

The Trillion-Dollar Opportunity: The Case for More Innovation Related to Mental Illness

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Prevalence of Mental Illness Among Adults

Condition	Adults With Mental Illness (Millions)	Percent of Adult Population	Equivalent State Adult Populations
Any Psychiatric Disorder	43.6	18.7%	Texas, New York, and Georgia
Serious Psychiatric Disorder	9.8	4.2%	Illinois
Major Depressive Disorder	15.7	6.7%	Florida
Schizophrenia	2.6	1.1%	Connecticut
Bipolar Disorder	6.1	2.6%	Oregon and Oklahoma
Obsessive-Compulsive Disorder	2.3	1.0%	Utah
Post-Traumatic Stress Disorder	8.2	3.5%	Georgia
Panic Disorders	6.3	2.7%	Virginia
Dysthymia	3.5	1.5%	Louisiana
Autism	2.4	1.0%	Iowa
Neurodegenerative Disorders	5.8	2.5%	Washington
Alzheimer's	5.1	2.2%	Massachusetts
Parkinson's Disease	0.6	0.3%	North Dakota
Total	50.9	21.8%	California and Texas

The Cost of Mental Illness

What would the world look like without mental illness?

- Less spending on hospitalization, medicines, and care;
- Larger, more productive workforce;
- Lower rates of crime, incarceration, and homelessness; and
- Fewer deaths from suicide, cancer, heart failure, tobacco, and substance abuse

The Cost of Mental Illness

Cost	Total (Billions)	Percent of GDP
Psychiatric Illnesses	\$1,032	5.9%
Neurodegenerative Diseases	\$255	1.5%
Autism Spectrum Disorder	\$252	1.4%
Total	\$1,539	8.8%

Cost of Psychiatric Disorders

Costs Associated With Psychiatric Disorders	Total (Billions)	Percent of GDP
Direct Cost of Care for Psychiatric Disorders	\$201	1.2%
Social Security Disability Insurance	\$29	0.2%
Incarceration	\$28	0.2%
Productivity Loss from Not Working	\$222	1.3%
Productivity Loss from Low-Wage Jobs	\$86	0.5%
Absenteeism and Presenteeism	\$136	0.8%
Comorbidity from Suicide	\$55	0.3%
Comorbidity from Physical Ailments	\$174	1.0%
Comorbidity from Drugs and Alcohol	\$14	0.1%
Comorbidity from Tobacco	\$65	0.4%
Violent Crime	\$15	0.1%
Homelessness	\$8	0.0%
Total	\$1,032	5.9%

Measuring the Costs of Mental Illness

- Total economic impact is large, but the estimate is not conclusive
 - Commingling effects from socioeconomic conditions, physical health, substance abuse, and environment all impact mental health
 - Indirect effects with confused causation make ascribing costs to mental health difficult
- Many costs are not able to be measured
 - Long-term impacts on income
 - Indirect and lifetime costs of mental illness among children
 - Impact on families and communities

Investing in Brain Research

- The large costs represent an opportunity
 - Fully utilizing current treatments can only go so far
- However, scientists do not fully understand root causes behind brain diseases
- Progress in neuroscience, genetics, and technology present exciting research opportunities

We Need Public and Private Investment in Brain Research

- Role for public investment
- Private industry underinvests in basic research
- Complementary effect of public and private research



Public Research by Disease

Research Subject Classification	Public Research Expenditure in 2015 (Millions)
Brain Disorders	\$4,124
Psychiatric Mental Health	\$2,263
Depression	\$390
Schizophrenia	\$241
Anxiety Disorders	\$156
Post-Traumatic Stress Disorder (PTSD)	\$85
Bipolar Disorder	\$80
Attention Deficit Disorder (ADD)	\$41
Neurodegenerative Diseases	\$1,662
Alzheimer's Disease and related dementias	\$631
Parkinson's Disease	\$146
ALS	\$49
Huntington's Disease	\$39
Autism	\$208

Public Spending on Brain Research

- How much is \$4.1 billion?
 - 2.9% of the federal research budget
 - 13.5% of the total NIH budget
 - 0.024% of GDP
 - 0.27% of estimated cost of mental illness

We Need Public and Private Investment in Brain Research

- Biopharma industry translates knowledge into cures
- Yet it's highly risky to invest in developing medications for brain research
 - Average cost of drug development is \$2.6 billion (Tufts Center for the Study of Drug Development)
 - Lengthy time horizons
 - Complexity of the brain lowers rate of success

Policy Recommendations

1 Expand federal funding for brain- and mental health-related research

- Double research support for mental health.
- Fund the BRAIN Initiative at \$1 billion per year.

Policy Recommendations

- 1 Expand federal funding for brain- and mental health-related research
- 2 **Recognize that price controls come at the cost of reduced research**
 - Encourage other countries to adopt and enforce more years of data exclusivity.
 - Avoid price control policies on pharmaceuticals that make it riskier to invest in innovation.

Policy Recommendations

1 Expand federal funding for brain- and mental health-related research

2 Recognize that price controls come at the cost of reduced research

3 **Encourage private investment in mental health research**

- Expand the R&D tax credit.
- Implement an “Innovation Box.”
- Allow firms to repatriate foreign profits at lower rate if invested in mental health innovation.

Thank You!

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