



*CHAPTER ONE*

*A Public Health  
Approach to Mental Health*

*Mental health is as important as physical health to the overall well-being of individuals, societies and countries. Yet only a small minority of the 450 million people suffering from a mental or behavioural disorder are receiving treatment. Advances in neuroscience and behavioural medicine have shown that, like many physical illnesses, mental and behavioural disorders are the result of a complex interaction between biological, psychological and social factors. While there is still much to be learned, we already have the knowledge and power to reduce the burden of mental and behavioural disorders worldwide.*

## 1

# A PUBLIC HEALTH APPROACH TO MENTAL HEALTH

## INTRODUCTION

*F*or all individuals, mental, physical and social health are vital strands of life that are closely interwoven and deeply interdependent. As understanding of this relationship grows, it becomes ever more apparent that mental health is crucial to the overall well-being of individuals, societies and countries.

Unfortunately, in most parts of the world, mental health and mental disorders are not regarded with anything like the same importance as physical health. Instead, they have been largely ignored or neglected. Partly as a result, the world is suffering from an increasing burden of mental disorders, and a widening “treatment gap”. Today, some 450 million people suffer from a mental or behavioural disorder, yet only a small minority of them receive even the most basic treatment. In developing countries, most individuals with severe mental disorders are left to cope as best they can with their private burdens such as depression, dementia, schizophrenia, and substance dependence. Globally, many are victimized for their illness and become the targets of stigma and discrimination.

Further increases in the number of sufferers are likely in view of the ageing of the population, worsening social problems, and civil unrest. Already, mental disorders represent four of the 10 leading causes of disability worldwide. This growing burden amounts to a huge cost in terms of human misery, disability and economic loss.

Mental and behavioural disorders are estimated to account for 12% of the global burden of disease, yet the mental health budgets of the majority of countries constitute less than 1% of their total health expenditures. The relationship between disease burden and disease spending is clearly disproportionate. More than 40% of countries have no mental health policy and over 30% have no mental health programme. Over 90% of countries have no mental health policy that includes children and adolescents. Moreover, health plans frequently do not cover mental and behavioural disorders at the same level as other illnesses, creating significant economic difficulties for patients and their families. And so the suffering continues, and the difficulties grow.

This need not be so. The importance of mental health has been recognized by WHO since its origin, and is reflected by the definition of health in the WHO Constitution as “not merely the absence of disease or infirmity”, but rather, “a state of complete physical, mental and social well-being”. In recent years this definition has been given sharper focus by many huge advances in the biological and behavioural sciences. These in turn have broadened

our understanding of mental functioning, and of the profound relationship between mental, physical and social health. From this new understanding emerges new hope.

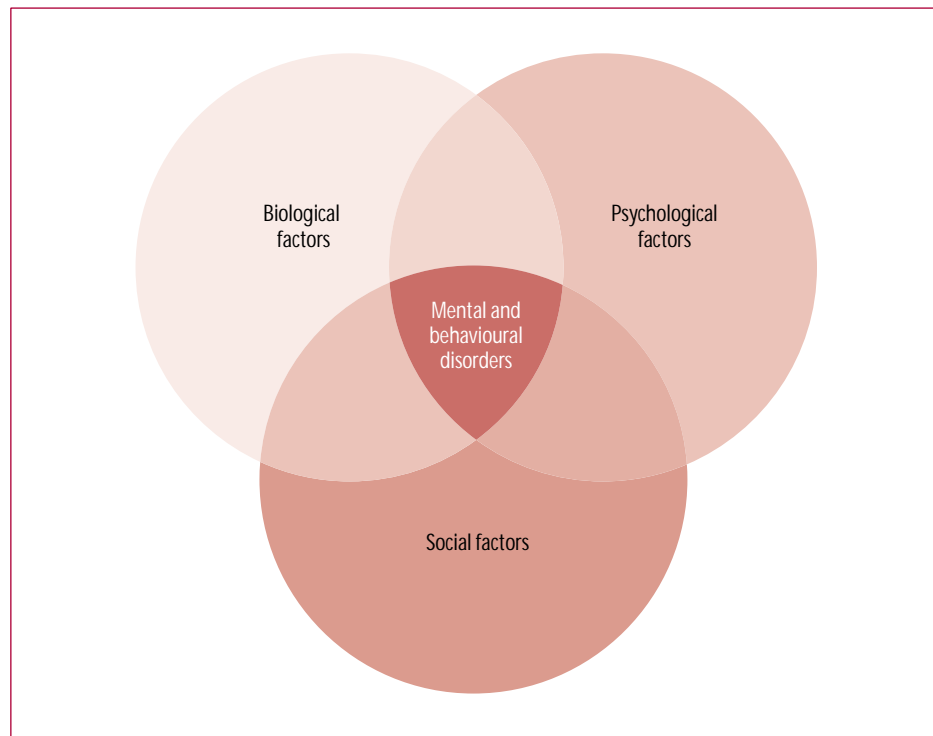
Today we know that most illnesses, mental and physical, are influenced by a combination of biological, psychological, and social factors (see Figure 1.1). We know that mental and behavioural disorders have a basis in the brain. We know that they affect people of all ages in all countries, and that they cause suffering to families and communities as well as individuals. And we know that in most cases, they can be diagnosed and treated cost-effectively. From the sum of our understanding, people with mental or behavioural disorders today have new hope of living full and productive lives in their own communities.

This report presents information concerning the current understanding of mental and behavioural disorders, their magnitude and burden, effective treatment strategies, and strategies for enhancing mental health through policy and service development.

The report makes it clear that governments are as responsible for the mental health as for the physical health of their citizens. One of the key messages to governments is that mental asylums, where they still exist, must be closed down and replaced with well-organized community-based care and psychiatric beds in general hospitals. The days of locking up people with mental or behavioural disorders in grim prison-like psychiatric institutions must end. The vast majority of people with mental disorders are not violent. Only a small proportion of mental and behavioural disorders are associated with an increased risk of violence, and comprehensive mental health services can decrease the likelihood of such violence.

As the ultimate stewards of any health system, governments must take the responsibility for ensuring that mental health policies are developed and implemented. This report recommends strategies that countries should pursue, including the integration of mental

**Figure 1.1 Interaction of biological, psychological and social factors in the development of mental disorders**



health treatment and services into the general health system, particularly into primary health care. This approach is being successfully applied in a number of countries. In many parts of the world, though, much more remains to be accomplished.

## UNDERSTANDING MENTAL HEALTH

Mental health has been defined variously by scholars from different cultures. Concepts of mental health include subjective well-being, perceived self-efficacy, autonomy, competence, intergenerational dependence, and self-actualization of one's intellectual and emotional potential, among others. From a cross-cultural perspective, it is nearly impossible to define mental health comprehensively. It is, however, generally agreed that mental health is broader than a lack of mental disorders.

An understanding of mental health and, more generally, mental functioning is important because it provides the basis on which to form a more complete understanding of the development of mental and behavioural disorders.

In recent years, new information from the fields of neuroscience and behavioural medicine has dramatically advanced our understanding of mental functioning. Increasingly, it is becoming clear that mental functioning has a physiological underpinning, and is fundamentally interconnected with physical and social functioning and health outcomes.

## ADVANCES IN NEUROSCIENCE

*The World Health Report 2001* appears at an exciting time in the history of neuroscience. This is the branch of science which deals with the anatomy, physiology, biochemistry and molecular biology of the nervous system, especially as related to behaviour and learning. Spectacular advances in molecular biology are providing a more complete view of the building blocks of nerve cells (neurons). These advances will continue to provide a critical platform for the genetic analysis of human disease, and will contribute to new approaches to the discovery of treatments.

The understanding of the structure and function of the brain has evolved over the past 500 years (Figure 1.2). As the molecular revolution proceeds, tools such as neuroimaging and neurophysiology are permitting researchers to see the living, feeling, thinking human brain at work. Used in combination with cognitive neuroscience, imaging technologies make it increasingly possible to identify the specific parts of the brain used for different aspects of thinking and emotion.

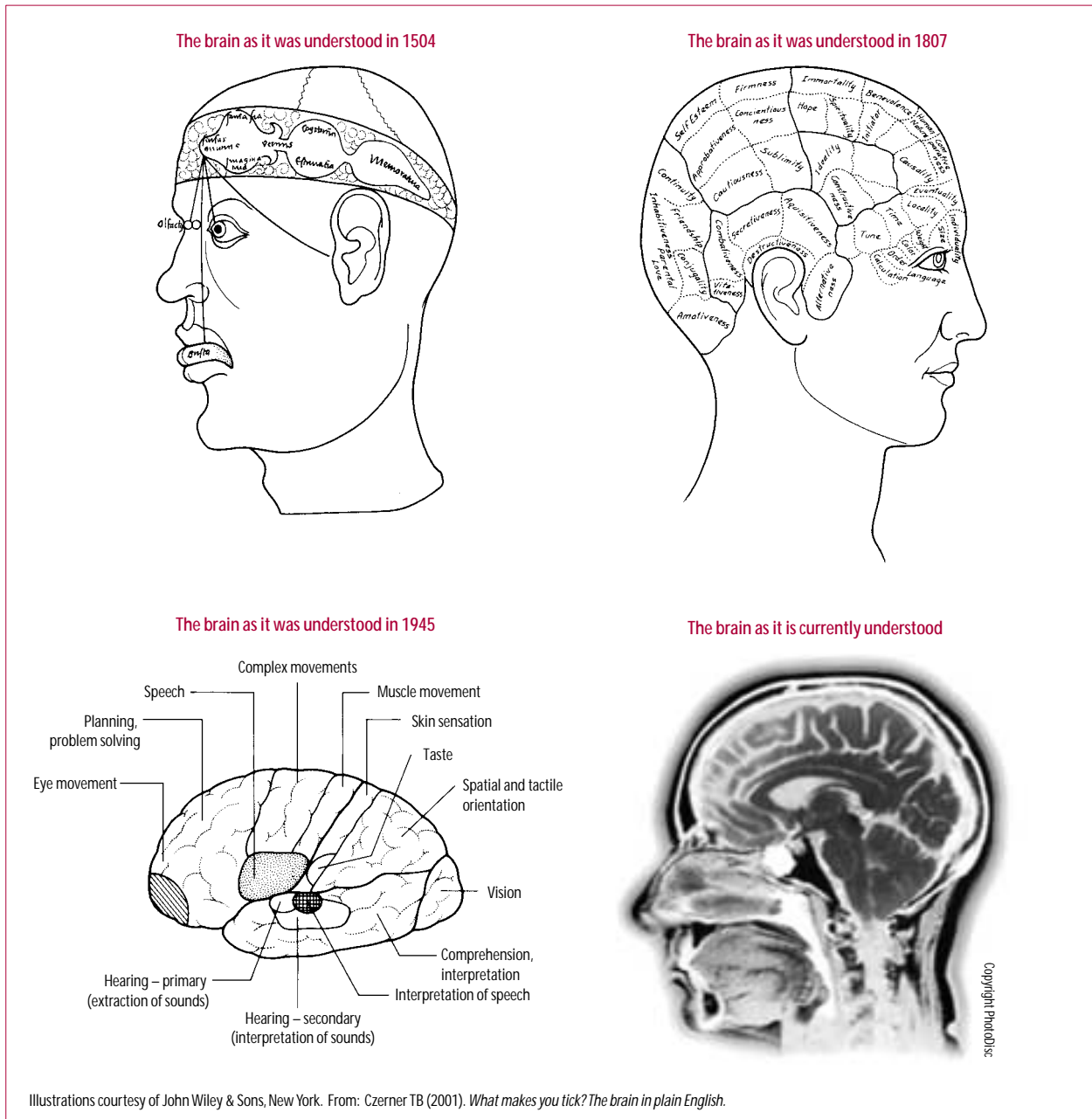
The brain is responsible for melding genetic, molecular and biochemical information with information from the world. As such, the brain is an extremely complex organ. Within the brain, there are two types of cells: neurons and neuroglia. Neurons are responsible for sending and receiving nerve impulses or signals. Neuroglia provide neurons with nourishment, protection and structural support. Collectively, there are more than one hundred billion neurons in the brain, comprising thousands of distinct types. Each of these neurons communicates with other neurons via specialized structures called synapses. More than one hundred distinct brain chemicals, called neurotransmitters, communicate across these synapses. In aggregate, there are probably more than 100 trillion synapses in the brain. Circuits, formed by hundreds or thousands of neurons, give rise to complex mental and behavioural processes.

During fetal development, genes drive brain formation. The outcome is a specific and highly organized structure. This early development can also be influenced by environmental factors such as the pregnant woman's nutrition and substance use (alcohol, tobacco,

and other psychoactive substances) or exposure to radiation. After birth and throughout life, all types of experience have the power not only to produce immediate communication between and among neurons, but also to initiate molecular processes that remodel synaptic connections (Hyman 2000). This process is described as *synaptic plasticity*, and it literally changes the physical structure of the brain. New synapses can be created, old ones removed, existing ones strengthened or weakened. The result is that information processing within the circuit will be changed to accommodate the new experience.

Prenatally, during childhood and through adulthood, genes and environment are involved in a series of inextricable interactions. Every act of learning – a process that is

Figure 1.2 Understanding the brain



dependent both on particular circuits and on the regulation of particular genes – physically changes the brain. Indeed, the remarkable evolutionary success of the human brain is that, within certain limits, it remains plastic across the lifespan. This recent discovery of lifelong synaptic plasticity represents a shift away from earlier theories that held that the structure of the adult brain is static (see Box 1.1).

As notable as discoveries to date have been, neuroscience is yet in its infancy. Future advances will provide a more complete understanding of how the brain is related to complex mental and behavioural functioning. Innovations in brain imaging along with neuropsychological and electrophysiological studies will permit real time cinema of the nervous system at work. Imaging will be combined with a growing ability to record from a large number of neurons at once; in this manner, it will be possible to decode their language. Other advances will be based on progress in genetics. An initial working draft sequence of the human genome is available in the public domain (at <http://www.ornl.gov/hgmis/>). One of the important uses of genomic information will be to provide a new basis for developing effective treatments for mental and behavioural disorders.

Another important tool that will enhance understanding of the molecular building blocks of development, anatomy, physiology and behaviour is the generation of genetically altered mice. For nearly every human gene there is an analogous mouse gene. This conservation of gene function between humans and mice suggests that mouse models will yield fundamental insights into human physiology and disease (O'Brien et al. 1999). Many laboratories around the world are involved in systematically inserting or deleting identified genes, and others are embarking on projects of generating random mutations throughout the mouse genome. These approaches will help connect genes with their actions in cells, organs and whole organisms.

Integration of the research results of neuroimaging and neurophysiology with those of molecular biology should lead to a greater understanding of the basis of normal and abnormal mental function, and to the development of more effective treatments.

## ADVANCES IN BEHAVIOURAL MEDICINE

Advances have occurred not only in our understanding of mental functioning, but also in the knowledge of how these functions influence physical health. Modern science is dis-

### Box 1.1 The brain: new understanding wins the Nobel Prize

The Nobel Prize in Physiology or Medicine for 2000 was awarded jointly to Professor Arvid Carlsson, Professor Paul Greengard and Professor Eric Kandel for their discoveries concerning how brain cells communicate with each other.<sup>1</sup> Their research is related to signal transduction in the nervous system, which takes place in synapses (points of contact between brain cells). These discoveries are crucial in advancing the understanding of the normal functioning of the

brain, and how disturbances in this signal transduction can lead to mental and behavioural disorders. Their findings have already resulted in the development of effective new medications.

Arvid Carlsson's research revealed that dopamine is a transmitter of the brain that helps to control movements and that Parkinson's disease is related to lack of dopamine. As a result of this discovery, there is now an effective treatment (L-DOPA) for Parkinson's disease. Carlsson's work

also demonstrated how other medications work, especially drugs used to treat schizophrenia, and has led to the development of a new generation of effective antidepressant medications.

Paul Greengard discovered how dopamine and a number of other neurotransmitters exert their influence in the synapse. His research clarified the mechanism by which several psychoactive medications act.

Eric Kandel showed how changes in synaptic function are central to

learning and memory. He discovered that the development of long-term memory requires a change in protein synthesis which can also lead to changes in the shape and function of the synapse. By furthering understanding of the brain mechanisms crucial for memory, this research increases the possibility of developing new types of medications to improve memory functioning.

<sup>1</sup> Butcher J (2000). A Nobel pursuit. *The Lancet*, 356: 1331.

covering that, while it is operationally convenient for purposes of discussion to separate mental health from physical health, this is a fiction created by language. Most “mental” and “physical” illnesses are understood to be influenced by a combination of biological, psychological and social factors. Furthermore, thoughts, feelings and behaviour are now acknowledged to have a major impact on physical health. Conversely, physical health is recognized as considerably influencing mental health and well-being.

Behavioural medicine is a broad interdisciplinary area that is concerned with the integration of behavioural, psychosocial, and biomedical science knowledge relevant to the understanding of health and illness. Over the past 20 years, mounting scientific evidence from the field of behavioural medicine has demonstrated a fundamental connection between mental and physical health (see Box 1.2). Research has shown, for example, that women with advanced breast cancer who participate in supportive group therapy live significantly longer than women who do not participate in group therapy (Spiegel et al. 1989), that depression predicts the incidence of heart disease (Ferketich et al. 2000), and that realistic acceptance of one’s own death is associated with decreased survival time in AIDS, even after controlling for a range of other potential predictors of mortality (Reed et al. 1994).

How do mental and physical functioning influence each other? Research has pointed to two main pathways through which mental and physical health mutually influence each other over time. The first key pathway is directly through physiological systems, such as neuroendocrine and immune functioning. The second primary pathway is through health behaviour. The term health behaviour covers a range of activities, such as eating sensibly, getting regular exercise and adequate sleep, avoiding smoking, engaging in safe sexual practices, wearing safety belts in vehicles, and adhering to medical therapies (see Box 1.3).

Although the physiological and behavioural pathways are distinct, they are not independent from one another, in that health behaviour can affect physiology (for example, smoking and sedentary lifestyle decrease immune functioning), while physiological functioning can influence health behaviour (for example, tiredness leads to forgetting medical regimens). What results is a comprehensive model of mental and physical health, in which the various components are related and mutually influential over time.

### Box 1.2 Pain and well-being

Persistent pain is a major public health problem, accounting for untold suffering and lost productivity around the world. While specific estimates vary, it is agreed that chronic pain is debilitating and costly, ranking among the top reasons for health care visits and health-related work absences.

A recent WHO study of 5447 individuals across 15 study centres located in Asia, Africa, Europe and the Americas examined the rela-

tionship between pain and well-being.<sup>1</sup> Results showed that those with persistent pain were over four times more likely to have an anxiety or depressive disorder than those without pain. This relationship was observed in all study centres, regardless of geographical location. Other studies have suggested that pain intensity, disability, and anxiety/depression interact to develop and maintain chronic pain conditions.

Promisingly, a recent primary care

study of 255 people with low-back pain has shown that a skills-based group intervention led by lay people reduces worries, decreasing disability.<sup>2</sup> The intervention was based on a model of chronic disease self-management, and consisted of four two-hour classes, held once a week, with 10–15 participants per class. The lay leaders, who themselves had recurrent or chronic back pain, received two days of formal training by a clinician familiar with the treat-

ment of back pain and the treatment programme. No significant problems arose with the lay leaders, and their capabilities in implementing the intervention were noted as impressive. This study indicates that non-health professionals can successfully deliver structured behavioural interventions, which holds promise for applications to other disease areas.

<sup>1</sup> Gureje O et al. (1998). Persistent pain and well-being: a World Health Organization study in primary care. *Journal of the American Medical Association*, 280(2):147–151.

<sup>2</sup> Von Korff M et al. (1998). A randomized trial of a lay person-led self-management group intervention for back pain patients in primary care. *Spine*, 23(23):2608–2615.

### Box 1.3 Adhering to medical advice

Patients do not always adhere to, or comply with, the advice of their health care providers. One review of the literature suggests that the average adherence rate for long-term medication use is just over 50%, while the adherence rate to lifestyle changes such as altering one's diet is very low. In general, the more lengthy, complex or disruptive the medical regimen, the

less likely patients are to comply. Other important factors in adherence include the provider's communication skills, the patient's beliefs about the usefulness of the recommended regimen, and his or her ability to obtain medications or other recommended treatments at a reasonable cost.

Depression plays an important role in non-adherence to medical

treatment. Depressed patients are three times more likely not to comply with medical regimens than non-depressed patients.<sup>1</sup> This means, for example, that depressed diabetic patients are more likely to have a poorer diet, more frequent hyperglycemia, greater disability, and higher health care costs than non-depressed diabetics.<sup>2,3</sup> The treatment of anxiety and depression

in diabetic patients results in both improved mental and physical outcomes.<sup>4–6</sup>

The strong relationship between depression and non-adherence suggests that medical patients, particularly those who are noncompliant, should be routinely screened and, if necessary, treated for depression.

<sup>1</sup> DiMatteo MR et al. (2000). Depression is a risk factor for noncompliance with medical treatment. *Archives of Internal Medicine*, 160: 2101–2107.

<sup>2</sup> Ciechanowski PS et al. (2000). Depression and diabetes: impact of depressive symptoms on adherence, function, and costs. *Archives of Internal Medicine*, 160: 3278–3285.

<sup>3</sup> Ziegelstein RC et al. (2000). Patients with depression are less likely to follow recommendations to reduce cardiac risk during recovery from a myocardial infarction. *Archives of Internal Medicine*, 2000, 160: 1818–1823.

<sup>4</sup> Lustman PJ et al. (1995). Effects of alprazolam on glucose regulation in diabetes: results of a double-blind, placebo-controlled trial. *Diabetes Care*, 18(8): 1133–1139.

<sup>5</sup> Lustman PJ et al. (1997). Effects of nortriptyline on depression and glycemic control in diabetes: results of a double-blind, placebo-controlled trial. *Psychosomatic Medicine*, 59(3): 241–250.

<sup>6</sup> Lustman PJ et al. (2000). Fluoxetine for depression in diabetes: a randomized double-blind placebo-controlled trial. *Diabetes Care*, 23(5): 618–623.

### Physiological pathway

In an integrated and evidence-based model of health, mental health (including emotions and thought patterns) emerges as a key determinant of overall health. Anxious and depressed moods, for example, initiate a cascade of adverse changes in endocrine and immune functioning, and create increased susceptibility to a range of physical illnesses. It is known, for instance, that stress is related to the development of the common cold (Cohen et al. 1991) and that stress delays wound healing (Kielcot-Glaser et al. 1999).

While many questions remain concerning the specific mechanisms of these relationships, it is clear that poor mental health plays a significant role in diminished immune functioning, the development of certain illnesses, and premature death.

### Health behaviour pathway

Understanding the determinants of health behaviour is particularly important because of the role that health behaviour plays in shaping overall health status. Noncommunicable diseases such as cardiovascular disease and cancer take an enormous toll in lives and health worldwide. Many of them are strongly linked to unhealthy behaviour such as alcohol and tobacco use, poor diet and sedentary lifestyle. Health behaviour is also a prime determinant of the spread of communicable diseases such as AIDS, through unsafe sexual practices and needle sharing. Much disease can be prevented by healthy behaviour.

The health behaviour of an individual is highly dependent on that person's mental health. Thus, for example, mental illness or psychological stress affect health behaviour. Recent evidence has shown that young people with psychiatric disorders, for example depression and substance dependence, are more likely to engage in high-risk sexual behaviour, compared to those with no psychiatric disorder. This puts them at risk of a range of sexually transmitted diseases, including AIDS (Ranrakha et al. 2000). But other factors also have an effect on health behaviour. Children and adolescents learn through direct experience, through information and by observing others, and this learning affects health behaviour. For example, it has been established that drug use before the age of 15 years is highly associated with

the development of drug and alcohol abuse in adulthood (Jaffe 1995). Environmental influences, such as poverty or societal and cultural norms, also affect health behaviour.

Because of the recent nature of this scientific evidence, the link between mental and physical health has yet to be fully recognized and acted upon by the health care system. Yet the evidence is clear: mental health is fundamentally linked to physical health outcomes.

## UNDERSTANDING MENTAL AND BEHAVIOURAL DISORDERS

While the promotion of positive mental health in all members of society is clearly an important goal, much remains to be learned about how to achieve this objective. Conversely, effective interventions exist today for a range of mental health problems. Because of the large number of people affected by mental and behavioural disorders, many of whom never receive treatment, and the burden that results from untreated disorders, this report focuses upon mental and behavioural disorders rather than the broader concept of mental health.

Mental and behavioural disorders are a set of disorders as defined by the *International statistical classification of diseases and related health problems (ICD-10)*. While symptoms vary substantially, these disorders are generally characterized by some combination of abnormal thoughts, emotions, behaviour and relationships with others. Examples include schizophrenia, depression, mental retardation, and disorders due to psychoactive substance use. A more detailed consideration of mental and behavioural disorders appears in Chapters 2 and 3. The continuum from normal mood fluctuations to mental and behavioural disorders is illustrated in Figure 1.3 for the case of depressive symptoms.

The artificial separation of biological from psychological and social factors has been a formidable obstacle to a true understanding of mental and behavioural disorders. In reality, these disorders are similar to many physical illnesses in that they are the result of a complex interaction of all these factors.

For years, scientists have argued over the relative importance of *genetics versus environment* in the development of mental and behavioural disorders. Modern scientific evidence indicates that mental and behavioural disorders are the result of *genetics plus environment* or, in other words, the interaction of biology with psychological and social factors. The brain does not simply reflect the deterministic unfolding of complex genetic programmes, nor is human behaviour the mere result of environmental determinism. Prenatally and throughout life, genes and environment are involved in a set of inextricable interactions. These interactions are crucial to the development and course of mental and behavioural disorders.

Modern science is showing, for example, that exposure to stressors during early development is associated with persistent brain hyper-reactivity and increased likelihood of depression later in life (Heim et al. 2000). Promisingly, behaviour therapy for obsessive-compulsive disorder has been shown to result in changes in brain function that are observable through imaging techniques and equal to those that can be achieved by using drug therapy (Baxter et al. 1992). Nonetheless, the discovery of genes associated with increased risk of disorders will continue to provide critically important tools which, together with improved understanding of neural circuits, will yield important new insights into the development of mental and behavioural disorders. There is still much to be learned about the specific causes of mental and behavioural disorders, but contributions from neuroscience, genetics, psychology and sociology, among others, have played an important role in in-

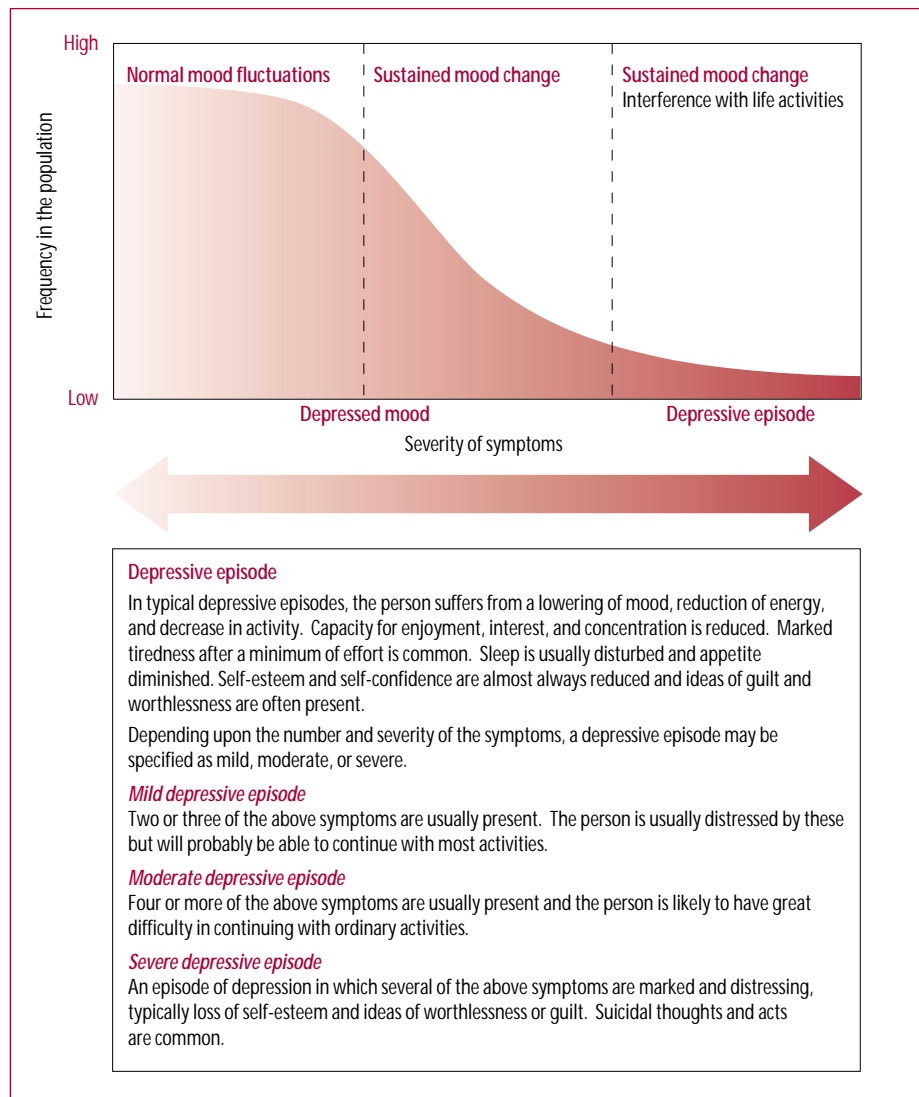
forming our understanding of these complex relationships. A science-based appreciation of the interactions between the various factors will contribute mightily to eradicating ignorance and putting a stop to the maltreatment of people with these problems.

## BIOLOGICAL FACTORS

Age and sex are associated with mental and behavioural disorders, and these associations are discussed in Chapter 2.

Mental and behavioural disorders have been shown to be associated with disruptions of neural communication within specific circuits. In schizophrenia, abnormalities in the maturation of neural circuits may produce detectable changes in pathology at the cellular and gross tissue level that result in inappropriate or maladaptive information processing (Lewis & Lieberman 2000). In depression, however, it is possible that distinct anatomical abnormalities may not occur; rather, risk of illness may be due to variations in the responsiveness of neural circuits (Berke & Hyman 2000). These, in turn, may reflect subtle variations in the

Figure 1.3 The continuum of depressive symptoms in the population



structure, location, or expression levels of proteins critical to normal function. Some mental disorders, such as psychoactive substance dependence, may be viewed in part as the result of maladaptive synaptic plasticity. In other words, drug-driven or experience-driven alterations in synaptic connections can produce long-term alterations in thinking, emotion and behaviour.

In parallel with progress in neuroscience has come progress in genetics. Almost all of the common severe mental and behavioural disorders are associated with a significant genetic component of risk. Studies of the mode of transmission of mental disorders within extended multigenerational families, and studies comparing risk of mental disorders in monozygotic (identical) versus dizygotic (fraternal) twins have, however, led to the conclusion that risk of the common forms of mental disorders is genetically complex. Mental and behavioural disorders are predominantly due to the interaction of multiple risk genes with environmental factors. Further, a genetic predisposition to develop a particular mental or behavioural disorder may manifest only in people who also experience specific environmental stressors that elicit the pathology. Examples of environmental factors could range from exposure to psychoactive substances as a fetus, to malnutrition, infections, disrupted family environments, neglect, isolation and trauma.

### PSYCHOLOGICAL FACTORS

Individual psychological factors are also related to the development of mental and behavioural disorders. One main finding throughout the 20th century that has shaped current understanding is the crucial importance of relationships with parents or other caregivers during childhood. Affectionate, attentive and stable caring allows infants and young children to develop normally such functions as language, intellect and emotional regulation. Failure may be due to the mental health problems, illness or death of a caregiver. The child may be separated from the caregiver because of poverty, war or population displacement. The child may lack care because of the unavailability of social services in the broader community. Regardless of the specific cause, when children are deprived of nurture from their caregivers they are more likely to develop mental and behavioural disorders, either during childhood or later in life. Evidence for this finding comes from infants living in institutions that did not provide sufficient social stimulation. Although these children received adequate nutrition and bodily care, they were likely to show serious impairments in interactions with others, in emotional expressiveness, and in coping adaptively to stressful life events. In some cases, intellectual deficits also occurred.

Another key finding is that human behaviour is partly shaped through interactions with the natural or social environment. This interaction can result in either desirable or undesirable consequences for the individual. Basically, individuals are more likely to engage in behaviours that are “rewarded” by the environment, and less likely to engage in behaviours that are ignored or punished. Mental and behavioural disorders can thus be viewed as maladaptive behaviour that has been learned – either directly or through observing others over time. Evidence for this theory comes from decades of research on learning and behaviour, and is further substantiated by the success of behaviour therapy, which uses these principles to help people change maladaptive patterns of thinking and behaving.

Finally, psychological science has shown that certain types of mental and behavioural disorders, such as anxiety and depression, can occur as the result of failing to cope adaptively to a stressful life event. Generally, people who try to avoid thinking about or dealing with stressors are more likely to develop anxiety or depression, whereas those who share their

problems with others and attempt to find ways of managing stressors function better over time. This finding has prompted the development of interventions that consist of teaching coping skills.

Collectively, these discoveries have contributed to our understanding of mental and behavioural disorders. They have also been the basis for the development of a range of effective interventions, which are discussed in greater detail in Chapter 3.

## SOCIAL FACTORS

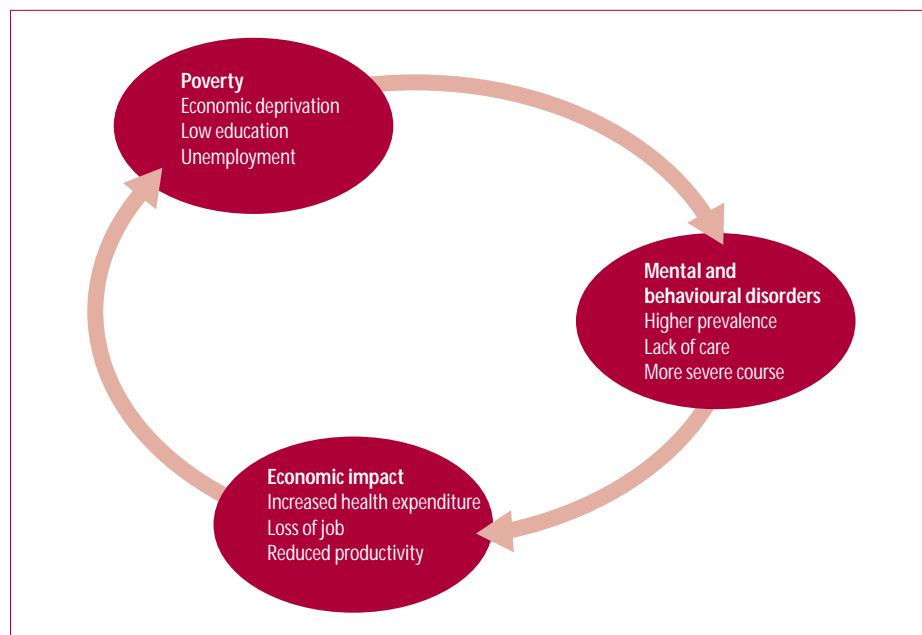
Although social factors such as urbanization, poverty and technological change have been associated with the development of mental and behavioural disorders, there is no reason to assume that the mental health consequences of social change are the same for all segments of a given society. Changes usually exert differential effects based on economic status, sex, race and ethnicity.

Between 1950 and 2000, the proportion of urban populations in Asia, Africa, and Central and South America increased from 16% to fully one half of the populations of these regions (Harpham & Blue 1995). In 1950, the populations of Mexico City and São Paulo were 3.1 million and 2.8 million, respectively, but by 2000 the estimated population of each was 10 million. The nature of modern urbanization may have deleterious consequences for mental health through the influence of increased stressors and adverse life events, such as overcrowded and polluted environments, poverty and dependence on a cash economy, high levels of violence, and reduced social support (Desjarlais et al. 1995). Approximately half of the urban populations in low and middle income countries live in poverty, and tens of millions of adults and children are homeless. In some areas, economic development is forcing increasing numbers of indigenous peoples to migrate to urban areas in search of a viable livelihood. Usually, migration does not bring improved social well-being; rather, it often results in high rates of unemployment and squalid living conditions, exposing migrants to social stress and increased risk of mental disorders because of the absence of supportive social networks. Conflicts, wars and civil strife are thus associated with higher rates of mental health problems, and these are discussed in Chapter 2.

Rural life is also fraught with problems for many people. Isolation, lack of transport and communications, and limited educational and economic opportunities are common difficulties. Moreover, mental health services tend to concentrate clinical resources and expertise in larger metropolitan areas, leaving limited options for rural inhabitants in need of mental health care. A recent study of suicide in the elderly in some urban and rural areas of Hunan province, China, showed a higher suicide rate in rural areas (88.3 per 100 000) than in urban areas (24.4 per 100 000) (Xu et al. 2000). Elsewhere, rates of depression among rural women have been reported to be more than twice those of general population estimates for women (Hauenstein & Boyd 1994).

The relationship between poverty and mental health is complex and multidimensional (Figure 1.4). In its strictest definition, poverty refers to a lack of money or material possessions. In broader terms, and perhaps more appropriately for discussions related to mental and behavioural disorders, poverty can be understood as the state of having insufficient means, which may include the lack of social or educational resources. Poverty and associated conditions such as unemployment, low education, deprivation and homelessness, are not only widespread in poor countries, but also affect a sizeable minority of rich countries. The poor and the deprived have a higher prevalence of mental and behavioural disorders, including substance use disorders. This higher prevalence may be explainable both by higher

Figure 1.4 The vicious cycle of poverty and mental disorders



causation of disorders among the poor and by the drift of the mentally ill into poverty. Though there has been controversy about which of these two mechanisms accounts for the higher prevalence among the poor, the available evidence suggests that both are relevant (Patel 2001). For example, the causal mechanism may be more valid for anxiety and depressive disorders, while the drift theory may account more for the higher prevalence of psychotic and substance use disorders among the poor. But the two are not mutually exclusive: individuals may be predisposed to mental disorder because of their social situation and those who develop disorders may face further deprivation as a result of being ill. Such deprivation includes lower levels of educational attainment, unemployment and, in extreme cases, homelessness. Mental disorders may cause severe and sustained disabilities, including an inability to work. If sufficient social support is not available, which is often the case in developing countries without organized social welfare agencies, impoverishment is quick to develop.

There is also evidence that the *course* of mental and behavioural disorders is determined by the socioeconomic status of the individual. This may be the result of an overall lack of mental health services together with the barriers faced by certain socioeconomic groups in accessing care. Poor countries have very few resources for mental health care and these are often unavailable to the poorer segments of society. Even in rich countries, poverty along with associated factors such as lack of insurance coverage, lower educational level, unemployment and minority status in terms of race, ethnicity and language can create insurmountable barriers to care. The treatment gap for most mental disorders is high, but in the poor population it is indeed massive.

Across socioeconomic levels, the multiple roles that women fulfil in society put them at greater risk of experiencing mental and behavioural disorders than others in the community. Women continue to bear the burden of responsibility associated with being wives, mothers, educators and carers of others, while they are increasingly becoming an essential part of the labour force and in one-quarter to one-third of households they are the prime source of income. In addition to the pressures placed on women because of their expand-

ing and often conflicting roles, they face significant sex discrimination and associated poverty, hunger, malnutrition, overwork and domestic and sexual violence. Not surprisingly, therefore, women have been shown to be more likely than men to be prescribed psychotropic drugs (see Figure 1.5). Violence against women constitutes a major social and public health problem, affecting women of all ages, cultural backgrounds, and income levels.

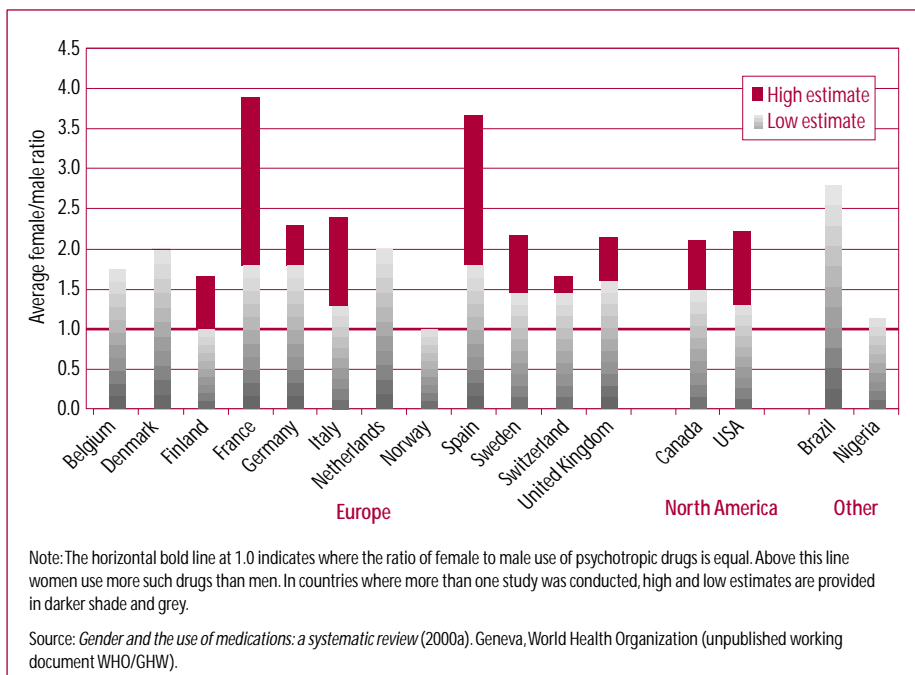
Racism, too raises important issues. Although there is still reluctance in some quarters to discuss racial and ethnic bigotry in the context of mental health concerns, psychological, sociological and anthropological research has shown racism to be related to the perpetuation of mental problems. The available evidence indicates that people long targeted by racism are at heightened risk for developing mental problems or experiencing a worsening of existing ones. And people who practise and perpetuate racism themselves are found to have or to develop certain kinds of mental disorders.

Psychiatrists examining the interplay between racism and mental health in societies where racism is prevalent have observed, for example, that racism may worsen depression. In a recent review of 10 studies of diverse racial groups in North America, amounting in total to over 15 000 respondents, a positive association between experiences of racism and psychological distress was firmly established (Williams & Williams-Morris 2000).

Racism's influence can also be considered at the level of the collective mental health of groups and societies. Racism has fuelled many oppressive social systems around the world and across the ages. In recent history, racism allowed white South Africans to define black South Africans categorically as "the enemy", and thus to commit acts that they would otherwise have found morally reprehensible.

The extraordinary scale and rapidity of technological change in the late 20th century is another factor that has been associated with the development of mental and behavioural disorders. These technological changes, and in particular the communications revolution, offer tremendous opportunities for enhanced diffusion of information and empowerment of users. Telemedicine now makes it possible to provide treatment at a distance.

Figure 1.5 Average female/male ratio of psychotropic drug use, selected countries



But these advances also have their downside. There is evidence to suggest that media portrayals exert an influence on levels of violence, sexual behaviour and interest in pornography, and that exposure to video game violence increases aggressive behaviour and other aggressive tendencies (Dill & Dill 1998). Advertising spending worldwide is now outpacing the growth of the world's economy by one-third. Aggressive marketing is playing a substantial role in the globalization of alcohol and tobacco use among young people, thus increasing the risk of disorders related to substance use and associated physical conditions (Klein 1999).

## AN INTEGRATED PUBLIC HEALTH APPROACH

The essential links between biological, psychological and social factors in the development and progression of mental and behavioural disorders are the grounds for a message of hope for the millions who suffer from these disabling problems. While there is much yet to be learned, the emerging scientific evidence is clear: we have at our disposal the knowledge and power to significantly reduce the burden of mental and behavioural disorders worldwide.

This message is a call to action to reduce the burden of the estimated 450 million people with mental and behavioural disorders. Given the sheer magnitude of the problem, its multifaceted etiology, widespread stigma and discrimination, and the significant treatment gap that exists around the world, a public health approach is the most appropriate method of response.

Stigma can be defined as a mark of shame, disgrace or disapproval which results in an individual being rejected, discriminated against, and excluded from participating in a number of different areas of society.

The United States Surgeon General's Report on Mental Health (DHHS 1999) described the impact of stigma as follows: "Stigma erodes confidence that mental disorders are valid, treatable health conditions. It leads people to avoid socializing, employing or working with, or renting to or living near persons who have a mental disorder." Further, "stigma deters the public from wanting to pay for care and, thus, reduces consumers' access to resources and opportunities for treatment and social services. A consequent inability or failure to obtain treatment reinforces destructive patterns of low self-esteem, isolation, and hopelessness. Stigma tragically deprives people of their dignity and interferes with their full participation in society."

From a public health perspective, there is much to be accomplished in reducing the burden of mental disorders:

- formulating policies designed to improve the mental health of populations;
- assuring universal access to appropriate and cost-effective services, including mental health promotion and prevention services;
- ensuring adequate care and protection of human rights for institutionalized patients with most severe mental disorders;
- assessment and monitoring of the mental health of communities, including vulnerable populations such as children, women and the elderly;
- promoting healthy lifestyles and reducing risk factors for mental and behavioural disorders, such as unstable family environments, abuse and civil unrest;
- supporting stable family life, social cohesion and human development;
- enhancing research into the causes of mental and behavioural disorders, the development of effective treatments, and the monitoring and evaluation of mental health systems.

The remainder of this report is devoted to these crucial issues. Through the presentation of scientific information on mental and behavioural disorders, WHO hopes that stigma and discrimination will be reduced, that mental health will be recognized as an urgent public health issue, and that steps will be taken by governments across the world to improve mental health.

Chapter 2 provides the latest epidemiological information on the magnitude, burden, and economic consequences of mental and behavioural disorders worldwide.

Chapter 3 presents information on effective treatments for people with mental and behavioural disorders. It outlines general principles of care and specific strategies for treating disorders.

Chapter 4 offers strategies for policy-makers to overcome common barriers and improve mental health in their communities.

Chapter 5 highlights the priority activities to be undertaken, depending on the level of resources available.