CHAPTER TWO

Burden of Mental and Behavioural Disorders

Mental and behavioural disorders are common, affecting more than 25% of all people at some time during their lives. They are also universal, affecting people of all countries and societies, individuals at all ages, women and men, the rich and the poor, from urban and rural environments. They have an economic impact on societies and on the quality of life of individuals and families. Mental and behavioural disorders are present at any point in time in about 10% of the adult population. Around 20% of all patients seen by primary health care professionals have one or more mental disorders. One in four families is likely to have at least one member with a behavioural or mental disorder. These families not only provide physical and emotional support, but also bear the negative impact of stigma and discrimination. It was estimated that, in 1990, mental and neurological disorders accounted for 10% of the total DALYs lost due to all diseases and injuries. This was 12% in 2000. By 2020, it is projected that the burden of these disorders will have increased to 15%. Common disorders, which usually cause severe disability, include depressive disorders, substance use disorders, schizophrenia, epilepsy, Alzheimer's disease, mental retardation, and disorders of childhood and adolescence. Factors associated with the prevalence, onset and course of mental and behavioural disorders include poverty, sex, age, conflicts and disasters, major physical diseases, and the family and social environment.

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Burden of Mental and Behavioural Disorders

Identifying disorders

Mental and behavioural disorders are understood as clinically significant conditions characterized by alterations in thinking, mood (emotions) or behaviour associated with personal distress and/or impaired functioning. Mental and behavioural disorders are not just variations within the range of "normal", but are clearly abnormal or pathological phenomena. One incidence of abnormal behaviour or a short period of abnormal mood does not, of itself, signify the presence of a mental or behavioural disorder. In order to be categorized as disorders, such abnormalities must be sustained or recurring and they must result in some personal distress or impaired functioning in one or more areas of life. Mental and behavioural disorders are also characterized by specific symptoms and signs, and usually follow a more or less predictable natural course, unless interventions are made. Not all human distress is mental disorder. Individuals may be distressed because of personal or social circumstances; unless all the essential criteria for a particular disorder are satisfied, such distress is not a mental disorder. There is a difference, for example, between depressed mood and diagnosable depression (see Figure 1.3).

Diverse ways of thinking and behaving across cultures may influence the way mental disorders manifest but are not, of themselves, indicative of a disorder. Thus, culturally determined normal variations must not be labelled mental disorders. Nor can social, religious, or political beliefs be taken as evidence of mental disorder.

The ICD-10 classification of mental and behavioural disorders: clinical descriptions and diagnostic guidelines (WHO 1992b) gives a complete list of all mental and behavioural disorders (see Box 2.1). Additional diagnostic criteria for research are also available for a more precise definition of these disorders (WHO 1993a).

Any classification of mental disorders classifies syndromes and conditions, but not individuals. Individuals may suffer from one or more disorders during one or more periods of their lives, but a diagnostic label should not be used to describe an individual. A person should never be equated with a disorder – physical or mental.

Diagnosing disorders

Mental and behavioural disorders are identified and diagnosed using clinical methods that are similar to those used for physical disorders. These methods include a careful and detailed collection of historical information from the individual and others, including the family; a systematic clinical examination for mental status; and specialized tests and inves-

tigations, as needed. Advances have been made during recent decades in standardizing clinical assessment and improving the reliability of diagnosis. Structured interview schedules, uniform definitions of symptoms and signs, and standard diagnostic criteria have now made it possible to achieve a high degree of reliability and validity in the diagnosis of mental disorders. Structured interview schedules and diagnostic symptom/sign checklists allow mental health professionals to collect information using standard questions and pre-coded responses. The symptoms and signs have been defined in detail to allow for uniform application. Finally, diagnostic criteria for disorders have been standardized internationally. Mental disorders can now be diagnosed as reliably and accurately as most of the common physical disorders. Concordance between two experts in the diagnosis of mental disorders averages 0.7 to 0.9 (Wittchen et al. 1991; Wing et al.1974; WHO 1992; APA 1994; Andrews et al. 1995). These figures are in the same range as those for physical disorders such as diabetes mellitus, hypertension or coronary artery disease.

Since a reliable diagnosis is a prerequisite to appropriate intervention at the individual level as well as to accurate epidemiology and monitoring at the community level, advances in diagnostic methods have greatly facilitated the application of clinical and public health principles to the field of mental health.

Box 2.1 Mental and behavioural disorders classified in ICD-10

A complete list of all mental and behavioural disorders is given in *The ICD-10 classification of mental and behavioural disorders: clinical descriptions and diagnostic guidelines.*[1] Additional diagnostic criteria for research are also available for a more precise definition of these disorders.[2] These materials, which are applicable cross culturally, were developed from Chapter V(F) of the *Tenth Revision of the International Classification of Diseases* (ICD-10)[3] on the basis of an international review of scientific literature, worldwide consultations and consensus. Chapter V of ICD-10 is exclusively devoted to mental and behavioural disorders. Besides giving the names of diseases and disorders, like the rest of the chapters, Chapter V has been further developed to give clinical descriptions and diagnostic guidelines as well as diagnostic criteria for research. The broad categories of mental and behavioural disorders covered in ICD-10 are as follows.

- Organic, including symptomatic, mental disorders – e.g., dementia in Alzheimer's disease, delirium.
- Mental and behavioural disorders due to psychoactive substance use – e.g., harmful use of alcohol, opioid dependence syndrome.
- Schizophrenia, schizotypal and delusional disorders – e.g., paranoid schizophrenia, delusional disorders, acute and transient psychotic disorders.
- Mood [affective] disorders – e.g., bipolar affective disorder, depressive episode.
- Neurotic, stress-related and somatoform disorders – e.g., generalized anxiety disorders, obsessive–compulsive disorders.
- Behavioural syndromes associated with physiological disturbances and physical factors – e.g., eating disorders, non-organic sleep disorders.
- Disorders of adult personality and behaviour – e.g., paranoid personality disorder, transsexualism.
- Mental retardation – e.g., mild mental retardation.
- Disorders of psychological development – e.g., specific reading disorders, childhood autism.
- Behavioural and emotional disorders with onset usually occurring in childhood and adolescence – e.g., hyperkinetic disorders, conduct disorders, tic disorders.
- Unspecified mental disorder.

This report focuses on a selection of disorders that usually cause severe disability when not treated adequately and which place a heavy burden on communities. These include: depressive disorders, substance use disorders, schizophrenia, epilepsy, Alzheimer's disease, mental retardation, and disorders of childhood and adolescence. The inclusion of epilepsy is explained later in this chapter.

Some of the mental, behavioural and neurological disorders are included under "neuropsychiatric disorders" in the statistical annex of this report. This group includes unipolar major depression, bipolar affective disorder, psychoses, epilepsy, alcohol dependence, Alzheimer's and other dementias, Parkinson disease, multiple sclerosis, drug dependence, post-traumatic stress disorder, obsessive–compulsive disorders, panic disorder, migraine and sleep disorders.

[1] *The ICD-10 classification of mental and behavioural disorders: clinical descriptions and diagnostic guidelines* (1992b). Geneva, World Health Organization.
[2] *The ICD-10 classification of mental and behavioural disorders: diagnostic criteria for research* (1993a). Geneva, World Health Organization.
[3] *International statistical classification of diseases and related health problems, Tenth revision 1992 (ICD-10). Vol.1: Tabular list. Vol.2: Instruction manual. Vol.3: Alphabetical index* (1992a). Geneva, World Health Organization.

Prevalence of disorders

Mental disorders are not the exclusive preserve of any special group; they are truly universal. Mental and behavioural disorders are found in people of all regions, all countries and all societies. They are present in women and men at all stages of the life course. They are present among the rich and poor, and among people living in urban and rural areas. The notion that mental disorders are problems of industrialized and relatively richer parts of the world is simply wrong. The belief that rural communities, relatively unaffected by the fast pace of modern life, have no mental disorders is also incorrect.

Recent analyses done by WHO show that neuropsychiatric conditions which included a selection of these disorders had an aggregate point prevalence of about 10% for adults (GBD 2000). About 450 million people were estimated to be suffering from neuropsychiatric conditions. These conditions included unipolar depressive disorders, bipolar affective disorder, schizophrenia, epilepsy, alcohol and selected drug use disorders, Alzheimer's and other dementias, post traumatic stress disorder, obsessive and compulsive disorder, panic disorder, and primary insomnia.

The prevalence rates differ depending on whether they refer to people who have a condition at a point in time (point prevalence) or at any time during a period of time (period prevalence), or at any time in their lifetime (lifetime prevalence). Though point prevalence figures are often quoted, including in this report, one-year period prevalence figures are more useful for giving an indication of the number of people who may require services in a year. Prevalence figures also vary based on the concept and definitions of the disorders included in the study. When all the disorders included in ICD-10 (see Box 2.1) are considered, higher prevalence rates have been reported. Surveys conducted in developed as well as developing countries have shown that, during their entire lifetime, more than 25% of individuals develop one or more mental or behavioural disorders (Regier et al. 1988; Wells et al. 1989; Almeida-Filho et al. 1997).

Most studies have found the overall prevalence of mental disorders to be about the same among men and women. Whatever differences exist are accounted for by the differential distribution of disorders. The severe mental disorders are about equally common, with the exception of depression, which is more common among women, and substance use disorders, which are more common among men.

The relationship between poverty and mental disorders is discussed later in this chapter.

Disorders seen in primary health care settings

Mental and behavioural disorders are common among patients attending primary health care settings. An assessment of the extent and pattern of such disorders in these settings is useful because of the potential for identifying individuals with disorders and providing the needed care at that level.

Epidemiological studies in primary care settings have been based on identification of mental disorders by the use of screening instruments, or clinical diagnosis by primary care professionals or by psychiatric diagnostic interview. The cross-cultural study conducted by WHO at 14 sites (Üstün & Sartorius 1995; Goldberg & Lecrubier 1995) used three different methods of diagnosis: a short screening instrument, a detailed structured interview, and a clinical diagnosis by the primary care physician. Though the prevalence of mental disorders across the sites varied considerably, the results clearly demonstrate that a substantial proportion (about 24%) of all patients in these settings had a mental disorder (see Table 2.1). The most common diagnoses in primary care settings are depression, anxiety and sub-

stance abuse disorders. These disorders are present either alone or in addition to one or more physical disorders. There are no consistent differences in prevalence between developed and developing countries.

Impact of disorders

Mental and behavioural disorders have a large impact on individuals, families and communities. Individuals suffer the distressing symptoms of disorders. They also suffer because they are unable to participate in work and leisure activities, often as a result of discrimination. They worry about not being able to shoulder their responsibilities towards family and friends, and are fearful of being a burden for others.

It is estimated that one in four families has at least one member currently suffering from a mental or behavioural disorder. These families are required not only to provide physical and emotional support, but also to bear the negative impact of stigma and discrimination present in all parts of the world. While the burden of caring for a family member with a mental or behavioural disorder has not been adequately studied, the available evidence suggests that it is indeed substantial (Pai & Kapur 1982; Fadden et al. 1987; Winefield & Harvey 1994). The burden on families ranges from economic difficulties to emotional reactions to the illness, the stress of coping with disturbed behaviour, the disruption of household routine and the restriction of social activities (WHO 1997a). Expenses for the treatment of mental illness often are borne by the family either because insurance is unavailable or because mental disorders are not covered by insurance.

Table 2.1 Prevalence of major psychiatric disorders in primary health care

Cities	Current depression (%)	Generalized anxiety (%)	Alcohol dependence (%)	All mental disorders (according to CIDI[a]) (%)
Ankara, Turkey	11.6	0.9	1.0	16.4
Athens, Greece	6.4	14.9	1.0	19.2
Bangalore, India	9.1	8.5	1.4	22.4
Berlin, Germany	6.1	9.0	5.3	18.3
Groningen, Netherlands	15.9	6.4	3.4	23.9
Ibadan, Nigeria	4.2	2.9	0.4	9.5
Mainz, Germany	11.2	7.9	7.2	23.6
Manchester, UK	16.9	7.1	2.2	24.8
Nagasaki, Japan	2.6	5.0	3.7	9.4
Paris, France	13.7	11.9	4.3	26.3
Rio de Janeiro, Brazil	15.8	22.6	4.1	35.5
Santiago, Chile	29.5	18.7	2.5	52.5
Seattle, USA	6.3	2.1	1.5	11.9
Shanghai, China	4.0	1.9	1.1	7.3
Verona, Italy	4.7	3.7	0.5	9.8
Total	**10.4**	**7.9**	**2.7**	**24.0**

[a]CIDI: Composite International Diagnostic Interview.

Source: Goldberg DP, Lecrubier Y (1995). Form and frequency of mental disorders across centres. In: Üstün TB, Sartorius N, eds. *Mental illness in general health care: an international study*. Chichester, John Wiley & Sons on behalf of WHO: 323–334.

In addition to the direct burden, lost opportunities have to be taken into account. Families in which one member is suffering from a mental disorder make a number of adjustments and compromises that prevent other members of the family from achieving their full potential in work, social relationships and leisure (Gallagher & Mechanic 1996). These are the human aspects of the burden of mental disorders, which are difficult to assess and quantify; they are nevertheless important. Families often have to set aside a major part of their time to look after the mentally ill relative, and suffer economic and social deprivation because he or she is not fully productive. There is also the constant fear that recurrence of illness may cause sudden and unexpected disruption of the lives of family members.

The impact of mental disorders on communities is large and manifold. There is the cost of providing care, the loss of productivity, and some legal problems (including violence) associated with some mental disorders, though violence is caused much more often by "normal" people than by individuals with mental disorders.

One specific variety of burdens is the health burden. This has traditionally been measured – in national and international health statistics – only in terms of incidence/prevalence and mortality. While these indices are well suited to acute diseases that either cause death or result in full recovery, their use for chronic and disabling diseases poses serious limitations. This is particularly true for mental and behavioural disorders, which more often cause disability than premature death. One way to account for the chronicity of disorders and the disability caused by them is the Global Burden of Disease (GBD) methodology. The methodology of GBD 2000 is described briefly in Box 2.2. In the original estimates developed for 1990, mental and neurological disorders accounted for 10.5% of the total DALYs lost due to all diseases and injuries. This figure demonstrated for the first time the high burden due to these disorders. The estimate for 2000 is 12.3% for DALYs (see Figure 2.1). Three neuropsychiatric conditions rank in the top twenty leading causes of DALYs for all ages, and six in the age group 15-44 (see Figure 2.2). In the calculation of DALYs, recent estimates from

Box 2.2 Global Burden of Disease 2000

In 1993 the Harvard School of Public Health in collaboration with the World Bank and WHO assessed the Global Burden of Disease (GBD).[1] Aside from generating the most comprehensive and consistent set of estimates of mortality and morbidity by age, sex and region ever produced, GBD also introduced a new metric – disability-adjusted life year (DALY) – to quantify the burden of disease.[2,3]). The DALY is a health gap measure, which combines information on the impact of premature death and of disability and other non-fatal health outcomes. One DALY can be thought of as one lost year of 'healthy' life, and the burden of disease as a measurement of the gap between current health status and an ideal situation where everyone lives into old age free of disease and disability. For a review of the development of DALYs and recent advances in the measurement of burden of disease see Murray & Lopez (2000).[4]

The World Health Organization has undertaken a new assessment of the Global Burden of Disease for the year 2000, GBD 2000, with the following specific objectives:

- to quantify the burden of premature mortality and disability by age, sex, and region for 135 major causes or groups of causes;
- to analyse the contribution to this burden of selected risk factors using a comparable framework;
- to develop various projection scenarios of the burden of disease over the next 30 years.

DALYs for a disease are the sum of the years of life lost due to premature mortality (YLL) in the population and the years lost due to disability (YLD) for incident cases of the health condition. The DALY is a health gap measure that extends the concept of potential years of life lost due to premature death (PYLL) to include equivalent years of 'healthy' life lost in states of less than full health, broadly termed disability.

GBD 2000 results for neuropsychiatric disorders given in this report are based on an extensive analysis of mortality data for all regions of the world, together with systematic reviews of epidemiological studies and population-based mental health surveys. Final results of GBD 2000 will be published in 2002.

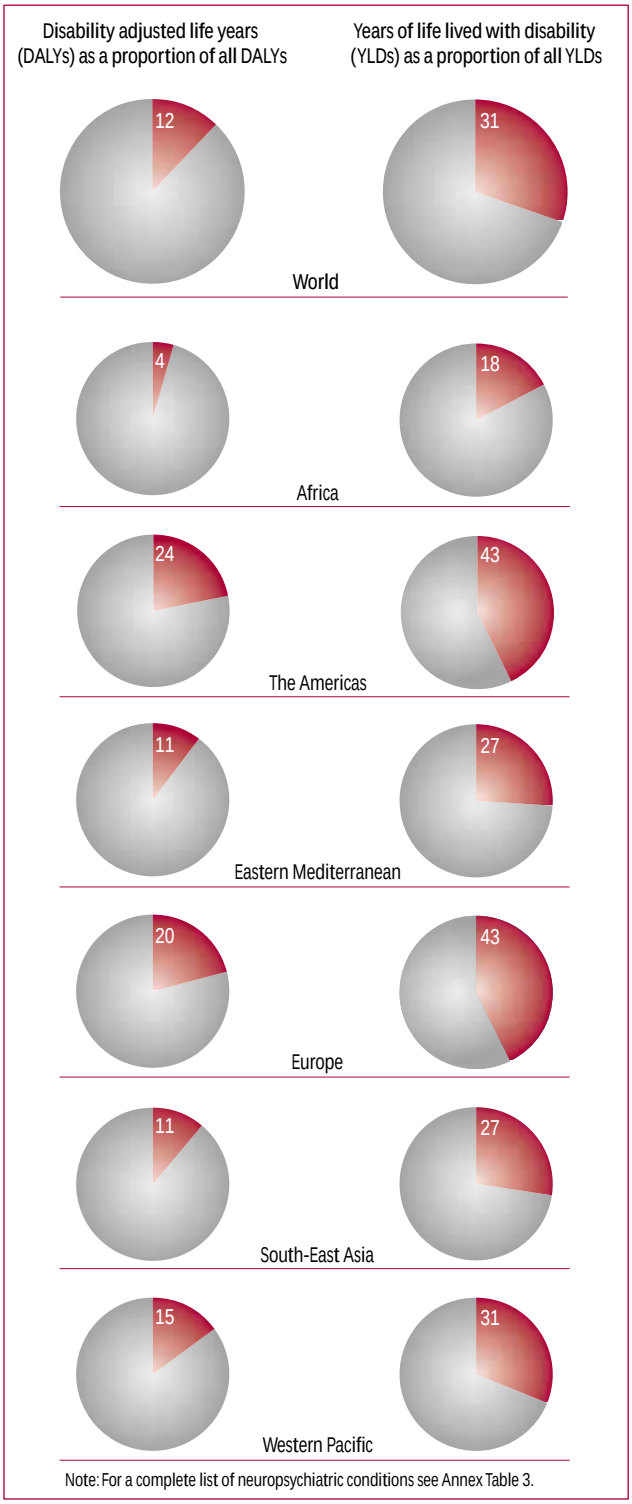
[1] World Bank (1993). *World development report 1993: investing in health*. New York, Oxford University Press for the World Bank.

[2] Murray CJL, Lopez AD, eds (1996a). *The global burden of disease: a comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990 and projected to 2020*. Cambridge, MA, Havard School of Public Health on behalf of the World Health Organization and the World Bank (Global Burden of Disease and Injury Series, Vol. I).

[3] Murray CJL, Lopez AD (1996b). *Global health statistics*. Cambridge, MA, Harvard School of Public Health on behalf of the World Health Organization and the World Bank (Global Burden of Disease and Injury Series, Vol. II).

[4] Murray CJL, Lopez AD (2000). Progress and directions in refining the global burden of disease approach: a response to Williams. *Health Economics*, 9: 69–82.

Figure 2.1 Burden of neuropsychiatric conditions as a proportion of the total burden of disease, globally and in WHO Regions, estimates for 2000



Note: For a complete list of neuropsychiatric conditions see Annex Table 3.

Australia based on detailed methods and different data sources have confirmed mental disorders as the leading cause of disability burden (Vos & Mathers 2000). From an analysis of trends, it is evident that this burden will increase rapidly in the future. Projections indicate that it will increase to 15% in the year 2020 (Murray & Lopez 1996a). The proportion of DALYs and YLDs for neuropsychiatric conditions globally and regionally are given in Figure 2.1.

Taking the disability component of burden alone, GBD 2000 estimates show that mental and neurological conditions account for 30.8% of all years lived with disability (YLDs). Indeed, depression causes the largest amount of disability, accounting for almost 12% of all disability. Six neuropsychiatric conditions figured in the top twenty causes of disability (YLDs) in the world, these being unipolar depressive disorders, alcohol use disorders, schizophrenia, bipolar affective disorder, Alzheimer's and other dementias, and migraine. (see Figure 2.3).

The disability caused by mental and neurological disorders is high in all regions of the world. As a proportion of the total, however, it is comparatively less in the developing countries, mainly because of the large burden of communicable, maternal, perinatal and nutritional conditions in those regions. Even so, neuropsychiatric disorders cause 17.6% of all YLDs in Africa.

There are varying degrees of uncertainty in GBD 2000 estimates of DALYs and YLDs for mental and neurological disorders, reflecting uncertainty in the prevalence of the various conditions in different regions of the world, and uncertainty in the variation of their severity distributions. In particular, there is considerable uncertainty in the estimates of prevalence of mental disorders in many regions, reflecting the limitations of self-report instruments for classifying mental health symptoms in a comparable way across populations, limitations in the generalizability of surveys in subpopulations to broader population groups, and limitations in the information available to classify the severity of disabling symptoms of mental health conditions.

Economic costs to society

The economic impact of mental disorders is wide ranging, long lasting and huge. These disorders impose a range of costs on individuals, families and communities as a whole. Part of this economic burden is obvious and measurable, while part is almost impossible to measure. Among the measurable components of the economic burden are

health and social service needs, lost employment and reduced productivity, impact on families and caregivers, levels of crime and public safety, and the negative impact of premature mortality.

Some studies, mainly from industrialized countries, have estimated the aggregate economic costs of mental disorders. One such study (Rice et al. 1990) concluded that the aggregate yearly cost for the United States accounted for about 2.5% of gross national product. A few studies from Europe have estimated expenditure on mental disorders as a proportion of all health service costs: in the Netherlands, this was 23.2% (Meerding et al. 1998) and in the United Kingdom, for inpatient expenditure only, it was 22% (Patel & Knapp

Figure 2.2 Leading causes of disability-adjusted life years (DALYs), in all ages and in 15–44-year-olds, by sex, estimates for 2000[a]

	Both sexes, all ages	% total		Males, all ages	% total		Females, all ages	% total
1	Lower respiratory infections	6.4	1	Perinatal conditions	6.4	1	HIV/AIDS	6.5
2	Perinatal conditions	6.2	2	Lower respiratory infections	6.4	2	Lower respiratory infections	6.4
3	HIV/AIDS	6.1	3	HIV/AIDS	5.8	3	Perinatal conditions	6.0
4	Unipolar depressive disorders	4.4	4	Diarrhoeal diseases	4.2	4	Unipolar depressive disorders	5.5
5	Diarrhoeal diseases	4.2	5	Ischaemic heart disease	4.2	5	Diarrhoeal diseases	4.2
6	Ischaemic heart disease	3.8	6	Road traffic accidents	4.0	6	Ischaemic heart disease	3.3
7	Cerebrovascular disease	3.1	7	Unipolar depressive disorders	3.4	7	Cerebrovascular disease	3.2
8	Road traffic accidents	2.8	8	Cerebrovascular disease	3.0	8	Malaria	3.0
9	Malaria	2.7	9	Tuberculosis	2.9	9	Congenital abnormalities	2.2
10	Tuberculosis	2.4	10	Malaria	2.5	10	Chronic obstructive pulmonary disease	2.1
11	Chronic obstructive pulmonary disease	2.3	11	Chronic obstructive pulmonary disease	2.4	11	Iron-deficiency anaemia	2.1
12	Congenital abnormalities	2.2	12	Congenital abnormalities	2.2	12	Tuberculosis	2.0
13	Measles	1.9	13	Alcohol use disorders	2.1	13	Measles	2.0
14	Iron-deficiency anaemia	1.8	14	Measles	1.8	14	Hearing loss, adult onset	1.7
15	Hearing loss, adult onset	1.7	15	Hearing loss, adult onset	1.8	15	Road traffic accidents	1.5
16	Falls	1.3	16	Violence	1.6	16	Osteoarthritis	1.4
17	Self-inflicted injuries	1.3	17	Iron-deficiency anaemia	1.5	17	Protein–energy malnutrition	1.2
18	Alcohol use disorders	1.3	18	Falls	1.5	18	Self-inflicted injuries	1.1
19	Protein–energy malnutrition	1.1	19	Self-inflicted injuries	1.5	19	Diabetes mellitus	1.1
20	Osteoarthritis	1.1	20	Cirrhosis of the liver	1.4	20	Falls	1.1

	Both sexes, 15–44-year-olds	% total		Males, 15–44-year-olds	% total		Females, 15–44-year-olds	% total
1	HIV/AIDS	13.0	1	HIV/AIDS	12.1	1	HIV/AIDS	13.9
2	Unipolar depressive disorders	8.6	2	Road traffic accidents	7.7	2	Unipolar depressive disorders	10.6
3	Road traffic accidents	4.9	3	Unipolar depressive disorders	6.7	3	Tuberculosis	3.2
4	Tuberculosis	3.9	4	Alcohol use disorders	5.1	4	Iron-deficiency anaemia	3.2
5	Alcohol use disorders	3.0	5	Tuberculosis	4.5	5	Schizophrenia	2.8
6	Self-inflicted injuries	2.7	6	Violence	3.7	6	Obstructed labour	2.7
7	Iron-deficiency anaemia	2.6	7	Self-inflicted injuries	3.0	7	Bipolar affective disorder	2.5
8	Schizophrenia	2.6	8	Schizophrenia	2.5	8	Abortion	2.5
9	Bipolar affective disorder	2.5	9	Bipolar affective disorder	2.4	9	Self-inflicted injuries	2.4
10	Violence	2.3	10	Iron-deficiency anaemia	2.1	10	Maternal sepsis	2.1
11	Hearing loss, adult onset	2.0	11	Hearing loss, adult onset	2.0	11	Road traffic accidents	2.0
12	Chronic obstructive pulmonary disease	1.5	12	Ischaemic heart disease	1.9	12	Hearing loss, adult onset	2.0
13	Ischaemic heart disease	1.5	13	War	1.7	13	Chlamydia	1.9
14	Cerebrovascular disease	1.4	14	Falls	1.7	14	Panic disorder	1.6
15	Falls	1.3	15	Cirrhosis of the liver	1.6	15	Chronic obstructive pulmonary disease	1.5
16	Obstructed labour	1.3	16	Drug use disorders	1.6	16	Maternal haemorrhage	1.5
17	Abortion	1.2	17	Cerebrovascular disease	1.5	17	Osteoarthritis	1.4
18	Osteoarthritis	1.2	18	Chronic obstructive pulmonary disease	1.5	18	Cerebrovascular disease	1.3
19	War	1.2	19	Asthma	1.4	19	Migraine	1.2
20	Panic disorder	1.2	20	Drownings	1.1	20	Ischaemic heart disease	1.1

[a]Neuropsychiatric conditions and self-inflicted injuries (see Annex Table 3) are highlighted.

Figure 2.3 Leading causes of years of life lived with disability (YLDs), in all ages and in 15–44-year-olds, by sex, estimates for 2000[a]

	Both sexes, all ages	% total		Males, all ages	% total		Females, all ages	% total
1	Unipolar depressive disorders	11.9	1	Unipolar depressive disorders	9.7	1	Unipolar depressive disorders	14.0
2	Hearing loss, adult onset	4.6	2	Alcohol use disorders	5.5	2	Iron-deficiency anaemia	4.9
3	Iron-deficiency anaemia	4.5	3	Hearing loss, adult onset	5.1	3	Hearing loss, adult onset	4.2
4	Chronic obstructive pulmonary disease	3.3	4	Iron-deficiency anaemia	4.1	4	Osteoarthritis	3.5
5	Alcohol use disorders	3.1	5	Chronic obstructive pulmonary disease	3.8	5	Chronic obstructive pulmonary disease	2.9
6	Osteoarthritis	3.0	6	Falls	3.3	6	Schizophrenia	2.7
7	Schizophrenia	2.8	7	Schizophrenia	3.0	7	Bipolar affective disorder	2.4
8	Falls	2.8	8	Road traffic accidents	2.7	8	Falls	2.3
9	Bipolar affective disorder	2.5	9	Bipolar affective disorder	2.6	9	Alzheimer's and other dementias	2.2
10	Asthma	2.1	10	Osteoarthritis	2.5	10	Obstructed labour	2.1
11	Congenital abnormalities	2.1	11	Asthma	2.3	11	Cataracts	2.0
12	Perinatal conditions	2.0	12	Perinatal conditions	2.2	12	Migraine	2.0
13	Alzheimer's and other dementias	2.0	13	Congenital abnormalities	2.2	13	Congenital abnormalities	1.9
14	Cataracts	1.9	14	Cataracts	1.9	14	Asthma	1.8
15	Road traffic accidents	1.8	15	Protein–energy malnutrition	1.8	15	Perinatal conditions	1.8
16	Protein–energy malnutrition	1.7	16	Alzheimer's and other dementias	1.8	16	Chlamydia	1.8
17	Cerebrovascular disease	1.7	17	Cerebrovascular disease	1.7	17	Cerebrovascular disease	1.8
18	HIV/AIDS	1.5	18	HIV/AIDS	1.6	18	Protein–energy malnutrition	1.6
19	Migraine	1.4	19	Lymphatic filariasis	1.6	19	Abortion	1.6
20	Diabetes mellitus	1.4	20	Drug use disorders	1.6	20	Panic disorder	1.6

	Both sexes, 15–44-year-olds	% total		Males, 15–44-year-olds	% total		Females, 15–44-year-olds	% total
1	Unipolar depressive disorders	16.4	1	Unipolar depressive disorders	13.9	1	Unipolar depressive disorders	18.6
2	Alcohol use disorders	5.5	2	Alcohol use disorders	10.1	2	Iron-deficiency anaemia	5.4
3	Schizophrenia	4.9	3	Schizophrenia	5.0	3	Schizophrenia	4.8
4	Iron-deficiency anaemia	4.9	4	Bipolar affective disorder	5.0	4	Bipolar affective disorder	4.4
5	Bipolar affective disorder	4.7	5	Iron-deficiency anaemia	4.2	5	Obstructed labour	4.0
6	Hearing loss, adult onset	3.8	6	Hearing loss, adult onset	4.1	6	Hearing loss, adult onset	3.6
7	HIV/AIDS	2.8	7	Road traffic accidents	3.8	7	Chlamydia	3.3
8	Chronic obstructive pulmonary disease	2.4	8	HIV/AIDS	3.2	8	Abortion	3.1
9	Osteoarthritis	2.3	9	Drug use disorders	3.0	9	Panic disorder	2.8
10	Road traffic accidents	2.3	10	Chronic obstructive pulmonary disease	2.6	10	HIV/AIDS	2.5
11	Panic disorder	2.2	11	Asthma	2.5	11	Osteoarthritis	2.5
12	Obstructed labour	2.1	12	Falls	2.4	12	Maternal sepsis	2.3
13	Chlamydia	2.0	13	Osteoarthritis	2.1	13	Chronic obstructive pulmonary disease	2.2
14	Falls	1.9	14	Lymphatic filariasis	2.1	14	Migraine	2.1
15	Asthma	1.9	15	Panic disorder	1.6	15	Alcohol use disorders	1.5
16	Drug use disorders	1.8	16	Tuberculosis	1.6	16	Rheumatoid arthritis	1.4
17	Abortion	1.6	17	Gout	1.3	17	Obsessive–compulsive disorder	1.4
18	Migraine	1.6	18	Obsessive–compulsive disorder	1.3	18	Falls	1.4
19	Obsessive–compulsive disorder	1.4	19	Violence	1.2	19	Post-traumatic stress disorder	1.4
20	Maternal sepsis	1.2	20	Gonorrhoea	1.1	20	Asthma	1.3

[a]Neuropsychiatric conditions (see Annex Table 3) are highlighted.

1998). Though scientific estimates are not available for other regions of the world, it is likely that the costs of mental disorders as a proportion of the overall economy are high there too. Although estimates of direct costs may be low in countries where there is low availability and coverage of mental health care, these estimates are spurious. Indirect costs arising from productivity loss account for a larger proportion of overall costs than direct costs. Furthermore, low treatment costs (because of lack of treatment) may actually increase the indirect costs by increasing the duration of untreated disorders and associated disability (Chisholm et al. 2000).

All these estimates of economic evaluations are most certainly underestimates, since lost opportunity costs to individuals and families are not taken into account.

Impact on the quality of life

Mental and behavioural disorders cause massive disruption in the lives of those who are affected and their families. Though the whole range of unhappiness and suffering is not measurable, one of the methods to assess its impact is by using quality of life (QOL) instruments (Lehman et al. 1998). QOL measures use the subjective ratings of the individual in a variety of areas to assess the impact of symptoms and disorders on life (Orley et al. 1998). A number of studies have reported on the quality of life of individuals with mental disorders, concluding that the negative impact is not only substantial but sustained (UK700 Group 1999). It has been shown that quality of life continues to be poor even after recovery from mental disorders as a result of social factors that include continued stigma and discrimination. Results from QOL studies also suggest that individuals with severe mental disorders living in long-term mental hospitals have a poorer quality of life than those living in the community. A recent study clearly demonstrated that unmet basic social and functioning needs were the largest predictors of poor quality of life among individuals with severe mental disorders (UK700 Group 1999).

The impact on quality of life is not limited to severe mental disorders. Anxiety and panic disorders also have a major effect, in particular with regard to psychological functioning (Mendlowicz & Stein 2000; Orley & Kuyken 1994).

Some common disorders

Mental and behavioural disorders present a varied and heterogeneous picture. Some disorders are mild while others are severe. Some last just a few weeks while others may last a lifetime. Some are not even discernible except by detailed scrutiny while others are impossible to hide even from a casual observer. This report focuses on a few common disorders that place a heavy burden on communities and that are generally regarded with a high level of concern. These include depressive disorders, substance use disorders, schizophrenia, epilepsy, Alzheimer's disease, mental retardation, and disorders of childhood and adolescence. The inclusion of epilepsy needs some explanation. Epilepsy is a neurological disorder and is classified under Chapter VI of ICD-10 with other diseases of the nervous system. However, epilepsy was historically seen as a mental disorder and is still considered this way in many societies. Like those with mental disorders, people with epilepsy suffer stigma and severe disability if left untreated. The management of epilepsy is often the responsibility of mental health professionals because of the high prevalence of this disorder and the relative scarcity of specialist neurological services, especially in developing countries. In addition, many countries have laws that prevent individuals with mental disorders and epilepsy from undertaking certain civil responsibilities.

The following section briefly describes the basic epidemiology, burden, course/outcome and special characteristics of some disorders, as examples, to provide background to the discussion of available interventions (in Chapter 3) and mental health policy and programmes (in Chapter 4).

Depressive disorders

Depression is characterized by sadness, loss of interest in activities, and decreased energy. Other symptoms include loss of confidence and self-esteem, inappropriate guilt, thoughts of death and suicide, diminished concentration, and disturbance of sleep and appetite. A variety of somatic symptoms may also be present. Though depressive feelings are common, especially after experiencing setbacks in life, depressive disorder is diagnosed

only when the symptoms reach a threshold and last at least two weeks. Depression can vary in severity from mild to very severe (see Figure 1.3). It is most often episodic but can be recurrent or chronic. Depression is more common in women than in men. GBD 2000 estimates the point prevalence of unipolar depressive episodes to be 1.9% for men and 3.2% for women, and that 5.8% of men and 9.5% of women will experience a depressive episode in a 12-month period. These prevalence figures vary across populations and may be higher in some populations.

GBD 2000 analysis also shows that unipolar depressive disorders place an enormous burden on society and are ranked as the fourth leading cause of burden among all diseases, accounting for 4.4% of the total DALYs and the leading cause of YLDs, accounting for 11.9% of total YLDs. In the age group 15–44 years it caused the second highest burden, amounting to 8.6% of DALYs lost. While these estimates clearly demonstrate the current very high level of burden resulting from depression, the outlook for the future is even grimmer. By the year 2020, if current trends for demographic and epidemiological transition continue, the burden of depression will increase to 5.7% of the total burden of disease, becoming the second leading cause of DALYs lost. Worldwide it will be second only to ischaemic heart disease for DALYs lost for both sexes. In the developed regions, depression will then be the highest ranking cause of burden of disease.

Depression can affect individuals at any stage of the life span, although the incidence is highest in the middle ages. There is, however, an increasing recognition of depression during adolescence and young adulthood (Lewinsohn et al. 1993). Depression is essentially an episodic recurring disorder, each episode lasting usually from a few months to a few years, with a normal period in between. In about 20% of cases, however, depression follows a chronic course with no remission (Thornicroft & Sartorius 1993), especially when adequate treatment is not available. The recurrence rate for those who recover from the first episode is around 35% within 2 years and about 60% at 12 years. The recurrence rate is higher in those who are more than 45 years of age. One of the particularly tragic outcomes of a depressive disorder is suicide. Around 15–20% of depressive patients end their lives by committing suicide (Goodwin & Jamison 1990). Suicide remains one of the common and avoidable outcomes of depression.

Bipolar affective disorder refers to patients with depressive illness along with episodes of mania characterized by elated mood, increased activity, over-confidence and impaired concentration. According to GBD 2000, the point prevalence of bipolar disorder is around 0.4%.

To summarize, depression is a common mental disorder, causing a very high level of disease burden, and is expected to show a rising trend during the coming 20 years.

Substance use disorders

Mental and behavioural disorders resulting from psychoactive substance use include disorders caused by the use of alcohol, opioids such as opium or heroin, cannabinoids such as marijuana, sedatives and hypnotics, cocaine, other stimulants, hallucinogens, tobacco and volatile solvents. The conditions include intoxication, harmful use, dependence and psychotic disorders. Harmful use is diagnosed when damage has been caused to physical or mental health. Dependence syndrome involves a strong desire to take the substance, difficulty in controlling use, a physiological withdrawal state, tolerance, neglect of alternative pleasures and interests, and persistence of use despite harm to oneself and others.

Though the use of substances (along with their associated disorders) varies from region

to region, tobacco and alcohol are the substances that are used most widely in the world as a whole and that have the most serious public health consequences.

Use of tobacco is extremely common. Most of the use is in the form of cigarettes. The World Bank estimates that, in high income countries, smoking-related health care accounts for 6–15.1% of all annual health care costs (World Bank 1999).

Today, about one in three adults, or 1.2 billion people, smoke. By 2025, the number is expected to rise to more than 1.6 billion. Tobacco was estimated to account for over 3 million annual deaths in 1990, rising to 4 million annual deaths in 1998. It is estimated that tobacco-attributable deaths will rise to 8.4 million in 2020 and reach 10 million annual deaths in about 2030. This increase will not, however, be shared equally: deaths in developed regions are expected to rise 50% from 1.6 to 2.4 million, while those in Asia will soar almost fourfold from 1.1 million in 1990 to an estimated 4.2 million in 2020 (Murray & Lopez 1997).

In addition to the social and behavioural factors associated with the onset of tobacco use, a clear dependence on nicotine is found in the majority of chronic smokers. This dependence prevents these individuals from giving up tobacco use and staying away from it. Box 2.3 describes the link between mental disorders and tobacco use.

Alcohol is also a commonly used substance in most regions of the world. Point prevalence of alcohol use disorders (harmful use and dependence) in adults has been estimated to be around 1.7% globally according to GBD 2000 analysis. The rates are 2.8% for men and 0.5% for women. The prevalence of alcohol use disorders varies widely across different

Box 2.3 Tobacco use and mental disorders

The link between tobacco use and mental disorders is a complex one. Research findings strongly suggest that mental health professionals need to pay much greater attention to tobacco use by patients during and after their treatment, in order to prevent related problems.

People with mental disorders are about twice as likely to smoke as others; those with schizophrenia and alcohol dependence are particularly likely to be heavy smokers, with rates as high as 86%.[1–3] A recent study in the USA showed that individuals with current mental disorders had a smoking rate of 41% compared with 22.5% in the general population, and estimated that 44% of all cigarettes smoked in the US are consumed by people with mental disorders.[4]

Regular smoking starts earlier in male adolescents with attention deficit disorder,[5] and individuals with depression are also more likely to be smokers.[6] Though the traditional thinking has been that depressed individuals tend to smoke more because of their symptoms, new evidence reveals that it may be the other way round. A study of teenagers showed that those who became depressed had a higher prevalence of smoking beforehand – suggesting that smoking actually resulted in depression in this age group.[7]

Alcohol and drug use disorder patients also show systematic changes in their smoking behaviour during treatment. A recent study found that though heavy smokers decreased their smoking while hospitalized for detoxification, light smokers actually increased their smoking substantially.[8]

The reasons for the high rate of smoking by persons with mental and behavioural disorders are not clearly known, but neurochemical mechanisms have been suggested to account for it.[9] Nicotine is a highly psychoactive chemical that has a variety of effects in the brain: it has reinforcing properties and activates the reward systems of the brain; it also leads to increased dopamine release in parts of the brain that are intimately related to mental disorders. Nicotine may also be consumed in an attempt to decrease the distress and other undesirable effects of mental symptoms. Social environment, including isolation and boredom, may also play a role; these aspects are particularly evident in an institutional setting. Whatever the reasons, the fact that people with mental disorders further jeopardize their health by excessive smoking is not in doubt.

[1]Hughes JR et al. (1986). Prevalence of smoking among psychiatric outpatients. *American Journal of Psychiatry*,143: 993–997.
[2]Goff DC et al. (1992). Cigarette smoking in schizophrenia: relationship to psychopathology and medication side-effects. *American Journal of Psychiatry*, 149: 1189–1194.
[3]True WR et al. (1999). Common genetic vulnerability for nicotine and alcohol dependence in men. *Archives of General Psychiatry*, 56: 655–661.
[4]Lasser K et al. (2000). Smoking and mental illness: a population-based prevalence study. *Journal of the American Medical Association*, 284: 2606–2610.
[5]Castellanos FX et al. (1994). Quantitative morphology of the caudate nucleus in attention deficit hyperactivity disorder. *American Journal of Psychiatry*, 151(12): 1791–1796.
[6]Pomerleau OF et al. (1995). Cigarette smoking in adult patients diagnosed with attention deficit hyperactivity disorder. *Journal of Substance Abuse*, 7(3): 373–368.
[7]Goodman E, Capitman J (2000). Depressive symptoms and cigarette smoking among teens. *Pediatrics* 106(4): 748–755.
[8]Harris J et al. (2000). Changes in cigarette smoking among alcohol and drug misusers during inpatient detoxification. *Addiction Biology*, 5: 443–450.
[9]Batra A (2000). Tobacco use and smoking cessation in the psychiatric patient. *Forschritte de Neurologie-Psychiatrie*, 68: 80–92.

regions of the world, ranging from very low levels in some Middle Eastern countries to over 5% in North America and parts of Eastern Europe.

Alcohol use is rising rapidly in some of the developing regions of the world (Jernigan et al. 2000; Riley & Marshall 1999; WHO 1999) and this is likely to escalate alcohol-related problems (WHO 2000b). Alcohol use is also a major reason for concern among the indigenous people around the world, who show a higher prevalence of use and associated problems.

Alcohol ranks high as a cause of disease burden. The global burden of disease project (Murray & Lopez 1996a) estimated alcohol to be responsible for 1.5% of all deaths and 3.5% of the total DALYs. This burden includes physical disorders (such as cirrhosis), and injuries (for example, motor vehicle crash injuries) attributable to alcohol.

Alcohol imposes a high economic cost on society. One estimate puts the yearly economic cost of alcohol abuse in the United States to be US$ 148 billion, including US$ 19 billion for health care expenditure (Harwood et al. 1998). In Canada, the economic costs of alcohol, tobacco and illicit drugs in 1992 amounted to Canadian Dollars 18.4 billion, representing 2.7% of the gross domestic product. Alcohol alone was responsible for Canadian Dollars 7.52 billion as costs. Studies in other countries have estimated the cost of alcohol-related problems to be around 1% of the gross domestic product (Collins & Lapsely 1996; Rice et al. 1991). A recent study demonstrated that alcohol-related hospital charges in 1998 in New Mexico, USA, were US$ 51 million in comparison to US$ 35 million collected as alcohol taxes (New Mexico Department of Health 2001), clearly showing that communities spend more money on taking care of alcohol problems than they earn from alcohol.

Besides tobacco and alcohol, a large number of other substances – generally grouped under the broad category of drugs – are also abused. These include illicit drugs such as heroin, cocaine and cannabis. The period prevalence of drug abuse and dependence ranges from 0.4% to 4%, but the type of drugs used varies greatly from region to region. GBD 2000 analysis suggests that the point prevalence of heroin and cocaine use disorders is 0.25%. Injecting drugs involves considerable risk of infections, including hepatitis B, hepatitis C and HIV. It has been estimated that there are about 5 million people in the world who inject illicit drugs. The prevalence of HIV infection among injecting drug users is 20–80% in many cities. The increasing role of injecting drug use in HIV transmission has attracted serious concern all over the world, especially in Central and Eastern European countries (UNAIDS 2000).

The burden attributable to illicit drugs (heroin and cocaine) was estimated at 0.4% of the total disease burden according to GBD 2000. The economic cost of harmful drug use and dependence in the United States has been estimated to be US$ 98 billion (Harwood et al. 1998). These disease burden and cost estimates do not take into account a variety of negative social effects that are caused by drug use. Tobacco and alcohol use typically starts during youth and acts as a facilitator to the use of other drugs. Thus tobacco and alcohol contribute indirectly to a large amount of the burden of other drugs and the consequent diseases.

Questions are often raised as to whether substance use disorders are genuine disorders or should rather be seen as deviant behaviour by people who deliberately indulge in an activity that causes them harm. While deciding to experiment with a psychoactive substance is usually a personal decision, developing dependence after repeated use is not a conscious and informed decision by the individual or the result of a moral weakness, but the outcome of a complex combination of genetic, physiological and environmental factors. It is very difficult to distinguish exactly when a person becomes dependent on a sub-

stance (regardless of its legal status), and there is evidence that dependence is not a clearly demarcated category but that it happens along a continuum, from early problems without significant dependence to severe dependence with physical, mental and socioeconomic consequences.

There is also increasing evidence of neurochemical changes in the brain that are associated with and indeed cause many of the essential characteristics of substance dependence. Even the clinical evidence suggests that substance dependence should be seen as both a chronic medical illness and a social problem (Leshner 1997; McLellan et al. 2000). Common roots of dependence for a variety of substances and the high prevalence of multiple dependence also suggest that substance dependence should be viewed as a complex mental disorder with a possible basis in brain functioning.

Schizophrenia

Schizophrenia is a severe disorder that typically begins in late adolescence or early adulthood. It is characterized by fundamental distortions in thinking and perception, and by inappropriate emotions. The disturbance involves the most basic functions that give the normal person a feeling of individuality, uniqueness and self-direction. Behaviour may be seriously disturbed during some phases of the disorder, leading to adverse social consequences. Strong belief in ideas that are false and without any basis in reality (delusions) is another feature of this disorder.

Schizophrenia follows a variable course, with complete symptomatic and social recovery in about one-third of cases. Schizophrenia can, however, follow a chronic or recurrent course, with residual symptoms and incomplete social recovery. Individuals with chronic schizophrenia constituted a large proportion of all residents of mental institutions in the past, and still do where these institutions continue to exist. With modern advances in drug therapy and psychosocial care, almost half the individuals initially developing schizophrenia can expect a full and lasting recovery. Of the remainder, only about one-fifth continue to face serious limitations in their day-to-day activities.

Schizophrenia is found approximately equally in men and women, though the onset tends to be later in women, who also tend to have a better course and outcome of this disorder.

GBD 2000 reports a point prevalence of 0.4% for schizophrenia. Schizophrenia causes a high degree of disability. In a recent 14-country study on disability associated with physical and mental conditions, active psychosis was ranked the third most disabling condition, higher than paraplegia and blindness, by the general population (Üstün et al. 1999).

In the global burden of disease study, schizophrenia accounted for 1.1% of the total DALYs and 2.8% of YLDs. The economic cost of schizophrenia to society is also high. It has been estimated that, in 1991, the cost of schizophrenia to the United States was US$ 19 billion in direct expenditure and US$ 46 billion in lost productivity.

Even after the more obvious symptoms of this disorder have disappeared, some residual symptoms may remain. These include lack of interest and initiative in daily activities and work, social incompetence, and inability to take interest in pleasurable activities. These can cause continued disability and poor quality of life. These symptoms can place a considerable burden on families (Pai & Kapur 1982). It has been repeatedly demonstrated that schizophrenia follows a less severe course in developing countries (Kulhara & Wig 1978; Thara & Eaton 1996). For example, in one of the multi-site international studies, the proportion of patients showing full remission at 2 years was 63% in developing countries compared to 37% in developed countries (Jablensky et al. 1992). Though attempts have

been made to explain this better outcome on the basis of stronger family support and fewer demands on the patients, the exact reasons for these differences are not clear.

A substantial number of individuals with schizophrenia attempt suicide at some time during the course of their illness. A recent study showed that 30% of patients diagnosed with this disorder had attempted suicide at least once during their lifetime (Radomsky et al. 1999). About 10% of persons with schizophrenia die by suicide (Caldwell & Gottesman 1990). Globally, schizophrenic illness reduces an affected individual's lifespan by an average of 10 years.

Epilepsy

Epilepsy is the most common brain disorder in the general population. It is characterized by recurrence of seizures, caused by outbursts of excessive electrical activity in part or the whole of the brain. The majority of individuals with epilepsy do not have any obvious or demonstrable abnormality in the brain, besides the electrical changes. However, a proportion of individuals with this disorder may have accompanying brain damage, which may cause other physical dysfunctions such as spasticity or mental retardation.

The causes of epilepsy include genetic predisposition, brain damage caused by birth complications, infections and parasitic diseases, brain injuries, intoxication and tumours. Cysticercosis (tapeworm), schistosomiasis, toxoplasmosis, malaria, and tubercular and viral encephalitis are some of the common infectious causes of epilepsy in developing countries (Senanayake & Román 1993). Epileptic seizures vary greatly in frequency, from several a day to once every few months. The manifestation of epilepsy depends on the brain areas involved. Usually the individual undergoes sudden loss of consciousness and may experience spasmodic movements of the body. Injuries can result from a fall during the seizure.

GBD 2000 estimates that about 37 million individuals globally suffer from primary epilepsy. When epilepsy caused by other diseases or injury is also included, the total number of persons affected increases to about 50 million. It is estimated that more than 80% individuals with epilepsy live in developing countries.

Epilepsy places a significant burden on communities, especially in developing countries where it may remain largely untreated. GBD 2000 estimates the aggregate burden due to epilepsy to be 0.5% of the total disease burden. In addition to physical and mental disability, epilepsy often results in serious psychosocial consequences for the individual and the family. The stigma attached to epilepsy prevents individuals with epilepsy from participating in normal activities, including education, marriage, work and sports.

Epilepsy typically arises during childhood and can (though does not always) follow a chronic course. The rate of spontaneous recovery is substantial, with many of those initially identified as suffering from epilepsy being free from seizure after three years.

Alzheimer's disease

Alzheimer's disease is a primary degenerative disease of the brain. Dementia in Alzheimer's disease is classified as a mental and behavioural disorder in ICD-10. It is characterized by progressive decline of cognitive functions such as memory, thinking, comprehension, calculation, language, learning capacity and judgement. Dementia is diagnosed when these declines are sufficient to impair personal activities of daily living. Alzheimer's disease shows insidious onset with slow deterioration. This disease needs to be clearly differentiated from age-related normal decline of cognitive functions. The normal decline is much less, much more gradual and leads to milder disabilities. The onset of Alzheimer's disease is usually after 65 years of age, though earlier onset is not uncommon. As age advances, the incidence

increases rapidly (it roughly doubles every 5 years). This has obvious implications for the total number of individuals living with this disorder as life expectancy increases in the population.

The incidence and prevalence of Alzheimer's disease have been studied extensively. The population samples are usually composed of people over 65 years of age, although some studies have included younger populations, especially in countries where the expected life span is shorter (for example, India). The wide range of prevalence figures (1–5%) is partly explained by the different age samples and diagnostic criteria. In GBD 2000, Alzheimer's and other dementias have an overall point prevalence of 0.6%. The prevalence among those above 60 years is about 5% for men and 6% for women. There is no evidence of any sex difference in incidence, but more women are encountered with Alzheimer's disease because of greater female longevity.

The exact cause of Alzheimer's disease remains unknown, although a number of factors have been suggested. These include disturbances in the metabolism and regulation of amyloid precursor protein, plaque-related proteins, tau proteins, zinc and aluminium (Drouet et al. 2000; Cuajungco & Lees 1997).

GBD 2000 estimates the DALYs due to dementias as 0.84% and YLDs as 2.0%. With the ageing of populations, especially in the industrialized regions, this percentage is likely to show a rapid increase in the next 20 years.

The cost of Alzheimer's disease to society is already massive (Rice et al. 1993) and will continue to increase (Brookmeyer & Gray 2000). The direct and total costs of this disorder in the United States have been estimated to be US$ 536 million and US$ 1.75 billion, respectively, for the year 2000.

Mental retardation

Mental retardation is a condition of arrested or incomplete development of the mind characterized by impairment of skills and overall intelligence in areas such as cognition, language, and motor and social abilities. Also referred to as intellectual disability or handicap, mental retardation can occur with or without any other physical or mental disorders. Although reduced level of intellectual functioning is the characteristic feature of this disorder, the diagnosis is made only if it is associated with a diminished ability to adapt to the daily demands of the normal social environment. Mental retardation is further categorized as mild (IQ levels 50-69), moderate (IQ levels 35–49), severe (IQ levels 20–34), and profound (IQ levels below 20).

The prevalence figures vary considerably because of the varying criteria and methods used in the surveys, as well as differences in the age range of the samples. The overall prevalence of mental retardation is believed to be between 1% and 3%, with the rate for moderate, severe and profound retardation being 0.3%. It is more common in developing countries because of the higher incidence of injuries and anoxia around birth, and early childhood brain infections. A common cause of mental retardation is endemic iodine deficiency, which leads to cretinism (Sankar et al. 1998). Iodine deficiency constitutes the world's greatest single cause of preventable brain damage and mental retardation (Delange 2000).

Mental retardation places a severe burden on the individual and the family. For more severe retardation, this involves assistance in carrying out daily life activities and self care. No estimates are available for the overall disease burden of mental retardation, but all evidence points towards a substantial burden caused by this condition. In most cases, this burden continues throughout life.

Disorders of childhood and adolescence

Contrary to popular belief, mental and behavioural disorders are common during childhood and adolescence. Inadequate attention is paid to this area of mental health. In a recent report, the Surgeon General of the United States (DHHS 2001) has said that the United States is facing a public crisis in mental health of infants, children and adolescents. According to the report, one in ten young people suffers from mental illness severe enough to cause some level of impairment, yet fewer than one in five receives the needed treatment. The situation in large parts of the developing world is likely to be even more unsatisfactory.

ICD-10 identifies two broad categories specific to childhood and adolescence: disorders of psychological development, and behavioural and emotional disorders. The former are characterized by impairment or delay in the development of specific functions such speech and language (dyslexias) or overall pervasive development (for example, autism). The course of these disorders is steady, without remission or relapses, though most tend to improve with time. The broad group of dyslexias consists of reading and spelling disorders. The prevalence of these disorders is still uncertain, but it may be about 4% for the school-age population (Spagna et al. 2000). The second category, behavioural and emotional disorders, includes hyperkinetic disorders (in ICD-10), attention deficit/hyperactivity disorder (in DSM-IV, APA 1994), conduct disorders and emotional disorders of childhood. In addition, many of the disorders more commonly found among adults can begin during childhood. An example is depression, which is increasingly being identified among children.

The overall prevalence of mental and behavioural disorders among children has been investigated in several studies from developed and developing countries. The results of selected studies are summarized in Table 2.2. Though the prevalence figures vary considerably between studies, it seems that 10–20% of all children have one or more mental or behavioural problems. A caveat must be made to these high estimates of morbidity among children and adolescents. Childhood and adolescence being developmental phases, it is difficult to draw clear boundaries between phenomena that are part of normal development and others that are abnormal. Many studies have used behavioural checklists completed by parents and teachers to detect cases. This information, though useful in identifying children who may need special attention, may not always correspond to a definite diagnosis.

Mental and behavioural disorders of childhood and adolescence are very costly to society in both human and financial terms. The aggregate disease burden of these disorders has not been estimated, and it would be complex to calculate because many of these disorders can be precursors to much more disabling disorders during later life.

Table 2.2 Prevalence of child and adolescent disorders, selected studies

Country	Age (years)	Prevalence (%)
Ethiopia[1]	1–15	17.7
Germany[2]	12–15	20.7
India[3]	1–16	12.8
Japan[4]	12–15	15.0
Spain[5]	8, 11, 15	21.7
Switzerland[6]	1–15	22.5
USA[7]	1–15	21.0

[1] Tadesse B et al. (1999). Childhood behavioural disorders in Ambo district, Western Ethiopia: I. Prevalence estimates. *Acta Psychiatrica Scandinavica*, 100(Suppl): 92–97.

[2] Weyerer S et al. (1988). Prevalence and treatment of psychiatric disorders in 3–14-year-old children: results of a representative field study in the small rural town region of Traunstein, Upper Bavaria. *Acta Psychiatrica Scandinavica*, 77: 290–296.

[3] Indian Council of Medical Research (2001). *Epidemiological study of child and adolescent psychiatric disorders in urban and rural areas*. New Delhi, ICMR (unpublished data).

[4] Morita H et al. (1993). Psychiatric disorders in Japanese secondary school children. *Journal of Child Psychology and Psychiatry*, 34: 317–332.

[5] Gomez-Beneyto M et al. (1994). Prevalence of mental disorders among children in Valencia, Spain. *Acta Psychiatrica Scandinavica*, 89: 352–357.

[6] Steinhausen HC et al. (1998). Prevalence of child and adolescent psychiatric disorders: the Zurich Epidemiological Study. *Acta Psychiatrica Scandinavica*, 98: 262–271.

[7] Shaffer D et al. (1996). The NIMH Diagnostic Interview Schedule for Children version 2.3 (DISC-2.3): description acceptability, prevalence rates, and performance in the MECA study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35: 865–877.

Comorbidity

It is common for two or more mental disorders to occur together in an individual. This is not unlike the situation with physical disorders, which also tend to occur together much more frequently than can be explained by chance. It is especially common with advancing age, when a number of physical and mental disorders occur together. Physical health problems not only coexist with mental disorders such as depression, but can also predict the onset and persistence of depression (Geerlings et al. 2000).

One of the methodologically sound studies of a nationally representative sample was done in the United States (Kessler et al. 1994) and showed that 79% of all ill people were comorbid. In other words, only in 21% of patients did a mental disorder occur singly. More than half of all lifetime disorders occurred in 14% of the population. Similar findings have been obtained in studies from other countries, although not much information is available from developing countries.

Anxiety and depressive disorders commonly occur together. Such comorbidity is found among about half of all the individuals with these disorders (Zimmerman et al. 2000). Another common situation is the presence of mental disorders associated with substance use and dependence. Among those attending alcohol and drug services, between 30% and 90% have a "dual disorder" (Gossop et al. 1998). The rate of alcohol use disorders is also high among those attending mental health services (65% reported by Rachliesel et al. 1999). Alcohol use disorders are also common (12–50%) among persons with schizophrenia.

The presence of substantial comorbidity has serious implications for the identification, treatment and rehabilitation of affected individuals. The disability of individual sufferers and the burden on families also increase correspondingly.

Suicide

Suicide is the result of an act deliberately initiated and performed by a person in the full knowledge or expectation of its fatal outcome. Suicide is now a major public health problem. Taken as an average for 53 countries for which complete data is available, the age-standardized suicide rate for 1996 was 15.1 per 100 000. The rate for males was 24.0 per 100 000 and for females 6.8 per 100 000. The rate of suicide is almost universally higher among men compared to women by an aggregate ratio of 3.5 to 1.

Over the past 30 years, for the 39 countries for which complete data is available for the period 1970-96, the suicide rates seem to have remained quite stable, but the current aggregate rates hide important differences regarding the sexes, age groups, geography and longer time trends.

Geographically, changes in suicide rates vary considerably. Trends in the mega-countries of the world – those with a population of more than 100 million – are likely to provide reliable information on suicide mortality. Information is available for seven of eleven such countries for the last 15 years. The trends range from an almost 62% increase in Mexico to a 17% decrease in China, with the United States and the Russian Federation going in opposite directions by the same 5.3%, as shown in Figure 2.4. Two remarks are needed: first, probably only the size of their populations puts these countries in the same category, as they differ virtually in every other aspect. Second, the magnitude of the change does not reflect the actual magnitude of suicide rates in those countries. In the most recent year for which data are available, suicide rates range from 3.4 per 100 000 in Mexico to 14.0 per 100 000 in China and 34.0 per 100 000 in the Russian Federation.

It is very difficult, if not impossible, to find a common explanation for this diverse variation. Socioeconomic change (in any direction) is often suggested as a factor contributing to an increase in suicide rates. However, although this has been documented on several occasions, increases in suicide rates have also been observed in periods of socioeconomic stability, while stable suicide rates have been seen during periods of major socioeconomic changes. Nevertheless, these aggregate figures may hide important differences across some population segments. For instance, a flat evolution of suicide rates may hide an increase in men's rates statistically compensated for by a decrease in women's rates (as occurred, for example, in Australia, Chile, Cuba, Japan and Spain); the same would apply to extreme age groups, such as adolescents and the elderly (for example, in New Zealand). It has been shown that an increase in unemployment rates is usually, but not always, accompanied by a decrease in suicide rates of the general population (for example, in Finland), but by an increase in suicide rates of elderly and retired people (for example, in Switzerland).

Alcohol consumption (for example, in the Baltic States and the Russian Federation) and easy access to some toxic substances (for example, in China, India and Sri Lanka) and to firearms (for example, in El Salvador and the United States) seem to be positively correlated with suicide rates across all countries – industrialized or developing – so far studied. Once again, aggregate figures can hide major discrepancies between, for example, rural and urban areas (for example, in China and the Islamic Republic of Iran).

Suicide is a leading cause of death for young adults. It is among the top three causes of death in the population aged 15–34 years. As shown in two examples in Figure 2.5, suicide is predominant in the 15–34-year-old age group, where it ranks as the first or second cause of death for both the sexes. This represents a massive loss to societies of young persons in their productive years of life. Data on suicide attempts are only available from a few countries; they indicate that the number of suicide attempts may be up to 20 times higher than the number of completed suicides.

Self-inflicted injuries including suicide accounted for about 814 000 deaths in 2000. They were responsible for 1.3% of all DALYs according to GBD 2000.

Figure 2.4 Changes in age-standardized suicide rates over specific time periods in countries with a population over 100 million

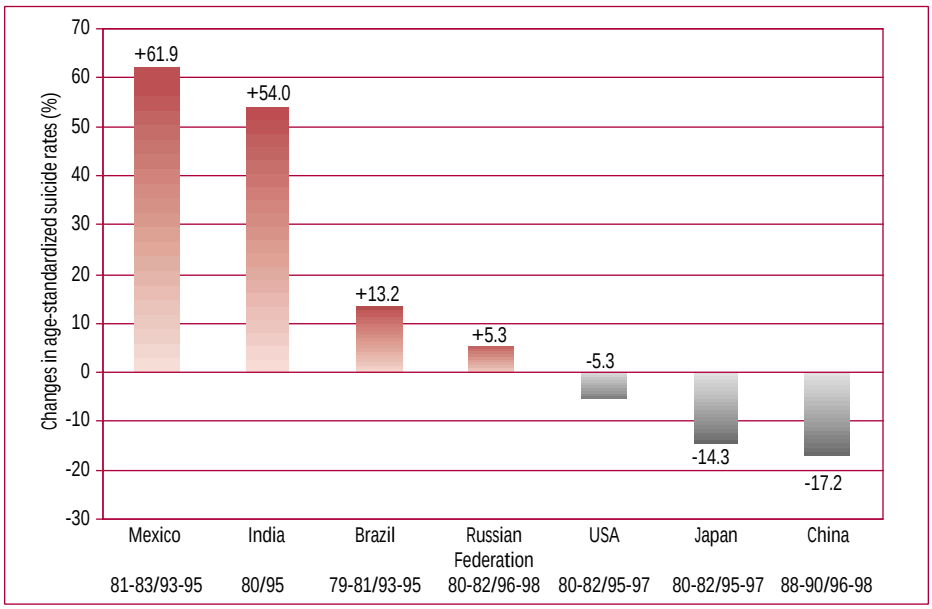


Figure 2.5 Suicide as a leading cause of death, selected countries of the European Region and China, 15–34-year-olds, 1998

European Region (selected countries)[a]

Both sexes	Males	Females
1. Transport accidents	1. Transport accidents	1. All cancers
2. Suicide	2. Suicide	2. Transport accidents
3. All cancers	3. All cancers	3. Suicide

China (selected areas)[b]

Both sexes (rural and urban areas)	Males (rural areas)	Females (rural areas)
1. Suicide	1. Motor vehicle accidents	1. Suicide
2. Motor vehicle accidents	2. All cancers	2. All cancers
3. All cancers	3. Suicide	3. All cardiovascular diseases

[a] Albania, Austria, Bulgaria, Croatia, Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Israel, Italy, Kazakhstan, Latvia, Lithuania, Luxembourg, Macedonia, Malta, Netherlands, Norway, Portugal, Republic of Moldova, Romania, Slovakia, Slovenia, Spain, United Kingdom.

[b] Cause-of-death statistics and vital rates, civil registration systems and alternative sources of information. *World Health Statistics Annual 1993*, Geneva, World Health Organization, 1994 (Section A/B: China 11–17).

The most common mental disorder leading to suicide is depression, although the rates are also high for schizophrenia. In addition, suicide is often related to substance use – either in the person who commits it or within the family. The major proportion of suicides in some countries of Central and Eastern Europe have recently been attributed to alcohol use (Rossow 2000).

It is well known that availability of means to commit suicide has a major impact on actual suicides in any region. This has been best studied for firearm availability, the finding being that there is a high mortality by suicide among people purchasing firearms in the recent past (Wintemute et al. 1999). Of all the persons who died from firearm injuries in the United States in 1997, a total of 54% died by suicide (Rosenberg et al. 1999).

The precise explanation for variations in suicide rates must always be considered in the local context. There is a pressing need for epidemiological surveillance and appropriate local research to contribute to a better understanding of this major public health problem and improve the possibilities of prevention.

Determinants of mental and behavioural disorders

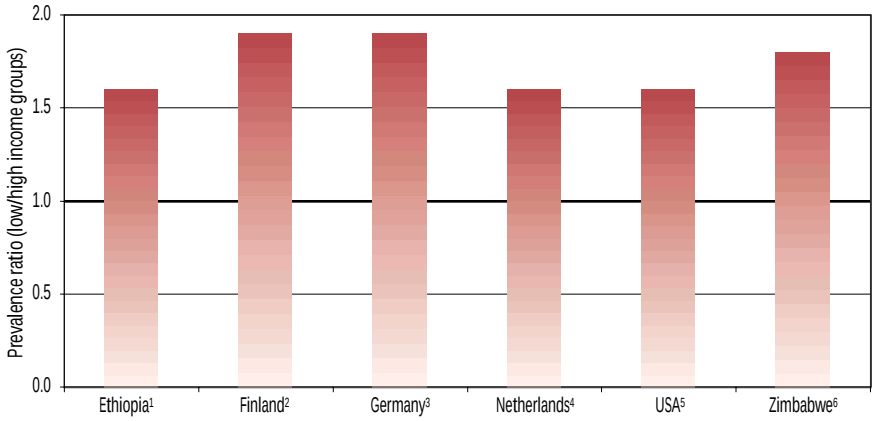
A variety of factors determine the prevalence, onset and course of mental and behavioural disorders. These include social and economic factors, demographic factors such as sex and age, serious threats such as conflicts and disasters, the presence of major physical diseases, and the family environment, which are briefly described here to illustrate their impact on mental health.

Poverty

Poverty and associated conditions of unemployment, low educational level, deprivation and homelessness are not only widespread in poor countries, but also affect a sizeable minority of rich countries. Data from cross-national surveys in Brazil, Chile, India and Zimbabwe show that common mental disorders are about twice as frequent among the poor as among the rich (Patel et al. 1999). In the United States, children from the poorest families were found to be at increased risk of disorders in the ratio of 2:1 for behavioural disorders and 3:1 for comorbid conditions (Costello et al. 1996). A review of 15 studies found the median ratio for overall prevalence of mental disorders between the lowest and the highest socioeconomic categories was 2.1:1 for one year and 1.4:1 for lifetime prevalence (Kohn et al. 1998). Similar results have been reported from recent studies carried out in North America, Latin America and Europe (WHO International Consortium of Psychiatric Epidemiology 2000). Figure 2.6 shows that depression is more common among the poor than the rich.

There is also evidence that the course of disorders is determined by the socioeconomic status of the individual (Kessler et al. 1994; Saraceno & Barbui 1997). This may be a result of service-related variables, including barriers to accessing care. Poor countries have few resources for mental health care and these resources are often unavailable to the poorer segments of society. Even in rich countries, poverty and associated factors such as lack of insurance coverage, lower levels of education, unemployment, and racial, ethnic and language minority status create insurmountable barriers to care. The treatment gap for most mental disorders is large, but for the poor population it is massive. In addition, poor people often raise mental health concerns when seeking treatment for physical problems, as shown in Box 2.4.

Figure 2.6 Prevalence of depression in low versus high income groups, selected countries



Note: The horizontal bold line at 1.0 indicates where the ratio of prevalence of depression in low income groups is equal to that of high income groups. Above this line people with a low income have a higher prevalence of depression.

[1]Awas M et al. (1999). Major mental disorders in Butajira, southern Ethiopia. *Acta Psychiatrica Scandinavica*, 100 (Suppl 397): 56–64.

[2]Lindeman S et al. (2000). The 12-month prevalence and risk factors for major depressive episode in Finland: representative sample of 5993 adults. *Acta Psychiatrica Scandinavica*, 102: 178–184.

[3]Wittchen HU et al. (1998). Prevalence of mental disorders and psychosocial impairments in adolescents and young adults. *Psychological Medicine*, 28: 109–126.

[4]Bijl RV et al. (1998). Prevalence of psychiatric disorders in the general population: results of the Netherlands Mental Health Survey and Incidence Study (NEMESIS). *Social Psychiatry and Psychiatric Epidemiology*, 33: 587–595.

[5]Kessler RC et al. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. Results from the National Comorbidity Survey. *Archives of General Psychiatry*, 51: 8–19.

[6]Abas MA, Broadhead JC (1997). Depression and anxiety among women in an urban setting in Zimbabwe. *Psychological Medicine*, 27: 59–71.

The relationship between mental and behavioural disorders, including those related to alcohol use, and the economic development of communities and countries has not been explored in a systematic way. It appears, however, that the vicious cycle of poverty and mental disorders at the family level (see Figure 1.4) may well be operative at the community and country levels.

Sex

There has been an increasing focus on sex differences in studying the prevalence, causation and course of mental and behavioural disorders. A higher proportion of women among the inmates of asylums and other treatment facilities was noted in earlier centuries, but it is not clear whether mental disorders were indeed more prevalent among women or whether women were brought in more frequently for treatment.

Recent community studies using sound methodology have revealed some interesting differences. The overall prevalence of mental and behavioural disorders does not seem to be different between men and women. Anxiety and depressive disorders are, however, more common among women, while substance use disorders and antisocial personality disorders are more common among men (Gold 1998). Almost all studies show a higher prevalence of depressive and anxiety disorders among women, the usual ratio being between 1.5:1 and 2:1. These findings have been seen not only in developed but also in a number of developing countries (Patel et al. 1999; Pearson 1995). It is interesting to note that sex differences in rates of depression are strongly age-related; the greatest differences occur in adult life, with no reported differences in childhood and few in the elderly.

Many reasons for the higher prevalence of depressive and anxiety disorders among women have been proposed. Genetic and biological factors certainly play some role, as indicated in particular by the close temporal relationship between higher prevalence and reproductive age range with associated hormonal changes. Mood swings related to hormonal changes as part of the menstrual cycle and following childbirth are well documented. Indeed, depression within a few months of childbirth can be the beginning of a recurrent depressive disorder. Psychological and social factors are, however, also significant for the

Box 2.4 Poor people's views on sickness of body and mind

When questioned about their health,[1] poor people mention a broad range of injuries and illnesses: broken limbs, burns, poisoning from chemicals and pollution, diabetes, pneumonia, bronchitis, tuberculosis, HIV/AIDS, asthma, diarrhoea, typhoid, malaria, parasitic diseases from contaminated water, skin infections, and other debilitating diseases. Mental health problems are often raised jointly with physical concerns, and hardships associated with drug and alcohol abuse are also frequently discussed. Stress, anxiety, depression, lack of self-esteem and suicide are among the effects of poverty and ill-health commonly identified by discussion groups. A recurring theme is the stress of not being able to provide for one's family. People associate many forms of sickness with stress, anguish and being ill at ease, but often pick out three for special mention: HIV/AIDS, alcoholism and drugs.

HIV/AIDS has a marked impact: in Zambia a youth group made a causal link between poverty and prostitution, AIDS and, finally, death. Group discussions in Argentina, Ghana, Jamaica, Thailand, Viet Nam, and several other countries also mention HIV/AIDS and related diseases as problems that affect their livelihoods and strain the extended family.

People regard drug use and alcoholism as causes of violence, insecurity and theft, and see money spent on alcohol or other drugs, male drunkenness, and domestic violence as syndromes of poverty. Many discussion groups from all regions report problems of physical abuse of women when husbands come home drunk, and several groups find that beer-drinking leads to promiscuity and disease. Alcoholism is especially prevalent among men. In both urban and rural Africa, poor people mention it more frequently than drugs.

Drug abuse is mentioned frequently in urban areas, especially in Latin America, Thailand and Viet Nam. It is also raised in parts of Bulgaria, Kyrgyzstan, the Russian Federation and Uzbekistan. People addicted to drugs are miserable, and so are their families.

[1] Narayan D et al. (2000). *Voices of the poor, crying out for change.* New York, Oxford University Press for the World Bank.

gender difference in depressive and anxiety disorders. There may be more actual as well as perceived stressors among women. The traditional role of women in societies exposes women to greater stresses as well as making them less able to change their stressful environment.

Another reason for the sex differences in common mental disorders is the high rate of domestic and sexual violence to which women are exposed. Domestic violence is found in all regions of the world and women bear the major brunt of it (WHO 2000b). A review of studies (WHO 1997a) found the lifetime prevalence of domestic violence to be between 16% and 50%. Sexual violence is also common; it has been estimated that one in five women suffer rape or attempted rape in their lifetime. These traumatic events have their psychological consequences, depressive and anxiety disorders being the most common. A recent study in Nicaragua found that women with emotional distress were six times more likely to report spousal abuse compared with women without such distress (Ellsberg et al. 1999). Also, women who had experienced severe abuse during the past year were 10 times more likely to experience emotional distress than women who had never experienced abuse.

The WHO Multi-country Study on Women's Health and Domestic Violence and the World Studies of Abuse in Family Environments (WorldSAFE) by the International Network of Clinical Epidemiologists (INCLEN 2001) are studying the prevalence and health consequences for women of intimate partner violence in population-based samples in different settings. In both studies, women are asked if they have contemplated or attempted suicide. Preliminary results indicate a highly significant relationship between such violence and contemplation of suicide (see Table 2.3). Moreover, the same significant patterns were found for sexual violence alone and in combination with physical violence.

In contrast to depressive and anxiety disorders, severe mental disorders such as schizophrenia and bipolar affective disorder do not show any clear differences of incidence or prevalence (Kessler et al. 1994). Schizophrenia, however, seems to have an earlier onset and a more disabling course among men (Sartorius et al. 1986). Almost all the studies show that substance use disorders and antisocial personality disorders are much more common among men than among women.

Comorbidity is more common among women than men. Most often, it takes the form of a co-occurrence of depressive, anxiety and somatoform disorders, the latter being the presence of physical symptoms that are not accounted for by physical diseases. There is evidence that women report a higher number of physical and psychological symptoms than men.

There is also evidence that the prescription of psychotropic medicines is higher among women (see Figure 1.5); these drugs include anti-anxiety, antidepressant, sedative, hyp-

Table 2.3 Relationship between domestic violence and contemplation of suicide

	% of women who have ever thought of committing suicide ($P<0.001$)							
Experience of physical violence by intimate partner	**Brazil[1]** (n=940)	**Chile[2]** (n=422)	**Egypt[2]** (n=631)	**India[2]** (n=6327)	**Indonesia[3]** (n=765)	**Philippines[2]** (n=1001)	**Peru[1]** (n=1088)	**Thailand[1]** (n=2073)
Never	21	11	7	15	1	8	17	18
Ever	48	36	61	64	11	28	40	41

[1] WHO Multi-country Study on Women's Health and Domestic Violence (preliminary results, 2001). Geneva, World Health Organization (unpublished document).

[2] International Network of Clinical Epidemiologists (INCLEN) (2001). *World Studies of Abuse in Family Environments (WorldSAFE).* Manila, International Network of Clinical Epidemiologists. This survey questioned women about "severe physical violence".

[3] Hakimi M et al. (2001). *Silence for the sake of harmony: domestic violence and women's health in Central Java.* Yogyakarta, Indonesia, Program for Appropriate Technology in Health.

notic and antipsychotic drugs. This higher use of drugs may be partly explained by the higher prevalence of common mental disorders and a higher rate of help-seeking behaviour. A significant factor is likely to be the prescribing behaviour of physicians, who may take the easier path of prescription when faced with a complex psychosocial situation that actually requires psychological intervention.

The higher prevalence of substance use disorders and antisocial personality disorder among men is a consistent finding across the world. In many regions of the world, however, substance use disorders are increasing rapidly among women.

Women also bear the brunt of care for the mentally ill within the family. This is becoming increasingly crucial, as more and more individuals with chronic mental disorders are being looked after in the community.

To summarize, mental disorders have clear sex determinants that need to be better understood and researched in the context of assessing the overall burden.

Age

Age is an important determinant of mental disorders. Mental disorders during childhood and adolescence have been briefly described above. A high prevalence of disorders is also seen in old age. Besides Alzheimer's disease, discussed above, elderly people also suffer from a number of other mental and behavioural disorders. Overall, the prevalence of some disorders tends to rise with age. Predominant among these is depression. Depressive disorder is common among elderly people: studies show that 8–20% being cared for in the community and 37% being cared for at the primary level are suffering from depression. A recent study on a community sample of people over 65 years of age found depression among 11.2% of this population (Newman et al. 1998). Another recent study, however, found the point prevalence of depressive disorders to be 4.4% for women and 2.7% for men, although the corresponding figures for lifetime prevalence were 20.4% and 9.6%. Depression is more common among older people with physically disabling disorders (Katona & Livingston 2000). The presence of depression further increases the disability among this population. Depressive disorders among elderly people go undetected even more often than among younger adults because they are often mistakenly considered a part of the ageing process.

Conflicts and disasters

Conflicts, including wars and civil strife, and disasters affect a large number of people and result in mental problems. It is estimated that globally about 50 million people are refugees or are internally displaced. In addition, millions are affected by natural disasters including earthquakes, floods, typhoons, hurricanes and similar large-scale calamities (IFRC 2000). Such situations take a heavy toll on the mental health of the people involved, most of whom live in developing countries, where capacity to take care of these problems is extremely limited. Between a third and half of all the affected persons suffer from mental distress. The most frequent diagnosis made is post-traumatic stress disorder (PTSD), often along with depressive or anxiety disorders. In addition, most individuals report psychological symptoms that do not amount to disorders. PTSD arises after a stressful event of an exceptionally threatening or catastrophic nature and is characterized by intrusive memories, avoidance of circumstances associated with the stressor, sleep disturbances, irritability and anger, lack of concentration and excessive vigilance. The point prevalence of PTSD in the general population, according to GBD 2000, is 0.37%. The specific diagnosis of PTSD has been questioned as being culture-specific and also as being made too often. Indeed,

PTSD has been called a diagnostic category that has been invented based on sociopolitical needs (Summerfield 2001). Even if the suitability of this specific diagnosis is uncertain, the overall significance of mental morbidity among individuals exposed to severe trauma is generally accepted.

Studies on victims of natural disasters have also shown a high rate of mental disorders. A recent study from China found a high rate of psychological symptoms and a poor quality of life among earthquake survivors. The study also showed that post-disaster support was effective in the improvement of well-being (Wang et al. 2000).

Major physical diseases

The presence of major physical diseases affects the mental health of individuals as well as of entire families. Most of the seriously disabling or life-threatening diseases, including cancers in both men and women, have this impact. The case of HIV/AIDS is described here as an illustration of this effect.

HIV is spreading very rapidly in many parts of the world. At the end of 2000, a total of 36.1 million people were living with HIV/AIDS and 21.8 million had already died (UNAIDS 2000). Of the 5.3 million new infections in 2000, 1 in 10 occurred in children and almost half among women. In 16 countries of sub-Saharan Africa more than 10% of the population of reproductive age is now infected with HIV. The HIV/AIDS epidemics has lowered economic growth and is reducing life expectancy by up to 50% in the hardest hit countries. In many countries HIV/AIDS is now considered a threat to national security. With neither cure nor vaccine, prevention of transmission remains the principal response, with care and support for those infected with HIV offering a critical entry point.

The mental health consequences of this epidemic are substantial. A proportion of individuals suffer psychological consequences (disorders as well as problems) as a result of their infection. The effects of intense stigma and discrimination against people with HIV/AIDS also play a major role in psychological stress. Disorders range from anxiety or depressive disorders to adjustment disorder (Maj et al. 1994a). Cognitive deficits are also detected if looked for specifically (Maj et al. 1994b; Starace et al. 1998). In addition, family members also suffer the consequences of stigma and, later, of the premature deaths of their infected family members. The psychological effects on members of families broken and on children orphaned by AIDS have not been studied in any detail, but are likely to be substantial.

These complex situations, where a physical condition leads to psychosocial consequences at individual, family and community levels, require comprehensive assessment in order to determine their full impact on mental health. There is a need for further research in this area.

Family and environmental factors

Mental disorders are firmly rooted in the social environment of the individual. A variety of social factors influence the onset, course and outcome of these disorders.

People go through a series of significant events in life – minor as well as major. These may be desirable (such as a promotion at work) or undesirable (for example, bereavement or business failure). It has been observed that there is an accumulation of life events immediately before onset of mental disorders (Brown et al. 1972; Leff et al. 1987). Though undesirable events predominate before onset or relapse in depressive disorders, a higher occurrence of all events (undesirable and desirable) precedes other mental disorders. Studies suggest that all significant events in life act as stressors and, coming in quick succession, predispose the individual to mental disorders. This effect is not limited to mental disorders

and has also been demonstrated to be associated with a number of physical diseases, for example myocardial infarction.

Of course, life events are only one of several interacting factors (such as genetic predisposition, personality, and coping skills) in the causation of disorders.

The relevance of life events research lies mainly in identifying individuals who are at a higher risk because of experiencing major life events in quick succession (for example, loss of job, loss of spouse, and change of residence). Initially this effect was observed for depression and schizophrenia, but subsequently an association has been found between life events and a variety of other mental and behavioural disorders and conditions. Notable among these is suicide.

The social and emotional environment within the family also plays a role in mental disorders. Although attempts to link serious mental disorders such as schizophrenia and depression to the family environment have been made for a long time (Kuipers & Bebbington 1990), some definitive advances have been made in the recent past. The social and emotional environment within the family has clearly been correlated with relapses in schizophrenia but not necessarily with the onset of the disorder. The initial observation was that patients with schizophrenia who went back to stay with parents after a period of hospitalization relapsed more frequently. This led to some research on the cause of this phenomenon. Most studies have used the concept of "expressed emotions" of family members towards the individual with schizophrenia. Expressed emotions in these studies have included critical comments, hostility, emotional over-involvement and warmth.

A large number of studies from all regions of the world have demonstrated that expressed emotionality can predict the course of schizophrenia, including relapses (Butzlaff & Hooley 1998). There is also evidence that changing the emotional environmental within families can have an additive effect on prevention of relapses by antipsychotic drugs. These findings are useful for improving the care of selected patients within their family environment and also recall the importance of social factors in the course and treatment of serious mental disorders such as schizophrenia.