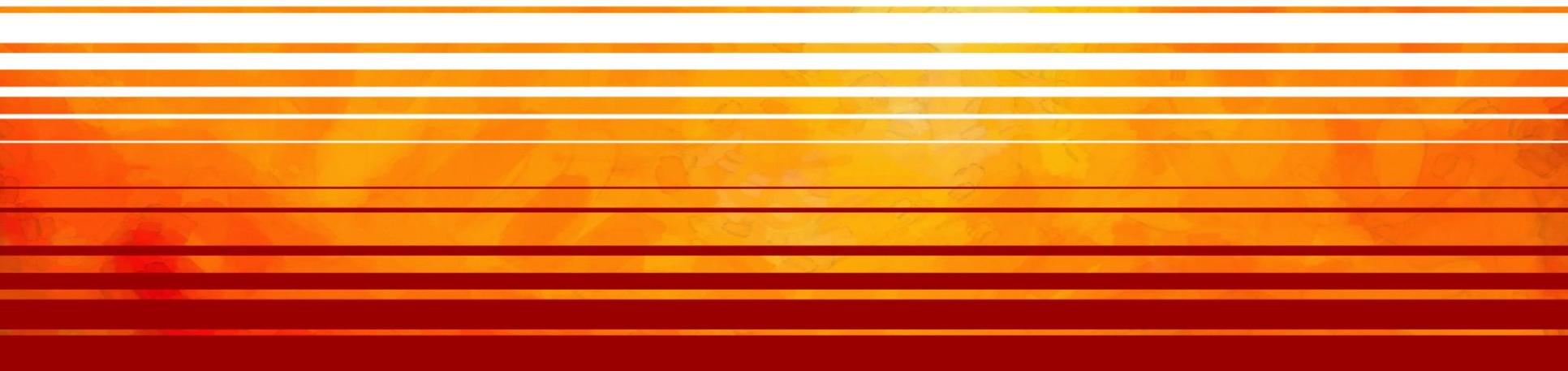


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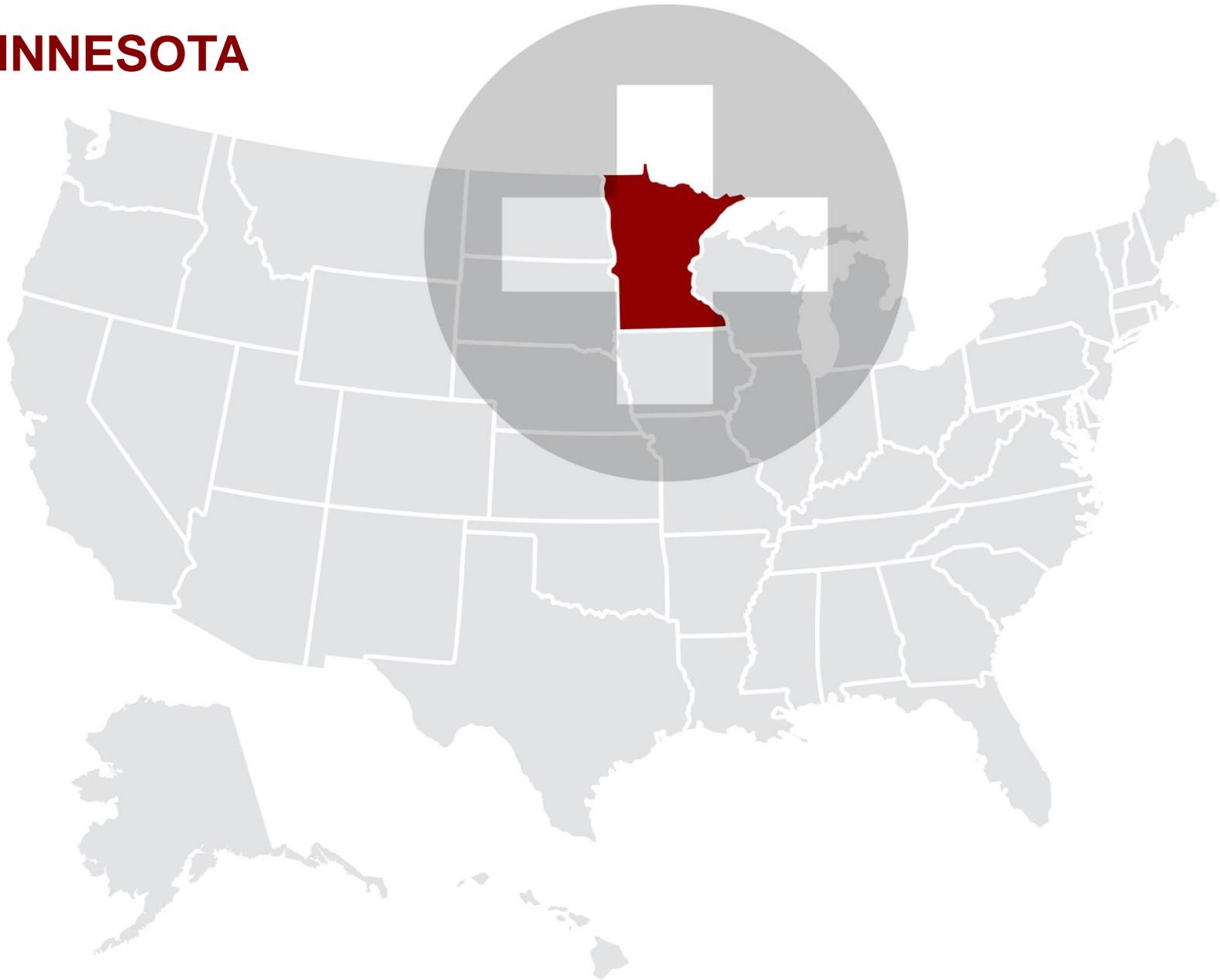
Leonard D. Schaeffer Center
for Health Policy & Economics

THE COST OF MENTAL ILLNESS: MINNESOTA FACTS AND FIGURES

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MINNESOTA



INTRODUCTION

Improving access to high-quality medical and behavioral health care for patients with mental illness remains one of the most vexing problems facing the health care system in the United States. In Minnesota, a shortage of psychiatric crisis beds and long-term treatment facilities creates an unsustainable revolving-door scenario for people with serious mental illness.¹

This chartbook attempts to quantify the magnitude of the challenges facing Minnesota in terms of the economic burden associated with behavioral health issues. We describe the size and characteristics of the population with mental illness and show the impact on the health care system based on high rates of hospitalization. We also note the unmet need in terms of behavioral health care professionals and discuss the implications for the criminal justice system in Minnesota.

¹<https://www.mprnews.org/story/2018/01/29/strained-for-mental-health-services-counties-push-for-more-state-money>

INTRODUCTION

Key findings include:

- Minnesota has a higher rate of hospitalizations and length of stay for patients with serious mental illness compared to the U.S. average, which imposes a large cost on the health care system despite the general absence of procedures.
- Whereas Minnesota has a similar number of behavioral health care professionals and a slightly higher number of psychiatric hospital beds compared to the (less-than-optimal) U.S. average, shortages are present throughout the state, but particularly in rural areas.
- 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 Minnesota exceeds \$230 million.

The data presented in this chartbook are publicly available and represent the most recent numbers to which we had access. The term “behavioral health” is used to describe data related to mental illness and substance abuse, whereas “mental health” does not include substance abuse.

The data and methods are described in more detail in the appendix:

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

CONTENTS

- 6 QUANTIFYING THE POPULATION LIVING WITH MENTAL ILLNESS IN MINNESOTA AND THE U.S.**
- 13 MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS**
 - 13 Unmet mental health care needs
 - 18 Medicaid & behavioral health care needs
 - 21 Hospital utilization & costs
 - 29 Investment in community-based programs
- 31 AVAILABILITY OF BEHAVIORAL HEALTH CARE PROFESSIONALS**
- 39 MENTAL HEALTH CONDITIONS & THE CRIMINAL JUSTICE SYSTEM**
- 45 TOTAL ECONOMIC BURDEN OF SERIOUS MENTAL ILLNESS**

**QUANTIFYING THE
POPULATION LIVING WITH
MENTAL ILLNESS IN
MINNESOTA 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

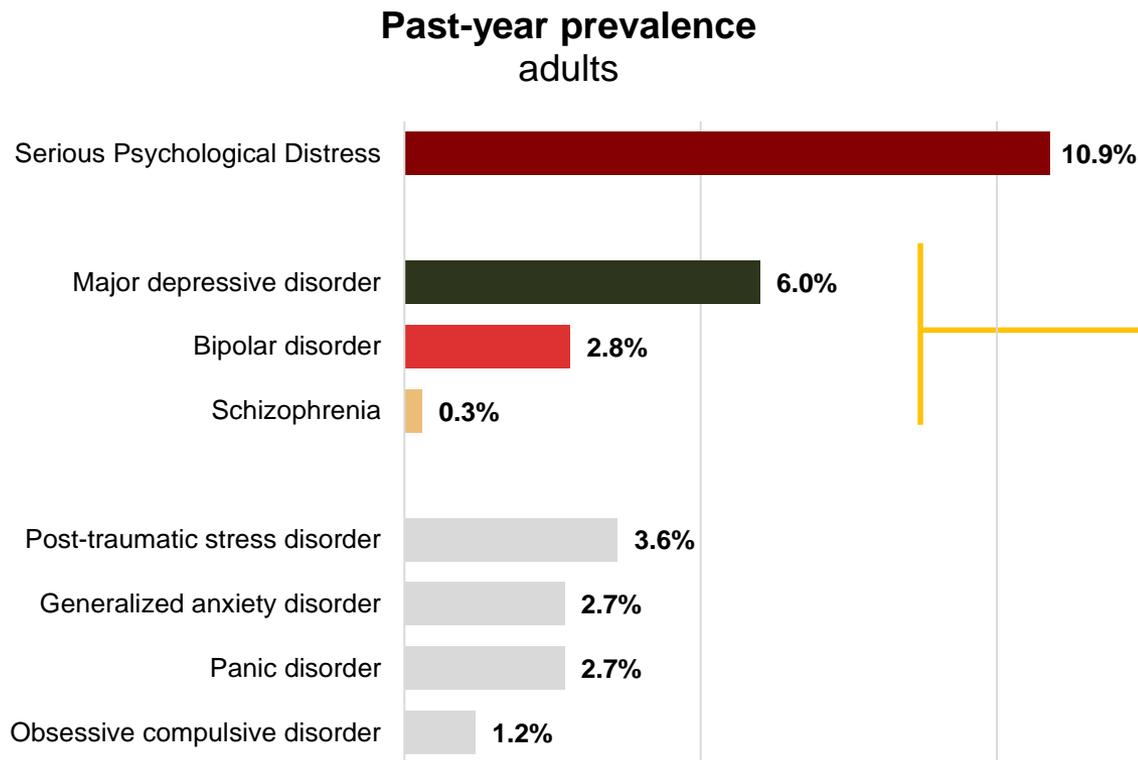
A debilitating mental illness that distorts a patient's sense of reality. Symptoms of schizophrenia include hallucinations, delusions, confusion, cognitive and mood impairments, and extremely disorganized thinking

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 2017



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

*Whereas any of these conditions can severely limit someone's normal daily activities, three disorders are often labeled as **serious mental illness**: **major depressive disorder, bipolar disorder and schizophrenia**. These three disorders will be the focus of this chartbook.*

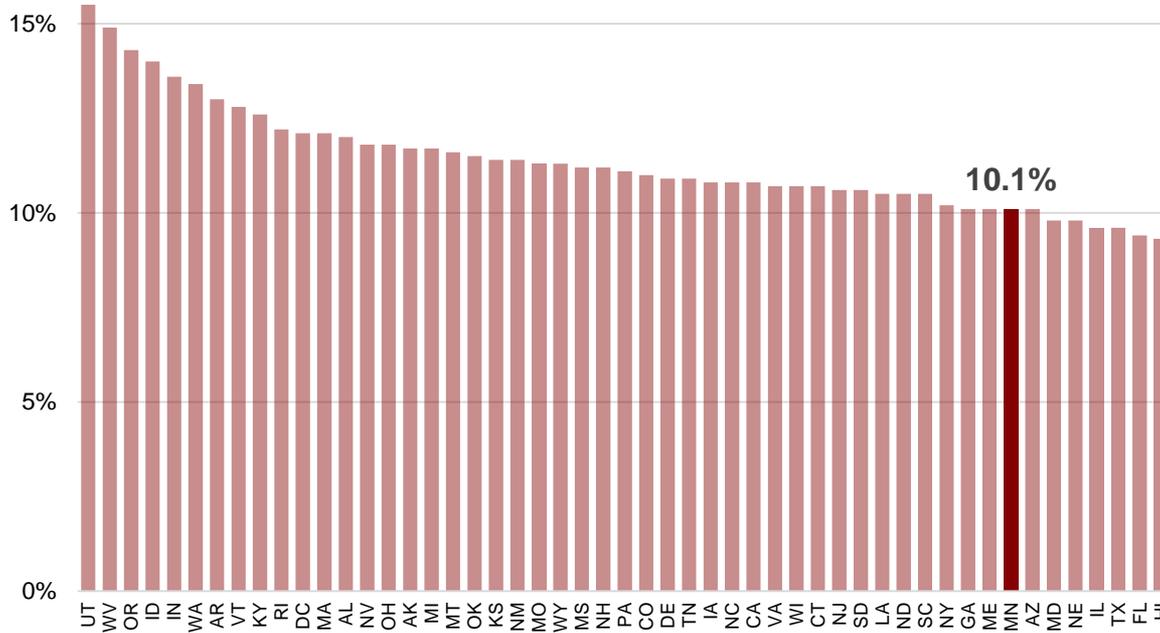
NB: Because of symptom overlap, diagnoses of mental illnesses are not mutually exclusive.

Source: National Survey on Drug Use and Health (NSDUH, R-DAS) 2016-2017 (SPD), NSDUH Mental Health Surveillance Study 2008-2012 (major depressive disorder) and National Institutes of Mental Health (other conditions – see appendix for original sources)

State variation in prevalence of serious psychological distress

MINNESOTA AND UNITED STATES 2017

Past-year prevalence of serious psychological distress
Adults

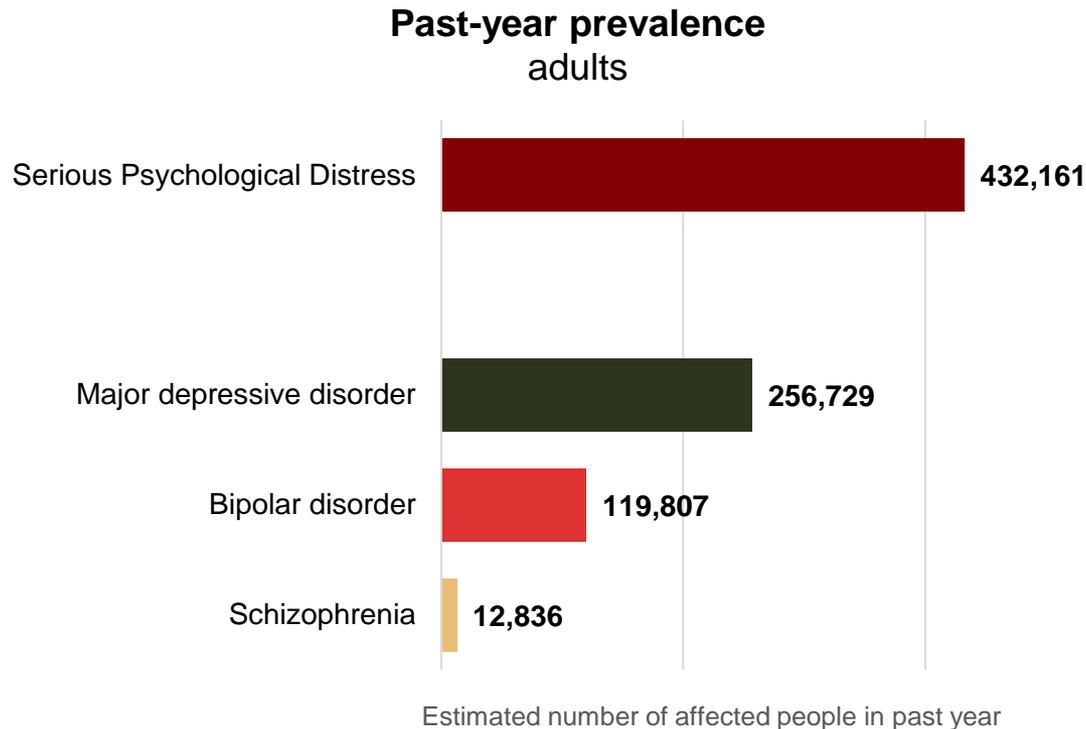


The prevalence of serious psychological distress in the past year in Minnesota is estimated at 10.1%, one of the lower rates of all states in the U.S.

Source: National Survey on Drug Use and Health (NSDUH, R-DAS) 2016-2017

Estimated number of people living with mental illness

MINNESOTA 2017



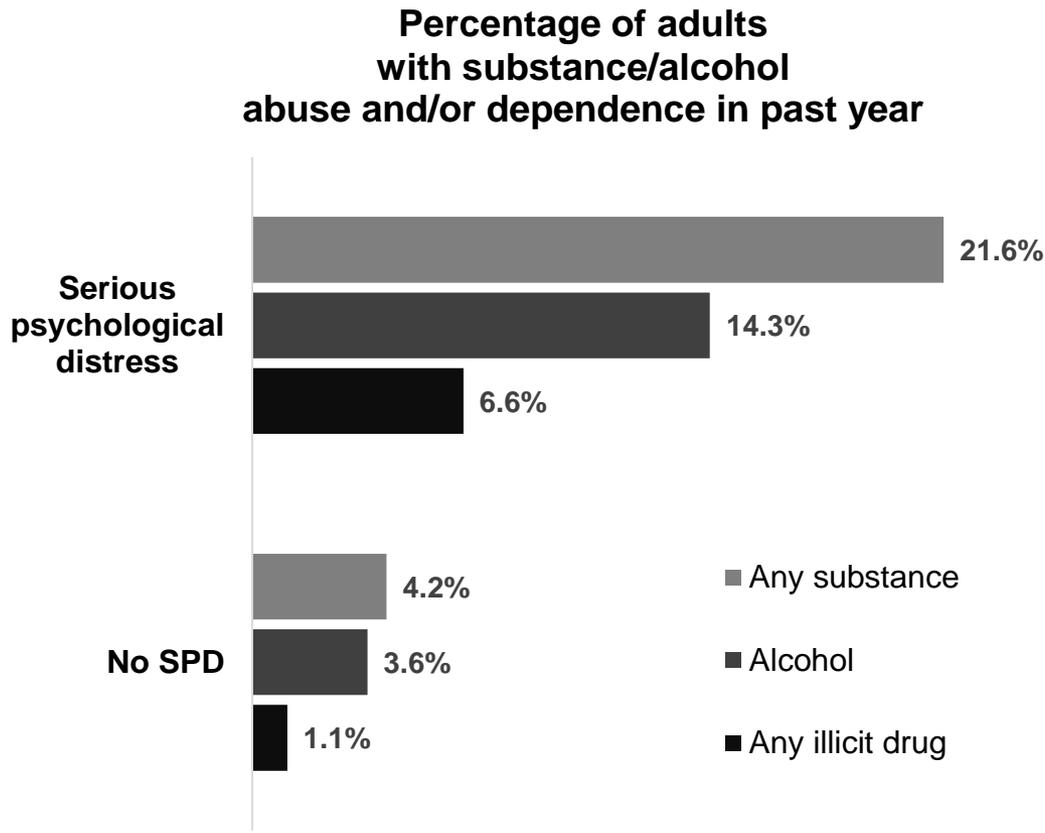
We estimate that almost half a million adults in Minnesota experienced serious psychological distress in the past 12 months.

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

Source: National Institutes of Mental Health, National Survey on Drug Use and Health (NSDUH, R-DAS) 2016-2017, and NSDUH-MHSS 2008-2012. Estimated number of people affected based on total state population 4,278,824 (18 years and over), Census Bureau data (2017)

Substance abuse in people with serious psychological distress

MINNESOTA 2017



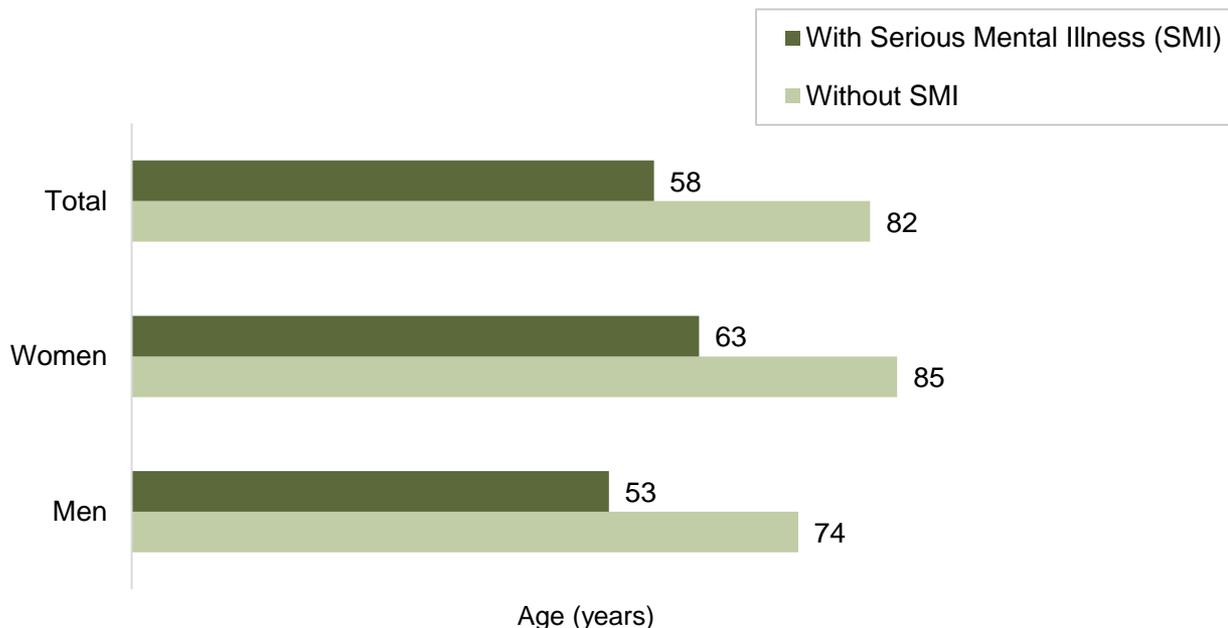
People who experienced serious psychological distress in the past 12 months are more likely to abuse or be dependent on alcohol or illicit drugs during that same time period.

Increased mortality in people with serious mental illness

MINNESOTA 2007

Median age at death

in Minnesota Health Care Programs-covered population
2003-2007



Among adults who received mental health care for Serious Mental Illness (SMI) and were enrolled in the Minnesota Healthcare Program, the median age at death is 24 years lower than among enrollees without SMI. Although women generally live longer, the reduction of age at death associated with SMI is approximately equal between men (21 years) and women (22 years) in this sample.

Source: Trangle, M et al. Minnesota 10 By 10: Reducing Morbidity and Mortality in People with Serious Mental Illnesses. Minnesota Medicine 2010. MHCP is basic health care covered for low-income Minnesotans, including fee-for-service Medical Assistance, the Prepaid Medical Assistance Program, General Assistance Medical Care, and MinnesotaCare. Serious mental illness does not include major depressive disorder in this sample.

MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS

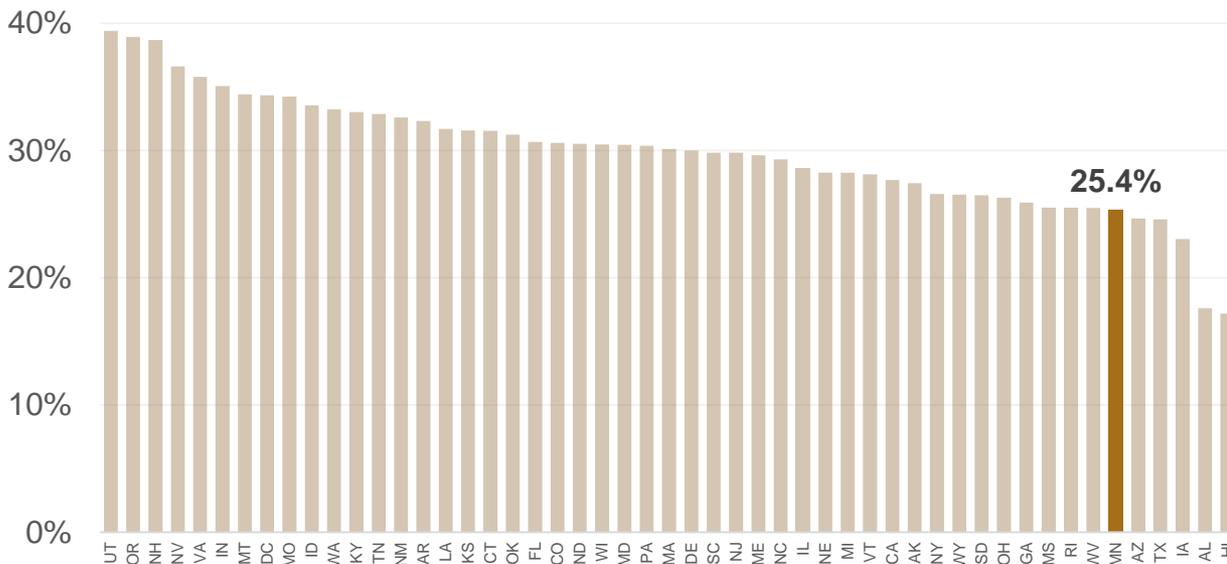
Unmet mental health care needs

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.

Unmet need of mental health treatment

MINNESOTA AND UNITED STATES 2017

Percentage of adults
who have an unmet need of mental health treatment
among those
with past-year serious psychological distress



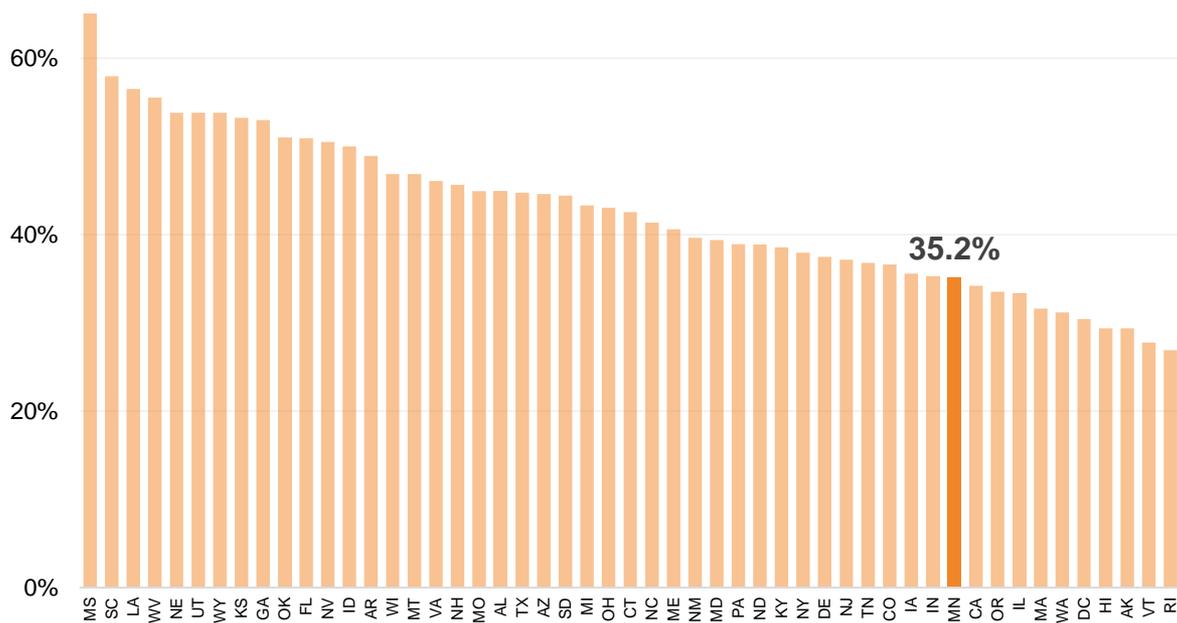
In Minnesota, a quarter of people with serious psychological distress have an unmet need of mental health treatment.

In the general adult population of Minnesota, 4.1% of people have a unmet need of mental health treatment.

Unmet need of mental health treatment due to costs

MINNESOTA AND UNITED STATES 2017

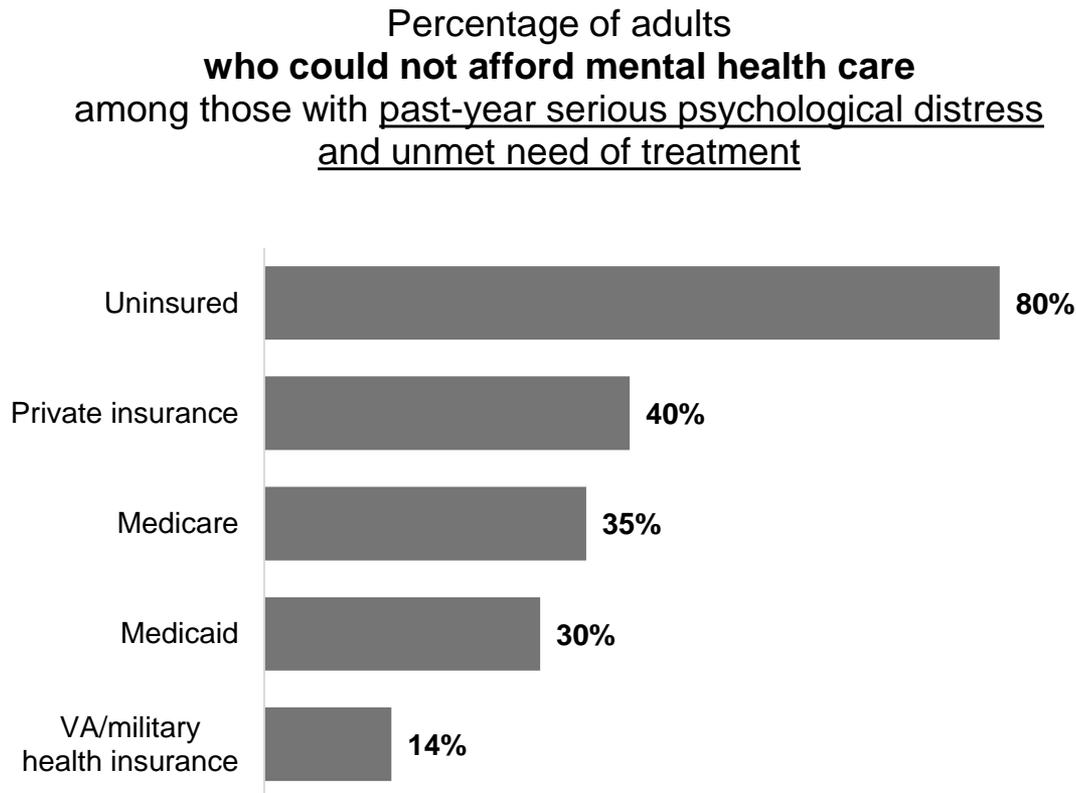
Percentage of adults
who could not afford mental health care
among those with past-year serious psychological
distress and unmet need of treatment



In Minnesota, more than a third of people with serious psychological distress and an unmet need of mental health treatment, did not receive this treatment because of high costs.

Unmet need of mental health treatment because of costs differs by insurance coverage

UNITED STATES 2017

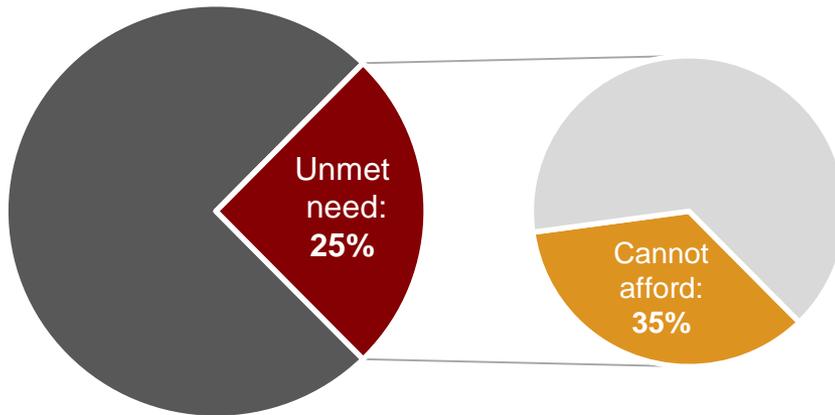


On a national level, the extent to which cost was a factor in driving unmet need for mental health care among those with serious psychological distress, varied by insurance status. People without health insurance were most affected by the inability to afford mental health treatment (80%), while those with VA/military health insurance coverage were least affected (14%).

There is significant unmet need for mental health care in Minnesota

MINNESOTA 2017

Among adults who experienced **serious psychological distress** during the past year:



25% indicates an **unmet need of mental health treatment**

And 35% of these people did not receive mental health treatment, **because they could not afford it**

Among adults who experienced serious psychological distress in the previous year in Minnesota, a quarter reported an unmet need for mental health care. More than a third of the people with a perceived unmet need reported that they did not receive treatment because they could not afford it.

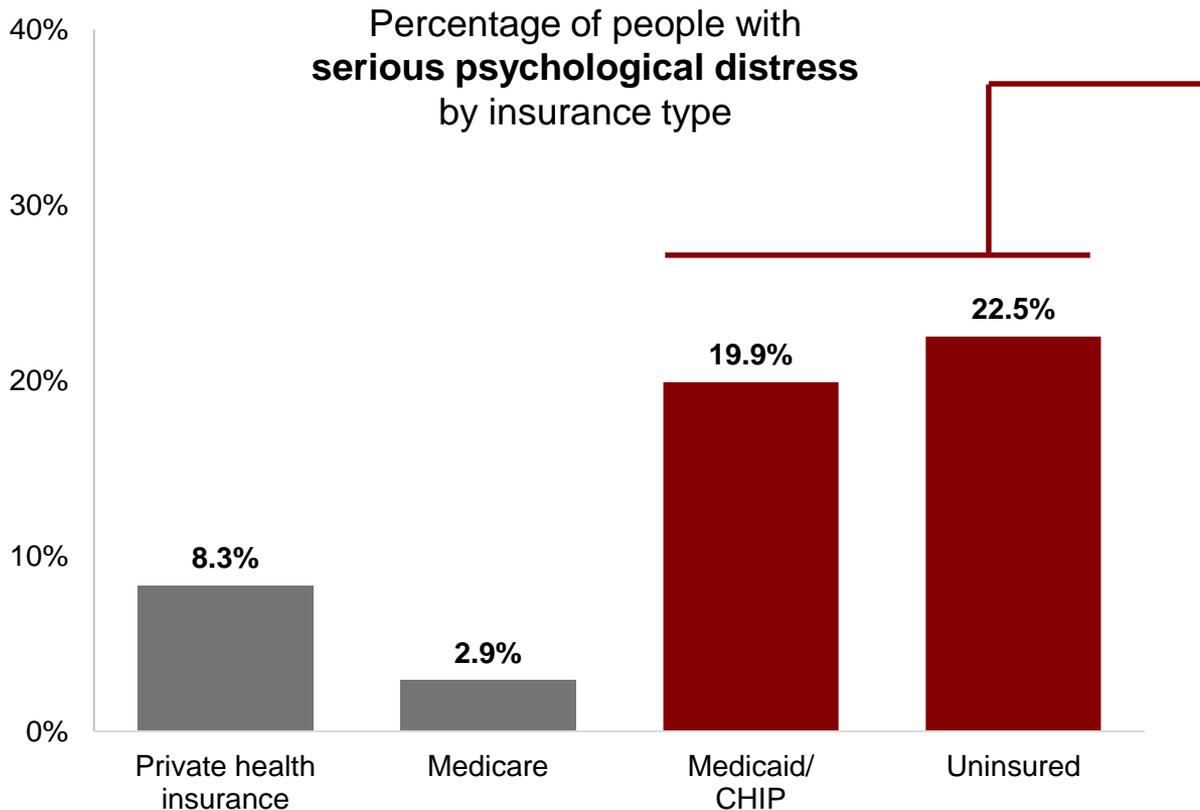
MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS

Medicaid & behavioral health care needs

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

People with mental illness have greater reliance on the safety net

MINNESOTA 2017

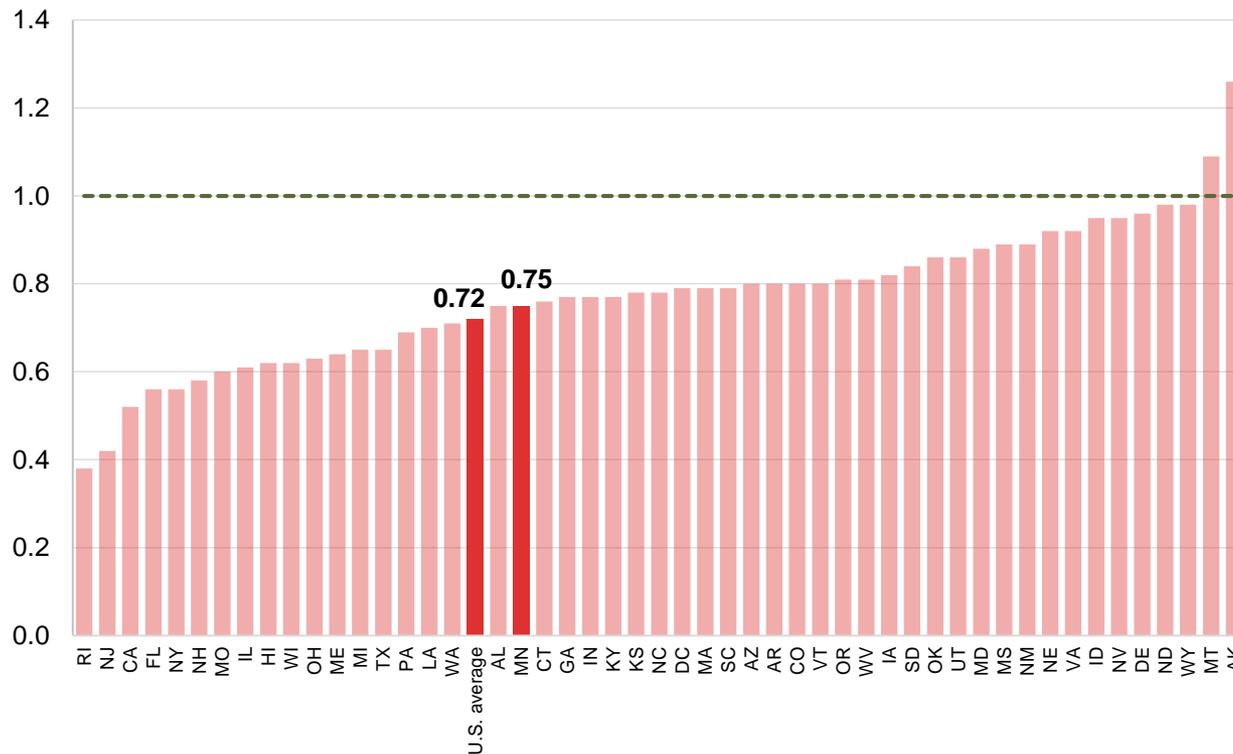


*In the **Medicaid and uninsured population**, a higher percentage of adults in Minnesota reported serious psychological distress (SPD) during the past year compared to people with Medicare or private health insurance coverage.*

Medicaid reimbursement rates to physicians are low

MINNESOTA AND UNITED STATES 2016

Medicaid-to-Medicare fee ratio, 2016



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. Although Minnesota's fee ratio is slightly higher than the U.S. average, Medicaid fees are still below Medicare fees.

This can be a barrier for these patients to obtain access to mental health care.

MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS

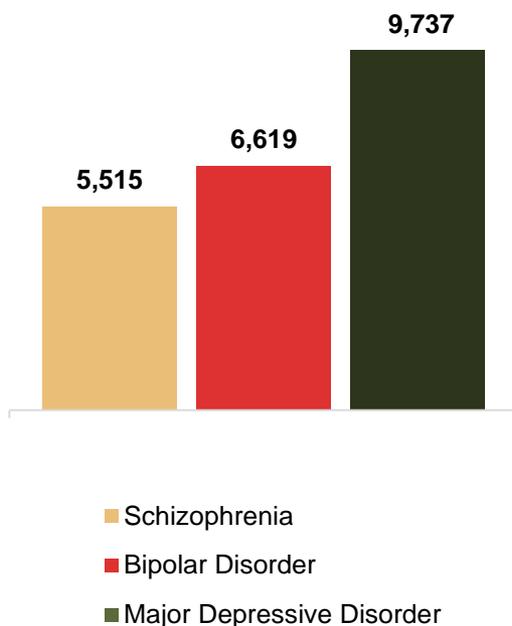
Hospital utilization & costs

For every 100 patients with a serious mental illness, there were approximately 47 hospitalizations in the U.S. and 54 hospitalizations in Minnesota in 2014. The average length of stay for these hospitalizations is long compared to other hospital stays, and 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.

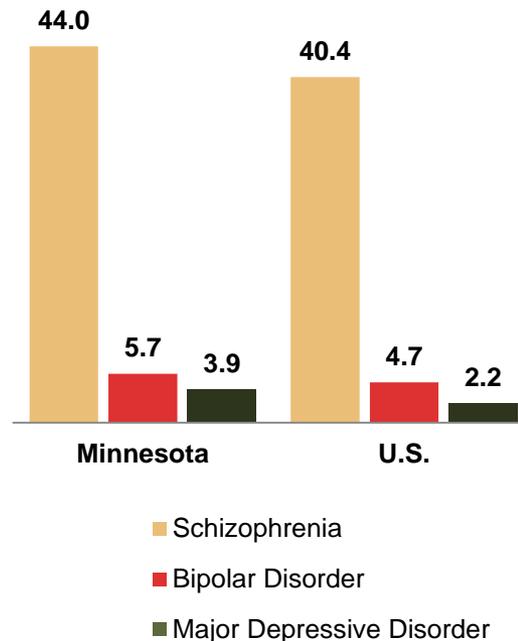
Hospitalizations for mental illness

MINNESOTA AND UNITED STATES 2014

Hospitalizations
Minnesota - adults



Hospitalization rate
per 100 patients - adults



In Minnesota, the total number of hospitalizations is highest for adult patients with a principal diagnosis of major depressive disorder, whereas patients with schizophrenia disorder have a much higher rate of hospitalizations.

Compared to rest of the U.S., hospitalization rates in Minnesota are slightly higher for all SMI patients.

4.5% of all hospitalizations in Minnesota are due to SMI

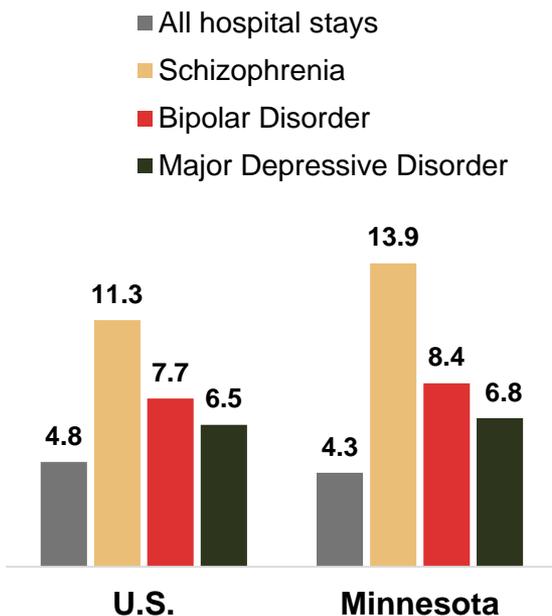
Source: Healthcare Cost and Utilization Project (HCUPnet) 2014

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

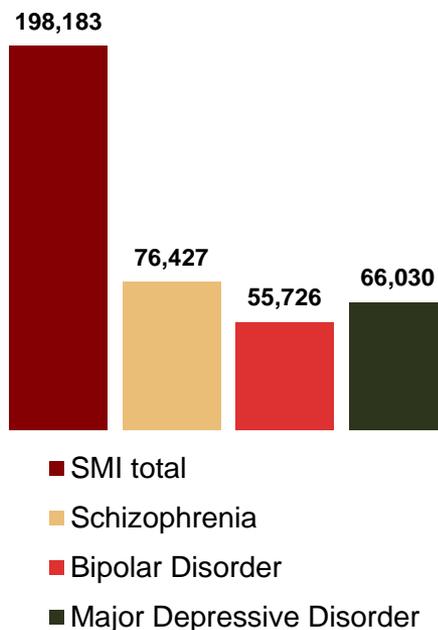
Length of stay for mental illness hospitalizations

MINNESOTA AND UNITED STATES 2014

Average duration of hospital stays (days) adults



Total number of hospital days in 2014 Minnesota - adults



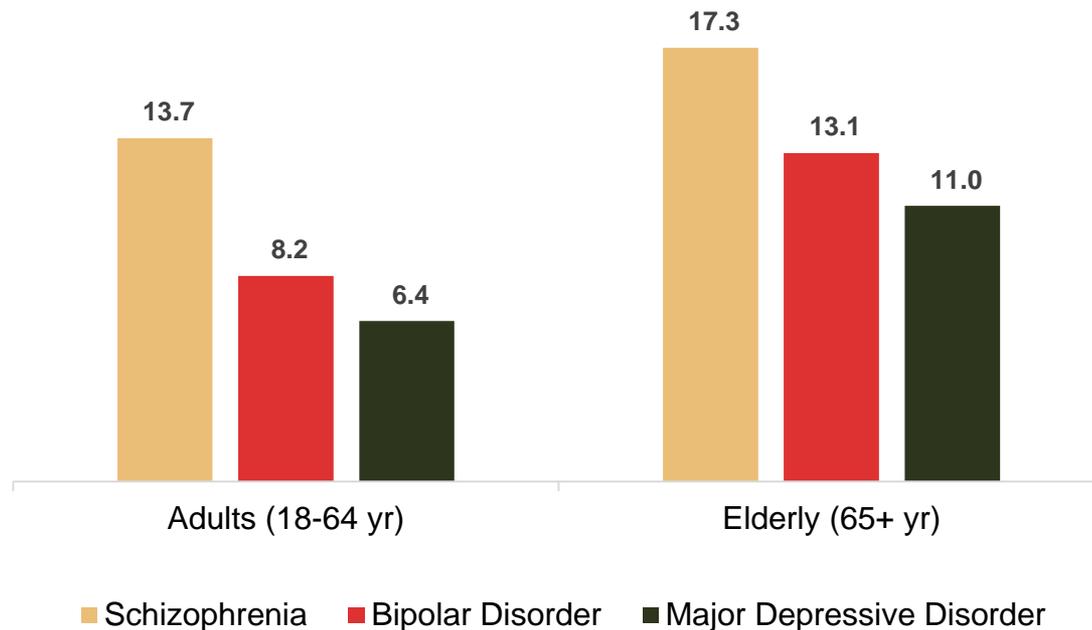
The average hospital stay duration for adult patients with serious mental illness is relatively high in Minnesota compared to all hospital stays, and to the rest of the U.S.

The total time spent in the hospital by adults with a primary diagnosis of serious mental illness is approximately 200,000 days each year in Minnesota.

Hospitalizations of elderly patients with serious mental illness

MINNESOTA 2014

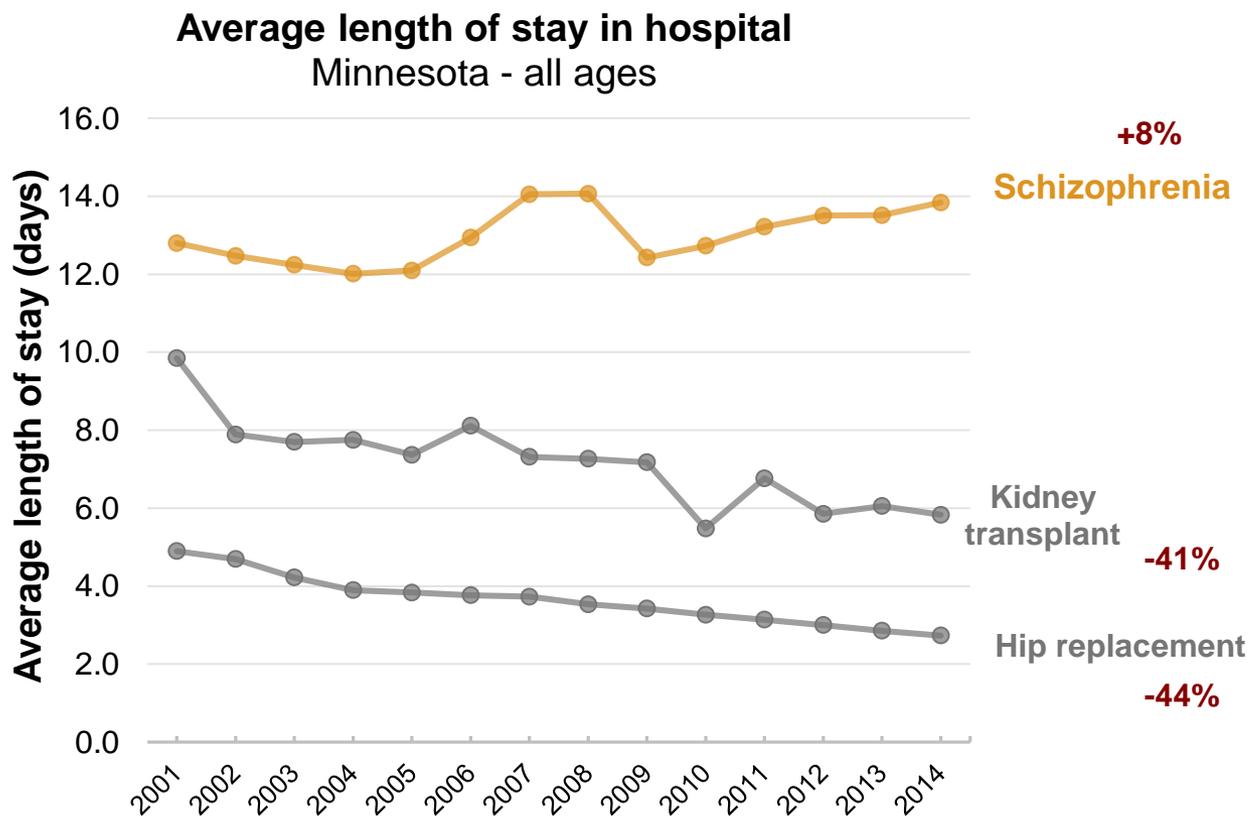
Average duration of hospital stays (days)
Elderly (65+ yr)



The length of stay in the hospital for serious mental illness in elderly patients is at least 25% higher on average than for younger adults with a similar diagnosis. Treatment of medical comorbidities as a result of aging, as well as difficulty finding long-term care environments may be at the root of this disparity.

Trends in length of stay for schizophrenia hospitalizations

MINNESOTA 2001-2014



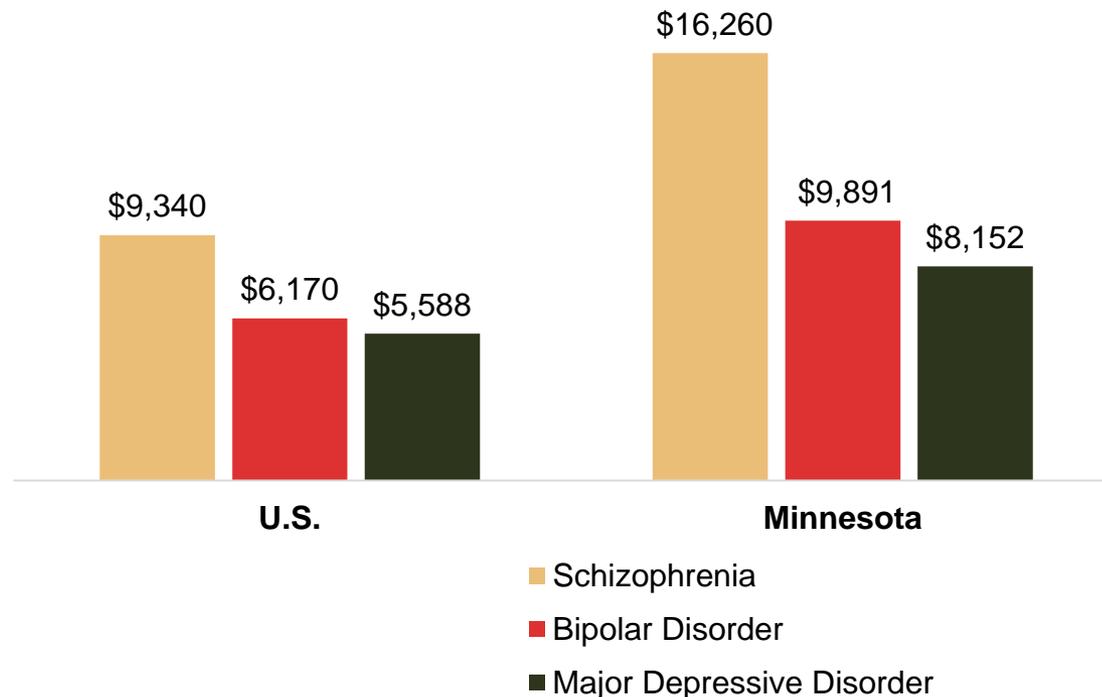
The average stay for a schizophrenia hospitalization in Minnesota was several days longer than for a hospitalization as a result of a kidney transplant or a hip replacement.

Moreover, the latter have declined steadily by at least 41% since 2001, while for schizophrenia the length of stay increased with 8%.

Average hospital costs for mental illness hospitalizations

MINNESOTA AND UNITED STATES 2014

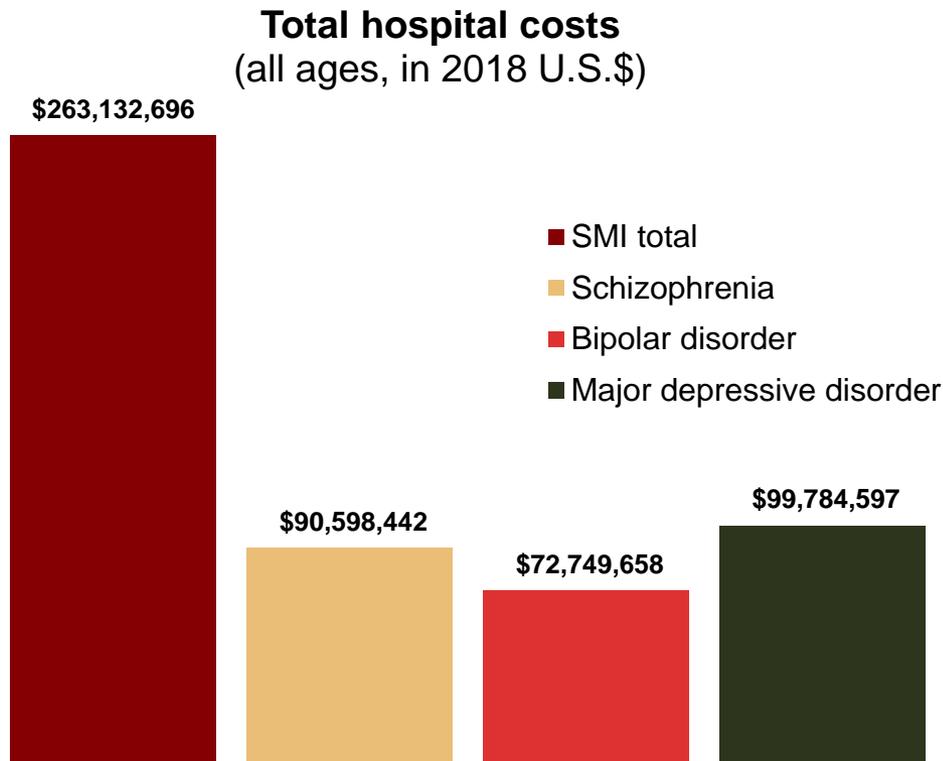
Average hospital costs per stay
(all ages, in 2018 U.S.\$)



*Hospital costs in the U.S. and Minnesota ranged from approximately \$5,000 to \$16,000 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.*

Total hospital costs for mental illness hospitalizations

MINNESOTA 2014



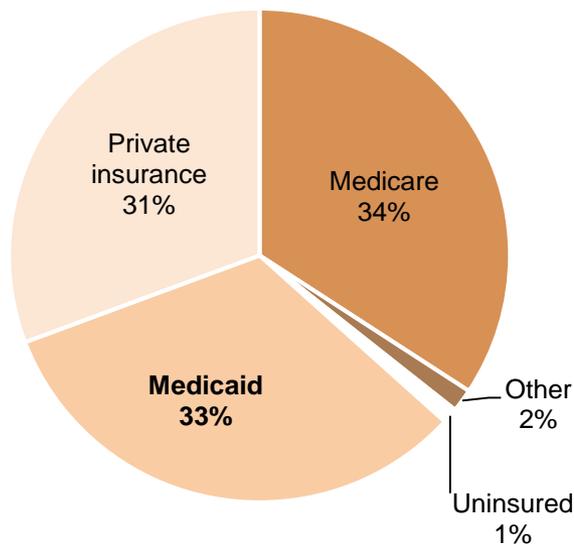
Total hospital costs in Minnesota for hospitalizations for serious mental illness together exceeded \$260 million in 2014.

Total hospital costs for serious mental illness hospitalizations by insurance type

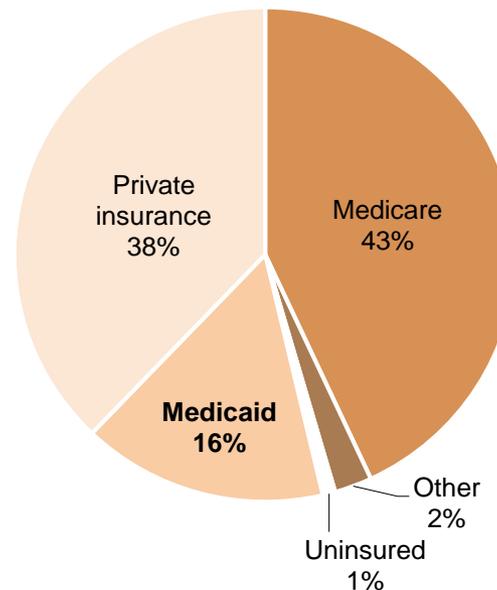
MINNESOTA 2014

Total hospital costs
(all ages, in 2018 U.S. \$)

Serious mental illness
\$263 million



All hospitalizations
\$7.6 billion



Compared to all hospitalizations, the expected payer for hospitalizations involving serious mental illness is much more likely to be Medicaid and less likely to be Medicare or a private insurer. Only a small fraction of the \$263 million in total hospitalization costs is covered by other programs (including VA/military health insurance), or paid by patients without health insurance.

Source: Healthcare Cost and Utilization Project (HCUPnet) 2014.

'Other' includes Worker's Compensation, TRICARE/CHAMPUS, CHAMPVA, Title V, and other government programs. 'Uninsured' includes 'self-pay' and 'no charge'.

Hospitalizations for which the primary payer is 'missing' (less than 0.5%) are excluded.

MENTAL HEALTH CARE COVERAGE, UTILIZATION & COSTS

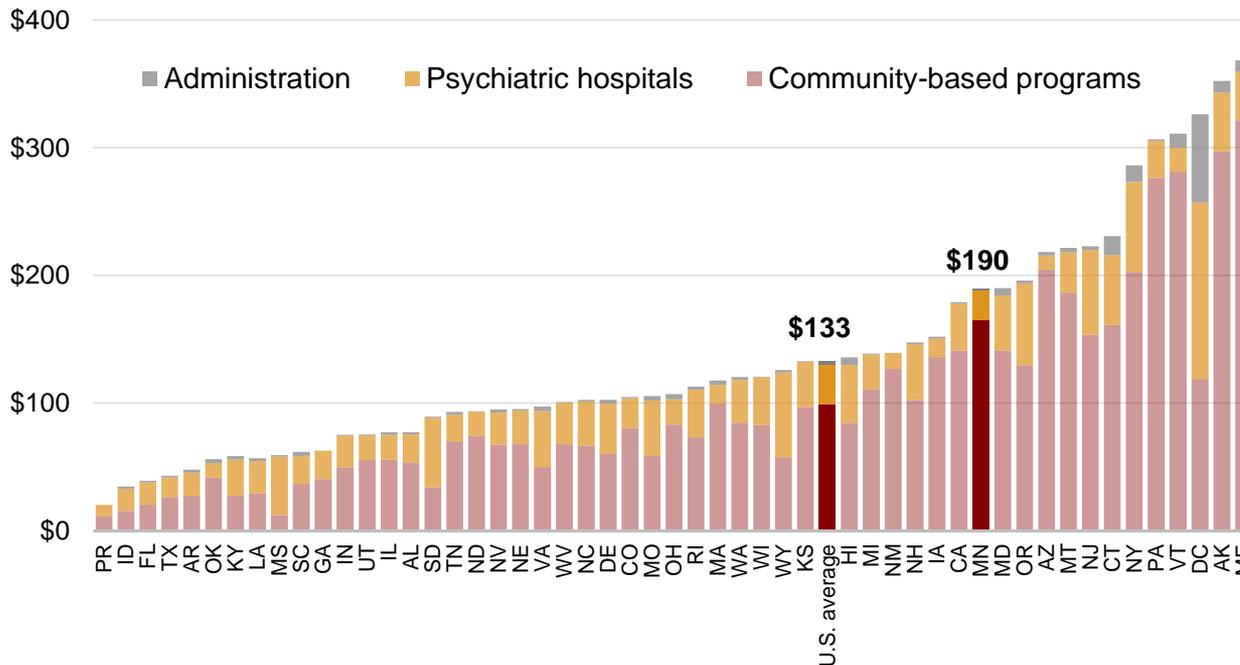
Investment in community-based programs

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 to the U.S. average, the Minnesota state mental health agency spends a higher amount per capita, and a larger percentage on community-based programs.

State Mental Health Agency spending

MINNESOTA AND UNITED STATES 2013

**Per capita
State mental health agency expenditures**
(in 2018 U.S. \$)



Minnesota's state mental health agency spending on mental health services per capita is slightly higher than the U.S. average. In addition, a larger part of the per capita budget (87%) is spent on community-based programs.

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 BEHAVIORAL HEALTH CARE PROFESSIONALS

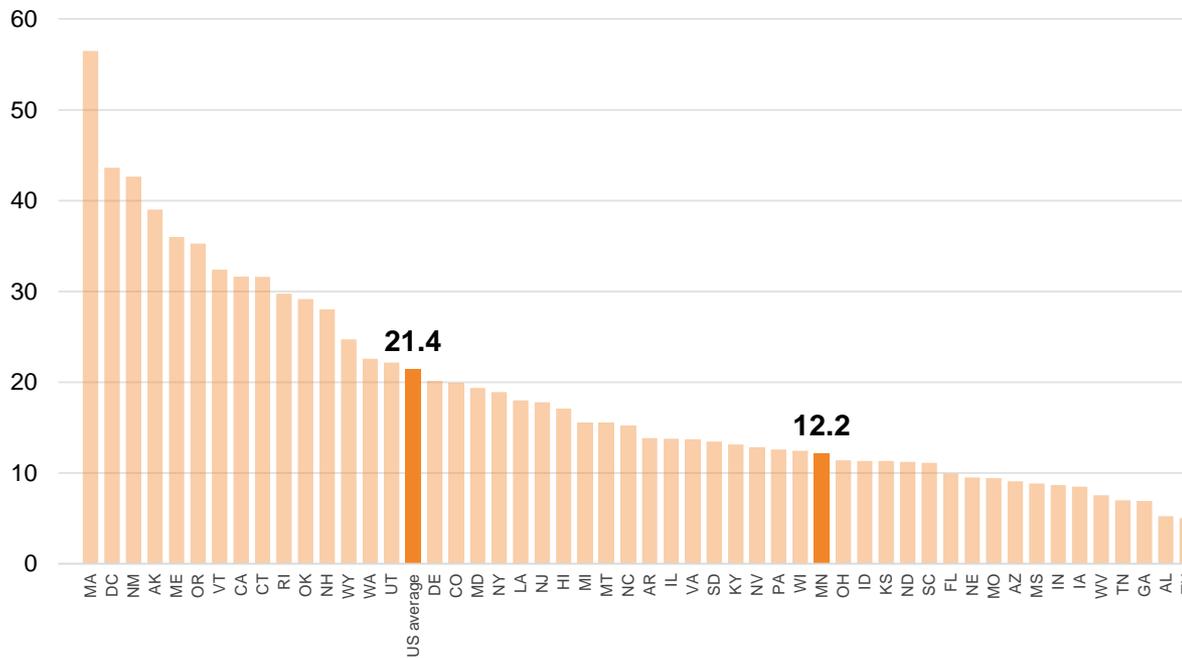
Minnesota has a similar number of overall behavioral health care professionals and hospital beds per capita as the national average, which is not sufficient to fully serve the population with behavioral health care needs. There are many areas and facilities in Minnesota that have a shortage of behavioral health care professionals; 75 full-time professionals are needed in addition to the current workforce in designated “shortage areas” to reach an acceptable provider-to-patient ratio.

This shortage is also present in the criminal justice system, where many people are in need of behavioral health treatment.

Availability of behavioral health care professionals

MINNESOTA AND UNITED STATES 2018

Number of behavioral health care professionals per 10,000 residents



There are approximately 12 behavioral health care professionals for every 10,000 residents in Minnesota, which is much lower than the average in the U.S.

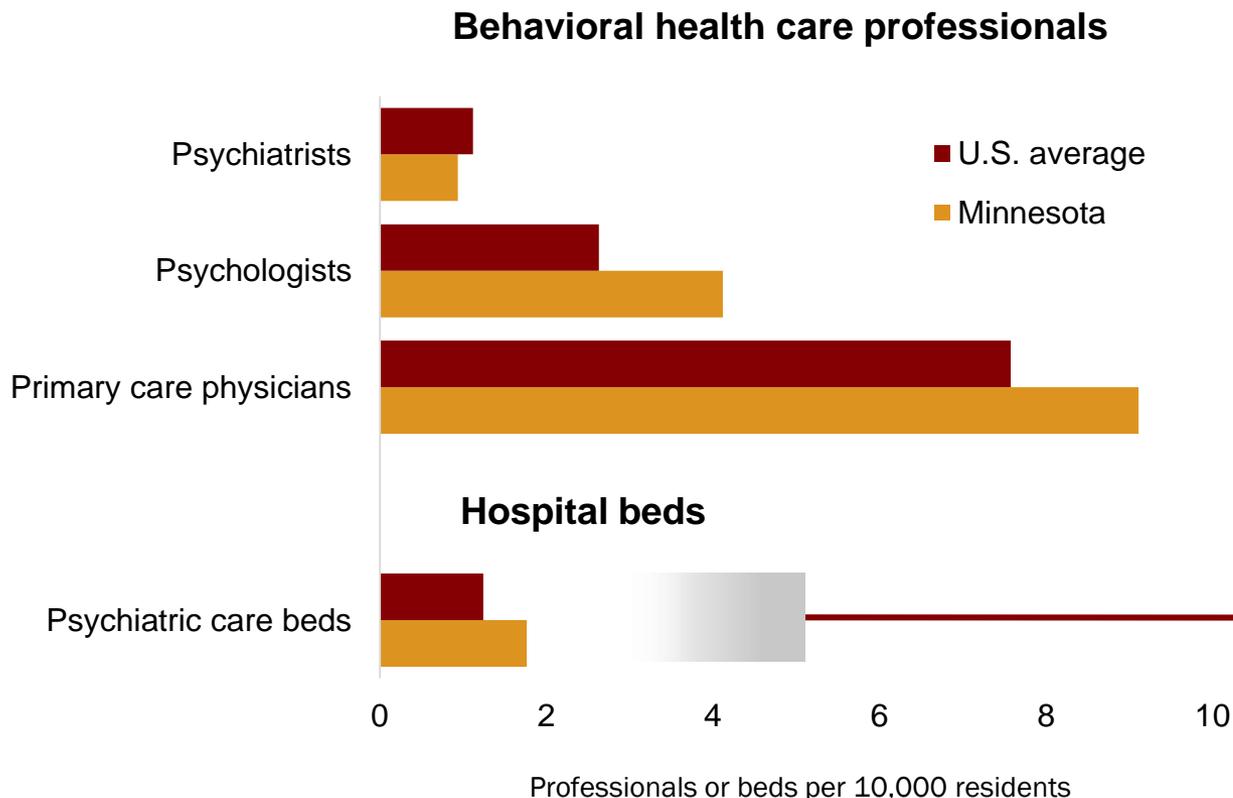
Note that the U.S. average does not represent the optimal number of behavioral health care professionals.

Behavioral health care professionals include: psychiatrists, psychologists, licensed clinical social workers, counselors, marriage and family therapists, and advanced practice nurses specializing in behavioral health care

Source: County Health Rankings & Roadmaps, by the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute.

Availability of behavioral health care professionals and hospital beds

MINNESOTA AND UNITED STATES 2013



Per resident, Minnesota has slightly fewer psychiatrists, but more psychologists, primary care physicians, and hospital beds dedicated to psychiatric care in comparison to the U.S. average. Note that the U.S. average does not represent the optimal number of behavioral health care professionals or hospital beds.

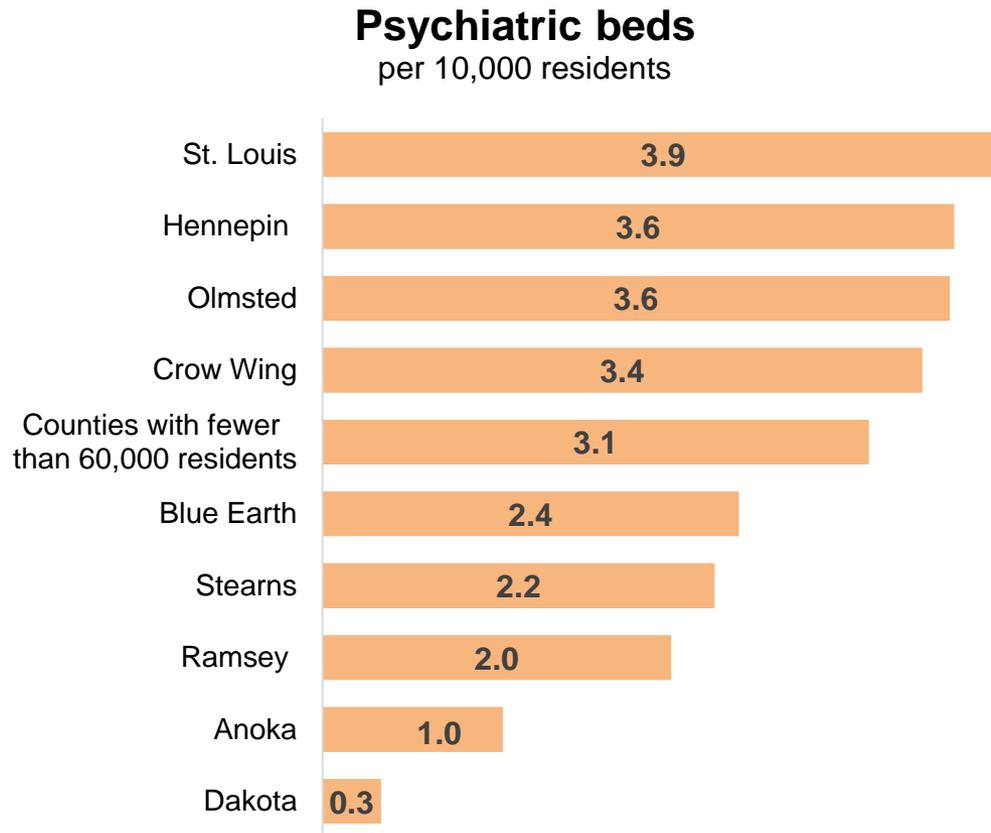
Although the optimal number of beds is unknown in our current health care infrastructure, there are estimates that 5 beds per 10,000 residents are minimally required, assuming sufficient availability of outpatient programs for long-term treatment.

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)

Treatment Advocacy Center, "The Shortage of Public Hospital Beds for Mentally Ill Persons"

Adult psychiatric bed capacity is low in most Minnesota counties

MINNESOTA 2012



Psychiatric bed capacity varies substantially between counties in Minnesota, but all larger counties have fewer than 4 beds for every 10,000 residents.

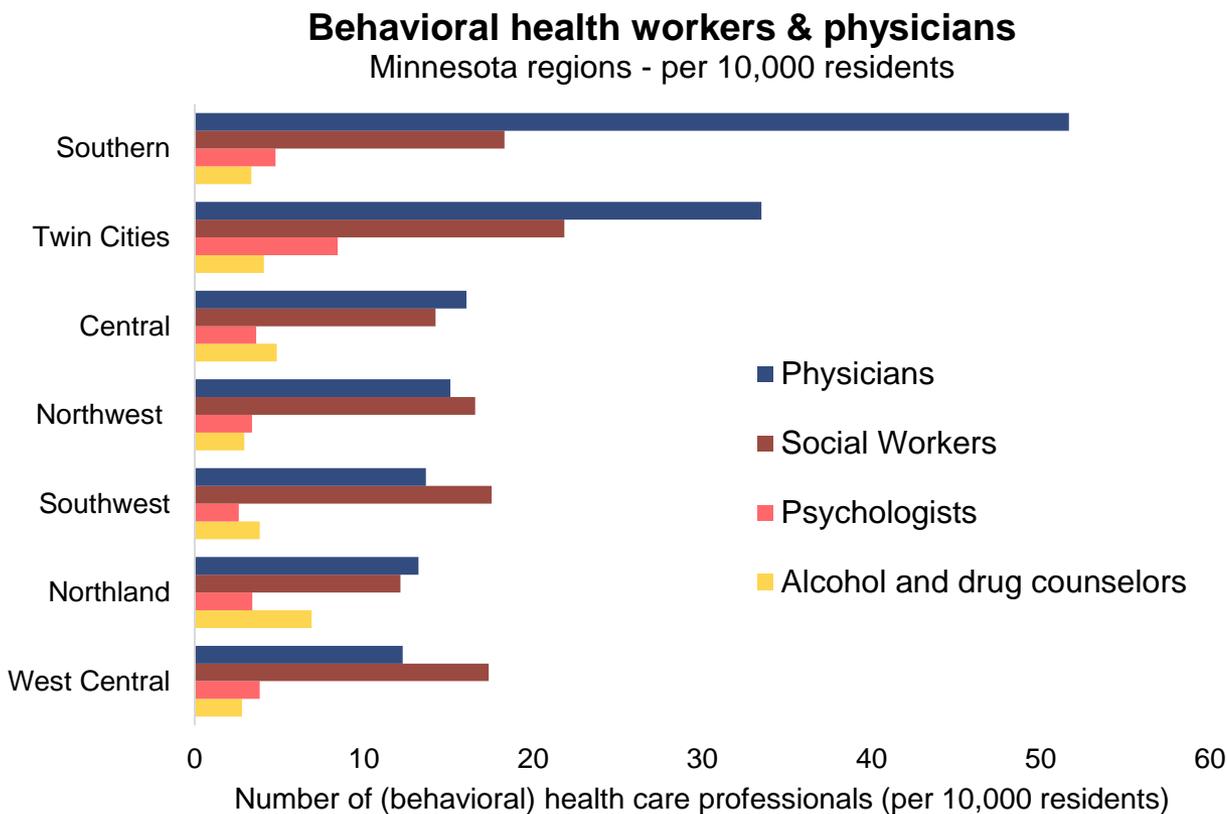
Moreover, 1.9 million people (34% of the Minnesota population) live in counties with no psychiatric beds available; these counties are not listed in the chart.

Although the optimal number of beds is unknown in our current health care infrastructure, there are estimates that 5 beds per 10,000 residents are minimally required, assuming sufficient availability of outpatient programs for long-term treatment.

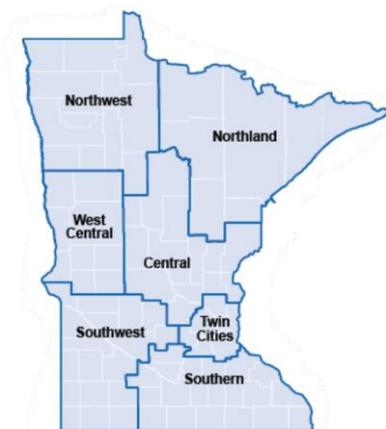
Source: Report on the Utilization of Community Behavioral Health Hospitals, 2012 (MN Department of Human Services) Treatment Advocacy Center, "The Shortage of Public Hospital Beds for Mentally Ill Persons".
Counties with psychiatric beds & fewer than 60,000 residents: Pennington, Meeker, Todd, Brown, Lyon, Mille Lacs, McLeod, Steele, Isanti, Mower, Kandiyohi, Winnona, and Otter Tail.

Regional availability of behavioral health care professionals

MINNESOTA 2014-2017



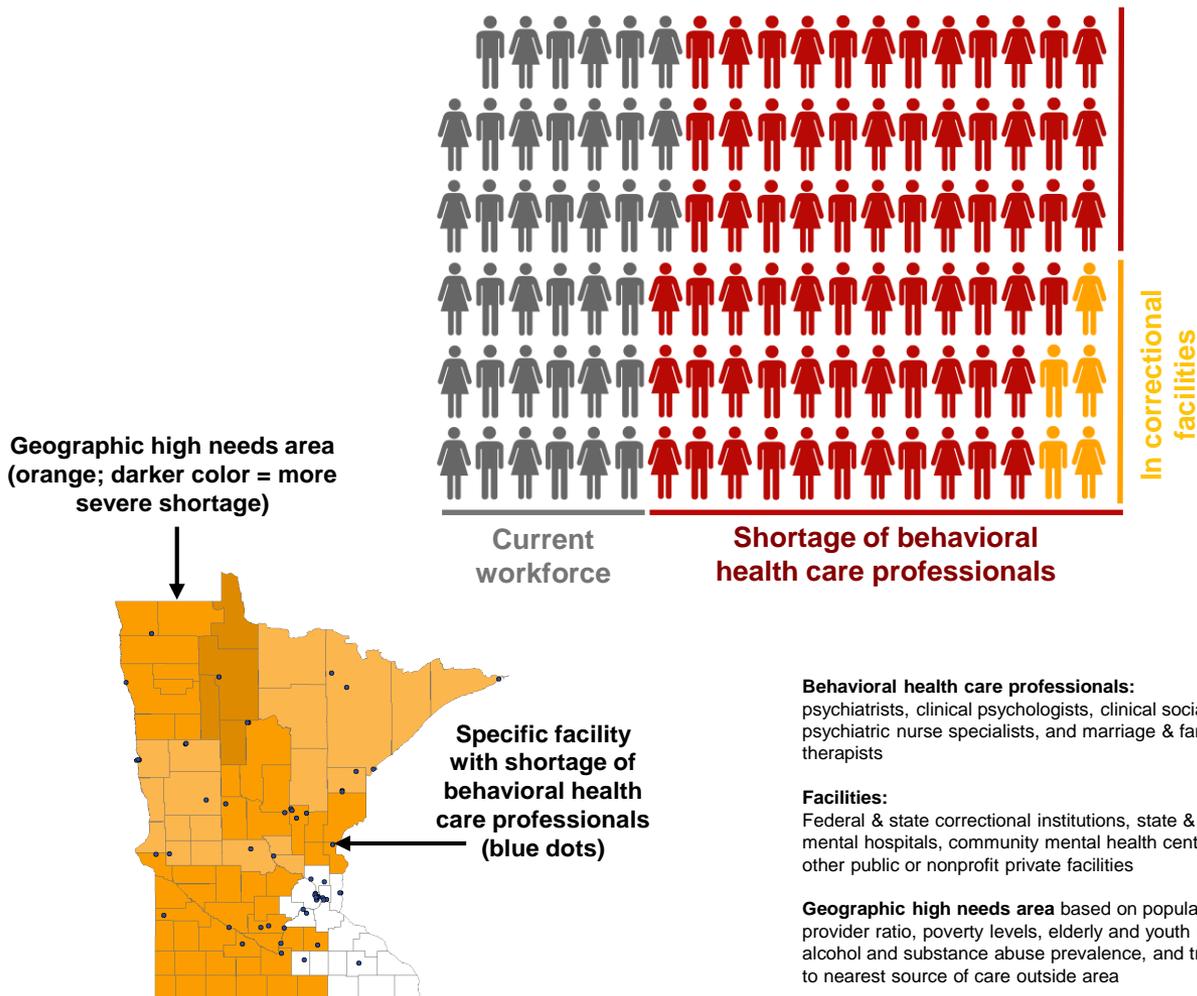
Regional data indicate that rural areas in Minnesota have fewer psychologists and social workers per capita than in the Twin Cities, whereas the relative number of alcohol & drug counselors is highest in the Northland and Central regions.



Source: Minnesota Health Professions Data, Minnesota Department of Health.
Geographical divisions and map by Minnesota Compass

Shortage of behavioral health care professionals

MINNESOTA 2019



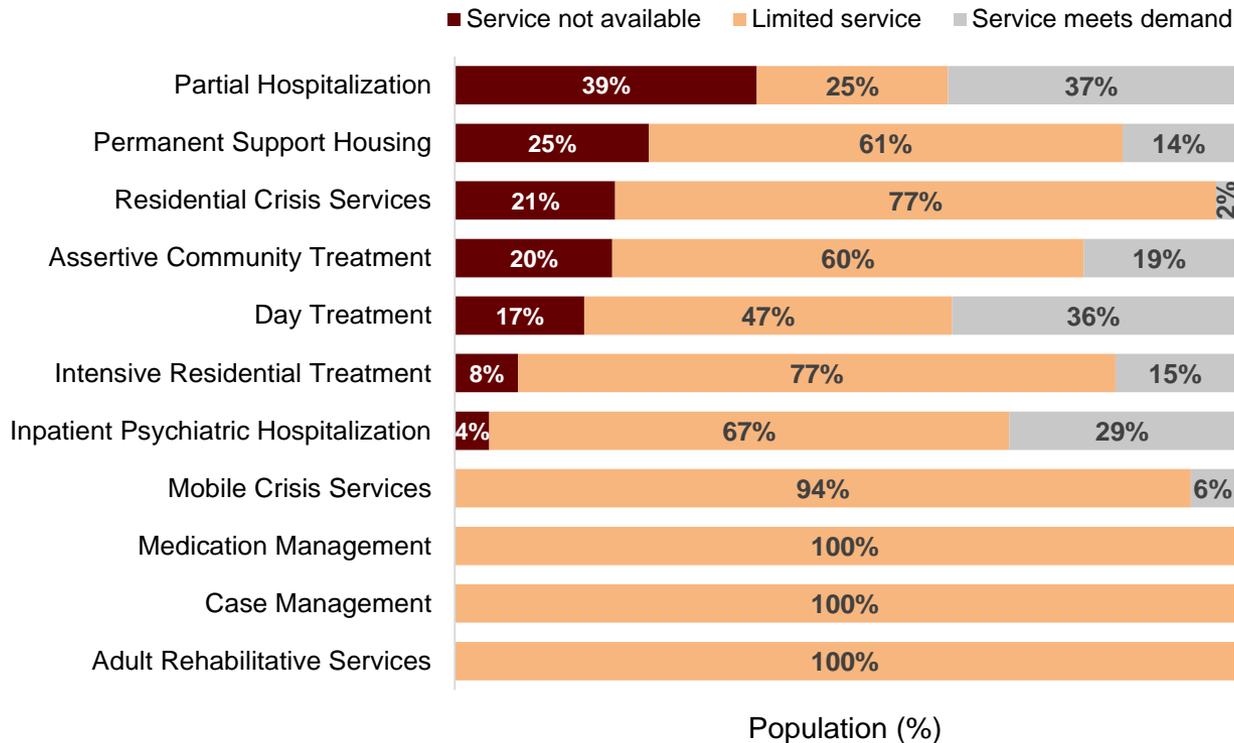
Currently, Minnesota has 38 full-time equivalent behavioral health care professionals in designated shortage areas and facilities with behavioral health care professional shortages. In order to address the shortage issue, 75 more full-time professionals are needed in these areas, 5 of whom are needed in correctional facilities.

Source: Health Professional Shortage Areas (HPSA), HRSA Data Warehouse, 06/10/2019

Limited access to behavioral health services

MINNESOTA 2014

Availability of behavioral health services for adults in Minnesota



A large part of the Minnesota population lives in areas where access to important behavioral health services is limited, and in parts of the state some services are not available at all.

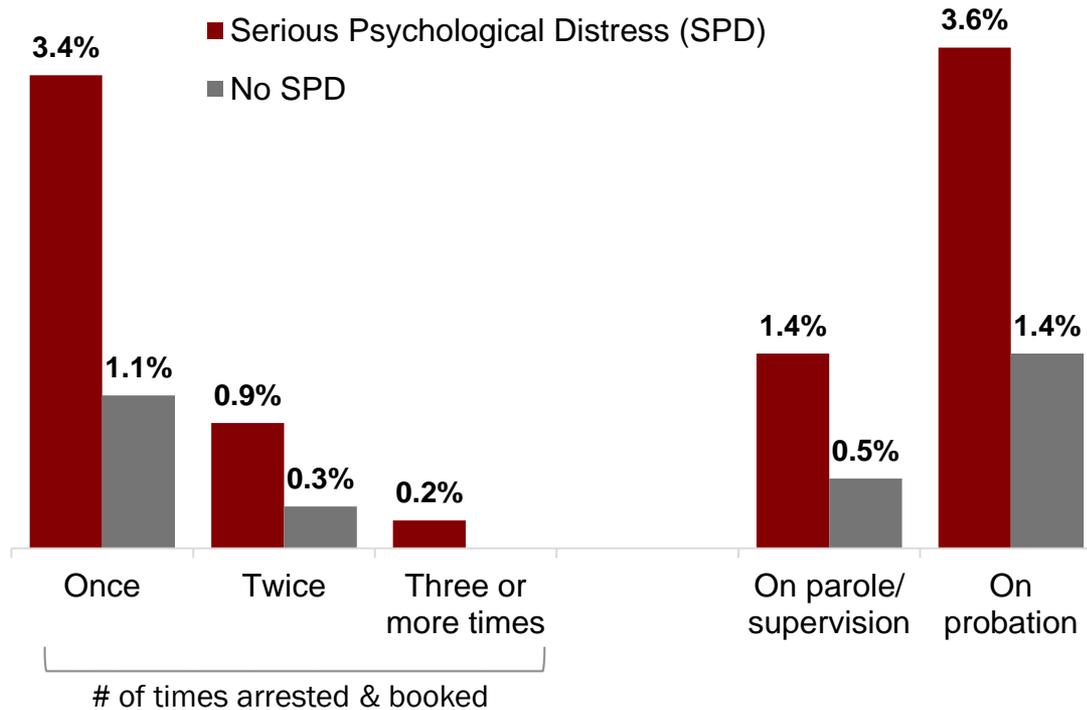
MENTAL HEALTH CONDITIONS & THE CRIMINAL JUSTICE SYSTEM

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.

In Minnesota, the overall incarceration rate is relatively low, but the prevalence of serious mental illness is high compared to the U.S. average. The overall cost of incarceration of the approximately 3,700 prisoners with serious mental illness in the state of Minnesota exceeds \$230 million per year.

Contact with criminal justice system

UNITED STATES 2017

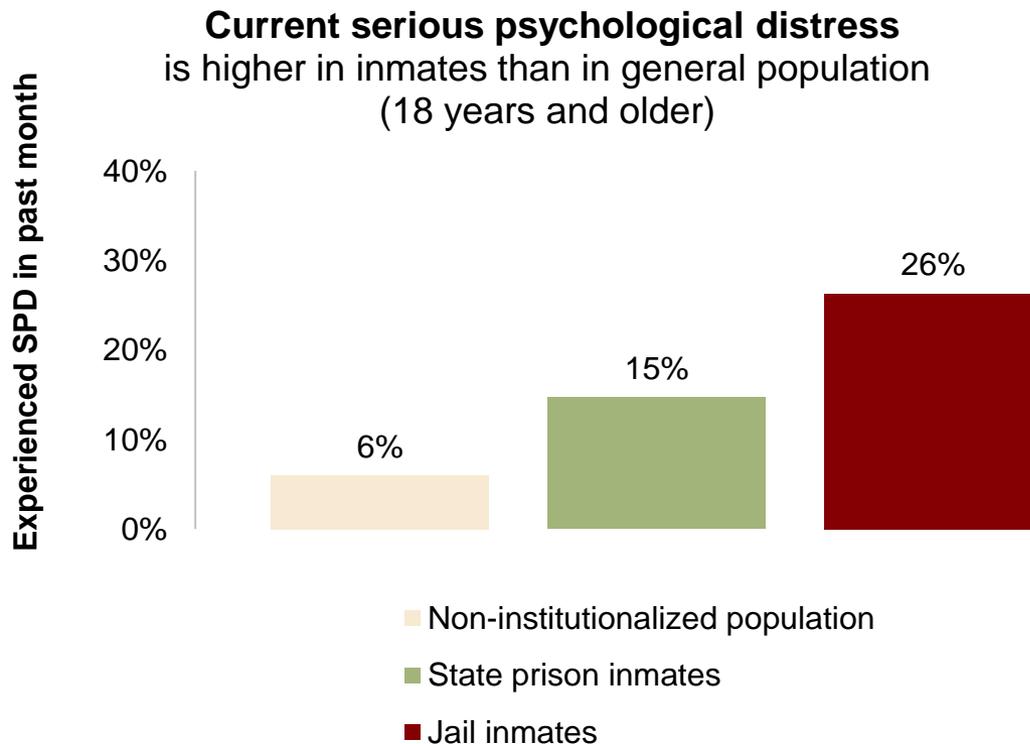


People who experienced serious psychological distress (SPD) are more likely to have been arrested or be on parole or probation in the past year.

Source: National Survey on Drug Use and Health (NSDUH, R-DAS) 2016-2017
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.

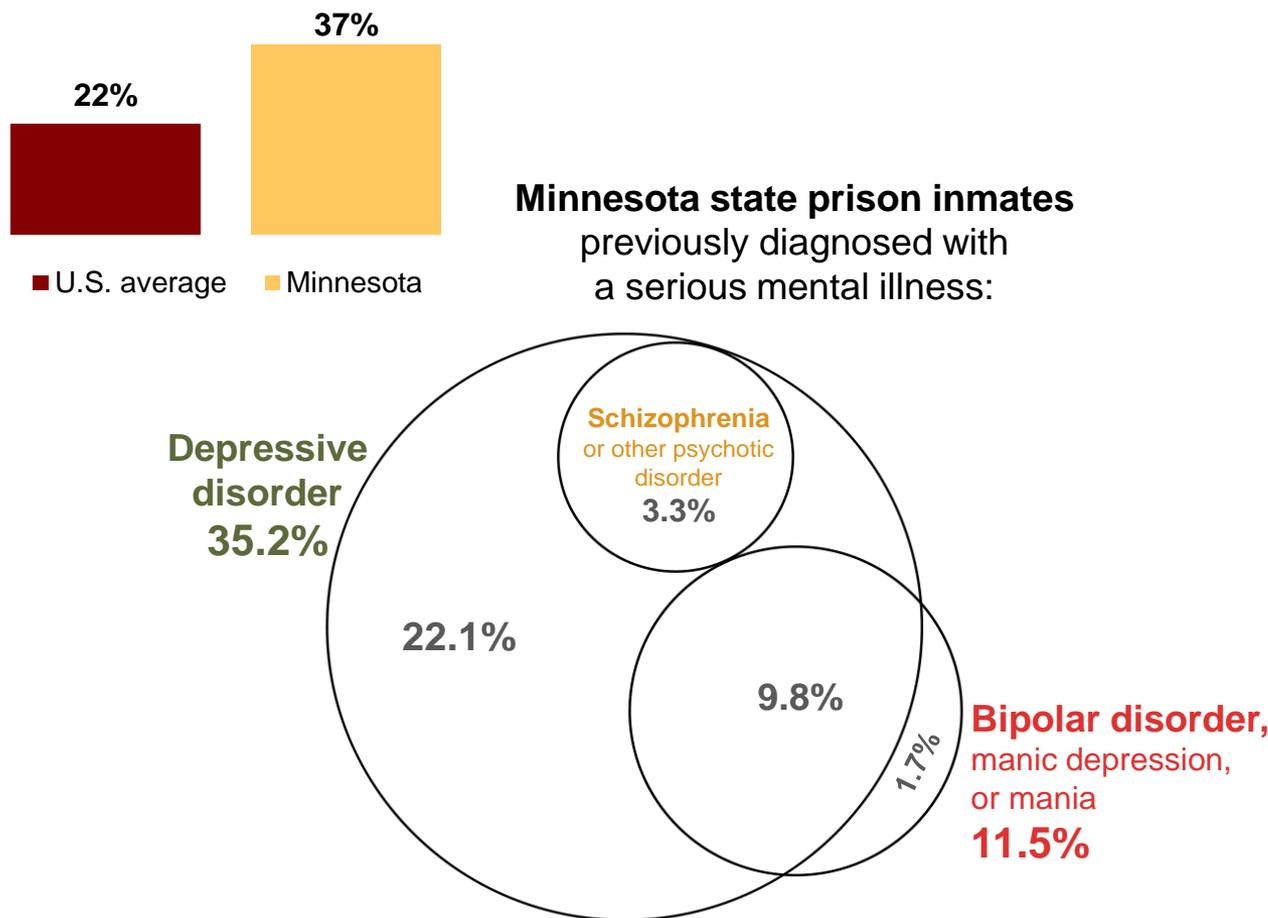
Additionally, these mental health issues are observed at higher rates in local jails than in prisons.

Source: National Survey of Drug Use and Health (NSDUH) 2016

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

MINNESOTA - 2004



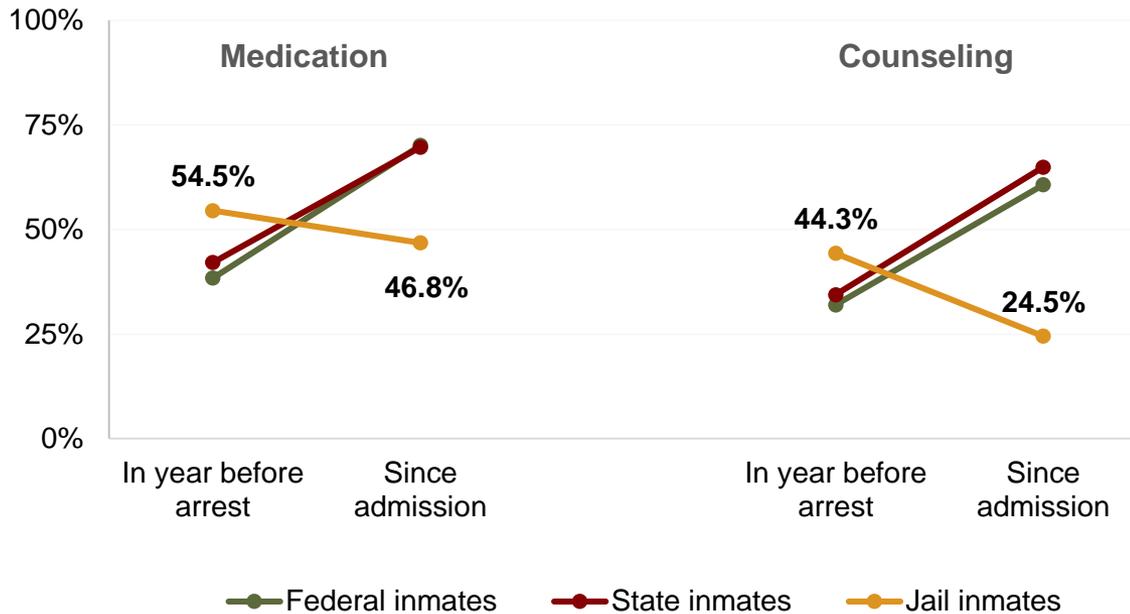
In 2004, in Minnesota state prisons, approximately 37% of prison inmates previously have been diagnosed with a serious mental illness, which is much higher than the overall U.S. prison population. Many patients have been diagnosed with two mental illnesses, confirming the presence of overlap in symptoms in this population.

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 general 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.

Based on the most recent data (from 2004),
we estimate that the number of
Minnesota state prison inmates in 2017,
previously diagnosed with serious mental illness was

3,731

Estimate of overall annual costs in 2017:

\$239,392,210

(in 2018 U.S.\$)

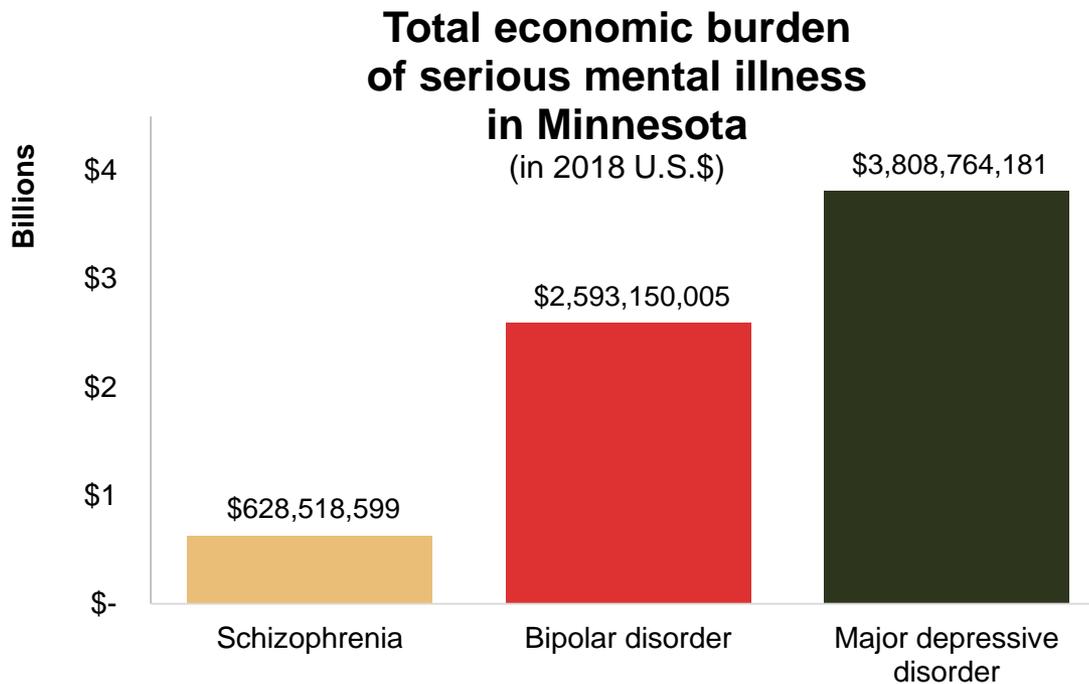
*Overall annual costs based on 2017 average of all state prison inmates in Minnesota
Source: Annual Survey of State Government Finances 2017
Survey of Inmates in State/Federal Correctional facilities, BJS, 2004
Minnesota State, Department of Corrections Adult Prison Population Summary as of 07/01/2017*

TOTAL ECONOMIC BURDEN OF SERIOUS MENTAL ILLNESS

The economic burden of each serious mental illness in adults is estimated to be at least \$37 billion for the U.S. and \$600 million for Minnesota per year

Economic burden of serious mental illness

MINNESOTA 2018



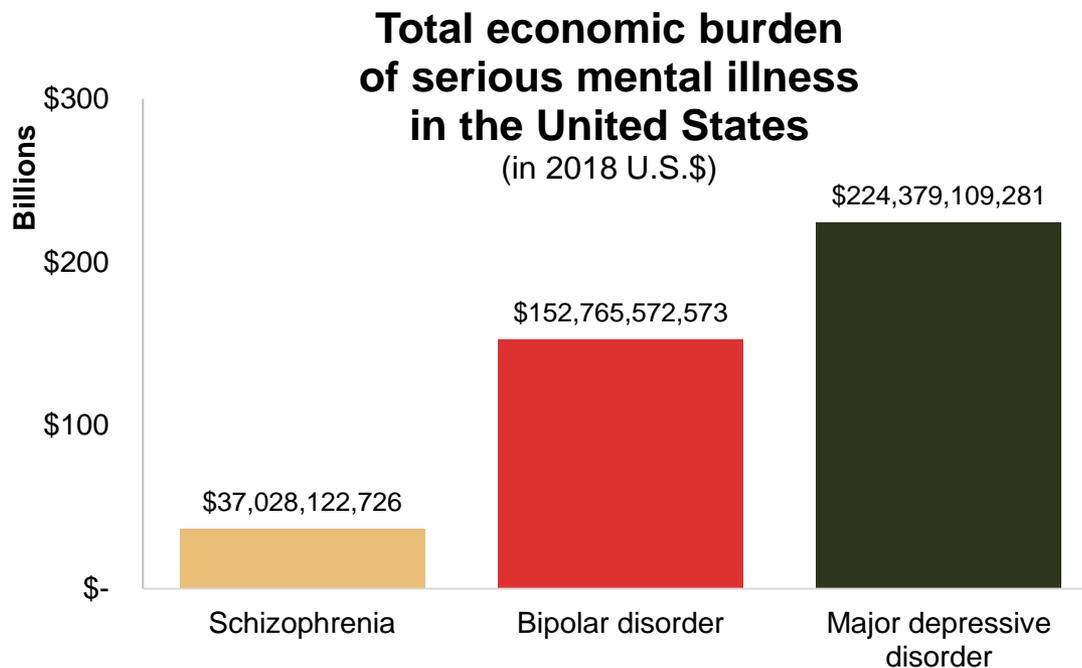
*The economic burden of schizophrenia, bipolar disorder, and major depressive disorder in adults in Minnesota is estimated to be at least **\$600 million for each serious mental illness.***

Because of 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 2018



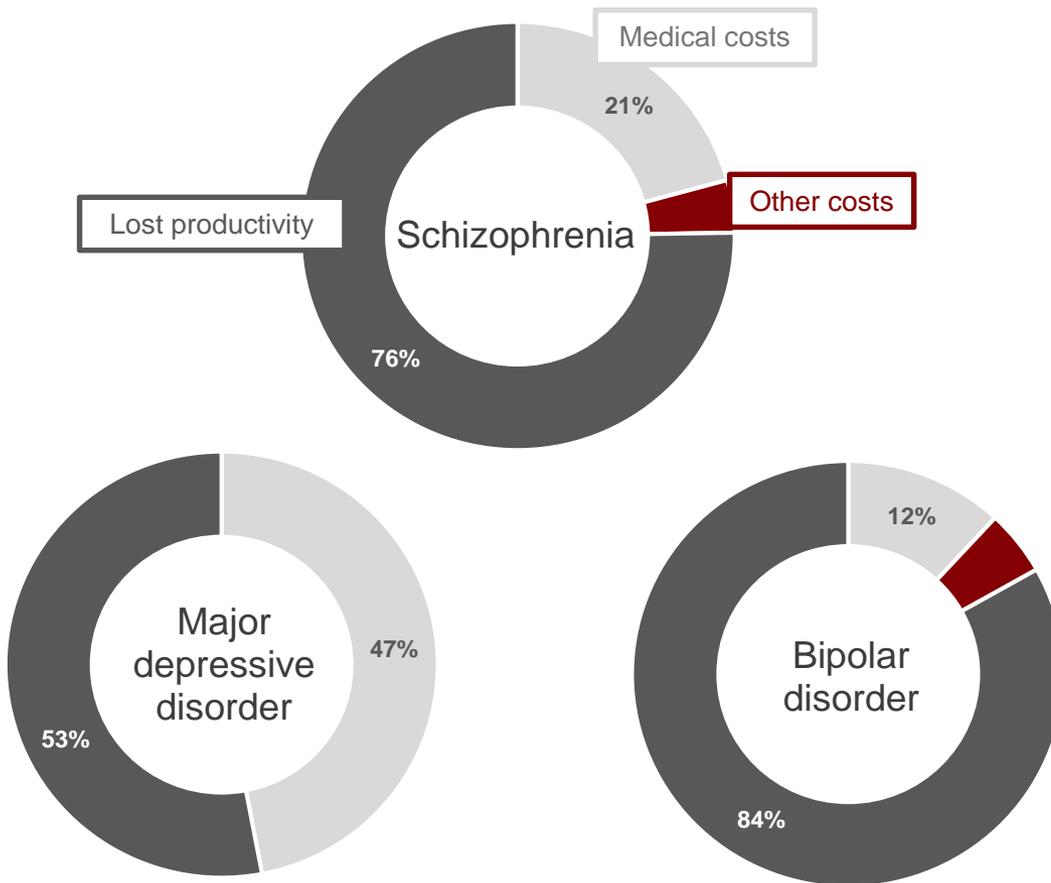
*The economic burden of schizophrenia, bipolar disorder, and major depressive disorder in adults in the U.S. is estimated to be at least **\$37 billion for each serious mental illness.***

Because of 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

Lost productivity is the largest contributor to economic burden of serious mental illness

UNITED STATES



*Most of the total economic burden of serious mental illness is due to **lost productivity** (unemployment, lost compensation (incl. caregivers), or early mortality). Only 12 to 47% of the total burden is resulting from direct **medical costs** (including substance abuse treatment), and an even smaller percentage from law enforcement, incarceration, shelters, or research & training (**other costs**).*

This highlights the large potential economic and societal benefits from improving treatment for serious mental illness even if it means spending more on care.

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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

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