

## The Global Burden of Mental Disorders

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### ABSTRACT

Recent data on the burden of mental disorders worldwide demonstrates a major public health problem that affects patients, society, and nations as a whole. Research must be done to find effective ways to deal with the increasing burden of mental disorders. Given the growing evidence that mental disorders are disorders of the brain and that they can be treated effectively with both psychosocial counseling and psychotropic medications, intervention packages could be developed to deal with the increasing burden. Such packages should be tested for real-world effectiveness and their cost-effectiveness should be demonstrated to guide policymakers to choose from among many other non-mental health interventions. The transportability and sustainability of intervention packages should be studied in public health research and a link between efficacy, effectiveness, cost-effectiveness, generalizability, and sustainability should be demonstrated.

The World Health Organization's initiative on the World Mental Health 2000 Survey will provide the first basic epidemiologic data. Together with other data, the initiative will provide solid evidence for including mental disorders into essential treatment packages. In this way, parity can be achieved for mental disorders and mental health can be mainstreamed into health and public health practice. (*Am J Public Health*. 1999;89:1315-1318)

Mental health has long been neglected in health and public health practice—much as persons with mental disorders have been segregated and seen as different, unreal, and incurable. Consequently, health professionals have trivialized the issue of mental illness. Yet, mental health disorders cause significant disability and, considered globally, exceed either HIV or cancer in terms of numbers affected. It is essential that researchers and public health professionals work together to resolve the enormous public health crisis presented by mental disorders. In short, we must “mainstream” mental health.

### *The Magnitude of the Problem*

In 1996, the publication of the results from the Global Burden of Disease Study<sup>1</sup> created a Cinderella effect for mental disorders, showing that they should indeed be dealt with seriously rather than relegated to the margin of public health concerns. This study examined the impact of 107 diseases and, rather than solely focusing on traditional mortality measures, assessed disabling outcomes of diseases in a comparative framework.

Mental disorders have never been ranked in the top 10 priority lists of public health significance when mortality indicators alone have been used. However, the Global Burden of Disease included “disability” in the equation in calculating Disability Adjusted Life Years (DALYs), and as a result mental disorders ranked almost as high as cardiovascular diseases and respiratory diseases and surpassed all different types of cancer and HIV (Figure 1). (DALYs are the sum of years of life lost because of premature death and years of life lived with disability; in other words, burden is determined by taking into account mortality and disability. One DALY is one lost year of healthy life. The disability component of this summary health measure is

weighted according to the severity of the disability. For example, in the Global Burden of Disease Study, disability caused by major depression was found to be equivalent to that caused by blindness or paraplegia, whereas disability caused by active psychosis as seen in schizophrenia was estimated as somewhere between paraplegia and quadriplegia.) With regard to years lived with disability, depressive disorders as a single diagnostic category were the leading cause of disability worldwide. The Global Burden of Disease Study thus revealed the true magnitude of the long underestimated impact of mental health problems.

These findings pose new challenges to policy, particularly because future projections for global DALYs in the year 2020 show a significant increase in the impact of noncommunicable diseases worldwide.<sup>3</sup> Mental disorders are projected to increase to 15% of the global disease burden, and unipolar major depression could become the second leading factor in the disease burden (Table 1). In light of demographic changes and epidemiologic transitions (changes in the pattern of diseases),<sup>4-6</sup> as well as social factors concerning changing family structures and rising rates of urbanization, migration and mobility, and alcohol and drug use, the risks for mental disorders will certainly increase.

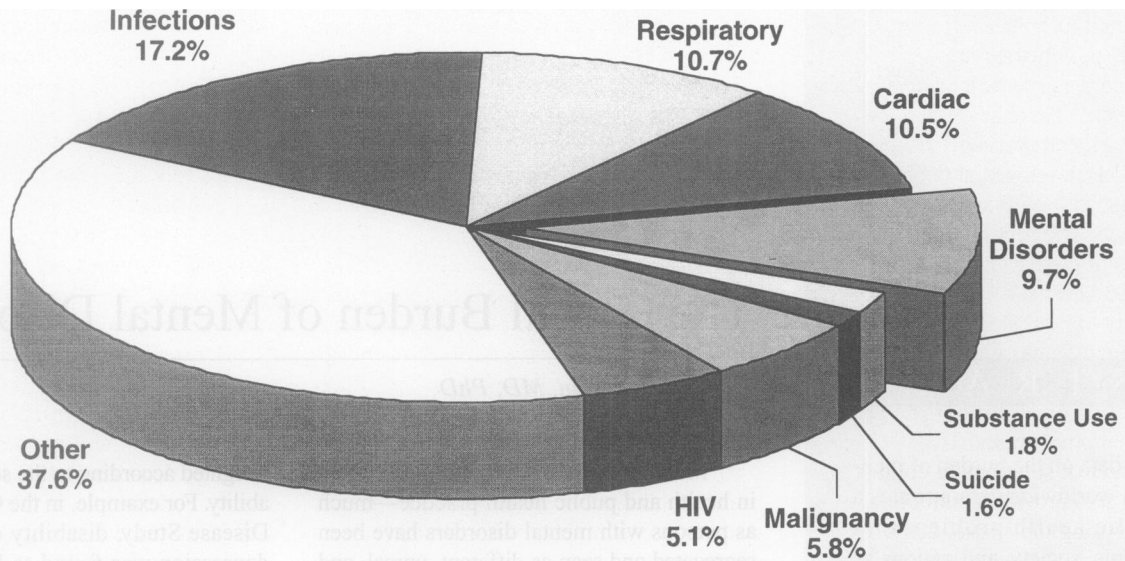
The Global Burden of Disease Study has therefore been eye opening (and mind opening) for public health in terms of mainstreaming mental health. The study has highlighted

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*Note.* The views expressed in this commentary are those of the author and do not necessarily reflect the views of the World Health Organization.

**Editor's Note.** See related editorial by Neugebauer (p 1309) in this issue.



Source. Based on data from *The World Health Report 1999—Making a Difference*. Geneva, Switzerland: World Health Organization; 1999.

FIGURE 1—DALYs: Disability Adjusted Life Years Worldwide.

TABLE 1—Global Burden of Disease

Estimate 1990			Projection 2020		
Rank	Cause	% Total	Rank	Cause	% Total
1	Lower respiratory infections	8.2	1	Ischemic heart disease	5.9
2	Diarrheal diseases	7.2	2	Unipolar major depression	5.7
3	Perinatal conditions	6.7	3	Road traffic accidents	5.1
4	Unipolar major depression	3.7	4	Cerebrovascular disease	4.4
5	Ischemic heart disease	3.4	5	Chronic obstructive pulmonary disease	4.2
6	Cerebrovascular disease	2.8	6	Lower respiratory infections	3.1
7	Tuberculosis	2.8	7	Tuberculosis	3.0
8	Measles	2.7	8	War injuries	3.0
9	Road traffic accidents	2.5	9	Diarrheal diseases	2.7
10	Congenital abnormalities	2.4	10	HIV	2.6

Source. Murray CJL, Lopez AD, eds. *The Global Burden of Disease: A Comprehensive Assessment of Mortality and Disability From Diseases, Injuries and Risk Factors in 1990 and Projected to 2020*. Boston: Harvard School of Public Health, World Health Organization, World Bank; 1996.

the public health significance of mental disorders, providing the tool for comparative assessment in a general health context.

**The Problem Is Huge—What Is the Answer?**

The global burden of mental disorders highlights the magnitude of the problem as loss of life years in terms of human productivity as well as social functioning.<sup>7</sup> What can

we do to deal with this burden? Asking the question in these terms begins to guide us toward an evidence-based health policy.

Today, scientific advances bring increasing evidence that mental disorders are disorders of the brain.<sup>8</sup> Modern brain imaging reveals that in mental disorders, neural circuits responsible for thinking, mood, sleep, appetite, and behavior fail to function properly and the regulation of critical neurotransmitters is impaired.<sup>9</sup> Genetics research indicates that vulnerability to many mental

disorders results from the influence of multiple genes, acting together with environmental factors.<sup>10</sup> Studies of brain chemistry, of effects of psychotropic medications, and of cognitive distortions continue to inform the development of new and better treatments.<sup>11</sup>

Today we can effectively treat many mental disorders. We have come a long way in being able to diagnose and treat the majority of people suffering from these illnesses, and treatments for mental disorders are better studied and more efficacious than those for many other common chronic human ailments. The main challenge now is to bridge the gap between science and service. We should design health services so that these treatments are used effectively in the real world. One key to accomplishing this is to conceptualize mental disorders as long-term and often recurrent conditions and to design disease management strategies accordingly.<sup>12</sup>

We need to better link efficacy (impact of treatment in clinical trials) and effectiveness (impact of treatment in the real world) in the treatment of mental disorders. Such an effort will contribute to a powerful solution to the increasing burden of mental disorders worldwide. For example, depression is a brain disease that can be treated effectively,<sup>13</sup> and such treatment in turn has great impact on patients' productivity, participation in society, and quality of life. Today there are, indeed, comprehensive disease management strategies that combine the best available

practices for treating depressive disorders. With both psychosocial counseling (e.g., cognitive behavioral techniques or interpersonal therapy) and psychotropic medications, depressive disorders can be treated at the primary care level.<sup>14</sup> There are even models of care (e.g., the general practice–specialist consultation model) developed at the health service or population level that examine the feasibility of more effective ways of handling various forms of disorders, depending on the setting and the patients.<sup>15,16</sup>

The next logical step in building the efficacy–effectiveness chain is to look at cost-effectiveness. If our aim is to achieve the best “health value” for our investment, we must then promote research that will produce cost-effective solutions to combat disease. DALYs also provide a common framework for analyzing the cost-effectiveness of various interventions: how much does it cost to avert one DALY for a given condition?<sup>17</sup> For example, you can avert 1 DALY per \$1 with vitamin A supplementation in areas where the risk of blindness from vitamin deficiency is high or 1 DALY per \$4 for tuberculosis chemotherapy. On the other hand, treatment of childhood leukemia may cost as much as \$1000 per DALY, and a heart transplant may cost \$5000 per DALY. Currently we do not have direct cost measurements from empirical studies, only estimates for mental disease interventions—for example, depressive disorders case management may cost as much as \$500 per DALY.<sup>18</sup> We should certainly gather more evidence on the effectiveness and cost-effectiveness of mental health interventions compared with other health interventions.

### ***Effectiveness Proven—What Next?***

Once we have proven the effectiveness (and cost-effectiveness) of health interventions, we must prove their generalizability and sustainability within different health systems. The most effective health interventions must be adapted to various health systems so that the interventions can be applied on a sustained basis. Tailoring health interventions to fit the needs of different populations and available resources of health systems is another important challenge. For example, although case management of depression may be guided by universal underlying principles, it can vary in different countries, settings, and communities. One should therefore study the applicability and transportability of case management guidelines in different environments. This work will be essential to making effective

treatments more available worldwide on an equitable basis.

Once we know the factors that may influence the generalizability and sustainability of optimal practices in various health care systems, there is still a need for continuous quality management and improvement through monitoring inputs, outputs, outcomes, and costs. This is the best way to prove that investing in mental health is worthwhile. Nevertheless, all countries share a common challenge: resources are limited and their allocation entails a complex decision-making process that involves scientific, economic, cultural, and political factors. Hence, there are many different paths to take and decisions to make. Should we increase technical efficiency of the program in question, or try to reduce its costs? Alternatively, we may wish to change the allocation of resources, because another intervention for another health problem may yield higher benefits or lower costs. These are complex decisions that require evidence-based assessments. An important principle that should guide such decisions is that both providers and consumers should act together to reach common goals.

The cycle of evaluation outlined here may seem too complex to some who may think that an invisible hand will straighten things out—that the market economy as a wonderful social machine will take care of society’s needs. However, current assessments show that the costs of wrong decisions (and of not making decisions) are already enormous. Mental disorders account for at least 160 million lost years of healthy life,<sup>2</sup> of which at least 30% could have been easily averted with existing interventions.<sup>1(p495)</sup> For example, the disability weight of depressive disorder could be reduced from 0.6 to 0.3, bipolar disorder from 0.58 to 0.38, schizophrenia from 0.63 to 0.38. Given the possible gains of these savings, investing in research to improve mental health services is certainly worthwhile.

### ***Mainstreaming Mental Health: A Research Agenda***

We also need to mainstream mental health into public health research. Mental health research should not be segregated from other types of public health research, and it should be linked with other scientific activities in public health. Recognizing the mental health care needs of the society and establishing priorities among them will ensure that the health system as a whole is responsive to society’s and individuals’ needs and effective in improving mental health worldwide through research.

As a cornerstone of public health, epidemiologic data for mental health problems will enable us to better understand mental illness and assist us in allocating resources for diagnosing and managing mental disorders.<sup>19</sup> However, the data are scarce or fragmented for many parts of the world. To address this issue, the World Health Organization initiated the World Mental Health 2000 Survey, focusing on the epidemiology of mental disorders within a general health framework.<sup>20</sup> The survey will be conducted in more than 10 countries (the United States, Spain, Germany, France, the Netherlands, Italy, South Africa, Japan, China, India, and possibly others); 5000 subjects from the general population will be interviewed in each country. Assessments will include most mental and chronic physical disorders and will focus on diagnosis and health status, disability and work loss, risk factors, health care use, and medication use.

The World Mental Health 2000 Survey will use identical methodology and instruments in each country, applied with both rigorous training and quality control. This initiative will yield needed epidemiologic parameters for many regions of the world and serve as a basis for surveillance of trends over time. Such information will give us a better picture of met and unmet needs and availability and use of services, as well as a range of risk factors (e.g., smoking, drinking, and other behaviors such as sleep, sex, and eating). It will also be useful in widening health policymakers’ recognition of mental disorders as a priority in public health prevention and intervention efforts worldwide. The fact that this survey will measure the frequency and impact of both mental disorders and chronic physical diseases will help us make comparative assessments of overall disease burden and of the fraction that can be effectively averted with available or possible interventions.

In addition to descriptive epidemiologic research, we need further health services research in order to base mental health care policy on evidence. To achieve this aim, public health and mental health research should focus on the following common themes:

- Use of health and social services: who, how, why, and when?
- Outcome evaluation: the impact of interventions in terms of functionality and productivity
- Health care organization: the extent of coverage of mental disorders vis-à-vis other disorders, and the means of financing the coverage (through the public sector, managed care, or private insurance?)

- Consumer involvement: the extent of participation of people in services; the information gap on mental health care; knowledge, attitudes, and practices regarding mental disorders; and patients' rights

- Quality assurance: ongoing monitoring and surveillance and adherence to scientific standards, guidelines, and other norms

In the area of mental health services research, children and youth represent a sadly neglected majority. There is a major gap in our knowledge of and service provision for mental health problems among children and young people. The life-cycle transition from childhood to adulthood should be examined more carefully. Recent epidemiologic evidence suggests that there may be fetal programming of later-life mental illnesses.<sup>21,22</sup> Evidence also indicates transition between certain conditions in childhood and mental disorders in adulthood. Consideration of these types of data could enable us to develop prevention programs. Likewise, recent research addressing the unity of mind and body in adults indicates that various mental disorders (e.g., depression or insomnia) pose a risk factor for developing physical problems such as coronary heart disease.<sup>23</sup>

Since we have the tools to assess and intervene in mental health problems, we have a golden opportunity to use our public health research. Not only our armamentarium but also our strategic approach is important to shed light on how we can best move forward. Mental health research deals with the most complex and challenging organ of the human body and organizations of human society. We now have the challenge to confront the significant burden of mental disorders.

## Conclusion

Mental disorders are a major part of the global burden of disease. People with mental disorders experience significant disability (i.e., limitation of functioning at the physical, personal, and societal levels)<sup>24</sup> and poor quality of life, and their families and communities are greatly affected. Furthermore, there is serious social stigma attached to mental disorders.

Although efficacious methods of managing mental disorders exist, they are not applied to a sufficient degree. This gap between reality and potential indicates a

major and unnecessary loss in the productive capacity and well-being of affected persons and communities. Health, in this sense, refers to the productive capacity and well-being of persons and communities. We should think of investing in health as investing in the future. Consequently, we cannot remain indifferent to the loss of such an important segment of human and social capital as is represented by those suffering from untreated mental disorders.

We must therefore research the efficacy, effectiveness, cost-effectiveness, and generalizability of mental health interventions. We need to translate the findings of basic science into treatment and prevention interventions. Finally, we must investigate how these interventions might best be implemented in the real world. With successful medical treatments and guidelines, increased focus on outcomes, consumer involvement, and quality assurance, we can achieve this. But we need to strive for parity for mental disorders in our thinking and our practice. And we must mainstream mental health into research and public health. □

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