from hospital are equally important in the assessment of the results of medical care, and in increasing our understanding of the part played in determining cure or relapse by the environment to which the patient returns.<sup>1</sup>

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<sup>1</sup> Surveys of staff activities or of community attitudes to psychiatrists or mental hospitals are essential parts of operational research but the Committee considers detailed discussion of their use in practice to be outside its terms of reference except in so far as the methods used have a similar pattern to those of epidemiology. It suggests, however, that sources of information other than hospital admission data are often insufficiently exploited in epidemiological survey work, whether operational or clinical, and points out the value of alternative means of measuring the frequency of psychiatric disorder, irrespective of its mode of expression, in the more highly organized communities.

### 3.3 Morbidity information

There exists in the records of some sickness insurance agencies in different countries much information about the frequency of disability, either brief or prolonged, due to illness ascribed to psychiatric disorders. The analysis of disability rates, from the points of view both of frequency and duration, may be useful in discovering the section of the population particularly affected, and in suggesting ways of decreasing the burden such disorders place on the community. If some standardization of diagnostic habits and administrative conventions can be achieved, the experience of insurance systems in different countries can be compared to elicit relationships between disability and age, sex or population characteristics which may be common to all. In this way, reasonable predictions might be made about the working of similar new agencies elsewhere.

In countries without national sickness insurance schemes, certain major industries possess similar records either of temporary absence from work or of permanent disability because of psychiatric disorders. Because of the ready availability of corresponding data (e.g., on job, age, sex, pay, etc.) for the whole industrial population covered by such schemes, disability rates according to the factors mentioned can be readily computed, and the Committee believes that conclusions of administrative as well as clinical value may result.

Psychological disturbances frequently find expression in a failure in social adaptation. For this reason, the Committee considers that the success of some preliminary studies, which used records of school attendance or performance, police reports and information obtained from social services, justifies their wider adoption as a method of case-finding in epidemiological surveys.

### 3.4 Population census

As already noted, the computation of comparative rates requires sound basic information about the population at risk. Much of this can be derived from the routine national censuses and the Committee emphasizes the need to link the conduct of special reviews of hospital admissions or regional surveys with the timing and content of such censuses. On the other hand, the material provided by a national census may be inadequate for the purposes of the survey and a special local census may have to be conducted. The Committee believes that, quite apart from the accuracy and completeness of the data and enumeration thus achieved, a special census of this sort helps to establish a useful rapport with the local population.

#### 4. EPIDEMIOLOGICAL METHODS IN CLINICAL STUDIES

In epidemiological studies designed to elucidate the etiological structure and evolution of mental disorder, associations are sought between the incidence of pathological phenomena and events or conditions which could have a causal meaning.

Data derived from either routine records or special surveys may be analysed to show the distribution of a disorder in relation to changes in time, differences in geographical location, and other disparities (for instance, in respect of housing or occupational conditions) between different groups.

The Committee considers that epidemiological methods can be appropriately applied to three aspects of the etiology and pathogenesis of mental disorder: the genetic basis, the physical and psychological experiences during development which may favour the onset of clinical disease, and the social or other precipitating environmental circumstances.

Since both are concerned with familial occurrence of disease, genetics and epidemiology overlap. Thus the comparison of identical twins who differ in environmental circumstances may prove useful in isolating the influence of the environment on mental development. Similarly, surveys in isolated communities could show how genetic or environmental mechanisms, or both, may distinctly affect the geographical distribution of disease. In another direction, the follow-up of infants born to mothers who have suffered from intercurrent infections or other diseases during pregnancy, and the comparison of their disease experience with suitable controls, has proved to be a useful method of detecting the developmental consequences of such events.

##### 4.1 Assessment of personal qualities or of previous personal experience in the evolution of mental disorder

Long-term records of personal illness, studied perhaps in terms of absence from work, afford an opportunity of comparing the liability of individuals to repeated attacks of psychological and somatic complaints. Methods of statistical analysis evolved for the epidemiological study of accidents and other forms of chronic disease may be usefully applied to identify persons with more serious psychological conflicts; and it may be possible to distinguish them on a basis of personal characteristics or of environmental circumstances.

The influence of personal characteristics, or the effects of dramatic events in the personal history, may also be assessed by the use of controlled retrospective inquiries. Here, the previous personal history, or the family background and early training of individuals suffering from psychological disorder, are compared with the experience of other individuals free from

such disease but similar in other respects, such as age and sex, i.e., index cases.

The Committee notes the possibilities of bias which may arise in the interrogation of patients about their past experience when the investigator already knows of their pathological condition. However, the Committee wishes to reaffirm the usefulness of such retrospective inquiries in the preliminary testing of etiological hypotheses about the effects of previous personal experience.

Prospective inquiries, which start from some given point in the personal experience of whole groups of individuals and follow them for some time thereafter, are not subject to some of the biases mentioned. By their use it is possible to confirm or deny the theories raised by the simpler retrospective type of inquiry, for example, about the importance of a familial history of psychological disorder, or of early childhood training. The Committee considers, however, that such inquiries make heavy demands in time and in sustained efforts of observation and that they should not therefore be embarked upon without some pilot retrospective inquiries.

## 5. THE CONDUCT OF FIELD SURVEYS

In both operational and clinical research, there may be no readily available material from hospital and other sources. Moreover, such material is of a very selective nature and is therefore of limited value in the determination of the true prevalence or incidence of mental disease. Thus, in the assessment of the true needs for psychiatric care and in the uncovering of clues about etiology, special surveys are almost always essential. These are broadly of two types: cross-sectional, where the prevalence of disease is noted in a population by a survey conducted between points in time; and longitudinal, where a whole generation or cohort of individuals is followed up over many years. Cross-sectional prevalence surveys have advantages in terms of methodological adequacy and economy. However, the Committee points out the need of a careful interpretation of the results taking into account the socio-cultural as well as the health conditions of populations; for instance, both physical and mental disorder may seriously affect the chance of survival of the individuals concerned. The success of the longitudinal type of survey, commended for its usefulness in determining the incidence of disease, depends largely not only on the stability of the environment, but also on the possibility of maintaining the stability and interest of the staff over a long period of time.

With regard to the practical and other advantages of combining surveys of physical and mental disorder, the Committee appreciates that such a combination can achieve administrative economies and is likely to give

workers in the psychological field the benefit of the experience gained and methods already developed in surveys of physical disorder. At the same time, such combined surveys make possible correlations between the results of physical and psychological examinations which may illuminate the origin and nature of what have been termed " psychosomatic " diseases and the relation between personality structure and a predisposition to physical disorders.

The use of lay assistants to widen the scope of the surveys is of particular interest to the Committee since their co-operation would enhance the value of such surveys. Special attention should be given to the training of such assistants and to the maintenance of a consistent check, by the examination of sub-samples of those whom they have screened by the more highly trained members of the epidemiological team.

### **5.1 Sampling and sampling methods**

After consideration of the common difficulties in obtaining representative samples in field inquiries, the Committee concludes that the details of the problems involved are best dealt with in a technical memorandum, but wishes to give a word of warning to those without experience in this field. Although at first sight the basic principle of drawing a representative sample from a particular population seems simple enough, the practical methods frequently used have at times resulted in serious errors and much wasted effort. For instance, the selection of individuals on the basis of the initial letter of their surnames on a nominal roll is likely to result in an over- or under-representation of people whose names betoken a special ethnic origin and therefore contravenes the rule that every member of the population should have an equal chance of appearing in the sample. The Committee considers, moreover, that a distinction should be made between the need for large samples in surveys of uncommon disorders or in operational surveys where little detail of individual cases is required, and the need for small samples to be subjected to much more intensive investigation in surveys of a clinical type. While emphasizing the aspects of economy and efficiency in sampling techniques the Committee points out that the choice of method and sampling fractions depends so much on the particular circumstances involved that specialist advice is usually required.

### **5.2 Case-finding in population surveys**

In epidemiological studies, the definition of a " case " is of crucial importance. The Committee has come to the conclusion, however, that there seems to be little prospect of producing a definition which would cover all the major and minor aberrations in social behaviour or manifestations of disordered thought and would be applicable to all communities throughout the world, irrespective of their cultural background and social customs.

Some standards for measuring interference with inter-personal relationships and social adaptation would be required; but such concepts are still too difficult to define in generally acceptable operational terms. Since various cultures have different attitudes with regard to abnormal behaviour, particular attention should be given to establishing criteria of impairment suitable to each population and these criteria should be made as explicit and comparable as possible.

Previous epidemiological surveys have shown that time off from work, despite certain disadvantages, may be a useful index of impairment for comparative purposes in many societies. Since in most exploratory studies investigators are concerned to find major differences in the frequency of socially important disorders, an operational definition might be appropriate, and the Committee therefore suggests that a "case" be defined as: "a manifest disturbance of mental functioning, specific enough in clinical character to be consistently recognizable as conforming to a clearly defined standard pattern and severe enough to cause loss of working or social capacity, or both, of a degree which can be specified in terms of absence from work or of the taking of legal or other social action".

### 5.3 Standardization of psychiatric diagnosis

When surveys are made using data collected direct from the population under study (either from a sample or from the entire population), instead of hospital or clinic records, vital statistics, etc., the standardization of diagnosis requires careful consideration. In such field studies, the term "diagnosis" does not have its usual connotation of complete assessment of cases but refers to a partial or limited assessment adapted to the specific needs of the surveys. Moreover, in the study of diseases of uncertain etiology, the diagnosis must be based on the clinical phenomena which are most readily recognized and defined so that comparisons of their frequency can be confidently made.

#### 5.3.1 *Selection and definition of clinical terms*

The most standardizable, countable and comparable units of observation in psychiatry appear to be symptoms, such as anxiety, depression, paranoid trends, excitement, delusions, hallucinations, and intellectual dullness. It is considered desirable, therefore, that, as a first step, a list of such terms be developed which would be accompanied by a glossary and some model illustrations to render the meaning as clear as possible. Data could then be gathered from the population under study regarding the number, kinds and time of onset of these symptoms, regardless of how they may combine in one individual. Such basic raw data are susceptible of a number of different types of analysis. It is important, however, to have in the list open categories in which types of behaviour can

be placed which do not fit any of the clearly characterized categories. This leaves the way open for new discoveries.

The basic symptom data should be further organized into syndromes, that is to say, for each subject in the population it should be shown whether his symptoms fall readily into the categories of a standard classification of psychiatric disorder. Here we could expect to find such terms and concepts as psychoneurosis, psychosomatic disorder, psychosis, mental retardation, etc. Syndromes of this order should be listed for each person whatever may be the combination in which they occur. In any tabular statement of survey results, a person who is both retarded and psychoneurotic should therefore be placed in these two different categories. This should not preclude the possibility of merely counting the number of ill persons.

A third stage in the organization of the data on each subject should be to identify where possible recognized diagnostic entities such as pre-senile psychosis, schizophrenia or manic-depressive psychosis. When etiological factors are known, as in behaviour disorder due to brain tumour or toxicity, they can be introduced at this stage.

For syndromes and diseases, as well as for symptoms, it is important to have one or more open categories. Where these are not provided the identification of "new" diseases and syndromes may become impossible. One valuable method of exploration in epidemiological field surveys is to give adequate attention to marginal cases, and those that are unusual mixtures of known syndromes. Since field surveys by their nature gather data on either total populations or representative samples, it is quite likely that they will uncover patterns and frequencies of behaviour different from those ordinarily seen in hospitals and out-patient departments. The relationship between these patterns and those which are better known in clinical practice constitutes an area of fruitful investigation.

In respect of both syndromes and diseases, it is desirable to collect and evaluate data on the onset and duration of the component symptoms in each subject in the population studied.

One additional rating by the psychiatrist is recommended—the degree of certainty that a subject is a psychiatric case. For well-recognized syndromes or disease entities such a statement may be redundant; but it is useful for analytical purposes in the many subjects found to have symptoms but whose clinical picture does not fit well into any of the recognized patterns.

These fundamental data should be accompanied by certain basic demographic and socio-cultural information as to age, sex, marital status and the ethnic background of each subject. The drawing up of a minimum list of such social and other personal characteristics should, however, be done in collaboration with a social scientist and has not been attempted by the Committee. The Committee points out that, for epidemiological purposes, the obtaining of this background information equals in importance that of the classification and definition of clinical terms.

### 5.3.2 *Development of methods for gathering data on individuals*

Epidemiological surveys of psychiatric disorders usually attempt to gather detailed information on each subject in such a way that the psychiatrist can first organize the facts and then give an assessment of the absence or presence, types and degree, of disorder. For this purpose it is desirable to have at least two categories of data: those provided by the subject himself and those provided by other sources such as general practitioners, key informants, village headmen, hospital records, insurance records, etc. Ideally, and in some instances actually, these sources confirm each other with regard to presence of symptoms, syndromes and diagnostic entities, and confidence in the findings is thereby strengthened. Even more important than this confirmation is, however, the fact that the different sources give often only a part of the picture that the psychiatric evaluator needs. From the subject himself information is obtained on subjective experiences and aspects of personal history, and from the other sources data on psychotic behaviour and the presence of etiological agents such as injury or physical disease. If a general survey is being made of the prevalence or incidence of psychiatric disorder it is important to combine these two major types of information. If particular syndromes or diseases are under scrutiny, one or another may be sufficient by itself.

A third kind of information is that derived from direct psychiatric examination, recording the mental status of the subject at the time he is encountered. Since this examination cannot always be conducted by a psychiatrist, valuable information is often missing. Two remedies are possible: the first, to ask psychiatrists to review a sub-sample of the total population under study as a control on the quality of inferences derived from the other methods; the second, to give the field staff enough specialized training to enable them to elicit and record certain more easily recognizable syndromes. In one study of mental disorder in later life, this method was used with considerable success. Medical students, nurses, social workers and psychology students might be suitable for such training.

The use of cross-validation techniques was recognized by the Committee as a valuable method of reducing observer errors on the part of individual investigators and of whole teams with regard to the collection of basic demographic data, case-finding, and standardization of diagnosis. This method can be applied not only within one research centre, but also in respect of different centres that are doing comparable work.

### 5.3.3 *Screening devices*

During the latter part of the Second World War and in the years that followed, a number of screening devices were developed. These have been applied to several different kinds of population and apparently the results agree quite closely with psychiatric opinion. Tests of this nature

(for instance, the Cornell index) are most effective in registering psychoneurotic and psychosomatic disorders and are least effective in relation to organic and psychotic disturbances. They have the advantage of being both given and analysed quickly, and they can be applied (in combination with other kinds of survey, if desired) to very large populations. It is suggested that they have an important part to play in field surveys but they must be calibrated against psychiatric assessment for each new population to which they are applied.

#### 5.3.4 *Standard clinical case material*

Any field study can be enormously assisted by the existence of a psychiatric clinical service in the area of study. Co-operation between clinic and survey can be of great value for both the design of the survey and the analysis of the results, and is of the utmost importance in obtaining evidence for, and developing theories of, etiology.

## 6. THE PLACE OF EXPERIMENT IN EPIDEMIOLOGICAL STUDIES

The Committee admits that there is some place for the deliberate controlled or designed experiment in the investigation of the etiology of mental disorder. Useful as the analysis of hospital statistics may be in indicating the relative values of alternative hospital regimes, there seems to be an increasing scope for the use of controlled clinical trial as a final arbiter of the value of therapy in mental as well as in somatic disease.

The Committee considers that more advantage should be taken of "experiments of opportunity" where observations can be made on the incidence of mental disorder among whole populations whose way of life has been radically altered by some act of nature or human activity beyond their control. In this connexion the possibility is noted of studying immigrant or other displaced groups which, in spite of their selective characteristics, may provide unique opportunities for surveys which may lead to fruitful hypotheses (for example, about the environmental circumstances which may precipitate acute depression and suicide). The Committee strongly recommends a policy of preparedness for the making of pertinent observations in relation to "experiments of opportunity".

## 7. STAFFING FOR EPIDEMIOLOGICAL WORK

It is regarded by the Committee as ideal to have a competent psychiatrist with epidemiological training and experience as the principal investigator. On his competence, enthusiasm and clear understanding of the purpose, scope and direction of the inquiry, the success of the project will largely depend. Because there are few such individuals anywhere in the world,

the Committee considers it essential to stimulate interest among young psychiatrists, for example, by adding a course on epidemiology to their post-graduate training programme.

A thorough knowledge of the people and communities chosen for study is regarded as an essential condition for epidemiological research. The need for an intimate knowledge of the habits, customs, social structure, the channels of communication, and the power structure of a community cannot be overemphasized. Where the principal investigators lack such knowledge, a social and anthropological investigation should precede the planning of a research project. This is of immense value in establishing stocks of pertinent and practical sociological data as well as in obtaining knowledge about the community attitude to mental health and ill-health.

Research should be jointly planned by the principal investigator, the social anthropologist, and an epidemiologist with experience in the planning and conduct of such surveys. This team should also provide continuous leadership and supervision in the proper execution of the plan, the collection of validated data, and the analysis and interpretation of results. If available, a biostatistician is particularly useful in the initial stage of research planning and sampling inquiries as well as in the later stage of analysis of data.

Care should be taken to avoid rigidity in the team structure. As a research project proceeds different workers are found frequently to play different roles at different stages. It is accordingly desirable at intervals to revise the team structure with a view to determining who should be the main leader and supervisor for the phase under scrutiny.

The value of a pilot study in evaluating the initial research design and the refining of research methods is recognized. In some countries or regions where trained research personnel are scarce, the pilot study will also serve as a demonstration project and provide opportunities for the training of future staff.

Depending on the specific purposes and scope of an epidemiological research project, specialists of related fields, such as geneticists, sociologists, psychologists, biochemists and pathologists, may be called upon for assistance in the planning as well as in the analysis and interpretation of results.

The principal investigator may take charge of the field research unit himself or delegate this responsibility to a qualified psychiatrist with epidemiological training who is permanently stationed in the field. In a field research unit two types of workers are essential: the field (contact) workers and the specialist advisers, such as statisticians. The latter may be employed on a part-time basis.

Special care should be given to the selection and training of the field workers to ensure the effective collection of objective data. It is agreed

by the Committee that, despite the risks of local prejudices and "blind spots", priority for recruitment should be given to people of the same socio-cultural background as those under study, since they have an intimate knowledge of the community, and speak its language.

Social workers, psychologists, students (of medicine, sociology and psychology) and public health nurses are regarded by the Committee as desirable field workers in epidemiological research. Whatever their background may be, careful preparation should be given in terms of an explanation of the purpose and nature of the investigation, of operational definitions and procedures, and of the need for uniformity in recording and coding. The use of other lay personnel (schoolteachers or civic leaders) for field work in case of necessity was also discussed. The Committee agrees that, given careful selection, training and supervision, there is a place for lay personnel in the field work, particularly in the process of initial screening.

The Committee agrees that training of staff is of primary importance in future epidemiological research in mental health.

For psychiatrists, the following are considered essential parts of their training :

- (1) a course in the principles and practice of epidemiology with emphasis on biostatistics and research planning ;
- (2) a course in social anthropology (or social psychology) with emphasis on social science research methods and group dynamics ;
- (3) a training in the procedures and clinical definitions of psychiatric assessment as adapted to field surveys ;
- (4) a period of practice and experience attached to a field research unit (or pilot project) with opportunities for the collection and analysis of data.

For epidemiologists or biostatisticians, some study of psychiatric material specifically related to the project is regarded by the Committee as essential. Their orientation in psychiatric research can be greatly facilitated by a review of previous work on the subjects concerned. The Committee considers it desirable that the statisticians to be employed in psychiatric work should be prepared to acknowledge the limitations of quantitative study in behavioural science today, and the fact that the research must progress by a series of approximations.

For social scientists a course of several months dealing with psychiatric material, including operational definitions of terms and diagnostic classification, is regarded as desirable.

The following recommendations with regard to the role of WHO in the field of epidemiology of mental disorders are made by the Committee. WHO may :

- (1) provide consultant services :
  - (a) to help assess the needs of the interested governments in carrying out the epidemiological research ;
  - (b) to meet expressed needs for specialists (such as epidemiologists, social anthropologists or geneticists) for research planning or analysis and for the interpretation of results ;
- (2) support training courses :
  - (a) by establishing or strengthening training centres ;
  - (b) by providing fellowships for training at these centres ;
- (3) organize regional or inter-regional seminars :
  - (a) to stimulate interest and also to identify the problems in the region ;
  - (b) to help identify prospective investigators ;
- (4) arrange symposia or study groups on special subjects :
  - (a) to exchange information and data in order to see what future research programmes are needed, and to develop these programmes ;
  - (b) to discuss specialized research methods.

## 8. SUGGESTIONS FOR RESEARCH

Two main criteria have influenced—though not limited—the Committee's discussion of promising fields for epidemiological research in mental disorder : one of these is that for an international organization like WHO it would be desirable to concentrate on problems that are better solved through international co-operation than by a single group ; another is that WHO may be able to exploit unique opportunities found in a particular country and requiring supplementation of the local effort.

As already indicated, epidemiological methods may be used both in operational research to assess the efficiency of mental health work and in clinical research on the causation of mental disorders. In both types of work, the most pressing need is for the development of technical methods and concepts applicable either in the preliminary studies which yield hypotheses or in the more closely defined studies which attempt to put these hypotheses to the test.

### 8.1 Research on methods and concepts

Investigation of methods and concepts used in epidemiological research claims priority as affecting the adequacy of both operational and clinical research.

8.1.1 *Field studies designed to refine the techniques of observation, classification, recording, and counting, with regard to psychiatric disorder*

These studies would involve the definition for comparative purposes of symptoms, syndromes and disease entities, criteria of impairment, and criteria for measuring the onset and duration of both symptoms and impairment. Since studies of the metabolic concomitants of psychiatric disorder and of the effects of drugs have encountered many problems similar to those facing the epidemiologist in distinguishing symptoms, syndromes and diseases, it is suggested that some exchange of ideas and of experiences with workers in these other fields would prove valuable.

8.1.2 *Field studies concerned with assessing the advantages and deficiencies of various data-gathering techniques in varying circumstances*

The Committee recommends the testing and progressive improvement of different methods of interviewing, the use of questionnaires, the use of psychological screening tests, the combining of psychiatric surveys with other health surveys (such as mass X-ray), the use of routine records, the improvement of census-taking and reporting from the mental health point of view, tests of coding practices in different countries using standard material, and surveys of psychiatric opinion and diagnostic usage in combination with already established statistical reporting.

As part of the assessment of interviewing techniques, it would be important to evaluate the employment of various kinds of lay assistants and the potentials and limitations of personnel given short-term training. Census records might give more specific information with regard to such matters as the points of origin of migrants and the duration of their stay in different places.

The testing of coding practice could be a further expansion of the kind of work now being done jointly by the United Kingdom, Canada and the United States of America. In assessing the relationship between psychiatric opinion and usage as it bears on statistical reporting, it would be important to compare not only different countries, but also different areas and institutions within one country.

8.1.3 *Field studies concerned with problems of research design*

Ideal research schemes are not too difficult to conceive; the problem is how to translate them into effective field practice. There is a need for experimentation to see if incidence studies as well as prevalence studies can be carried out, to look for ways and means of conducting longitudinal studies, and to define the proper selection of control groups and the appropriate application of probability theory and sampling.

8.1.4 *The development of frames of reference, theory and hypotheses so that more efficient use can be made of naturally occurring events*

This suggestion arises from two considerations: the ethical and other objections to experimentation on human beings; and the widespread occurrence of events in human society which can be treated as "experiments of opportunity". Selection of problem, research planning and field planning can be done in advance since many of the "experiments of nature" are recurrent, or sufficiently recurrent and prevalent over the world to make this possible. By posting observers at strategic points a research team could take advantage of a fleeting opportunity according to a pre-arranged plan.

8.1.5 *The study of the socio-cultural environment in order to define the most significant units and categories for use in studies of psychiatric epidemiology*

The conceptual tools for dealing with the socio-cultural environment are represented by such common terms as "class", "roles", "institutions", and "communities". The criteria, concepts and definitions involved are, however, no less complicated than the problems of psychiatric classification. Furthermore, current theory and types of analysis in sociology and anthropology have generally not been developed with reference to the problems that concern the psychiatric epidemiologist. It is therefore desirable that research studies be conducted to develop valid and reliable indicators of relevant socio-cultural processes (for example, rates of change in values, social roles and institutions). In particular there is need for a systematic classification of types of environmental stress so that cross-comparisons can be made between populations with larger and smaller differences in culture.

8.1.6 *Investigation of the use of physiological concomitants of emotional states as indicators for epidemiological purposes*

No specific physiological indicators for the major disease entities in psychiatry have yet been found, although physiological concomitants of such states as anxiety, depression, excitement, and hostility may eventually prove useful. Some of the most successful psychological screening tests for mental disorder are those which emphasize questions about the subject's physiological status; and their results have a reasonably high validity when compared with those obtained from an independent examination conducted by a psychiatrist from the standpoint of psychopathology. The time may not yet be ripe for employing such tests in epidemiological surveys, for those with the most promise are too complicated to be practicable in a field survey. Current extensive physiological investigations

of human endurance of stress in relation to space travel, for example, should be reviewed from time to time for methods that may be useful in psychiatric epidemiology.

## 8.2 Research on operational problems

While the Committee is convinced of the great importance of studies on operational matters, it does not believe that the number of specific research projects which can be proposed at present is very considerable. It would be possible to include in this category the operational surveys already mentioned. Since the problems arising in this connexion have been dealt with in the preceding sub-section, no further comment is necessary. There are, however, some additional research opportunities in this area and more will arise as a consequence of improved surveying techniques and a more extended knowledge of the medical and social functions of psychiatric services and facilities.

### 8.2.1 *The evaluation of psychiatric services*

A number of programmes aimed at the measurement of the therapeutic effectiveness of psychiatric services are now in progress and it is to be hoped that the methods which are being developed in this area will soon be sufficiently reliable to allow their broader application. Even now it is possible to evaluate the relationship between existing services and facilities and the potential demands and needs of the population if accurate surveys of prevalence and incidence of disorders are available and can be used as base-line material. Another possibility for research exists wherever a previous evaluation regarding the effectiveness of psychiatric services can be compared with repeated surveys later on. These can be carried out at intervals and should take into account the influences exercised by organizational and strictly medical changes introduced in the management and treatment of patients.

### 8.2.2 *The development and evaluation of methods of prevention*

One of the most striking findings in field surveys is the discrepancy between the large potential of psychiatric needs and the shortage of facilities and staff. This is one reason why prevention should have a high priority in mental health programmes. On the other hand, it has to be admitted that very little is known about the development of effective preventive programmes. Experimental studies in selected populations should therefore be carried out in order to determine what measures are actually apt to reduce the prevalence and incidence of psychiatric disorders. An example of this approach can be found in the mental disturbances associated with dietetic

deficiencies such as pellagra psychosis. As with the therapeutic services, it would seem feasible to evaluate the success of preventive programmes by repeated surveys at regular intervals, both in the same district and in comparable districts where such programmes have not been carried out.

### 8.2.3 *Investigations of social and cultural groups with a view to planning special types of services*

Some work which has already been done in this area points to the probability that even in fairly well-served regions some parts of the population receive inadequate psychiatric attention. This applies particularly to people in the lower socio-economic groups. It may be necessary to discover new ways of bringing prevention and treatment to these under-privileged populations. It would, for example, be useful to develop adequate facilities in the field of industrial psychiatry. Related studies in respect of rural populations, particularly in regions where only very few psychiatric services exist at present and where the advent of technical progress introduces socio-economic changes at a relatively high speed, would probably also be fruitful.

## 8.3 **Clinical research on problems of causation**

The research suggestions which follow are related, either directly or indirectly, to the problem of etiology. They derive from preliminary findings in field studies of the distribution in populations of the clinically recognizable psychiatric diseases, syndromes and symptoms.

### 8.3.1 *Studies giving emphasis to the evaluation of hereditary factors*

Several forms of these studies are recommended. One is the extension by field surveys of current work based on routine records to establish the role of mutation, selection and migration in the distribution of psychiatric disorders in populations. Another is the estimation of differential fertility in individuals with and without different forms of mental illness and the study of the effects of consanguinity. There is a special opportunity in the international study of twins, particularly those reared apart in different environments. Comparative studies of families and of isolated communities of long stability and homogeneity of population are another worth-while target.

### 8.3.2 *Research aimed at finding relationships between organic conditions and psychiatric disorders*

This would include, for example, the longitudinal study of the experience of the children of mothers with severe chronic diseases, such as tuberculosis,

malaria or diabetes, or with a history of exposure to radiation during pregnancy; the effects of prolonged under-nutrition or chronic disease, or both, on the mental health of children; the prevalence of virus and other infections in relation to the prevalence of psychoneurotic and other symptoms. Such studies as these require long-term follow-up of children and adults, the use of controls who have not been exposed to these conditions, and of controls who have at first been exposed and then had corrective measures applied. Kwashiorkor is an example of a debilitating disease of childhood that may or may not have effects on mental health in later life after the overt organic manifestations of the disease have cleared up.

#### 8.3.3 *The discovery of new syndromes*

These might be either entirely new, or uncommon combinations of known symptoms such as the reported "frenzies" and periodic excitements in parts of Africa. Such dramatic examples are, however, fairly easily recognized. Attention therefore should be directed toward more subtle forms of disorder which may in the long run prove equally important because of the prolonged chronic disability or susceptibility to major psychiatric disorders which they may produce.

#### 8.3.4 *Longitudinal studies of patients for the ultimate establishment of firm diagnosis*

Complete psychiatric diagnosis takes a long time. The patient who appears to be a psychoneurotic today may in a few years appear as a manic and still later as a schizophrenic. If the mentally ill can be identified in a known population and then followed at intervals for years, the effects of age and of changing circumstances can be brought to light. The various alternatives which constitute the natural course ("natural history") of a disease and the most important factors affecting course and outcome could be discovered. The psychiatric services and record-keeping system existing in Norway provide an excellent example of a suitable framework for such studies.

#### 8.3.5 *Studies aimed at establishing the inter-relationship of somatic and psychological symptoms in different populations*

Work already done in a few limited populations suggests that most somatic and psychological illness is to be found in a minority of the population. Studies of this concentration of illness in limited groups of the population, replicated in a variety of cultures and in populations undergoing different conditions of stress, may prove fruitful.

### 8.3.6 *The examination of socio-cultural change in relation to the distribution of psychiatric disorder*

We live in a world in which all sorts of changes are in progress. Some are sudden and some are slow-moving, some great and some minor. Hence, there are problems of kind, magnitude and rate. If definitions and indicators as a basis of measurement can be established, it may be possible to find consistent relationships between changing conditions and some or all types of psychiatric disorder. Members of the Committee brought forward numerous examples of change, such as the movements of populations of different types into Israel, the process of urbanization affecting rural and under-developed people all over the world, and the changing role of women, which provided opportunities for relating such changes to the mental health of women, their families and the community.

The study of societies and groups subject to crisis and change means also of course the study of populations not undergoing those conditions, or at least undergoing them to a very small extent. Such comparisons may provide clues to factors promoting health as well as those causing disorder. Special attention should therefore be given to finding and studying stable and prosperous groups of people.

An opportunity of separating the influence of stressful conditions from the influences of heredity is to be found in the epidemiological investigation of a homogeneous population undergoing different rates of change in different sectors. If high correlations were found between social change and disorganization and psychiatric disorder, and conversely a relative lack of disorder in the stable sector of the population, there would be an opportunity to gather evidence on the kinds of disorders most likely to be related to environmental conditions.

It would seem important to discover the factors concerned in promoting psychological adaptation to change, to find ways and means of avoiding ill effects arising from the changing circumstances of human life. The matter of the timing of the appearance of psychiatric disorders in relation to the application of stress to the population is of some importance. It would be worth while discovering whether (and under what circumstances) stressful conditions in the social environment produce a reduction in the prevalence of illness, with the appearance of symptoms or disorders after the stress has been removed. It is pointed out that in some instances suicide among refugees is higher after escape from, rather than during, the period of suffering and danger.

### 8.3.7 *Comparative studies of groups of ill and well people*

Epidemiological surveys make it possible for psychiatrists to study well people. Intensive prospective and retrospective comparisons of life stories, family histories, physiological and psychological experiences and

socio-cultural influences in ill and well subjects might indicate those factors which make for mental health or disease. The relationship of talents and productive capacity to both psychiatric disorder and freedom from symptoms would be an important aspect of such investigations.

#### 8.3.8 *Specific targets based on psychiatric theory*

The Expert Committee considers that psychiatric theory should be examined and hypotheses selected which can be checked by means of evidence gathered from epidemiological surveys. An example of such a theoretical point is the hypothesis that maternal or paternal deprivation—or both combined—at critical periods in infancy produces particular types of disorder in later life. Different practices in different cultural groups present opportunities for this type of comparison. One example of this is certain differences of behaviour to be found in the Behuto and Watutsi tribes in Ruanda-Urundi. There are similar opportunities in the kibbutzim in Israel, in the casual family structure in the Caribbean and in the families of seamen and whalers.

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