

## Components of the Economic Burden of Serious Mental Illness in the US

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### Abstract

Mental disorders impose considerable socioeconomic costs due to their episodic/chronic nature, their relatively early ages at onset, and the highly disabling nature of inadequately treated mental illness. Despite substantial increases in the volume of mental health treatment for disorders in the past two decades, particularly pharmacotherapies, the level of morbidity and mortality from these disorders does not appear to have changed substantially over this period. Improving outcomes will require the development and use of more efficacious treatments for mental disorders. Likewise, implementation of cost-effective strategies to improve the quality of existing care for these disabling conditions is required.

### Keywords

Mental illness, costs, efficacy, effectiveness

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As readers of this publication are certainly aware, mental disorders impose very considerable costs on society. This is due to many factors, including their episodic/chronic nature, their relatively early age at onset, and the highly disabling nature of inadequately treated mental illness.

How can we quantify what mental disorders cost the nation? One method, developed by the World Health Organization (WHO), is to use disability-adjusted life-years (DALYs), where one DALY is equal to the loss of one healthy life-year. Based on this metric, mental disorders 'cost' the US and Canada a total of 6.9 million DALYs in 2001, which corresponds to 7.6 days of healthy life lost for every person in the population that year; this represents 15% of the total DALY burden, essentially equal to cardiovascular diseases as the most burdensome among the 23 categories used by the WHO, and 24% higher than the next largest disease category, malignant neoplasms.<sup>1</sup>

Another way to determine the impact of mental illness, based on the common 'cost of illness' methodology,<sup>2</sup> is to monetize the direct and indirect financial costs incurred by society due to mental disorders. In this framework, 'direct' costs are those associated with mental health treatment *per se* (e.g. medication, clinic visits, or hospitalization), whereas 'indirect costs' are incurred through premature mortality, reduced labor output (and public and private income support programs, which serve to replace labor income among the disabled), reduced educational attainment, increased incarceration and homelessness, and

costs ensuing from the high rate of medical complications associated with serious mental illness. In terms of direct costs, spending on mental health treatment in the US was \$100 billion in 2003, representing at least 6.2% of total health spending.<sup>3</sup>

Indirect costs—which certainly exceed direct mental health treatment costs—have been more challenging to quantify comprehensively. Indeed, the most recent published study to do so provided estimates for 1985,<sup>4</sup> which pre-dates the sweeping changes in mental health treatment patterns associated with, for example, managed behavioral healthcare and developments in psychopharmacology.<sup>5</sup> A recent study, however, examined one major component of indirect costs: reduced individual earnings associated with having a mental illness, a proxy for reduced labor output due to mental-health-related absenteeism, presenteeism, turnover, unemployment, and non-participation in the labor force.

Using US data from 2001–2003 on non-institutionalized adults 18–64 years of age, those with a serious mental illness (defined as having a diagnosable mental disorder severe enough to cause substantial impairment) were found to have lower individual earnings of \$16,306 per year, on average, compared with those without such a mental illness. At the population level, this corresponds to an annual reduction of \$193.2 billion in reduced earnings associated with mental illness; of this, 75% was attributable to workers with mental illness having lower earnings than workers without, and 25% to a higher rate of zero

earnings/non-employment among people with mental illness.<sup>6</sup> This estimate excludes losses due to mental health-related premature mortality, institutionalization and homelessness.

There is, of course, a kind of reciprocal relationship between direct and indirect costs: healthcare services are, in no small part, intended to preserve or restore functioning, including work and social functioning and the ability to live independently. In this context, it is particularly distressing to recognize that, despite substantial increases in the volume of mental health treatment for disorders such as depression in the past two decades, particularly pharmacotherapy, there is no evidence that the levels of morbidity or mortality from these disorders changed substantially over this period.<sup>7-9</sup> Moreover, based on 2001–2003 data, only around 40% of Americans with a serious mental illness received any specific mental health treatment in the prior year, and only around one-third of those—so around one in seven overall—received treatment that could be characterized as minimally adequate based on practice guidelines. The rest received ineffective, sub-therapeutic, or even contraindicated treatment, such as benzodiazepines for depression, or unproven psychotherapies.<sup>9</sup> At least there is evidence that most mental health treatment in the US is provided to people with plausible mental health needs, despite ongoing concerns to the contrary.<sup>10</sup>

What does this tell us about addressing the societal costs of mental disorders? Broadly, patient outcomes can be improved via the development and use of more efficacious treatments and/or via improved delivery of existing treatments.<sup>11</sup> Increased efficacy is certainly critical, given not only the epidemiological patterns just described but also the findings of generally limited treatment efficacy from recent large-scale comparative trials of mental health treatments. These include the NIMH-sponsored Clinical Antipsychotic Trial of Intervention Effectiveness (CATIE) trials in schizophrenia and dementia, the Sequenced Treatment Alternatives to Relieve Depression (STAR\*D) trial in depression, and the Systematic Treatment Enhancement Program for Bipolar Disorder (STEP-BD) trial in bipolar disorder.<sup>12-14</sup> Yet we clearly have a long way to go toward developing optimal treatments for common, disabling mental disorders.

There is also a critical need to improve the delivery of existing treatments; indeed, there are few other areas of medicine where delivery is so consistently poor.<sup>15</sup> The research evidence on opportunities to improve delivery of mental health care is perhaps more encouraging. For instance, there is now a large body of practical research establishing the effectiveness and cost-effectiveness of strategies to improve quality of care for depression. This is broadly

referred to as ‘collaborative care,’ across a wide range of practice settings, delivery methods and patient populations.<sup>16</sup> This includes evidence from several trials that mental health quality improvement programs can improve labor outcomes.<sup>17,18</sup> Moreover, there appears to be some movement toward the uptake of such programs by purchasers and implementation of them by health plans, although overall adoption remains low.<sup>19</sup>

In 2002, Dr Michael Hogan, then the Chair of the President’s New Freedom Commission on Mental Health, wrote that the US is “spending too much on mental illness in all the wrong places.”<sup>20</sup> This statement is at least as true today. The indirect costs for persons with these chronic, disabling illnesses will likely continue to climb, particularly in times of economic recession. The questions we must ask ourselves are urgent, if hardly new: How can we ensure that mental health care is cost-efficient as well as effective for patients? How will we reduce homelessness, job loss, and incarceration? And perhaps most importantly, how can we best invest in disseminating effective treatments and finding better treatments in order to reduce the societal costs of mental illness? ■



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- World Health Organization, World Health Report 2002—Reducing Risks, Promoting Healthy Life, Annex Table 3, 192–7.
- Rice DP, et al., *Health Care Financ Rev*, 1985;7(1):61–80.
- Mark TL, et al., *National Expenditures for Mental Health Services and Substance Abuse Treatment, 1993–2003: SAMHSA Publication SMA 07-4227*, Rockville, MD, Substance Abuse and Mental Health Services Administration, 2007.
- Rice DP, et al., *Public Health Rep*, 1991;106(3):280–92.
- Kessler RC, et al., *N Engl J Med*, 2005;352(24):2515–23.
- Kessler RC, et al., *Am J Psychiatry*, 2008;165(6):703–11.
- Kessler RC, et al., *JAMA*, 2005;293(20):2487–95.
- Kessler RC, et al., *N Engl J Med*, 2005;352(24):2515–23.
- Wang PS, et al., *Arch Gen Psychiatry*, 2005;62(6):629–40.
- Druss BG, et al., *Arch Gen Psychiatry*, 2007;64(10):1196–1203.
- Woolf SH, et al., *Ann Fam Med*, 2005;3(6):545–52.
- Lieberman JA, et al., *N Engl J Med*, 2005;353(12):1209–23.
- Sachs GS, et al., *N Engl J Med*, 2007;356(17):1711–22.
- Rush AJ, et al.; STAR\*D Study Team, *N Engl J Med*, 2006;354(12):1231–42.
- McGlynn EA, et al., *N Engl J Med*, 2003;348(26):2635–45.
- Gilbody S, et al., *Arch Intern Med*, 2006;166(21):2314–21.
- P.S. Wang, et al., *JAMA*, 2007;298(12):1401–11.
- Schoenbaum M, et al., *JAMA*, 2001;286(11):1325–30.
- Agency for Healthcare Research and Quality. Integration of Mental Health/Substance Abuse and Primary Care. Evidence Report/Technology Assessment Number 173, AHRQ Publication No. 09-E003, October 2008. Available at: [www.ahrq.gov/downloads/pub/evidence/pdf/mhsapc/mhsapc.pdf](http://www.ahrq.gov/downloads/pub/evidence/pdf/mhsapc/mhsapc.pdf) (accessed June 29, 2009).
- Hogan MF, *Psychiatr Serv*, 2002;53:1251–2.