

CONTINUING PROFESSIONAL EDUCATION

A glossary on psychiatric epidemiology

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Psychiatric epidemiology constitutes an important subdiscipline of scientific psychiatry. Nevertheless, it still lags behind other branches of epidemiology. This has been attributed to the difficulties encountered in conceptualising and measuring mental disorders.¹ It is only recently that the emphasis in the field has shifted from descriptive to analytical research and this is probably because of the influences from genetic epidemiology and social sciences.² Psychiatric epidemiology has taken most of its tools from general epidemiology—that is, chronic disease epidemiology.³ It is therefore not surprising that no fundamental differences between the mother discipline and her psychiatric descendant exist. Yet, there are particular challenges in the conduct of psychiatric epidemiological research that are absent or less prominent in general, mostly somatically oriented, epidemiology.⁴ Challenges particularly encountered in psychiatric epidemiology include

1. Assessment of caseness: psychiatric diagnoses are mostly made on the basis of symptoms—patients' reports of their subjective experiences—and not signs, like fever in general medicine. Moreover, there are no pathognomonic symptoms or signs;
2. Neither most mental disorders nor their best-known risk factors, like social deprivation, stress exposure, lack of social support, social isolation, abnormal personality traits or genetic liability, are as easily captured in a singular variable as tends to be the case in the epidemiology of somatic disease;
3. Making a psychiatric diagnosis is costly in time and effort; and
4. Information bias and non-response bias are more of a problem in psychiatric epidemiology than in other branches of epidemiology.

In our view, this warrants recognition of the epidemiology subspecialty "psychiatric epidemiology".

In trying to cope with the above-mentioned challenges, psychiatric epidemiology has developed a set of concepts, albeit limited, and vocabulary of its own. The purpose of this glossary is to provide brief definitions, sometimes with comments, of frequently used special terms one may come across in dealing with psychiatric epidemiology. Although we consider general epidemiologists the primary audience of this glossary, it may be of interest to all health professionals involved in psychiatry. The terms in this glossary were either thought up by the authors themselves or suggested by experts who were consulted using an email conference.

CAPTURE-RECAPTURE

This is a technique adopted from biology for estimating the size of a population that cannot be enumerated directly because only a fraction is observable—that is, a "hidden" population. First, a random sample from the population of interest—for example, 300 patients with a certain disorder—is drawn. Next, these patients are registered and after some time, in which these patients are assumed to be completely mixed with the total, "hidden" population, a second random sample is drawn. From the prevalence of the registered patients in the second sample, for instance 0.2, the size of the total population may be calculated, in the above example $1/0.2 \times 300 = 1500$ patients. The validity of this technique depends on the representativeness of the samples, the independency of the samples and their homogeneity. Independency and homogeneity may be tested and, if necessary, adjusted for.⁵

CASE

The definition of "caseness" (ie, whether or not a subject has the condition of interest) is essential in all epidemiology, but especially so in psychiatric epidemiology where often, other than clinical impression, no objectively assessable measures exist to establish the presence or absence of a given syndrome.⁶ The uncertainty is related to the possibility that mental illness is expressed along a continuum,⁷ the absence of identified endophenotypes for mental disorders and the ongoing debates about the validity of diagnostic categories that, as in the Diagnostic and Statistical Manual, essentially have been derived from consensus among clinicians.

CASE REGISTRY

This is essentially a database with data on demography and limited clinical data such as diagnosis of people who were in contact with a mental healthcare organisation in a certain geographical area. The data are particularly useful for research purposes if linked to other registries—for example, birth registries or medical registries.⁸

CENTER FOR EPIDEMIOLOGICAL STUDIES OF DEPRESSION (CES-D) SCALE⁹

This scale is considered a self-report standard measure of depressive symptomatology in elderly people and has shown good psychometric properties in general. When used in elderly people with considerable somatic morbidity, however, item bias may threaten its validity.¹⁰

Abbreviations: CID, composite international diagnostic interview; DSM, diagnostic and statistical manual

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COMORBIDITY

Comorbidity is a term coined by Feinstein denoting the joint occurrence of more somatic or psychiatric disorders with different pathophysiology in a single person, either simultaneously or on a lifetime basis.¹¹ Various types have been distinguished: episode versus lifetime comorbidity, coincidental comorbidity (co-occurrence by chance), and cluster, dependent or associative comorbidity. In the last three types that are synonyms, disorders either act as risk factors for each other or share underlying risk factors.¹² Comorbidity is a major research issue in psychiatric epidemiology raising substantial conceptual and methodological discussion.^{3 13}

COMPOSITE INTERNATIONAL DIAGNOSTIC INTERVIEW

This is an amalgamation of questions from the Diagnostic Interview Schedule and the Present State Examination.¹⁴ It was designed for use by lay interviewers and allows computerised diagnostic assessments. The composite international diagnostic interview (CIDI) comprises 11 diagnostic modules and generates both Diagnostic and Statistical Manual (DSM) diagnoses and International Classification of Disease diagnoses, as well as symptom profiles.

CONTINUUM

This is a variable that has no steps between two points. Psychiatric disorders may be measured along a continuum if a fluent transition from normal to pathological psychological states can be presumed, as seems the case for many if not all somatic diseases (eg, cardiovascular disease). Several instruments such as the Symptom Checklist and the General Health Questionnaire are available to measure dimensions like depression, anxiety and paranoid ideation along a continuum.^{15 16}

DENSITY

This term refers to the prevalence of the risk factors in the study population and was probably coined by Rabkin in psychiatric epidemiology.¹⁷ It fits into the multilevel or contextual approach to epidemiological analysis in which not only the distribution of the risk factor (distributional effects) but also its prevalence (compositional effects) interact to set the observed risk of the outcome. This term should not be confused with “incidence density”, which indicates the occurrence of new disease per person-year of observation.

DIAGNOSTIC INTERVIEW SCHEDULE

This is a standardised interview developed principally for use in the Epidemiological Catchment Area Studies.¹⁸ Unlike the Schedule for Clinical Assessment in Neuropsychiatry and the Research Diagnostic Criteria interviews, it can be administered by lay interviewers, provided they have received training.¹⁸ Its present day successor is the CIDI, which was used in the National Comorbidity Survey.

DIAGNOSTIC AND STATISTICAL MANUAL

The preoccupation with the question of “caseness” has led to the development of diagnostic criteria to improve the reliability of psychiatric diagnoses. The first edition of the Diagnostic and Statistical Manual was published in 1952, and based on the US military’s diagnostic criteria. The second edition was published in 1968, followed by the third edition in 1980 and a revision in 1987. The DSM-IV appeared in 1994 and contains a recent definition of mental disorders.

EPIDEMIOLOGICAL CATCHMENT AREA STUDY

This investigation of the prevalence of psychiatric comorbidity was undertaken during 1976–80 in five sites in the USA.¹⁹ More than 20 000 people were interviewed using the Diagnostic Interview Schedule. A main criticism was its use of lifetime diagnoses, which may be unreliable due to recollection bias.

ETIC/EMIC APPROACHES

The so-called etic (or universalist) approach to psychiatric diagnosis rests on the quite strong assumption that caseness of mental illness is similar in any social, cultural or national context. DSM criteria and dichotomies broadly rest on this assumption. The “emic” or cross-cultural approach aims to take cultural differences between mental disorders into account.²⁰

GENERAL HEALTH QUESTIONNAIRE

This is the most widely used self-report questionnaire to assess the likelihood that significant mental illness is present.¹⁶

GENERATION

To describe the development of psychiatric epidemiology, three “generations” of studies are distinguished. Before World War 2, there were an estimated 16 psychiatric–epidemiological studies of the so-called 1st generation.² These studies focused primarily on the administrative (ie, registered by healthcare and other agencies) prevalence of mental disorders in relation to community characteristics such as the number of “broken homes, few and weak community associations, inadequate leadership, few recreational activities, hostility and inadequate communication, as well as poverty, secularisation and cultural confusion”,²¹ a state called “anomie” by the sociologist Émile Durkheim who pioneered the sociological study of suicide.²² The 2nd generation of psychiatric epidemiological studies was sparked off by an increased interest in the nomenclature of psychiatric disorders after World War 2; approximately 60 2nd generation studies appeared, mainly field surveys conducted by psychiatrists and psychologists in unstructured clinical face-to-face interviews. However, the reliability of these was low. The 3rd generation studies were set off around 1970 and differed from 2nd generation studies in that more effort was put into increasing the reliability of psychiatric diagnoses. A landmark in achieving this was the publication of the Diagnostic and Statistical Manual, 3rd edition, in 1980,²³ a set of operational diagnostic criteria for 357 psychiatric syndromes. A major preoccupation of 3rd generation studies has been, and remains, to obtain precise estimates of prevalence (and sometimes incidence) of specific mental disorders, whereas 2nd generation studies focused on mental ill-health in general.

ITEM BIAS

People with the same level of the underlying dimension should respond to an item in the same way, regardless of any other characteristic. If this is not the case, item bias may occur. The inclusion of many somatic depressive symptoms in the CES-D scale, for instance, may generate spuriously high depression scores in the elderly, as they generally have more physical problems. Grayson *et al* found and their findings indeed indicated that substantial physical disorder-related artefacts with the CES-D scale total score exist.¹⁰

KING LEAR PRINCIPLE

This is the idea that mild psychopathology is obscured by the more severe psychopathology, which implies a natural hierarchy of psychiatric disease. It was named after a citation from Shakespeare’s King Lear: “Where the greater malady is fixed, the lesser is scarce felt”.²⁴

LIFE EVENT

This is a psychologically distressing occurrence such as the loss of a family member, receiving a diagnosis of severe disease or serious financial problems. There are several methodological problems with the assessment of life events and there has been wide discussion on whether life events can be reliably assessed using self-rating questionnaires, or whether in-depth contextual interviews are necessary.²⁵ An important development in the formal assessment of life events has been the widely used Life Events and Difficulties Schedule, a semistructured interview originating from social psychiatry.²⁶ Life events have convincingly been shown to be associated with an increased risk of major depression among those with an increased genetic susceptibility to this disorder.²⁷ A similar pattern seems to exist for schizophrenia—that is, certain genes are associated with an increased risk for schizophrenia by making individuals more sensitive to environmental risk factors such as life events, or by making individuals more likely to select high-risk environments.²⁸

MENTAL DISORDERS

According to the DSM IV, a mental disorder can be defined as follows: “a clinically significant behavioral or psychological syndrome or pattern that occurs in a person and that is associated with present distress (a painful symptom) or disability (ie, impairment in one or more important areas of functioning) or with a significantly increased risk of suffering death, pain, disability or an important loss of freedom. In addition, this syndrome or pattern must not be merely an expectable and culturally sanctioned response to a particular event, for example, the death of a loved one. Whatever its original cause, it must currently be considered a manifestation of a behavioral, psychological or biological dysfunction in the individual. Neither deviant behavior (eg, political, religious or sexual) nor conflicts that are primarily between the individual and society are mental disorders unless the deviance or conflict is a symptom of a dysfunction in the individual, as described above.”²⁹

MULTI-INFORMANT ASSESSMENT

This is the assessment of psychopathology based on different informants. This procedure is frequently, but not exclusively, used in child and adolescent psychiatry where commonly teachers, parents and the children or adolescents themselves provide information on the presence of psychopathology, all from a different perspective. The reports from different informants often show discrepancies in classifying subjects as disordered or normal. As it is felt that no informant is intrinsically superior, the results are frequently presented for the different informants separately.³⁰

MULTILEVEL DESIGN

The context in which an individual is exposed to a certain risk factor may be a determinant of the magnitude of its effect. This so called ecological or contextual effect modification can be studied using multilevel designs in which data on both individual exposures and contextual variables are analysed simultaneously.³¹

NATIONAL COMORBIDITY SURVEY

This was a survey carried out among a nationally representative sample ($n = 8098$; 15–54 yrs) of US citizens.³² The CIDI was used as an instrument for use by lay interviewers.¹⁴ This study showed the widespreadness of mental illness: one of its results was that approximately 30% had experienced a psychiatric disorder in the previous year.

NATURE OF NURTURE

Also denoted as gene–environment correlation, this is the phenomenon that genetic factors cause a person to create specific experiences and environments—for example, genetic influences on perceived parental warmth by a child.³³

NEEDS FOR CARE

The needs for care for mental disorders form an under-researched area as compared with the prevalence of mental disorders. In the well-known Camberwell Needs for Care Survey, it was found that nearly 10% of the population had a need for treatment of a psychiatric condition, that less than half of all potentially meetable needs were met, and that most needs could be managed by family doctors.³⁴ In a recent study by the World Health Organization, it was shown that in the less-developed countries approximately 80% of cases of serious mental disorders received no treatment, as compared with around 40% in the more-developed countries.³⁵

PATHWAYS TO CARE

This model, developed by Goldberg and Huxley, gives an account of how mental illness interacts with the healthcare system.³⁶ Originally, five levels of mental illness occurrence were described: that at the community (260–315/1000/year), that at all primary care attenders (230/1000/year), that at primary care attenders in whom the mental illness has been recognised (conspicuous morbidity; 101.5/1000/year), that at the level of psychiatrist (23.5/1000/year), and that at the level of psychiatric inpatient care (5.7/1000/year). Three, sometimes four filters, that explain the decreasing incidence when going from the general population to inpatient psychiatric care are known: at the level of the patient himself or herself (recognition), at the level of the general practitioner (recognition, decision to treat, decision to refer on), at the outpatient level of the mental healthcare system and, finally, at the inpatient level. Accordingly, this model is also denoted a “filter model”.

PERSONALITY

Personality traits are considered enduring patterns of perceiving, relating to and thinking about the environment and oneself, exhibited in a wide range of important social and personal contexts.³⁷ The five-factor model or “big five” comprises five continuous personality dimensions or traits: openness to experience, conscientiousness, extraversion, agreeableness and neuroticism.³⁸ At present, it is the dominant model for studying personality traits. The factors were derived from factor analyses of a large number of self and peer reports. Today, they may be easily assessed using the self-administered paper-and-pencil form of the Revised Neo Personality Inventory.³⁹ At present, alternatives to the five-factor model with particular relevance to clinical practice (eg, the Shedler-Westen Assessment Procedure) are being developed.⁴⁰

PERSONALITY DISORDER

Personality disorder is an enduring pattern of inner experience and behaviour that deviates markedly from the expectations of the individual’s culture, is pervasive and inflexible, has an onset in adolescence or in early adulthood, is stable over time, and leads to distress to self or others, or impairment of behaviour and/or social functioning. Although the onset is usually in adolescence or early adulthood, personality disorders can arise later on in life as well. Not uncommonly, they may result from organic brain syndromes—for example, after a road traffic injury.²⁹ Personality disorders have been assigned a separate axis (axis II) in the diagnostic nomenclature and, compared

with many axis I disorders such as schizophrenia or depression, they have been less subject to empirical research. The current DSM approach to diagnosing personality disorders is a typological one, whereas dimensional approaches have also been used, particularly in research settings.⁴¹

PHARMACOGENETICS

The response of patients to psychotropic drugs as well as the likelihood of adverse effects is not invariant. As a result, certain patients are exposed to ineffective treatment or an increased risk of adverse effects during some time. The evolving field of pharmacogenetics seeks genetic approaches to solve this problem. Ultimately, this field aims to provide genetic knowledge for stratifying patients according to the probability of therapeutic response or side effects before treatment is initiated. Genetic variants relating to the efficacy and adverse effects of antipsychotics and antidepressants have so far been identified.⁴²

PRESENT STATE EXAMINATION

This is the original version of the Schedule for Clinical Assessment in Neuropsychiatry.⁴³ It constitutes the first structured psychiatric interview and it allowed generation of the International Classification of Diseases and, later, DSM-diagnoses by means of a computer program (CATEGO).

PREVENTION

True prevention, most often called primary prevention, implies reduction or eradication of well-known risk factors for a disease at the population level. For most psychiatric disorders, this seems an unrealistic option. Many risk factors are not easily modified; genetic predisposition in the first place and also personality factors, intrauterine hazards to the developing brain, socioeconomic status and many adverse life experiences are not at all or only to a limited extent open to intervention. Possibilities for secondary prevention—that is, early detection and management of those with risk factors or subclinical prodromes of disease—are currently being researched for the psychoses. Strategies are being developed that aim at preventing or postponing a first florid psychosis by early detection and intervention—for example, cognitive-behavioural therapy or even pharmacotherapy in the prodromal phase of psychosis.⁴⁴ Secondary prevention of depression seems effective in some groups of patients, for instance those who have experienced a stroke.⁴⁵ Tertiary prevention involves treatment of established disease to prevent disease-related complications—for example, prevention of suicide in patients with schizophrenia.⁴⁶

RELIABILITY

Reliability is the degree to which a measurement produces consistent results, most importantly test-retest and interobserver consistency. Contrary to low validity of a psychiatric assessment instrument, low reliability can often easily be fixed by structuring and standardising the assessment procedure.⁴⁷ Despite many efforts in this area, there still tends to be considerable discrepancy between diagnoses obtained by different fully structured interviews.⁴⁸

SCHEDULE FOR CLINICAL ASSESSMENT IN NEUROPSYCHIATRY

This is essentially the 10th revision of the Present State Examination.⁴⁹ It has shown excellent reliability, validity and practical applicability. Its modular structure allows limiting the interview to those questions that are needed for subsets of psychiatric problems.

SOCIAL CAPITAL

Social capital refers to the institutions, relationships and norms that shape the quality and quantity of a society's social interactions. Increasing evidence shows that social cohesion is critical for societies to prosper economically and for development to be sustainable. Social capital is not just the sum of the institutions that underpin a society—it is the glue that holds them together.⁵⁰

SYNERGY

According to the *Last Dictionary of epidemiology*, one of the (controversial) definitions of synergy reads: "a situation in which the combined effect of two or more factors is greater than the sum of their solitary effects".⁵¹ If an effect is measured as a risk difference or relative risk, which is often the case in epidemiology, synergy is statistically assessed as additive or multiplicative interaction, respectively. The assessment of synergy finds an important application in the study of gene-environment interaction. For instance, van Os and coworkers found that approximately 60–70% of the individuals exposed to both urbanicity and familial liability had developed psychotic disorders because of the synergistic action of the two proxy causes.⁵²

SYMPTOM CHECKLIST-90-REVISED

This is a 90-item questionnaire designed for the purpose of screening for current psychopathology. It assesses nine symptom constructs on a continuous scale: somatisation, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, phobia, paranoid ideation and psychoticism.⁵³

VALIDITY

This is the extent to which an empirical indicator of a concept actually represents the concept of interest. There are three types of validity that need consideration when a measurement instrument is evaluated. (1) Content validity refers to the extent of representation of essential features of a phenomenon under study in an instrument.⁵⁴ For example, if an instrument has to measure depression, content validity requires inclusion of items referring to gloomy feelings, sleeping disturbances, etc. There are no statistical means of assessing content validity. (2) Criterion validity is concerned with measuring something external to the measurement of the concept itself.⁵⁵ External to the measurement itself may be the sequelae of the concept. This form of criterion validity is therefore called "predictive validity". Another form of criterion validity is "concurrent validity". It refers to the extent to which a measure correlates with an external criterion at the same point in time—for example, a certain brain abnormality in the assessment of schizophrenia. Content and criterion validity are necessary but not sufficient conditions for establishing (3) construct validity. This form of validity is related to the extent to which a certain measure of interest fits into what is already known about the concept measured, and its relationship to other measurable phenomena.⁵⁴ It is thus defined in a fully theoretical context.

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