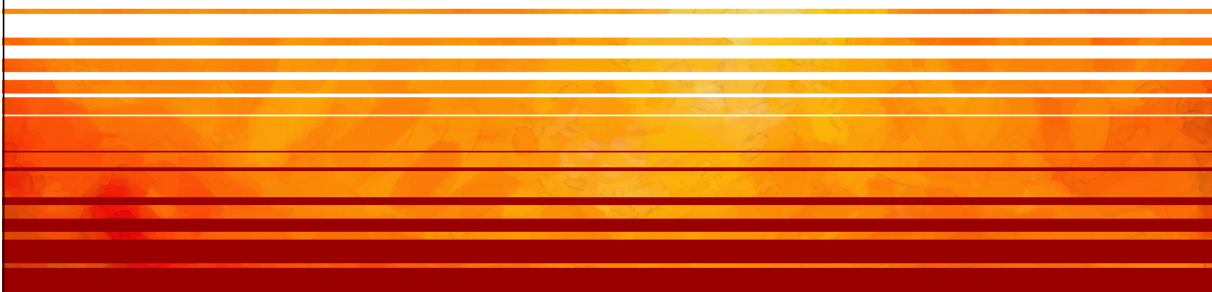
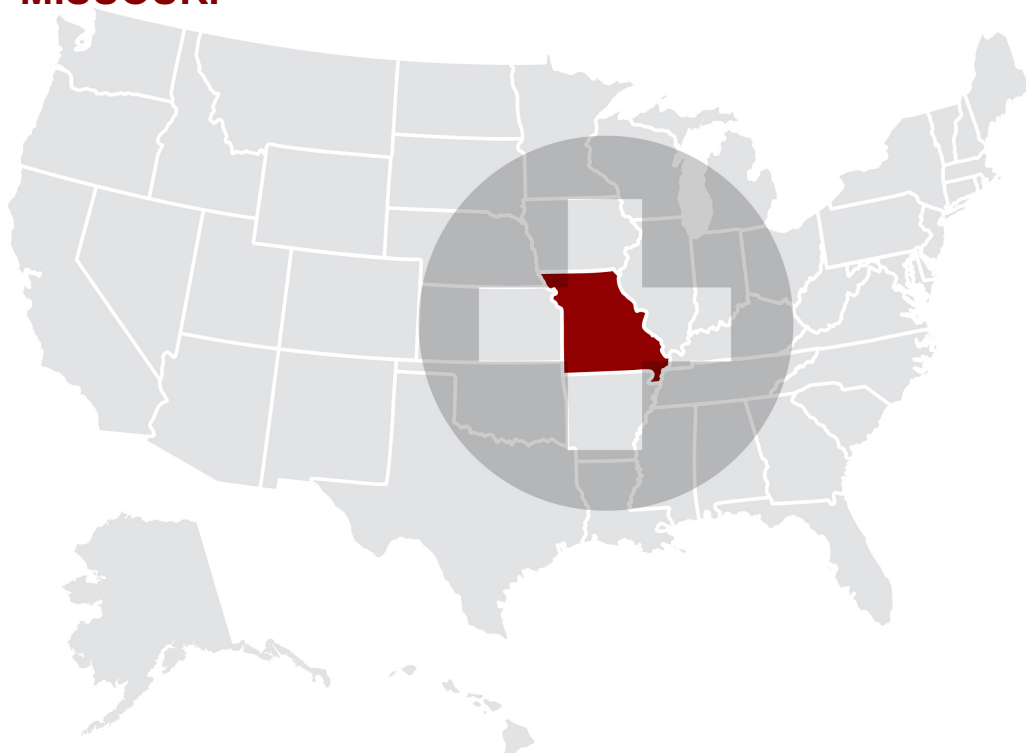


THE COST OF MENTAL ILLNESS: MISSOURI FACTS AND FIGURES

Hanke Heun-Johnson, Michael Menchine, Dana Goldman, Seth Seabury



MISSOURI



INTRODUCTION

Improving access to high-quality medical care for patients with mental illness remains one of the most vexing problems facing the healthcare system in the United States. Missouri is no exception, as the state “suffers from a massive supply and demand imbalance”, especially in rural areas, and funding cuts are straining the system¹.

This chartbook attempts to quantify the magnitude of the challenges facing Missouri in terms of the economic burden associated with mental illness. We describe the size of the mentally ill population and show the impact on the healthcare system based on high rates of hospitalization. We also note the unmet need in terms of mental health providers and discuss the implications for the criminal justice system in Missouri.

¹ <http://web.mhanet.com/article/4412/MHA-Today--June-10-2016.aspx?articlegroup=2643>

INTRODUCTION

Key findings include:

- Missouri has a high rate of hospitalizations of patients with serious mental illness, which imposes a large cost on the health care system due to the relatively long length of stay, despite the general absence of procedures.
- Missouri’s state mental health agency spending per capita on community-based treatment programs is low in relationship to the U.S. average.
- Whereas Missouri has a relatively high number of hospital beds available to provide inpatient care to patients with serious mental illness compared to the U.S. average, there is a shortage of mental health providers, particularly in rural areas and in the criminal justice system.
- People living with mental illness are more likely to encounter the criminal justice system, resulting in a large number of arrests and incarcerations. The overall annual cost of incarcerating people with serious mental illness in state prisons in Missouri exceeds \$200 million.

The data presented in this chartbook are all publicly available and represent the most recent numbers to which we had access.

The data and methods are described in more detail in the appendix that can be found at: http://healthpolicy.usc.edu/Keck_Schaeffer_Initiative.aspx

CONTENTS

6	QUANTIFYING THE POPULATION LIVING WITH MENTAL ILLNESS IN MISSOURI AND THE U.S.
11	MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS
11	Unmet mental health care needs
14	Medicaid & mental health care needs
17	Hospital utilization & charges
24	Investment in community-based programs
26	AVAILABILITY OF MENTAL HEALTH CARE PROVIDERS
30	MENTAL HEALTH CONDITIONS & THE CRIMINAL JUSTICE SYSTEM
36	TOTAL ECONOMIC BURDEN OF SERIOUS MENTAL ILLNESS

QUANTIFYING THE POPULATION LIVING WITH MENTAL ILLNESS IN MISSOURI AND THE U.S.

KEY POPULATIONS OF INTEREST

SERIOUS PSYCHOLOGICAL DISTRESS (SPD)

When someone experiences Serious Psychological Distress, he or she may have a diagnosed or undiagnosed mental health condition, such as major depressive disorder, bipolar disorder, or schizophrenia (described below). Serious Psychological Distress is determined by six questions on the Kessler-6 screening instrument, which measures the frequency of symptoms of depression, anxiety, and emotional distress during a specific time period

MAJOR DEPRESSIVE DISORDER

A mental illness that severely impairs a person's ability to function, characterized by the presence of depressed mood, feelings of worthlessness, guilt, or helplessness, reduced concentration, ability to think, sleep problems, loss of interest or pleasure in activities, and/or recurrent thoughts of suicide

BIPOLAR DISORDER

A mental illness characterized by extreme shifts in mood and energy levels. During manic episodes, a patient has abnormally high energy and activity levels that lead to impairment in daily functioning or requires hospitalization to prevent harm to self or others. Delusions or hallucinations can also occur. Manic episodes may be alternated with major depressive episodes

SCHIZOPHRENIA

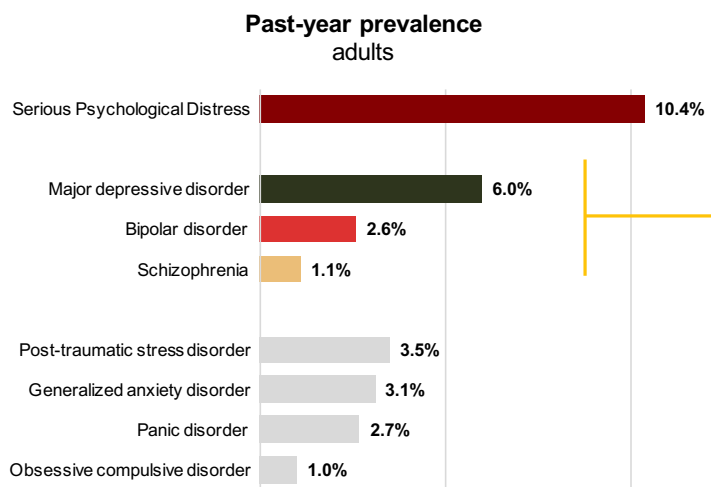
A debilitating mental illness that distorts a patient's sense of reality. Symptoms of schizophrenia include hallucinations, delusions, confusion, cognitive and mood impairments, and extremely disorganized thinking

RISK FACTORS: GENETIC & EXTERNAL FACTORS

Many different genetic factors may increase risk, but no single genetic variation causes a mental illness by itself; Specific interactions between the individual's genes and environment are necessary for a mental illness to develop

Prevalence of mental illness

UNITED STATES 2015



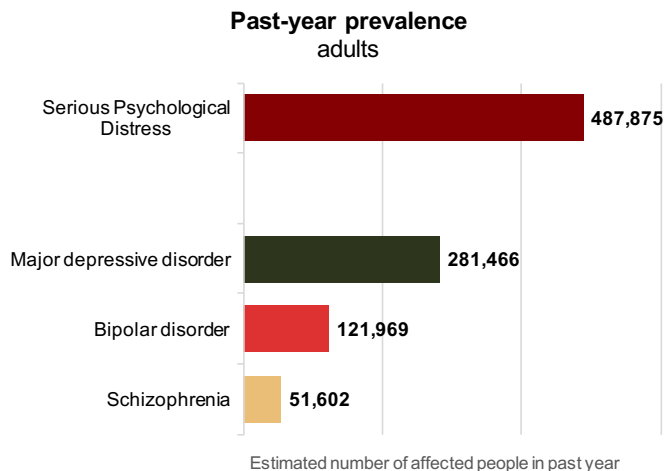
Many mental health conditions are fairly common in the general population.

Of the three conditions that are often labeled as Serious Mental Illness (SMI), major depressive disorder is the most prevalent, followed by bipolar disorder and schizophrenia.

NB: Due symptom overlap, diagnoses of mental illnesses are not mutually exclusive
Source: National Survey on Drug Use and Health (NSDUH) 2015 (SPD), NSDUH Mental Health Surveillance Study 2008-2012 (major depressive disorder) and National Institutes of Mental Health (other conditions – see appendix for original sources)

Estimated number of people living with mental illness

MISSOURI 2015



We estimate that almost half a million adults in Missouri experienced Serious Psychological Distress in the past 12 months.

Note that a patient can receive multiple diagnoses of a serious mental illness due to a high degree of overlap between the mental health conditions.

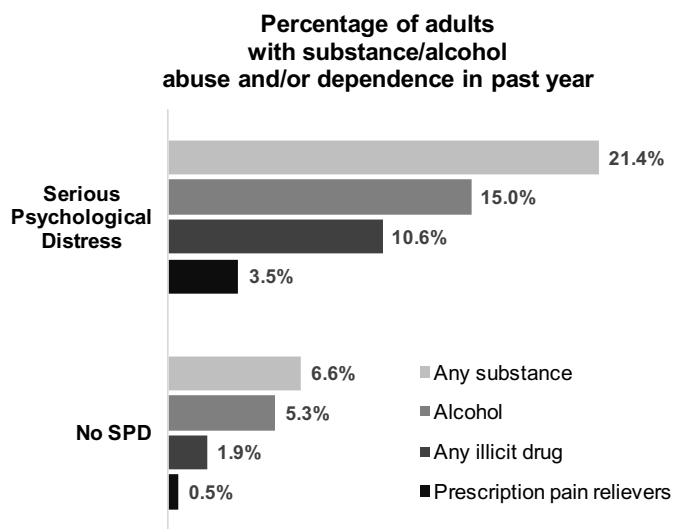
Source: National Institutes of Mental Health, National Survey on Drug Use and Health (NSDUH) 2015, and NSDUH-MHSS 2008-2012.

Estimate of # of people affected using total state population of 4,691,106 adults (18 years and over), Census Bureau data (2015)

USC Schaeffer | 9

Substance abuse in people with Serious Psychological Distress

UNITED STATES 2015



People who experienced Serious Psychological Distress in the past 12 months are more likely to abuse or be dependent on alcohol or illicit drugs during that same time period

Source: National Survey on Drug Use and Health (2015)

USC Schaeffer | 10

MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS

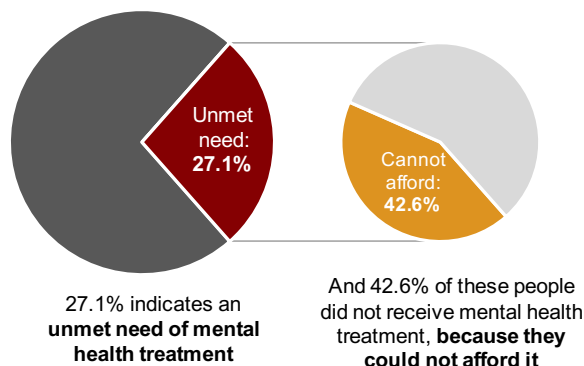
Unmet mental health care needs

More than a quarter of adults with Serious Psychological Distress in the past year reported an unmet need for mental health care. A common reason for not receiving care was the inability to afford mental health treatment, especially for people who do not have health insurance.

There is significant unmet need for mental health care in the U.S.

UNITED STATES 2015

Among adults who experienced
Serious Psychological Distress
during the past year:

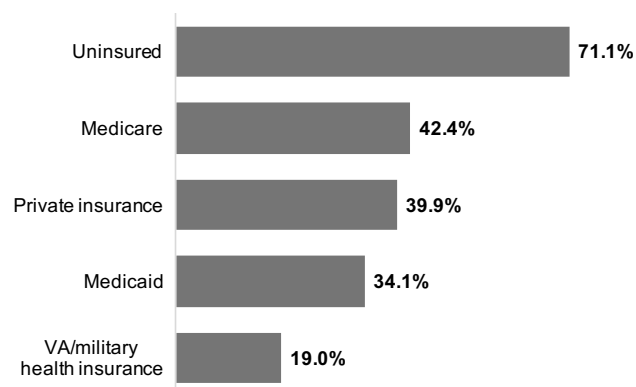


More than a quarter of adults who experienced Serious Psychological Distress in the previous year in the U.S. reported an unmet need for mental health care. Almost half of the people with a perceived unmet need reported that they did not receive treatment because they could not afford it.

Unmet need of mental health treatment due to costs

UNITED STATES 2015

Percentage of adults with past-year Serious Psychological Distress and unmet need of treatment, who could not afford mental health care



The extent to which cost was a factor in driving unmet need for mental health care varied by insurance status. People without health insurance were most affected by the inability to afford mental health treatment (71.1%), while those with VA/military health insurance coverage were least affected (19.0%).

Source: National Survey on Drug Use and Health (NSDUH) 2015

USC Schaeffer | 13

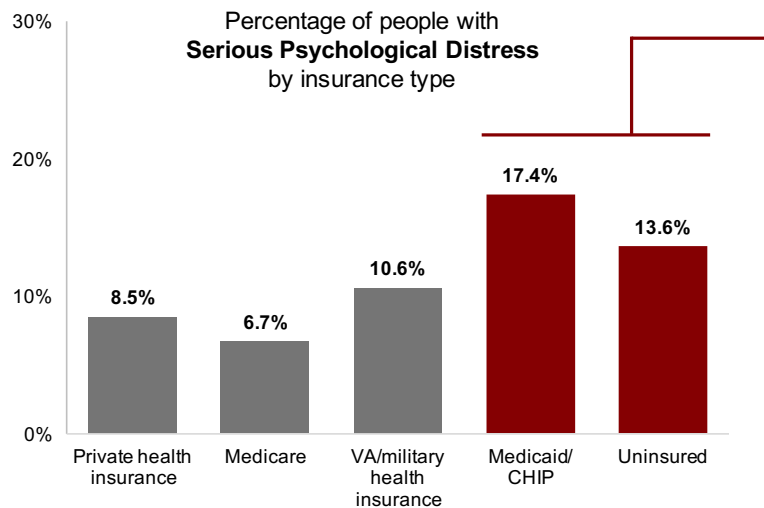
MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS

Medicaid & mental health care needs

Medicaid provides a safety-net for people who are living in poverty or have qualifying disabilities, and a large percentage of people with Medicaid coverage experience mental illness. However, it is often a financial burden for physicians to accept Medicaid patients since reimbursement rates are often lower than for other patients. This can lead to access barriers for patients with Medicaid coverage that prevent them from receiving the mental health care they need.

People with mental illness have greater reliance on the safety net

UNITED STATES 2015



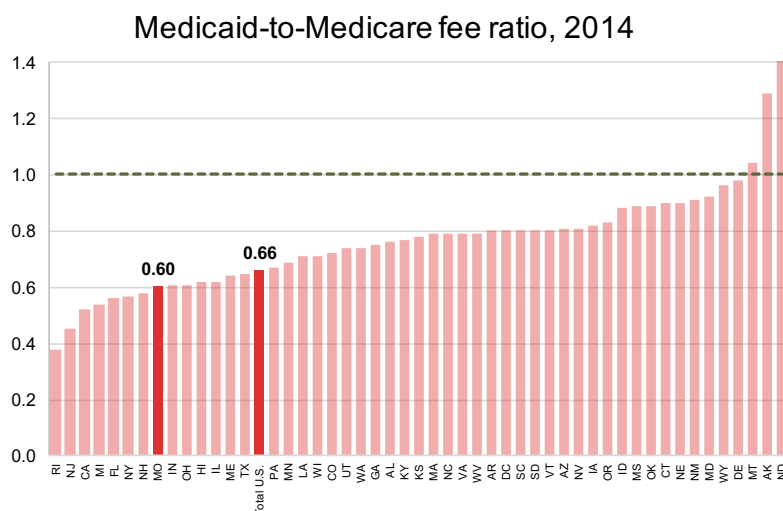
In the Medicaid and uninsured population, a higher percentage of people reported Serious Psychological Distress (SPD) during the past year compared to people with Medicare, VA/military, or private health insurance coverage.

Source: National Survey on Drug Use and Health (NSDUH) 2015

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Medicaid reimbursement rates to physicians are low

MISSOURI AND UNITED STATES 2014



Low reimbursement rates are a disincentive for individual physicians to accept patients with Medicaid coverage and mental health problems. Compared to Medicare fee levels, Medicaid reimbursement rates are low in most states. Missouri has one of the lowest Medicaid-to-Medicare fee ratios, which may further limit physician's willingness to accept Medicaid patients. This can be a barrier for these patients to obtain access to mental health care.

Source: Kaiser Family Foundation, Medicaid-to-Medicare Fee Index, FY 2014

USC Schaeffer | 16

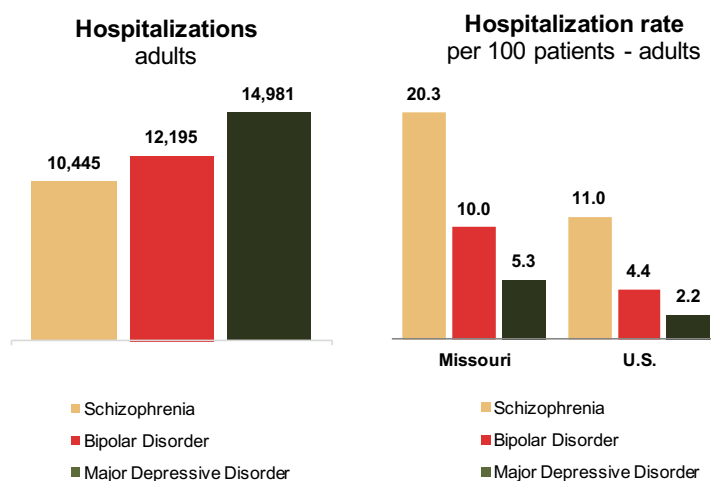
MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS

Hospital utilization & charges

For every 100 patients with a serious mental illness, there were approximately 18 hospitalizations in the US in 2014. In Missouri this number is more than twice as high. The average length of stay for these hospitalizations is long compared to other hospital stays. Relatively little progress has been made in reducing the length of stay for a serious mental illness over the last decade. This imposes a large financial cost on the health care system and potentially diverts resources away from other sites of care.

Hospitalizations for mental illness

MISSOURI AND UNITED STATES 2014



In Missouri, the number of hospitalizations is highest for adult patients with a principle diagnosis of major depressive disorder. However, patients with schizophrenia have a much higher rate of hospitalizations.

Compared to the rest of the U.S., hospitalization rates in Missouri for adults with serious mental illness are more than twice as high.

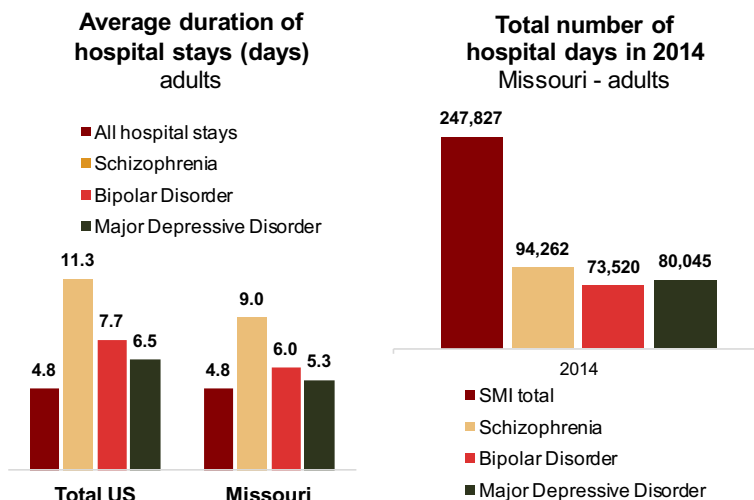
5.4 % of all hospitalizations in Missouri are due to SMI

Source: Health Care Utilization Project (HCUPnet) 2014

Estimate of hospitalization rate: based on total state population (Census bureau data, 2014) and prevalence estimates reported previously

Length of stay for mental illness hospitalizations

MISSOURI AND UNITED STATES 2014



The average hospital stay duration for adult patients with serious mental illness is high compared to all hospital stays, especially for patients diagnosed with schizophrenia.

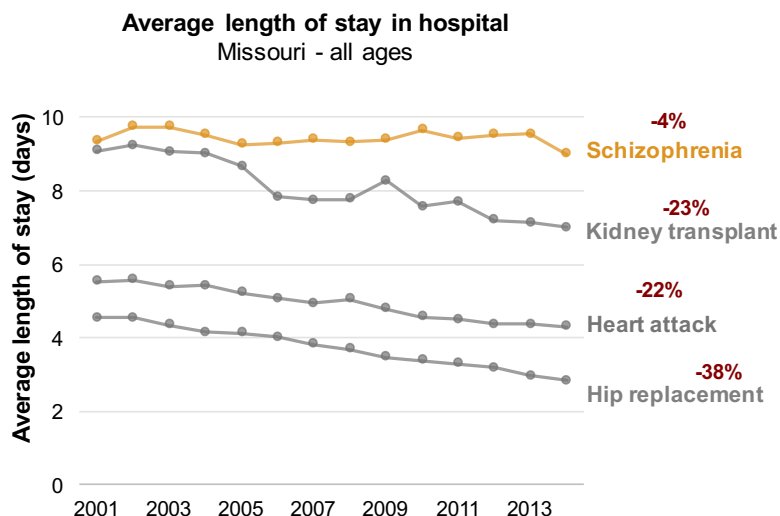
The total time spent in the hospital by adults with a primary diagnosis of schizophrenia, bipolar disorder or major depressive disorder almost reaches 250 thousand days each year in Missouri.

Source: Health Care Utilization Project (HCUPnet) 2014

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Trends in length of stay for schizophrenia hospitalizations

MISSOURI 2001-2014



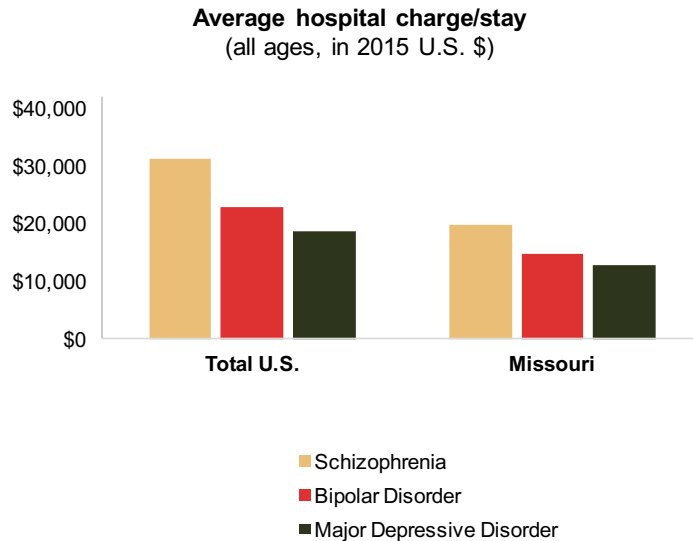
The average length of stay for a schizophrenia hospitalization in Missouri was longer than those for kidney transplants, heart attacks or hip replacement surgeries. Moreover, the average duration for these other conditions all declined by at least 22% from 2001 to 2014 while for schizophrenia the duration only decreased slightly.

Source: Health Care Utilization Project (HCUPnet) 2014

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Average hospital charges for mental illness hospitalizations

MISSOURI AND UNITED STATES 2014



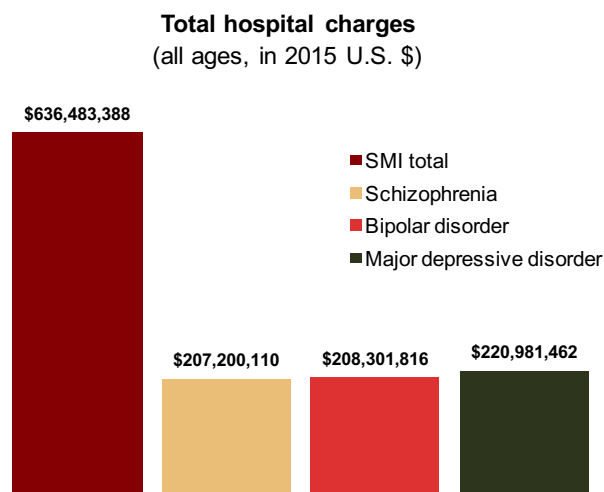
Hospital charges in the U.S. and Missouri ranged from \$12,000 to \$31,000 per stay for patients with serious mental illness. This is despite a general absence of procedures or surgeries during a hospitalization for symptoms of serious mental illness.

Source: Health Care Utilization Project (HCUPnet) 2014

USC Schaeffer | 22

Total hospital charges for mental illness hospitalizations

MISSOURI 2014



Total hospital charges in Missouri for hospitalizations for serious mental illness together exceeded half a billion dollars in 2014.

Source: Health Care Utilization Project (HCUPnet) 2014

USC Schaeffer | 23

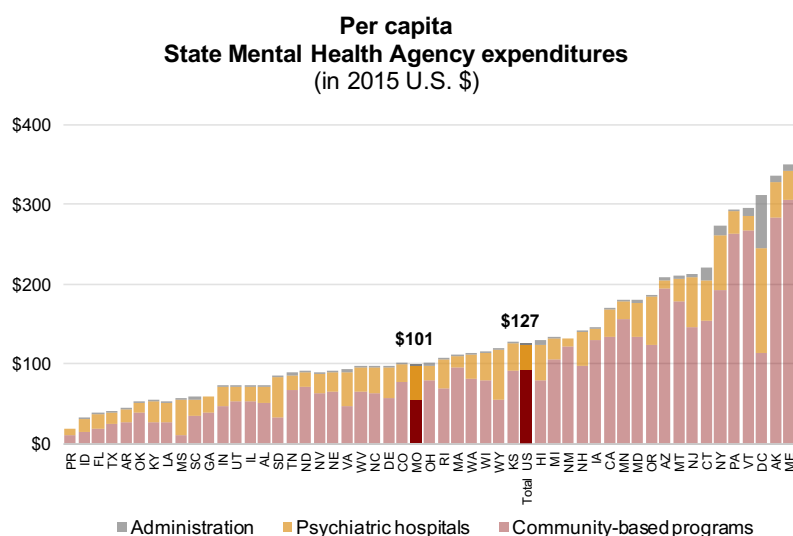
MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS

Investment in community-based programs

For several decades, a shift from hospital inpatient care towards community-based clinic outpatient treatment has taken place, as is exemplified by the budget trends of State Mental Health Agencies. On average, approximately 72% of their budgets is now spent on community-based programs, compared to 33% in the early 1980s. Compared with other states, the Missouri Department of Mental Health spends less per capita, and a lower percentage of this spending is used for community-based programs.

State Mental Health Agency spending

MISSOURI AND UNITED STATES 2013



Missouri's state mental health agency spends a relatively low per capita amount on mental health services, compared to the rest of the U.S. Moreover, a lower percentage (56%) is spent on community-based mental health programs compared to the U.S. average (72%).

- Expenditures include (on average):*
- 72% Community-based mental health programs funded and/or operated by state mental health agencies
 - 26% Mental health services in state psychiatric hospitals
 - 2% Administration/training/research/evaluation to support these services

AVAILABILITY OF MENTAL HEALTH CARE PROVIDERS

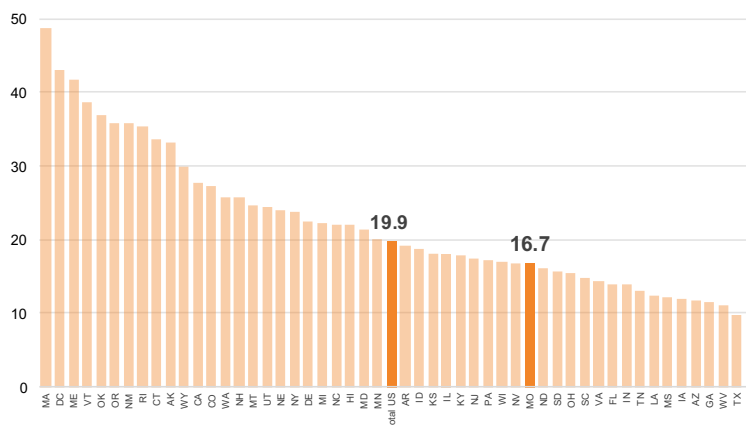
Missouri has a larger number of hospital beds per capita compared to the rest of the U.S. However, the number of mental health care providers is currently not sufficient to serve the population with mental health needs. In Missouri alone, 100 full-time providers are needed in addition to the current workforce in designated “shortage areas” to reach an acceptable provider-to-patient ratio.

This shortage is particularly acute in the criminal justice system, where many people are in need of mental health treatment.

Availability of mental health care providers

MISSOURI AND UNITED STATES 2016

**Number of mental health providers
per 10,000 residents**

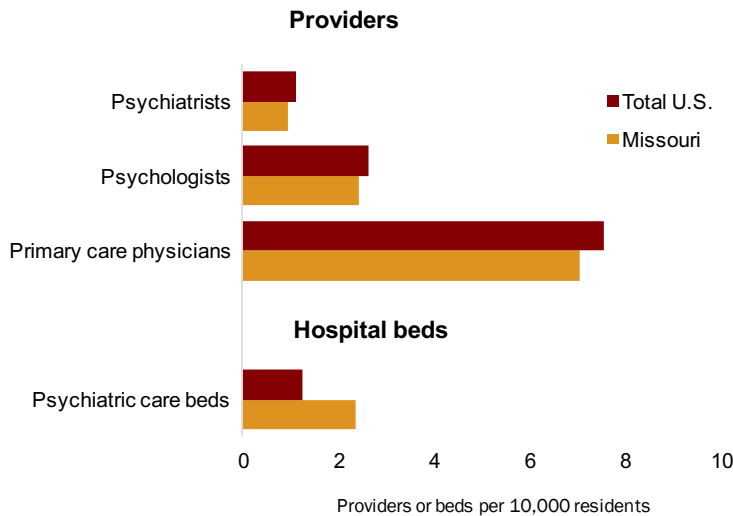


There are approximately 17 mental health providers for every 10,000 residents in Missouri. This is lower than the national average, and not sufficient to serve the population in need of mental health treatment.

Mental health providers include: psychiatrists, psychologists, licensed clinical social workers, counselors, marriage and family therapists, and advanced practice nurses specializing in mental health care

Availability of mental health care providers and hospital beds

MISSOURI AND UNITED STATES 2013

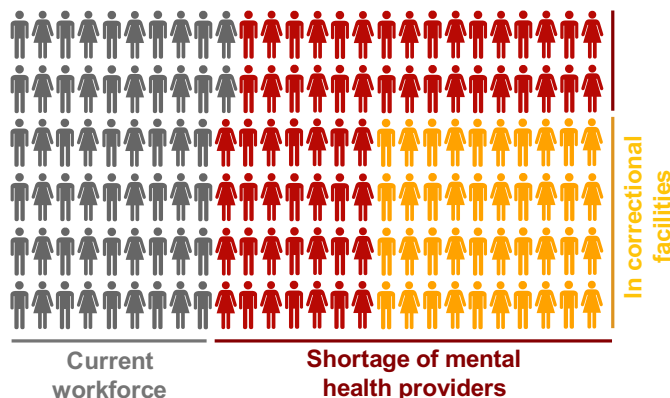


Per resident, Missouri has fewer psychiatrists and psychologists compared to the US average. However, Missouri has a higher number of primary care physicians and hospital beds dedicated to psychiatric care.

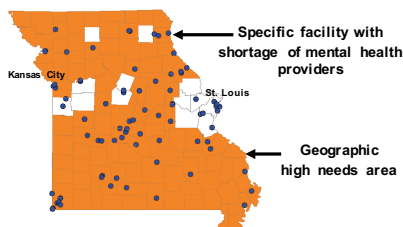
Source: Area Health Resource Files 2013 (psychiatrists, physicians and psychiatric care beds), and 2005-2013 Demographics of the U.S. Psychology Workforce, American Psychological Association (psychologists)

Shortage of mental health care providers

MISSOURI 2016



Currently, Missouri has 56 full-time equivalent mental health providers in designated shortage areas. In order to address the shortage issue, 100 more full-time providers are needed in these areas, 40 of whom in correctional facilities. 46.1% of the total population of Missouri resides in designated shortage areas (2,810,768 people)



Mental health care providers: psychiatrists, clinical psychologists, clinical social workers, psychiatric nurse specialists, and marriage & family therapists

Facilities: Federal & state correctional institutions, state & county mental hospitals, community mental health centers, and other public or nonprofit private facilities

Geographic high needs area based on population-to-provider ratio, poverty levels, elderly and youth ratio, alcohol and substance abuse prevalence, and travel time to nearest source of care outside area

Source: Health Professional Shortage Areas (HSPA), HRSA Data Warehouse data as of 7/31/2016

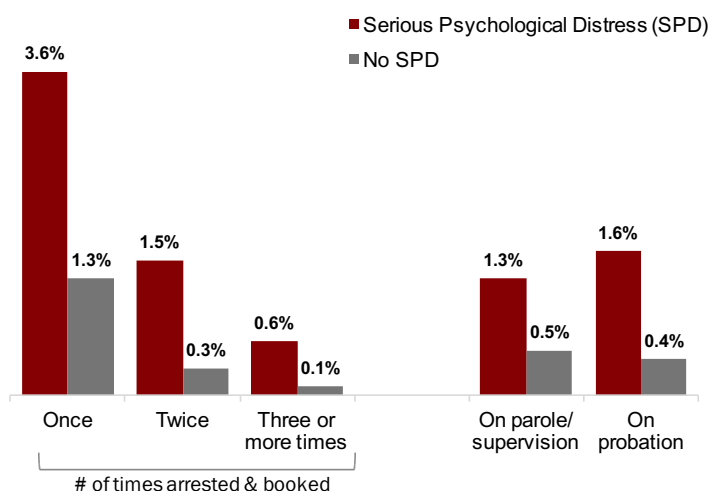
MENTAL HEALTH CONDITIONS & THE CRIMINAL JUSTICE SYSTEM

People living with mental illness are more likely to encounter the criminal justice system and to be arrested, suggesting that mental illness is a factor in incarceration risk. Whereas state and federal prisons have resources to provide mental health care to prisoners who were not receiving this before incarceration, local jails appear particularly unable to meet the health care needs of people with mental illness.

The overall cost of incarceration of the 8000+ prisoners with serious mental illness in the state of Missouri exceeds 200 million U.S. dollars per year.

Contact with Criminal Justice System

UNITED STATES 2015

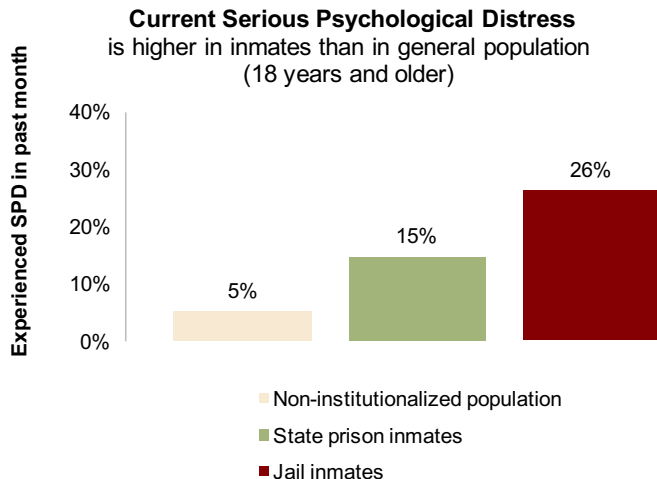


People who experienced Serious Psychological Distress (SPD) are more likely to have been arrested or be on parole or probation in the past year.

Source: National Survey of Drug Use and Health (NSDUH) 2015
Survey does not include current institutionalized population

Mental health issues in prison and jail populations

UNITED STATES



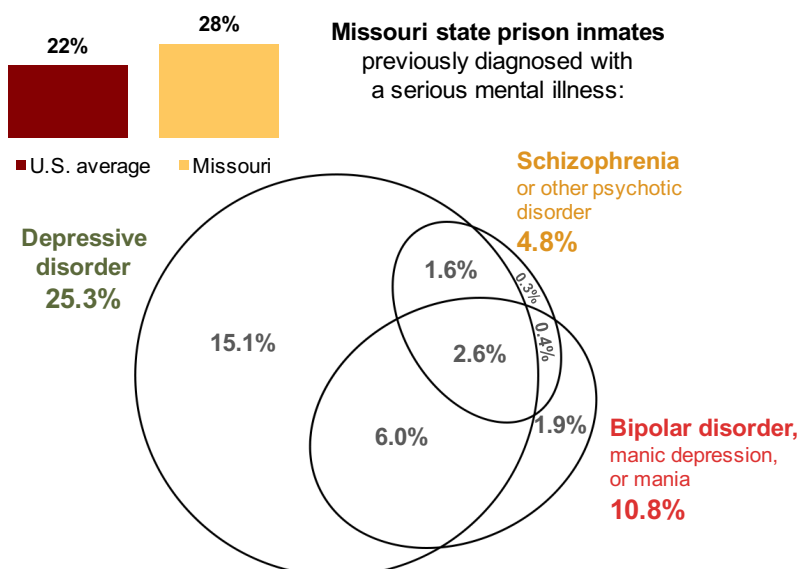
A large percentage of the U.S. adult prison and jail inmate population currently experiences Serious Psychological Distress compared to the non-institutionalized population.

Additionally, these mental health issues are observed at higher rates in local jails than in prisons.

Source: National Survey of Drug Use and Health (NSDUH) 2015
Bureau of Justice report: Sexual Victimization in Prisons and Jails Reported by Inmates, 2011-12, based on data from the National Inmate Survey

State prison population with Serious Mental Illness

Missouri



In Missouri state prisons, approximately 28% of prison inmates previously have been diagnosed with a serious mental illness, which is high compared to the overall U.S. prison population. Many patients have been diagnosed with two or three mental illnesses, confirming the presence of overlap in symptoms in this population.

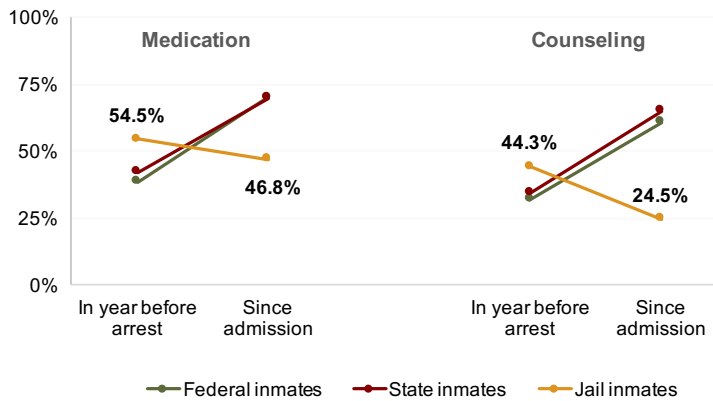
Source: Survey of Inmates in State Correctional facilities, BJS, 2004. Includes juveniles
Due to rounding, percentages of separate parts may not add up to the total percentage

Change in treatment before and during incarceration in prison and jails

UNITED STATES

Lack of access to mental health treatment in local jails

Among inmates with a previously diagnosed serious mental illness and who have ever received respective treatment before incarceration



The increase in mental health care treatment in federal and state prisons after admission to prison suggests that these institutions are making up for the gaps in mental health treatment in the regular health care system.

At the same time, local jail inmates do not have the same access to medication and counseling while incarcerated as federal and state prisoners.

Mental health conditions include prior diagnosis of depressive disorder, bipolar disorder, and/or schizophrenia. Medication and counseling data includes treatment for any mental illness.

Source: SISFCF (Survey of inmates in states and federal correctional facilities) 2004 & SILJ (Survey of inmates in local jails) 2002

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Number of Missouri state prison inmates previously diagnosed with serious mental illness:

8,934

Overall annual costs:

\$ 229,252,598
(in 2015 US\$)

Overall annual costs based on 2014 average of all state prison inmates in Missouri
Source: Annual Survey of State Government Finances 2014
Survey of Inmates in State/Federal Correctional facilities, BJS, 2004
Missouri Department of Corrections - A Profile of the Institutional and Supervised Offender Population, 2014

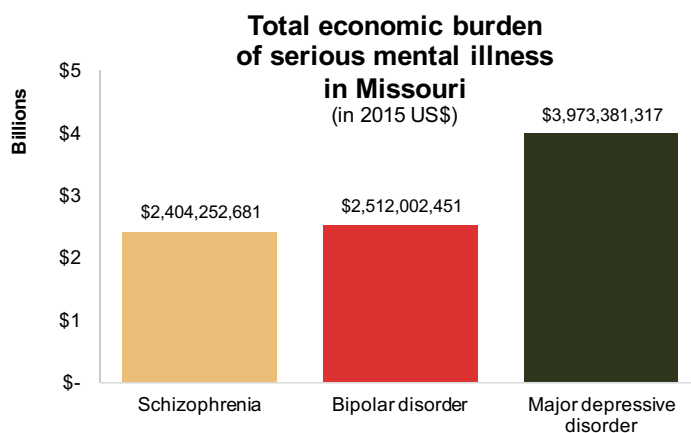
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TOTAL ECONOMIC BURDEN OF SERIOUS MENTAL ILLNESS

The economic burden of each serious mental illness in adults is estimated to be at least 125 billion dollars for the U.S. and 2 billion dollars for Missouri per year

Economic burden of serious mental illness

MISSOURI 2015



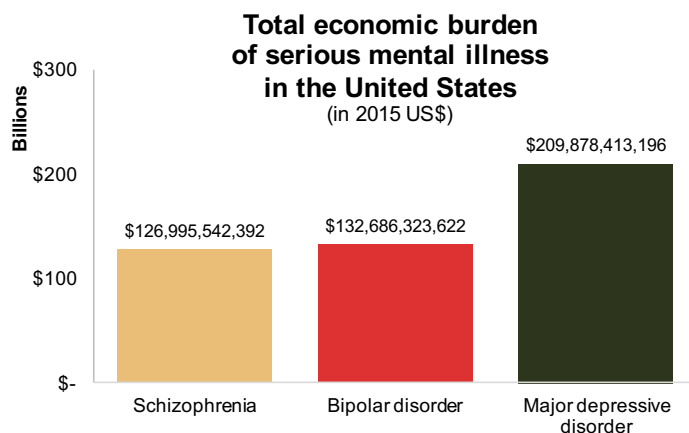
The economic burden of schizophrenia, bipolar disorder, and major depressive disorder in adults in Missouri is estimated to be at least 2 billion dollars for each serious mental illness

Due to symptom overlap, diagnoses of mental illnesses are not mutually exclusive, therefore, patients with two or more diagnoses may be represented in multiple categories.

Source: MacEwan JP, Seabury S, et al. Pharmaceutical innovation in the treatment of schizophrenia and mental disorders compared with other diseases. *Innov Clin Neurosci*. 2016 Aug 1;13(7-8):17-25. See appendix for original sources

Economic burden of serious mental illness

UNITED STATES 2015



*The economic burden of schizophrenia, bipolar disorder, and major depressive disorder in adults in the U.S. is estimated to be at least **125 billion dollars** for each serious mental illness*

Due to symptom overlap, diagnoses of mental illnesses are not mutually exclusive, therefore, patients with two or more diagnoses may be represented in multiple categories.

Source: MacEwan JP, Seabury S, et al. Pharmaceutical innovation in the treatment of schizophrenia and mental disorders compared with other diseases. *Innov Clin Neurosci*. 2016 Aug 1;13(7-8):17-25. See appendix for original sources

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ACKNOWLEDGMENTS

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We also acknowledge comments and contributions to this work from the [National Council for Behavioral Health](#) and the [Behavioral Health + Economics Network](#).



References, data sources and methods are described in more detail in the online appendix.

This chartbook and the appendix can be downloaded at:

http://healthpolicy.usc.edu/Keck_Schaeffer_Initiative.aspx

USC Schaeffer | 39

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