Prevention

Leon Eisenberg

Preventing mental, neurological and psychosocial disorders

Mental, neurological and psychosocial disorders constitute an enormous public health burden. A comprehensive programme directed against their biological and social causes could substantially reduce suffering, the destruction of human potential, and economic loss. It would require the commitment of governments and coordinated action by many social sectors.

In the early decades of the twentieth century, claims that the mental hygiene movement would prevent adult psychiatric disorders proved to be unfounded. Even today we know so little about such disorders as schizophrenia, parkinsonism and senile dementia that we cannot design programmes for their prevention. Nevertheless, prevention is important in some areas. At the turn of the century, mental hospitals were full of patients with general paresis and pellagra; today, both diseases are rare in the developed world, the first because of effective treatment for syphilis and the second because of improved diet. Many other neuropsychiatric disorders can be tackled effectively. In the schizophrenias and affective disorders, the frequency with which there is troublesome behaviour or a chronic inability of patients to look after themselves can be reduced if the health team, community and family respond promptly and constructively. The public should be educated about the nature and extent of mental health problems and, where possible, about their treatment and prevention. Without an informed public there is little hope of persuading governments to make the necessary policy decisions.

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An underestimated problem

The magnitude of the mental, neurological and psychosocial disorders is usually underestimated because:

— vital statistics measure mortality rather than morbidity;

— even where morbidity is recorded, the extent of neuropsychiatric morbidity is not properly monitored;

— the tabulation of causes of death according to disease entities does not indicate the underlying behavioural

causes, e.g., alcohol abuse as the cause of cirrhosis or motor vehicle accidents.

Mental and neurological disorders

Mental retardation. The prevalence of severe mental retardation below the age of 18 is 3–4 per 1000; that of mild mental retardation is 20–30 per 1000. In the developing world in particular, faulty delivery methods can lead to birth traumas and the central nervous system can be damaged by bacterial and parasitic infections. Of particular importance is the mild mental retardation and maladaptation associated with severe social disadvantage.

Acquired lesions of the central nervous system. Damage to brain tissue resulting from trauma, infection, malnutrition, hypertensive encephalopathy, pollutants, nutritional deficiency and other factors is a major source of impairment. It has been estimated that 400 million persons suffer from iodine deficiency; their offspring are at risk of brain damage *in utero (1)*. Particular attention must be paid to the debilitating effects of cerebrovascular accidents secondary to uncontrolled hypertension, a rapidly increasing problem in developing countries. Cerebrospinal meningitis, trypanosomiasis and cysticercosis are major causes of brain damage. Persistent infections, even when the brain is not directly invaded, impair cognitive efficiency.

It is wrong to use potentially toxic drugs when what is needed is social support, or to rely on institutional care for patients who can be restored to function while in the community.

Peripheral nervous system damage. Inadequate or unbalanced diet, metabolic diseases, infections, traumas and toxins can cause incapacitating peripheral neuropathies with numerous social and psychiatric consequences.

Psychoses. The prevalence of severe mental disorders such as schizophrenia, affective disorders and chronic brain syndromes is estimated to be not less than 1%; somewhat more than 45 million mentally ill persons suffer compromised social and occupational function because of these conditions. The annual incidence of schizophrenia is approximately 0.1 per 1000 in the population aged 15–54 years. The rate for depressive disorders is several times higher.

Dementia. Dementia can be caused by metabolic, toxic, infectious and circulatory diseases. The burden on health services rises as an increasing proportion of the population survives to older ages and becomes vulnerable to senile dementia of the Alzheimer type.

Epilepsy. The prevalence of epilepsy in the population is 3–5 per 1000 in the industrialized world and 15–20 or even 50 per 1000 in some areas of the developing world. This tenfold difference in prevalence provides a measure of what could be accomplished by a comprehensive programme of prevention in the developing countries. The extent of social handicap resulting from epilepsy varies with its type, the adequacy of medical management, and community acceptance of or support for patients.

Emotional and conduct disorders. Such disorders are estimated to affect 5–15% of the general population. Not all cases require treatment but some can lead to major impairment. Disorders of conduct, which are frequent

among schoolchildren and interfere with learning in the classroom and with social adjustment, often respond well to simple treatments (e.g., behaviour therapy and the counselling of parents), although recurrence is common. Learning disorders, whether or not they are associated with other psychiatric symptoms, require special help in the classroom in order to avoid secondary emotional problems and occupational handicaps.

Behaviour injurious to health

Alcohol-related problems. Recent decades have witnessed considerable increases in alcohol consumption and a parallel increase in alcohol-related problems, including cirrhosis of the liver, difficulties at work and home, and alcohol-related traffic accidents. Alcohol abuse by the individual has devastating effects on the family. A particularly tragic consequence of drinking during pregnancy is the fetal alcohol syndrome.

In the WHO European Region, the number of countries with an annual per capita intake of more than 10 litres of pure alcohol increased from three in 1950 to 18 in 1979. Countries in the WHO Western Pacific Region have reported that there were sharp increases in alcohol-related health damage, crime and accidents during the 1970s. Although some countries in Europe and North America are now reporting a levelling off or even a modest decline in alcohol consumption, the global trend is still upwards, with particularly sharp increases in commercially produced alcoholic beverages in some developing countries in Africa, Latin America and the Western Pacific. However, it is notable that in Australia between 1978 and 1984 a 10% reduction in per capita consumption of alcohol was accompanied by a 30% reduction in deaths caused by alcohol.

Drug abuse. Drug abuse and dependence have increased in most countries *(2)*. There are some 48 million drug abusers in the world, including 30 million cannabis users, 1.6 million coca leaf chewers, and 1.7 and 0.7 million people dependent on opium and heroin respectively. Cocaine abuse is widespread and increasing. Amphetamines, barbiturates, sedatives and tranquillizers are consumed in most countries and their abuse, as well as multiple drug abuse, is increasing throughout the world in parallel with their increasing availability. Large regions have become dependent on the income derived from growing cannabis, the opium poppy and the coca shrub, and this adds to the difficulty of implementing control measures.

Mental deterioration in the elderly can also be prevented by avoiding unnecessary hospitalization.

Psychotropic drug abuse. The ready availability of psychotropic substances, insufficient and often misleading information and unjustifiable prescribing practices have led to the overuse and abuse of psychotropic drugs.

Tobacco dependence. Smoking is a socially induced form of behaviour maintained by dependence on nicotine. It causes a high proportion of cases of cancer, chronic bronchitis and myocardial infarction. Between 1976 and 1980 tobacco consumption decreased annually by 1.1% in the industrialized countries but increased by 2.1% annually in the developing countries. Besides premature deaths, which have been estimated at over 1 million per annum, innumerable cases of debilitating diseases, such as chronic obstructive lung disease, are

caused by smoking. The proportion of women of reproductive age who smoke regularly, already high in most industrialized countries, has been increasing rapidly in the developing world.

Conditions of life that lead to disease

Many health-damaging circumstances are beyond the control of the individual: homelessness, unemployment, lack of access to health and social services, the loss of social cohesion in slum areas, forced migration, racial and other discrimination, forced idleness in refugee settlements, war, and the threat of nuclear war.

In addition to these factors, individual life-styles can influence the risk of disease. Although the significance of excess animal fat in the diet, insufficient physical exercise and psychosocial stress in the epidemic of cardiovascular disease affecting the industrialized world cannot be precisely quantified, most authorities agree that these are important risk factors. Behavioural patterns certainly influence disease pathogenesis and it is important to make full use of our knowledge of mental health and our psychosocial skills to design interventions aimed at preventing disease that is secondary to unfavourable behaviour.

Disorders of conduct are frequent among schoolchildren and often respond well to simple treatments.

In this connection, methods of dealing with excessive stress merit further study; stress becomes a pathological agent when it is intense, persistent, and beyond the coping capacity of the individual.

Violence. Violence, including accidents, homicide and suicide, is one of the main causes of death in most countries. Psychosocial factors and mental disturbance play an important role in its occurrence. Child abuse and wife battering are among the particularly dramatic indicators of violence in the family.

Excessive risk-taking by young people. Experimenting with drugs and alcohol, sexual activity without precautions against sexually transmitted diseases, adolescent pregnancy, driving at excessive speed, and challenging established guidelines for health and safety result in serious morbidity and mortality. Pregnancy in girls aged 15 or less leads to a cycle of disadvantage. The immature mother is unable to care properly for her child, while her maternal responsibility is a barrier to the education and employment essential for her own development.

Family breakdown. Family breakdown interferes with the upbringing of children. A household headed by a woman is more likely to be below the poverty threshold than one headed by a man, adding to the mother's difficulty in raising a family. Weakened family units also contribute to community disorganization and a variety of psychosocial and other health problems.

Somatic symptoms resulting from psychosocial distress. Many patients who consult primary health care workers either have no ascertainable biological abnormality or, if they have one, complain disproportionately about their discomfort and dysfunction. Unless the psychosocial source of physical symptoms is recognized, the people affected are likely to be inappropriately investigated and treated, cause excessive cost to the health system or themselves, and become chronic

patients vainly seeking relief. The inclusion of basic mental health care as part of primary care reduces the cost of treatment and improves its outcome.

Proposals for action

It should be noted that intersectoral coordination is essential for the success of the measures outlined below.

Measures to be undertaken by the health sector

Success in carrying out preventive and therapeutic measures depends greatly on the psychosocial skills of primary health care workers, i.e., on their sensitivity, empathy and ability to communicate, as well as on a thorough knowledge of the community, its culture and its resources. Training in these skills is therefore no less essential than is the customary technical training. In their absence, diagnostic errors multiply, adherence to treatment recommendations declines, health workers exhibit "burn-out", and the health facility fails to achieve its goals.

Prenatal and perinatal care. In view of the need to protect the fetus and the newborn child and to provide optimum conditions for development, and given the high mortality and morbidity associated with prematurity and low birth weight:

— high priority should be given to the provision of adequate food and to education about nutrition to all pregnant women;

— direct counselling of pregnant women should be practised to reduce the prevalence of developmental anomalies and low birth weight caused by cigarette smoking and the consumption of alcohol during pregnancy;

— in areas where neonatal tetanus is prevalent, pregnant women should receive tetanus toxoid after the first trimester and birth attendants should be trained in sterile techniques for cutting the umbilical cord;

— in iodine-deficient areas, women of child-bearing age should be given iodized oil injections or iodized salt in order to prevent the congenital iodine deficiency syndrome;

— birth attendants should be trained to recognize high-risk pregnancies and to refer deliveries that are expected to be complicated to specialist facilities, since the prevention of obstetrical complications can reduce the number of children with central nervous system damage;

— the promotion of breast-feeding should be an integral component of primary health care.

Programmes for child nutrition. These should be a major component of prevention because malnutrition can impair cognitive and social development.

Immunization. The immunization of children against measles, rubella, mumps, poliomyelitis, tetanus, whooping-cough, and diphtheria could make an important contribution to the prevention of brain damage.

Family planning. Child development is adversely affected when mothers have too many children at unduly short intervals or when they are too young or too old. Education on family planning and access to effective means of contraception are therefore essential elements in maternal and child care.

Measures against abuse of and dependence on psychoactive substances

Primary health care workers should routinely counsel patients against smoking. Although only 3–5% will respond by stopping smoking, there is a large gain from the public health standpoint because of the high prevalence of the habit. Repeated efforts to quit have cumulatively higher rates of success and a low initial response should not discourage subsequent efforts.

Health workers can be trained to recognize the early stages of alcohol and drug abuse, using WHO manuals and guidelines. Brief counselling can help a significant number of patients to alter their behaviour before dependence and irreversible damage occur.

Crisis intervention in primary health care

In the event of acute loss (e.g., the death of a spouse, which increases morbidity and mortality among survivors), there is some evidence that group and individual counselling of the bereaved can diminish risk. Self-help and mutual aid groups can improve health at minimum cost to the health services. Well-trained crisis intervention units can handle a variety of acute mental health problems and thus prevent chronic difficulties.

Prevention of iatrogenic damage

Failure to diagnose and correctly treat psychosocial disorders results in iatrogenic damage. Thus it is wrong to use potentially toxic drugs when what is needed is social support, or to rely on institutional care for patients who can be restored to function while in the community.

Health workers can be trained to inquire routinely about psychosocial problems in the course of evaluating new patients. This enables them to recognize symptoms that indicate psychological distress and to avoid the overuse of psychotropic and other drugs and the iatrogeny that results from such practices. Brief counselling and, where necessary, referral to social welfare or mental health workers can significantly diminish the number of clinic visits.

Behavioural disorders that are the iatrogenic effect of prolonged or repeated hospitalization can be prevented by minimizing the hospitalization of children, encouraging family participation when hospital care is unavoidable, and introducing certain organizational arrangements in hospitals (e.g., assigning a primary nurse to each child). Mental deterioration in the elderly can also be prevented by avoiding unnecessary hospitalization.

Although measures to prevent dementia must await the results of further research, cognitive impairment resulting from depression and infection can be reversed by prompt treatment. At present, the distinction between dementia and depression in the elderly is not recognized by the family doctor in four out of five cases. A relatively short period of training can enable physicians and other health workers to improve their diagnostic skills in this area.

Minimizing chronic disability

Education of primary care workers in the recognition of sensory and motor handicaps in children, the use of prosthetic devices to minimize handicaps, and the referral of handicapped children to the educational authorities can prevent both cognitive underachievement and social maladjustment. Properly-fitted spectacles and hearing aids can reduce the likelihood of mental and social handicap in children.

Because the incidence of cerebrovascular disease can be reduced by the effective treatment of hypertension, primary care workers should be trained in the diagnosis and treatment of hypertensive disease; similarly, acquired lesions of the central nervous system can be reduced by prompt treatment of, for example, meningitis.

Health workers should be trained to manage febrile convulsions, recognize epilepsy, and control seizures with low-cost anticonvulsant drugs in order to minimize damage to the central nervous system, as well as reduce accidental injury and reduce the psychosocial invalidism and isolation that result when treatment is not provided. An uninterrupted supply of drugs of assured quality is of paramount importance.

Primary care workers should be trained to recognize schizophrenia and to manage it with low-dose antipsychotic drugs, to counsel relatives with a view to minimizing chronicity and avoiding the social breakdown syndrome, and to diagnose and treat patients suffering from depression. Such patients, who commonly present multiple somatic symptoms, may be inappropriately investigated and treated for somatic disorders, and are at risk for suicide. Effective treatment with antidepressants and prevention using lithium salts can be provided at relatively low cost.

Action at community level and in other social sectors

Better day care for children. Retarded mental development and behavioural disorders among children growing up in families that are unable to provide suitable stimulation can be minimized by early psychosocial stimulation of infants and by day-care programmes of good quality, particularly if the parents participate. However, day care must be of adequate quality; child-minding in crowded quarters by people who are too few in number and inadequately trained may retard development, not facilitate it. Among useful measures that could be taken are:

- surveys of existing day-care facilities and assessment of the need for them;
- establishment of quality standards and appropriate regulatory measures;
- setting of targets for quality and for training staff in the psychosocial development and needs of children.

Upgrading long-term care institutions. Although the use of institutions for long-term care can be minimized by providing alternatives in the community, they will continue to be necessary. The quality of the institutional environment is a major determinant of the way the patients function. It is therefore important to subject such institutions to regular evaluation and to improve their architectural design and the content of work programmes where necessary.

Self-help groups and support services. Self-help groups, organized by lay citizens, are effective in reducing the chronicity of certain disorders (e.g., Alcoholics Anonymous), in enabling the handicapped to improve their functional ability (e.g., societies that help epileptics), in educating the community about the nature of disorders, and in advocating changes in

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legislation, better resource allocation, and satisfaction of the needs of people with specific disorders. Furthermore, community self-organization for local development has been shown to reduce the psychopathology associated with anomie (a state of alienation from the community) and helplessness *(3)*.

Support services provided at community level can enable people to care for relatives with chronic illnesses who would otherwise require more expensive and less satisfactory institutional care. An excellent example is the organization of "home beds" for chronically handicapped mental patients in China: neighbourhood volunteers who are retired workers care for patients while their relatives are away at work. To maintain residual function and to avoid institutionalization, chronic mental patients must be provided with housing, opportunities for sheltered employment, and recreation.

Schools. The progressive extension of compulsory schooling provides new opportunities to broaden people's understanding of how they can protect their health. At the same time it leads to the identification of child health problems not previously known to health authorities.

A variety of risks to mental health and psychosocial development can result from a lack of parental skills and from parents' insufficient knowledge of their children's needs. Urbanization and other social changes result in a growing number of young parents not possessing such skills. Education for parenthood may well have to become a public responsibility. Crèches and nursery schools can be sited next to secondary schools, whose students can be assigned to work in them under supervision. Trained leaders for groups of new mothers can guide discussion on child-rearing and thus provide a valuable form of self-help.

Instruction about family planning, sex, child development, nutrition, accident prevention and substance abuse are among the subjects that are most frequently recommended for inclusion in school curricula. A particularly promising way of preventing substance abuse among early adolescents is to encourage them to acquire the behavioural skills necessary to resist pressure to use cigarettes, drugs and alcohol.

If trained properly, teachers can identify children with sensory or motor handicaps or with mental health problems that have not been detected by the health sector. Collaboration between teacher, parent and health worker is central to the rehabilitation of children with chronic handicaps and to the avoidance of social isolation and other untoward consequences.

Public health measures for accident prevention. In view of the high mortality and morbidity resulting from accidents and poisoning, measures for their prevention must be given high priority. Brain damage caused by toxic substances in the workplace can be prevented by imposing strict limits on exposure; untoward effects of shift work can be avoided using the principles of chronobiology; child-proof safety caps on medicine bottles and containers of household chemicals can reduce the ingestion of poisons and consequent damage to the central nervous system; lead poisoning in children can be prevented by prohibiting paints containing lead for household use and by decreasing the lead content of petrol.

The media. Radio, television, newspapers and comic strips can play a major role in public health education—for the better (e.g., by explaining why sanitation is essential for health) or for the worse (e.g., by advertising cigarettes).

Cultural and religious influences. Cultural factors are among the principal determinants of human behaviour. A knowledge of cultural and religious forces can be applied by health workers in their efforts to reduce health-damaging practices.

Government action

Prevention works only if governments want it to work: action must be planned not only in the health sector but in all other sectors important for health, such as education, agriculture, environment, etc. Any country undertaking a prevention programme should have a national coordinating group on mental health with the authority to assign tasks to the appropriate sectors. The coordinating group should have at its disposal an information centre that can collect and feed back data on changes in the nature and trends of problems and on the effects of intervention and task performance. One of the first duties of the centre should be to conduct a comprehensive review of legislation affecting such matters as mental health, family life, health services, drug control and schools.

In the area of prevention, government actions in various spheres may have implications for health; housing projects may worsen mental health because of bad design; industrial development projects may destroy local culture and lead to family disruption, child neglect and substance abuse; and the widespread use of pesticides without safeguards may lead to brain damage.

There is a need for research into the causes and mechanisms of disease in order to develop new and better means for prevention and control. Data on prevalence and the effectiveness of interventions frequently do not exist, particularly in developing countries. The extrapolation of results obtained in one country to another may be entirely misleading. It is therefore important to foster research programmes of two kinds:

— studies on the distribution of problems in specific populations and on changes in the pattern with time;

— investigations to enable assessments to be made in particular countries of measures that have been proposed for large-scale application.

Both types of study should be carried out at the national or subnational level. An urgent task that should be included in programmes of technical cooperation between countries is the development of methods for conducting such studies. The involvement of institutions in developing countries in multi-centre research, research training courses and information exchange should be used to create and/or strengthen the basis for a further growth of knowledge in this field. □

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