

war and social dislocations wreak further havoc on mental health. Depression immobilizes many sufferers, making for a heavy—yet at present largely unrecognized—drag on economies, lowering worker productivity and making families dysfunctional.

The social and economic burden of depression and other mental illnesses was dramatically underscored in a 1995 Harvard study called the Global Burden of Disease. The work was done by Christopher Murray, a professor in international health economics, and demographer Alan Lopez, both now at WHO in Geneva. Using a sophisticated new method for calculating the duration and severity of a disability, known as disability-adjusted life years (DALY), the researchers found that psychiatric and neurological conditions have little impact on life-span, accounting for a paltry 1.4% of all deaths. But these conditions represented an astounding 28% of all disabilities. Indeed, Murray and Lopez's group found that depression is the leading cause of disability worldwide in terms of number of people affected. What's more, four of the other top 10 causes also relate to behavioral rather than physical illness. These are alcoholism, bipolar disorders, schizophrenia, and obsessive-compulsive disorders.

Largely because of declining mortality from infectious diseases, they estimate that depression, which ranked fourth in DALY listing for 1990, will claim second place by 2020, above traffic accidents and trailing only ischemic heart disease. "I see depression as the plague of the modern era," says Lewis Judd, former chief of the U.S. National Institute of Mental Health (NIMH) and chair of the psychiatry department at the University of California, San Diego.

Although the global burden report has shaped thinking in the past 5 years, its rankings remain controversial because the data are incomplete. "Everyone has been using different instruments and different designs" to gauge mental health problems, says psychiatrist Sing Lee of the Prince of Wales Hospital in Hong Kong. Researchers hope the new WHO survey will clear up the confusion. "This time, the idea is to use standardized instruments translated in a locally culturally valid manner," says Lee, chief scientific adviser for the survey in China.

The study, which began last month in France, requires 2-hour face-to-face interviews with 150,000 people, teenaged and older, from North America, Western Europe, Mexico, Chile, Cuba, Colombia, Ukraine, South Africa, India, China, Japan, Indonesia, and New Zealand. Researchers hope to complete the survey by mid-2001. Local people are being trained to do the interviews, in which subjects will be asked about

emotional symptoms, substance abuse, and psychosis as well as chronic health problems such as arthritis or back pain. The questions on depression were taken from standard depression scales, and all of the questions have been translated from English and then back-translated to ensure that the meaning has been retained. Sartorius notes that the questions also need to be modified to fit local conditions. "Do you have a fear of elevators?" he notes, might be turned into a query about mountains in rural India.

By correlating the answers to the questions dealing with depression with those relating to chronic physical problems, researchers should get a better sense of how much of the iceberg of depression lies below the surface. "We don't know how many people with headache or fatigue are really suffering from depression in disguise," says study designer Ronald Kessler, an epidemiologist at Harvard Medical School in Boston.

The survey includes retrospective questions in order to uncover the impact of major political events. In war-torn Lebanon, for example, a survey in the early 1990s revealed sky-high rates of major depression. In South Africa, some 5000 people will be asked additional questions about the effects of violence and racism. And in China, the survey may cast light on the high incidence of suicide among young rural women in recent years. It could also probe the psychological impacts of the one-child-per-family

policy that has been in effect for 20 years—revealing whether China has produced what Kessler calls "a generation of little narcissists."

The WHO survey, funded by a variety of public and private sources in each country as well as by international donors, isn't the only game in town. In September the NIMH hopes to receive the results of a report by the Institute of Medicine on chronic neuropsychiatric problems, including depression, schizophrenia, epilepsy, stroke, and developmental disorders, in the developing world. NIMH director Steven Hyman says that he hopes both exercises will help show governments in developing countries that it makes economic sense to pay attention to mental health problems. With countries scarcely able to keep up with such pressing medical problems as malnutrition and AIDS, it's not realistic to expect them to create new mental health infrastructures, Hyman acknowledges. Instead, he says, "we need to develop models where depression is identified and treated in primary-care settings worldwide."

With some countries lacking even the most rudimentary training for mental health professionals, Sartorius admits that improvements will come slowly. But he hopes that the weight of the next round of surveys and reports will, "like water wearing down stone, eventually convince the public and politicians that this is a priority."

—CONSTANCE HOLDEN

NSF SCHOLARSHIPS

Demand for Tech Workers Benefits Undergraduates

The rising number of H-1B visa applications has created a pot of scholarship money at NSF, although not all universities are bidding for it

For years, U.S. high-tech companies have complained that technically trained workers are in such short supply that they need to import tens of thousands of foreign scientists and engineers to keep labs running and production lines humming. In 1998, these companies successfully lobbied Congress—over the objections of some unions and engineering organizations—to temporarily increase the maximum number of visas for foreign technical workers from 65,000 to 115,000 a year.

Companies aren't the only ones benefiting, however. Thousands of U.S. undergraduates majoring in computer science, engineering, and mathematics (CSEM) will soon be awarded scholarships under a new National Science Foundation (NSF) program, established by the visa legislation, that is aimed at boosting the supply of homegrown skilled la-

bor. And the number of such scholarships, earmarked for students on tight budgets, could jump significantly if Congress again raises the cap, as seems likely.

The scholarships are funded by a portion of a \$500 application fee that Congress imposed on applications for technical workers, known as H-1B visas. NSF was asked to administer the scholarship program and invited universities to bid for the \$22-million-a-year pot. Over the past few weeks, it has chosen 77 of a projected 110 winners from some 280 community colleges, 4-year schools, and graduate research universities that competed for this first round of institutional grants, which average \$220,000. In the next few months, each school will choose recipients for the \$2500 annual scholarships, which are renewable for a second year.

Al Cherry hopes to be among them. A

mathematics major at Grambling State University—a historically black school in north central Louisiana that has received one of the NSF grants—Cherry would like to teach at the high school he once attended in Monroe, Louisiana. The scholarship would allow him to cut back on the 20 hours a week he works in the collection department at Chase Manhattan Bank—a job he needs to support himself and his wife while he's in college—and devote more time to his studies. “When I get home [after a 65-kilometer commute], I don’t always feel like doing schoolwork,” he says.

That pot may soon grow. Last month, Representative David Dreier (R-CA) introduced a bill (H.R. 3893) that would net NSF \$30 million for scholarships in 2001 by raising the visa cap to 200,000 and doubling the application fee to \$1000. A bill moving through the Senate (S. 2045), introduced in February by Senator Orrin Hatch (R-UT), would have a similar effect on the NSF program. The measures have attracted bipartisan support and strong industry backing. “The more that we can do to get our kids involved in these fields, the better it will be for the U.S. economy,” says an aide to Representative Adam Smith (D-WA), a co-sponsor of the Dreier bill.

The scholarship program has struck a chord among public colleges and universities, where \$2500 a year can go a long way. “This will cover an entire year’s tuition, plus some book money,” notes William Velez, a professor of mathematics at the University of Arizona in Tucson, which has received one of the grants. “I hope that this will allow students to work less and study harder, raising their GPA [grade point average] and making them more competitive in the job market.”

The scholarships also give institutions a chance to expand efforts to attract and retain minority students and women in science, engineering, and math. “It fits well with our existing activities,” says Anthony Sebald, associate dean for academic affairs within the engineering school at the University of Cali-

fornia, San Diego (UCSD). The school runs a mentoring effort aimed at reducing the traditionally high attrition rate among undergraduate engineering students, and Sebald views the 22% women and 13% underrepresented minorities among the school’s 2600 majors as evidence of progress that the CSEM program can build upon. “We see it

there are very few students of color in computer science,” says James Wyche, associate provost at Brown University and head of a national project that partners the Ivy League schools and other elite universities with so-called historically black colleges and universities (HBCU). “You have a better chance of tapping a large pool of students at an HBCU.”

Grambling is such a school. Maddupu Balaran, head of the computer science and mathematics department and principal investigator of the project funded by the school’s NSF grant, says he’s pleased with the chance to lighten the financial load on students. The grant will also provide students with more time to take advanced courses and carry out research projects, says Balaran. “Our undergraduates have no trouble getting jobs, but I’d like them to pursue graduate degrees in specialized fields, which would make them even more attractive to employers.”

LaNessa Jackson, a sophomore majoring in computer science, says a scholarship would reduce her debt and let her spend more time with faculty members in preparation for graduate school. She also sees the award as an important carrot for minority students who, in addition to the financial burden, might not feel capable of pursuing a technical degree.

“A lot of people I know run away from computer science because they think it’s hard and because they don’t know other minorities who have succeeded,” she says.

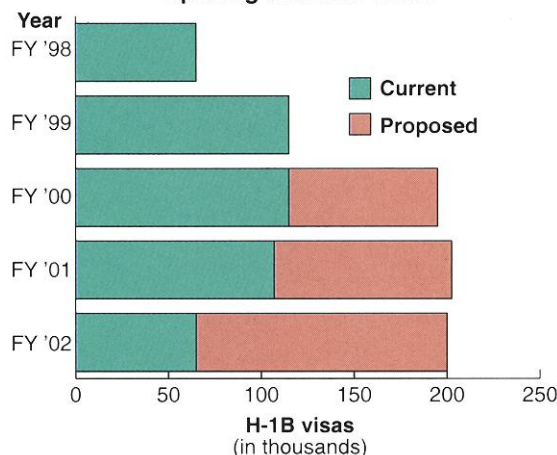
The lack of role models never bothered David Morales, a junior majoring in computer science and math at the University of Arizona, another grant recipient. “I’ve always wanted to get a Ph.D.,” says Morales, who grew up in a Hispanic farming community outside Tucson and who is working 30 hours a week to help fill the

gap left when his father was laid off last summer from his job at a copper mine. “My dream is to go to [the University of California,] Berkeley and then come back to Arizona and start programs to help other minority students learn math the right way.”

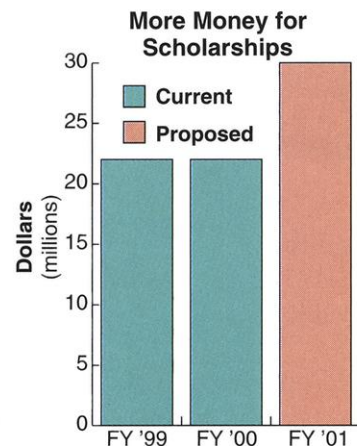
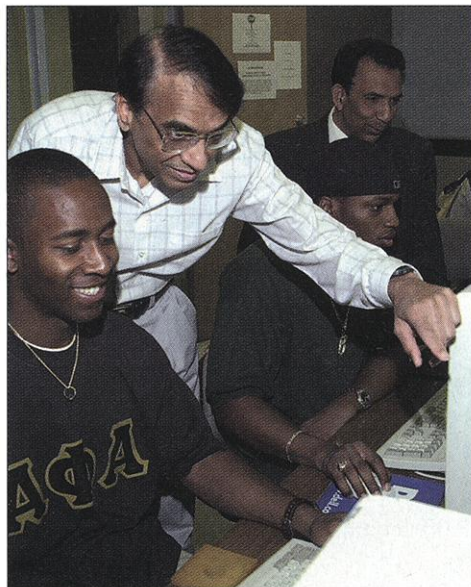
Federal officials hope that the CSEM program will help students at Grambling, Arizona, UCSD, Purdue, and elsewhere to reach their goals. Their success, in turn, could produce a wave of U.S. students who can meet the ever-growing demand for high-tech workers.

—JEFFREY MERVIS

Opening the Door Wider



Help wanted. House and Senate bills would boost the ceiling on visas, top, and generate more money for scholarships, below.



Guidance. Grambling computer science professors Parashu Sharma, left, and Muddapu Balaran hope to help students like Justin Cooper and Randal Kennedy.

as another opportunity to help a group of students who are grossly underrepresented in these areas,” adds Michael Forman, associate dean for science at Purdue University in West Lafayette, Indiana, another winner.

Highly selective private schools, in contrast, were conspicuous by their absence from the first round of competition. Indeed, many administrators said they were unaware of the program. Two possible reasons for the lack of interest are the steep tuition at such schools and the relative dearth of eligible students. “A year at Brown costs \$34,000, and in addition