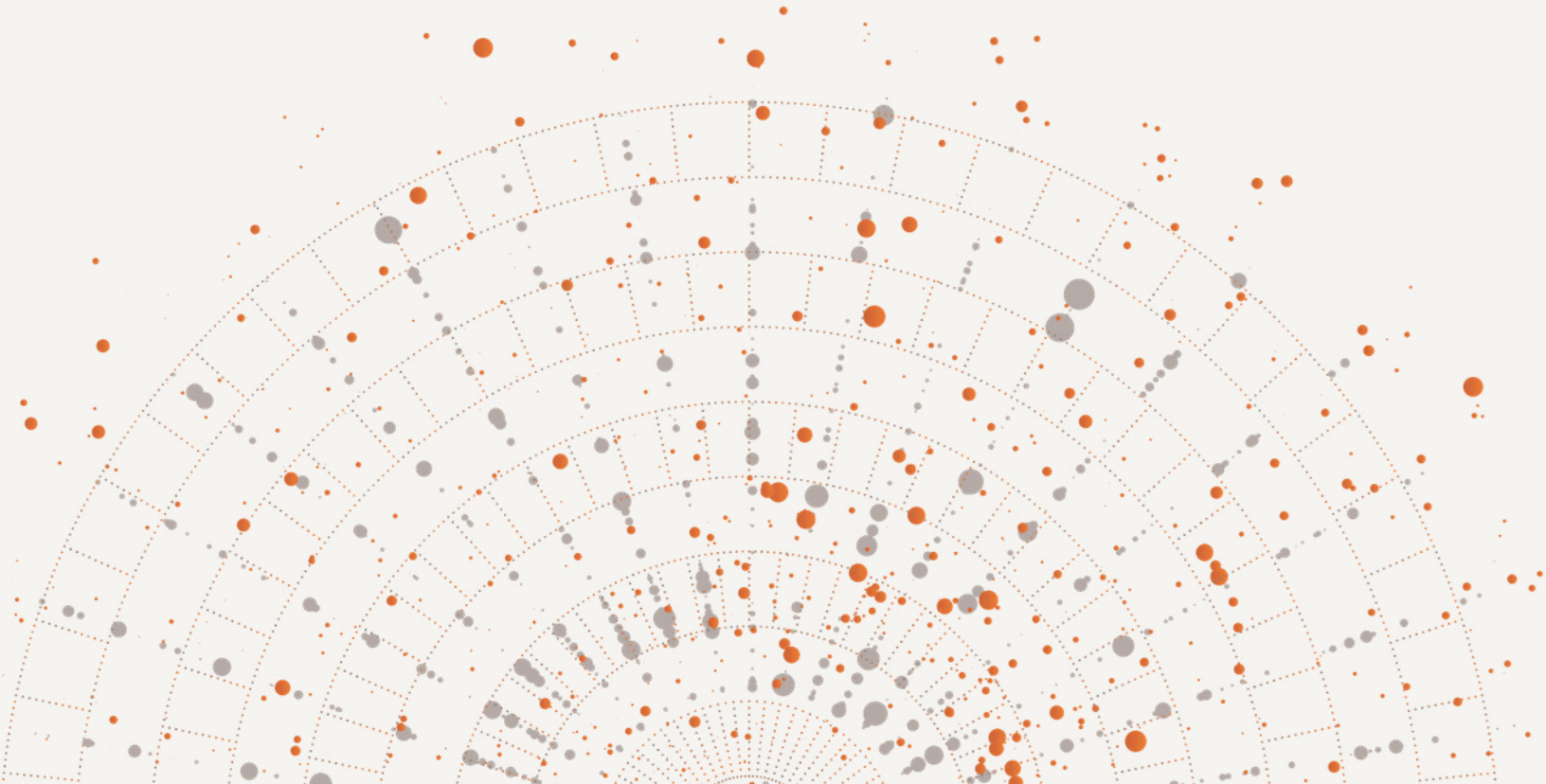
NORC at the University of Chicago

REPORT
February 2026

The Economic Burden of Mental Health and Substance Use Disorders:

The United States and the Heartland Region



Authors

NORC at the University of Chicago

Alexandra F. Kritikos
Meg Hefferon
Devi Chelluri
MacKenzie L. Hughes

University of Arkansas

Department of Economics
Tandem J. Young

Acknowledgments

This study was supported, in part, by a grant from Arisa Health and Centerstone and was reviewed by the National Council for Mental Wellbeing. We are grateful for their support and partnership.

We also extend our sincere appreciation to the following individuals for sharing their time, insights, and subject-matter expertise, which informed the development of this report: Ms. Nora Bock, Director of the Division of Behavioral Health at the Missouri Department of Mental Health; Ms. Stacy Butler, Oklahoma Department of Human Services; Dr. Christopher DeBernard, Staff Psychiatrist at Talkiatry; Dr. Rich Lillard, Director of Behavioral Health Services at Healthy Blue Missouri; Dr. Tessa Chesher, Medical Director of the Children's Specialty Program at Oklahoma Complete Health; Ms. Blanca Campos, Chief Executive Officer at Community Behavioral Healthcare Association of Illinois; and Mr. Nathaniel Counts, Chief Policy Officer for The Kennedy Forum.

Table of Contents

List of Exhibits

List of Tables

Attachments

References

Executive Summary

Background. Mental health and substance use disorders (MH/SUDs) represent a persistent public health and economic challenge in the U.S. Not only can MH/SUDs impact an individual's social relationships and physical health, but their effects often extend beyond the individual, touching families, workplaces, and entire communities. These conditions disproportionately impact rural communities, including America's heartland, a region primarily located in the Midwestern part of the U.S.

MH/SUDs generate substantial costs through health care spending and lost productivity. Prior research shows that greater symptom severity is related to increased risk of unemployment and absenteeism and reduced work capacity, potentially from delayed engagement in care and unmet need.

Objectives. This report quantifies the economic burden of MH/SUDs both nationally and across seven heartland states, including Arkansas, Illinois, Indiana, Kansas, Missouri, Oklahoma, and Tennessee. We estimate both direct medical expenditures and indirect productivity losses, including absenteeism, unemployment-related lost wages, and foregone tax revenues. Contrasting the national economic burden of MH/SUDs with the economic burden in the heartland region can help to identify disparities and shed light on the magnitude of mental health challenges faced by rural heartland communities.

MH/SUDs Across the U.S. Our analysis showed that an estimated 48.1 million people, 14.6% of the U.S. population, experienced a MH or SUD in 2023. MH/SUDs are associated with an estimated $107.3 billion economic burden in the U.S. in 2023, including $59.5 billion in direct health care spending and $47.7 billion in indirect productivity losses from absenteeism, unemployment, and foregone tax revenue. Across MH/SUDs included in the analysis, depressive episodes and anxiety disorders reflect the largest share of total economic burden. Depressive episodes are associated with an estimated $35.5 billion annually, and non-phobic anxiety disorders are associated with $32.5 billion annually.

MH/SUDs in the Heartland. Our analysis indicated that MH/SUDs in the heartland region are associated with an estimated $11.2 billion annual measurable economic burden in 2023, including $8.6 billion in direct medical spending and more than $2.6 billion in indirect productivity losses from unemployment-related wage losses and foregone tax revenue. Total and per-capita burden vary substantially across states, reflecting differences in labor markets, health care capacity, and access conditions. The seven heartland states represent a smaller share of the measurable burden than would be expected based on population alone, suggesting that a substantial portion of the region's true burden remains unobserved due to limited access to care and underdiagnosis.

Conclusion. MH/SUDs impose a large and persistent economic burden on the U.S. and the heartland region. Indirect productivity losses represent a substantial share of total costs. Earlier identification and timely intervention are associated with reduced productivity losses and lower risk of workforce detachment. Expansion of access to timely care, including through telehealth, is one potential approach that may reduce avoidable costs and support labor-force participation and long-term economic stability.

Chapter 1: Introduction

1.1 Background

Mental health (MH) and substance use disorders (SUDs) represent a major public health challenge in the United States (U.S.), affecting millions of individuals, families, and communities each year.[1] MH disorders refer to conditions marked by emotional and cognitive disturbances, impaired functioning, and/or abnormal behaviors, while SUDs involve cognitive, behavioral, and physiological symptoms related to the recurrent use of substances that impair functioning, such as alcohol, opioids, and nicotine.[2,3] MH and SUDs commonly co-occur, which can exacerbate the effects of each disorder. Evidence suggests that approximately 50% of people who experience a SUD also have a MH disorder.[4]

These conditions can challenge individuals' abilities to meet their responsibilities at home, school, or work.[5] Although there are treatments for MH/SUDs to help individuals manage symptoms and reduce substance use, respectively, many individuals do not receive treatment. Common reasons for not receiving treatment include concerns about the cost of treatment and barriers to accessing care.[6,7]

Beyond the clinical impact of MH/SUDs, these conditions are associated with substantial economic costs. Individuals with untreated MH/SUDs are at increased risk of developing physical health conditions (e.g., cardiovascular disease) and may have increased use of health care services (e.g., emergency care for an overdose, prolonged hospital stay for a medical condition that is exacerbated by an untreated MH/SUD).[8] In addition to direct health care costs, there are indirect costs of these conditions due to productivity losses, such as absenteeism among individuals who are employed and lost wages and tax revenue among individuals who are unemployed.[9] For example, two MH conditions—anxiety and depression—affect large segments of the working-age population and are associated with persistent functional impairment, making them the dominant contributors to both health care spending and productivity losses.[10,11]

The economic burden of MH/SUDs disproportionately impacts some geographies. America's heartland is comprised of diverse rural communities with large populations of people with fewer resources and opportunities to access clear, usable health information and services.[12] These communities face structural barriers impacting both access to care and economic outcomes.[13] Many residents of heartland communities experience long travel distances to access care, hospital closures, limited access to mental and behavioral health care professionals, financial constraints, and persistent broadband gaps that could limit their ability to use telehealth.[14,15] These barriers may contribute to delayed diagnosis, untreated or undertreated illness, episodic crisis-driven care, and greater reliance on emergency and inpatient services, amplifying both clinical and economic consequences across the region.[16,17,18,19,20]

Quantifying the economic burden of MH/SUDs across the nation and in the heartland provides evidence that may inform decisions by policymakers, employers, clinicians, and other stakeholders.

These estimates can be used to assess the potential role of prevention, treatment, and system-level approaches in addressing disparities, costs, and outcomes.

1.2 Study Objectives

This study seeks to quantify the economic burden of MH/SUDs at both the national-level and state-level for seven heartland states: Arkansas, Illinois, Indiana, Kansas, Missouri, Oklahoma, and Tennessee. Specifically, the study aims to estimate treated prevalence of MH/SUDs, direct health care costs, indirect productivity losses, and variation in burden across key demographic groups, providing a comprehensive picture of the economic impact of MH/SUDs nationally and in the heartland region. The analysis distinguishes between medical and productivity-related components of economic burden.

Quantifying the economic burden these conditions present to health care systems and the workforce highlights the relationship between mental and behavioral health outcomes and broader economic measures such as workforce participation and stability. State-level estimates of economic burden and variation in per-capita costs will equip policymakers, clinicians, employers, and other stakeholders in the region with actionable evidence to inform resource allocation, coverage strategies, and reforms aimed at reducing disparities and improving outcomes.

The chapters that follow include the (1) data sources and methods, (2) results of the analysis, including economic impacts of MH/SUDs at the national level, labor market impacts (e.g., absenteeism, unemployment) at the national level, and economic impacts of MH/SUDs in heartland communities, (3) discussion and policy implications, and (4) limitations and future research.

Chapter 2: Data Sources & Methods

2.1 Study Design & Data Sources

We conducted a cross-sectional economic burden analysis to estimate national- and seven heartland state-level costs attributable to MH conditions and SUDs in the U.S. from 2016 through 2023. The analysis quantified treated prevalence, direct medical expenditures, and indirect productivity losses, including absenteeism, unemployment-related lost wages, and associated foregone tax revenue.

The primary analytic dataset consisted of pooled Medical Expenditure Panel Survey (MEPS).[21] MEPS is nationally representative of the civilian, noninstitutionalized U.S. population and contains detailed information on health conditions, health care utilization and expenditures, insurance coverage, employment, and wages. MEPS data were supplemented with administrative sources to value labor market and fiscal impacts, including average wages and unemployment counts from the Bureau of Labor Statistics, federal income tax liability from Internal Revenue Service Statistics of Income, state income tax collections from the U.S. Census Bureau, payroll tax rates from the Social Security

Administration, and health spending benchmarks from the KFF. All monetary values were inflation-adjusted to 2023 dollars.

Analyses were conducted in R (version ≥ 4.3). The study used publicly available, deidentified data and was determined to be exempt from institutional review board review.

2.2 Identification of MH/SUD Conditions

Treated prevalence was defined as the proportion of individuals with at least one health care encounter during the year linked to a qualifying MH or SUD diagnosis. Conditions were identified using International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) diagnosis codes recorded in MEPS and linked to medical events.[22] Included MH conditions were depressive episodes, anxiety disorders, posttraumatic stress disorder, bipolar disorder, schizophrenia, attention-deficit/hyperactivity disorder, and conduct disorder. Included SUDs were alcohol, opioid, and nicotine use disorders. Composite indicators were constructed for any mental illness, any SUD, any mental illness and SUD, and any mental illness or SUD. Because comorbidity is common, condition-specific estimates were not summed; union categories were used to estimate overall burden without double-counting.

2.3 Cost Components

2.3.1 Direct Health Care Costs

Direct medical costs were estimated by attributing health care expenditures to MH/SUD conditions at the medical-event level, such that only expenditures for events explicitly linked to a qualifying MH or SUD diagnosis were included. For each event, total expenditures were used when available; otherwise, expenditures were constructed by summing all sources of payment. When a single event was linked to multiple qualifying diagnoses, expenditures were allocated evenly across linked conditions using a conservative equal-split attribution rule.[23] Attributed expenditures were aggregated to the person-year level and summarized by condition, service type, and payer. Survey weights and pooled design variables were applied to estimate national totals and per-person means. State-level medical spending estimates were derived by scaling national estimates using state-specific health spending benchmarks.

2.3.2 Indirect Productivity Costs

Indirect productivity costs included absenteeism, unemployment-related lost wages, and unemployment-related lost tax revenue. Absenteeism associated with MH/SUDs was estimated among employed adults using survey-weighted negative binomial regression models of annual missed workdays.[24,25] Models were adjusted for age, income, education, insurance, marital status, sex, region, and survey year. For each condition, excess missed days associated with MH/SUDs were calculated as the difference between predicted missed days among affected individuals and counterfactual predictions assuming the absence of the condition. Missed days were monetized using mean daily wages.

Unemployment associated with MH/SUDs was estimated using survey-weighted logistic regression and g-computation to calculate population-attributable fractions.[26] These fractions were applied to annual unemployment counts to estimate unemployment associated with MH/SUDs. Lost wages were calculated by multiplying attributable unemployment counts by average annual wages.

Foregone tax revenue associated with unemployment among individuals with MH/SUDs was estimated by applying effective federal income tax, state income tax, and payroll tax rates to lost wages associated with MH/SUDs**.** Effective rates were derived from administrative data and applied to a common wage base.[27,28,29]

2.3.3 Total Economic Burden

The total economic burden was calculated as the sum of the nonoverlapping direct and indirect cost components: direct medical expenditures and indirect productivity losses (i.e., absenteeism-related costs, unemployment-related lost wages, and unemployment-related foregone tax revenue).

2.4 State-Level Estimation

State-level estimates were derived by translating national medical spending estimates using external state health spending benchmarks to generate state-level estimates that capture overall spending intensity rather than within-state variation in utilization patterns or practice styles. Absenteeism costs were not estimated at the state level due to MEPS public-use file limitations; state-level burden, therefore, includes direct medical spending, unemployment-related lost wages, and foregone tax revenue.

2.5 Analytic Scope and Interpretation

Analyses accounted for the complex MEPS survey design and used pooled variance files to generate nationally representative estimates. Associations between MH/SUDs and economic outcomes are descriptive and should not be interpreted as causal. Because untreated illness is not observed in MEPS, findings should be interpreted as conservative with respect to the full population burden. Additional details on data preparation, file construction, and variable harmonization are provided in **Attachment B**.

Chapter 3: Results

The following sections summarize estimates of the national economic impacts of MH/SUDs, the national economic impacts of MH/SUDs on the labor market, and the economic burden of MH/SUDs on the heartland region.

3.1 The Economic Impacts of MH/SUDs

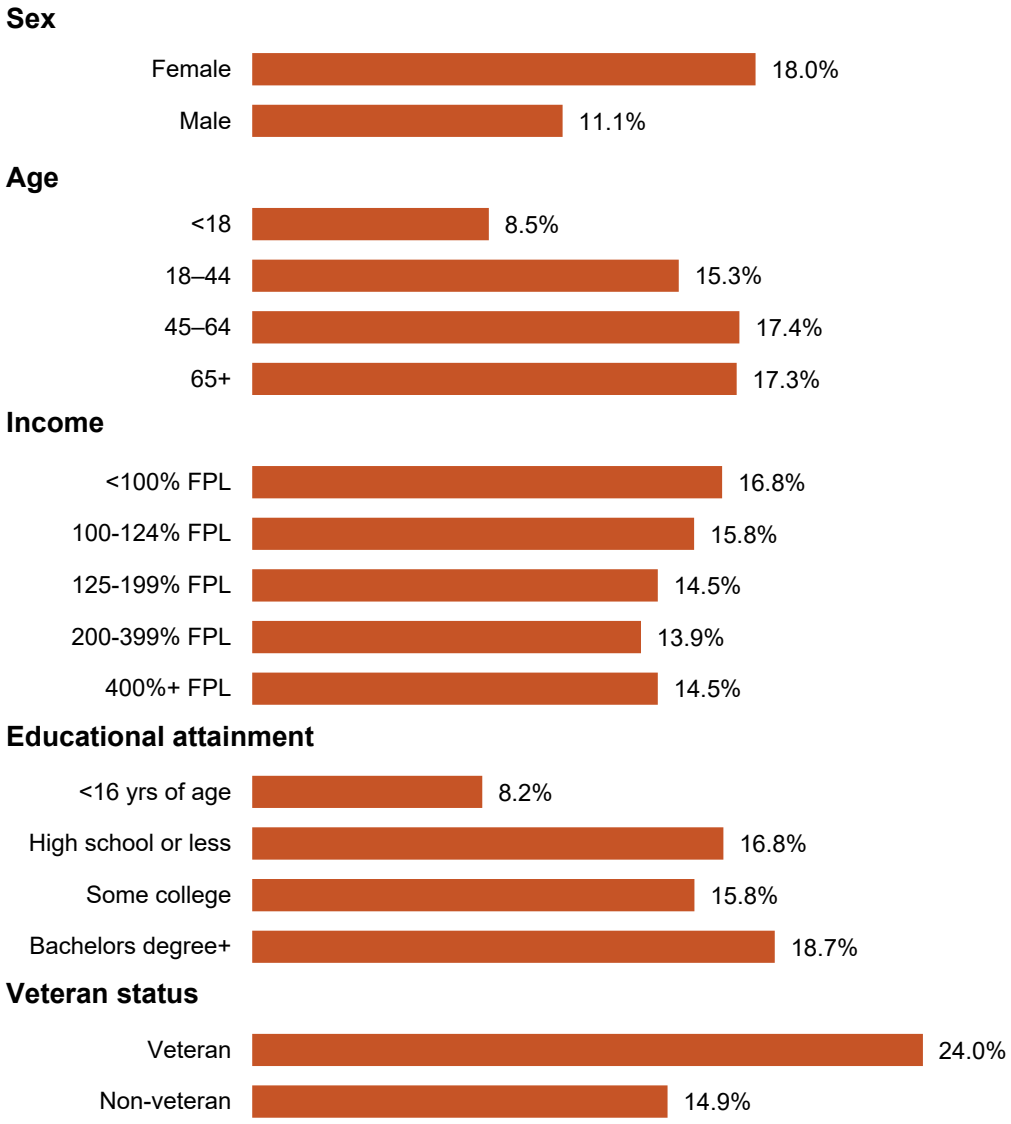
3.1.1 Treated Prevalence of MH/SUDs

MH/SUDs were prevalent across the U.S. population, with treated prevalence varying substantially by sex, age, income, educational attainment, and veteran status **(Exhibit 1)**. Treated prevalence was higher among females (18.0%) than among males (11.1%). Across age groups, prevalence increased steadily from 8.5% among children and adolescents younger than 18 years to 15.3% among adults aged 18–44 years and peaked at 17.4% among adults aged 45–64 years. Adults aged 65 years and older exhibited similarly high treated prevalence (17.3%).

Treated prevalence also varied by educational attainment, ranging from 8.2% among individuals younger than 16 years to 16.8% among those with a high school education or less, 15.8% among those with some college, and 18.7% among those with a bachelor's degree or higher. Across income groups, treated prevalence was highest among individuals living below 100% of the federal poverty level (16.8%) and declined modestly with increasing income, reaching 13.9% among those at 200–399% of the federal poverty level before rising slightly to 14.5% among individuals at or above 400% of the federal poverty level.

Veterans experienced a substantially higher treated prevalence of MH/SUDs than non-veterans. Nearly one in four veterans (24.0%) received treatment for a MH/SUD in a given year, compared with 14.9% among non-veterans, reflecting the elevated mental health burden observed in military populations.

Exhibit 1. Treated Prevalence of Mental Health and/or Substance Use Disorders, by Selected Sociodemographic Characteristics



SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

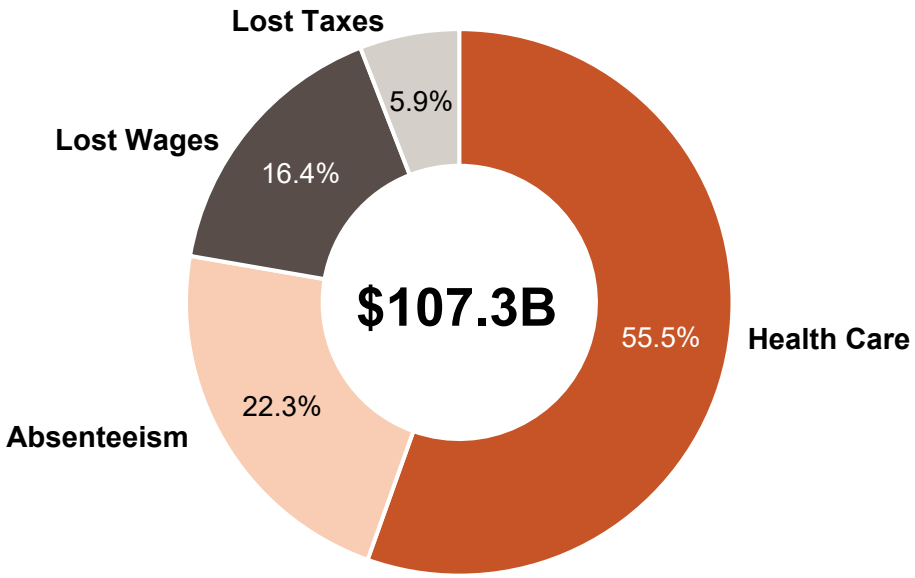
NOTE: Treated prevalence reflects recorded/treatment-linked cases, not underlying population prevalence.

3.1.2 Total Economic Burden

In 2023, MH/SUDs were associated with an estimated $107.3 billion in measurable economic burden in the U.S. Direct health care expenditures accounted for the largest share of total costs, totaling $59.5 billion (55.5% of total burden). Productivity losses represented the remaining 44.6% of total burden, reflecting substantial labor-market impacts. Absenteeism accounted for $23.9 billion (22.3%) of total costs, corresponding to the economic value of lost workdays among employed individuals with MH/SUDs. Unemployment-related lost wages totaled $17.6 billion (16.4%), reflecting reduced labor-

force participation among those with MH/SUDs. Foregone federal, payroll, and state income tax revenue contributed an additional $6.3 billion (5.9%) in fiscal losses **(Exhibit 2 & Attachment A, Exhibit A.1)**.

Exhibit 2. Measurable National Economic Burden of Treated Mental Health and/or Substance Use Disorders



SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTE: Total measurable burden is the sum of direct medical expenditures, absenteeism-related productivity losses, unemployment-related lost wages, and associated foregone tax revenue (nonoverlapping components). Dollar amounts are inflation-adjusted to 2023 dollars.

3.1.3 Economic Burden by Condition

The total economic burden of MH/SUDs is highly concentrated among a small number of high-prevalence conditions **(Exhibit 3)**. In 2023, depressive episodes and non-phobic anxiety disorders accounted for the largest share of national economic burden, with estimated annual costs of $35.5 billion and $32.5 billion, respectively. Together, these two conditions alone contributed approximately $68.0 billion in annual economic burden, representing nearly two-thirds of the total measurable burden across all MH/SUDs.

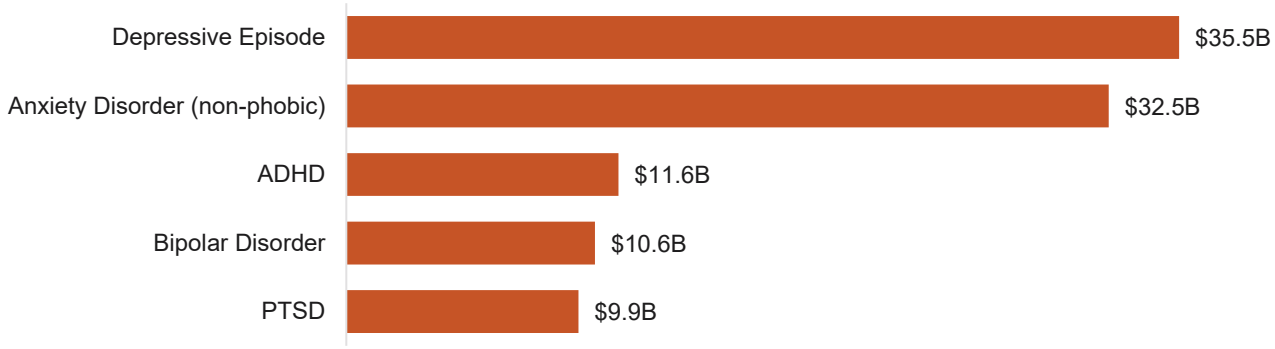
Several serious mental illnesses were associated with substantial economic burden despite much lower treated prevalence. Bipolar disorder corresponded to an estimated $10.6 billion in annual burden, while post-traumatic stress disorder (PTSD) and schizophrenia were linked to $9.9 billion and $4.2 billion, respectively. Attention-deficit/hyperactivity disorder (ADHD) was also accompanied by a sizable burden, with estimated annual costs of $11.6 billion.

SUDs accounted for a smaller share of the total measurable burden. Alcohol use disorder was linked to approximately $1.9 billion in annual economic burden, opioid use disorder to $1.0 billion, and nicotine

use disorder to $0.2 billion. Phobic anxiety disorders and conduct disorder similarly represented comparatively modest shares of aggregate burden, at approximately $0.4 billion and $1.1 billion, respectively.

Across all conditions combined, any MH/SUD was associated with $59.5 billion in direct health care expenditures nationally. A complete condition-by-condition breakdown of direct health care expenditures and total economic burden is provided in **Attachment A, Exhibit A.2**.

Exhibit 3. Measurable National Economic Burden of Selected Treated Mental Health Conditions



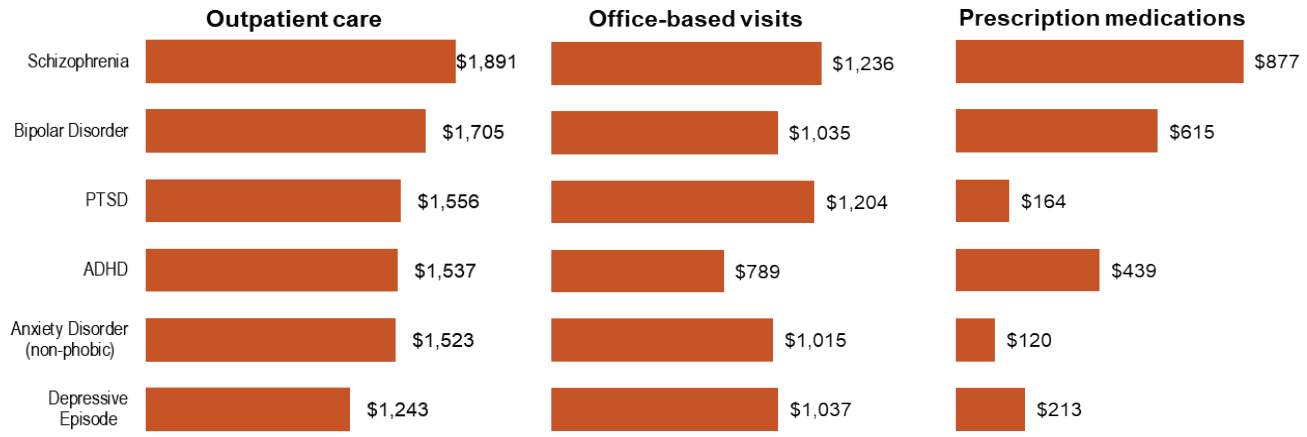
SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTE: Economic burden includes direct medical expenditures and productivity losses (absenteeism, unemployment-related lost wages, and foregone tax revenues). Condition-specific estimates are nonadditive because of comorbidity. PTSD = post-traumatic stress disorder; ADHD = attention-deficit/hyperactivity disorder.

Per-capita spending patterns differed substantially across mental health conditions and service channels, reflecting differences in clinical severity, treatment intensity, and care delivery models **(Exhibit 4)**. Across all conditions, outpatient hospital care represented the largest single component of per-capita spending. These estimates reflect outpatient hospital spending among individuals with treated MH/SUDs. Per-capita outpatient hospital spending was highest for schizophrenia ($1,891 annually), followed by bipolar disorder ($1,705), PTSD ($1,556), ADHD ($1,537), non-phobic anxiety disorders ($1,523), and depressive episodes ($1,243). Office-based visit spending exhibited a similar gradient. Schizophrenia and PTSD were associated with the highest office-based spending at $1,236 and $1,204 per affected individual, respectively, followed by depressive episodes ($1,037), bipolar disorder ($1,035), non-phobic anxiety disorders ($1,015), and ADHD ($789).

Prescription medication spending varied more sharply by diagnosis. Schizophrenia was associated with the highest per-capita medication spending at $877 annually, followed by bipolar disorder ($615) and ADHD ($439). In contrast, medication spending was substantially lower for depressive episodes ($213), PTSD ($164), and non-phobic anxiety disorders ($120). A full list of conditions and their per capita medical expenditures can be found in **Attachment A, Exhibit A.3 and Exhibit A.4**.

Exhibit 4. Per-Capita Expenditures Among Different Treated Mental Health Disorders, by Service Type



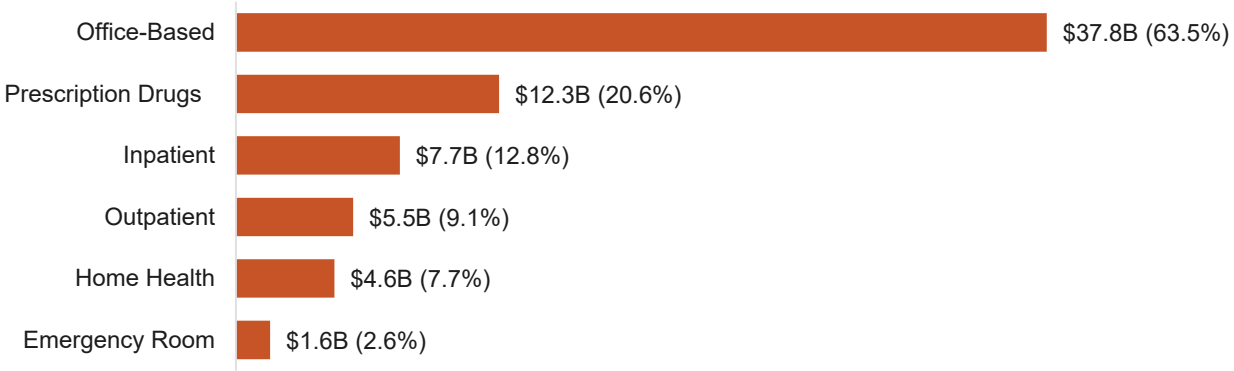
SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTE: Mean annual per-capita expenditures among individuals with treated MH/SUDs, by service type. Estimates reflect spending for individuals with each condition and are not additive due to comorbidity. PTSD = post-traumatic stress disorder; ADHD = attention-deficit/hyperactivity disorder.

3.1.4 Payer Distribution

Direct medical spending attributable to MH/SUDs is concentrated in outpatient and office-based settings and financed primarily through private insurance and public programs. Across all service categories, office-based care accounts for the largest share of MH/SUD-attributable medical spending, totaling approximately $37.8 billion annually (63.5%). Prescription medications represent the second-largest component at $12.3 billion (20.6%), reflecting the central role of long-term pharmacotherapy in the management of chronic mental health conditions. Inpatient hospitalizations account for $7.7 billion (12.8%), followed by outpatient hospital services at $5.5 billion (9.1%), home health services at $4.6 billion (7.6%), and emergency department visits at $1.6 billion (2.6%) **(Exhibit 5)**.

Exhibit 5. Distribution of Direct Medical Expenditures Linked to Treated Mental Health and/or Substance Use Disorders, by Service Type

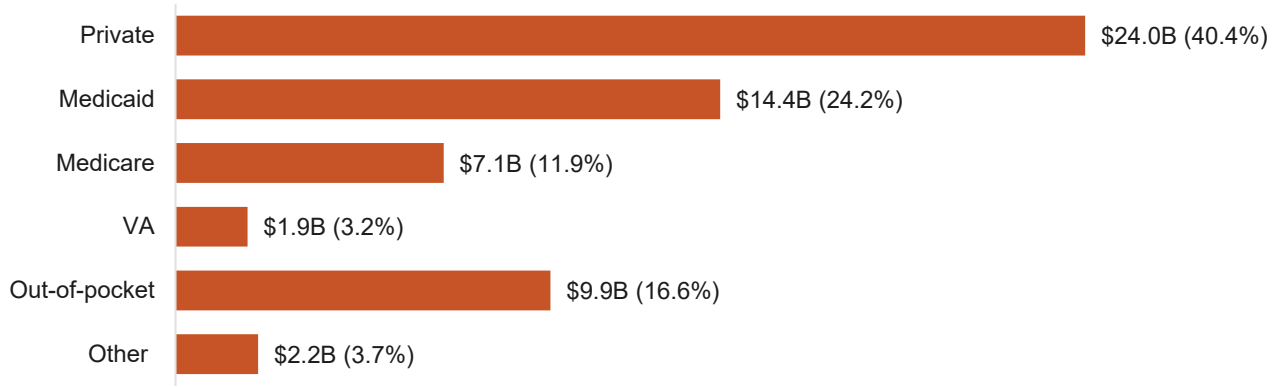


SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTE: Direct expenditures include spending on medical events explicitly linked to a qualifying MH/SUD diagnosis via MEPS event–condition linkages. Estimates are survey-weighted and inflation-adjusted to 2023 dollars.

Financing of MH/SUD-related medical care is shared across private insurance, public programs, and households. Private insurance finances the largest share of spending, accounting for approximately $24.0 billion (40.4%) of total MH/SUD-attributable medical expenditures. Medicaid finances $14.4 billion (24.2%), reflecting the concentration of MH/SUDs among lower-income populations and individuals with disabilities. Medicare accounts for $7.1 billion (11.9%), driven largely by beneficiaries with chronic and disabling mental health conditions. Out-of-pocket spending represents a substantial burden for households, totaling $9.9 billion (16.6%) annually. The Department of Veterans Affairs finances $1.9 billion (3.2%) in MH/SUD care, reflecting the elevated burden of mental health conditions among veteran populations. Other payers, including state and local programs and miscellaneous sources, account for the remaining $2.2 billion (3.7%) **(Exhibit 6)**.

Exhibit 6. Payer Distribution of Direct Medical Expenditures Linked to Treated Mental Health and/or Substance Use Disorders



SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTE: Direct expenditures include spending on medical events explicitly linked to a qualifying MH/SUD diagnosis via MEPS event–condition linkages. Estimates are survey-weighted and inflation-adjusted to 2023 dollars. Other includes TRICARE, state and local government programs, other federal programs, workers' compensation, and other private insurance.

3.2. Labor Market Impacts

In addition to direct health care costs, MH/SUDs can have indirect costs on the labor market. MH/SUDs impact absenteeism, unemployment, workforce exit, lost wages, and lost tax revenue.[30]

3.2.1 Absenteeism

MH/SUDs can lead to absenteeism, or chronic absence from work, among individuals who are employed. MH and SUDs are associated with an estimated 154 million lost workdays annually. At an average daily wage of $155, these lost workdays translate to $23.9 billion in absenteeism costs. Given that many individuals with a MH disorder or SUD are not employed, the per-worker impact estimate among employed individuals may be higher than the population average **(Attachment A, Exhibit A.5)**.

Patterns of absenteeism vary across conditions. Depressive episodes and non-phobic anxiety disorders account for the largest shares of total absenteeism-related costs among individuals with MH/SUDs, reflecting their high treated prevalence and elevated levels of missed workdays. Depressive episodes are associated with approximately $13.0 billion in absenteeism-related costs and an average of 3.99 missed workdays per affected worker annually, while non-phobic anxiety disorders are associated with approximately $12.8 billion and 3.22 missed workdays annually. PTSD, despite lower treated prevalence, is associated with the highest mean number of missed workdays per affected worker (4.03 days annually), corresponding to approximately $3.3 billion in absenteeism-related costs. Additional costs are observed among individuals with ADHD ($2.4 billion), bipolar disorder ($2.1 billion), schizophrenia ($0.3 billion), and SUDs ($968.2 million) **(Attachment A, Exhibit A.5)**.

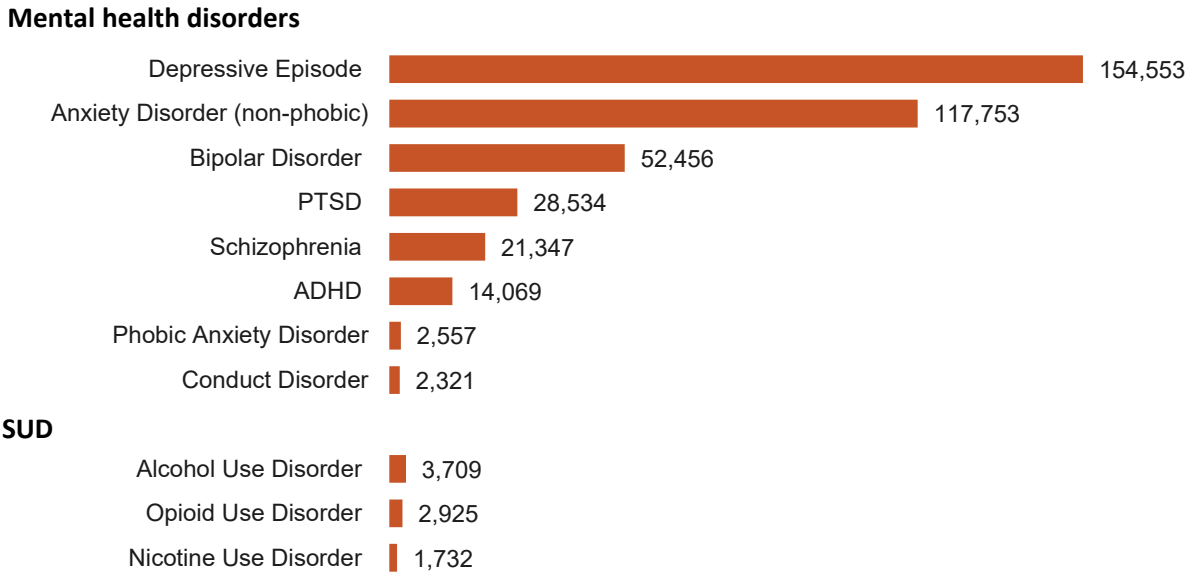
3.2.2 Unemployment & Workforce Exit

MH/SUDs were associated with an estimated 243,759 unemployed individuals nationally in 2023 among those with any treated MH or SUD. This aggregate measure reflects unemployment among individuals with treated MH/SUDs **(Attachment A, Exhibit A.6)**.

Exhibit 7 presents unemployment among individuals with selected MH and SUD diagnoses to illustrate how unemployment is distributed across conditions within the MH/SUD population. Because comorbidity is common, condition-specific categories are not mutually exclusive and are intended for descriptive comparison rather than additive interpretation. Depressive episodes and anxiety disorders are the most prevalent diagnoses among unemployed individuals with MH/SUDs, consistent with their high treated prevalence and broad functional impact. An estimated 154,553 unemployed individuals have a treated depressive episode, and approximately 117,753 unemployed individuals have a treated anxiety disorder. These counts reflect overlap across conditions and should not be interpreted as isolating independent effects of each diagnosis. Several lower-prevalence but higher-severity conditions are also prevalent among unemployed individuals, including bipolar disorder (52,456), PTSD (28,534), schizophrenia (21,347), and ADHD (14,069). These conditions are characterized by substantial functional impairment and an elevated likelihood of labor-force detachment.

Substance use disorders are present among smaller numbers of unemployed individuals, including alcohol use disorder (3,709) and opioid use disorder (2,925). Phobic anxiety disorder (2,557), conduct disorder (2,321), and nicotine use disorder (1,732) are present among comparatively fewer unemployed individuals **(Exhibit 7)**.

Exhibit 7. Distribution of Unemployment Among Individuals With Treated Mental Health and/or Substance Use Disorders, by Selected MH/SUDs



SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023)

NOTE: Condition categories are not mutually exclusive because of comorbidity. Dollar amounts are inflation-adjusted to 2023 dollars. PTSD = post-traumatic stress disorder; ADHD = attention-deficit/hyperactivity disorder; MH = mental health; SUD = substance use disorder.

Unemployment among individuals with MH/SUDs is associated with substantial foregone earnings. Nationally, lost wages related to unemployment among individuals with MH/SUDs amount to an estimated $17.6 billion annually **(Attachment A, Exhibit A.1)**.

As shown in **Table 1**, lost wages are concentrated among conditions that are highly prevalent among unemployed individuals with MH/SUDs, including depressive episodes (approximately $1.4 billion) and anxiety disorders ($1.1 billion). Several lower-prevalence but higher-severity conditions are also associated with meaningful wage losses, including bipolar disorder ($478.9 million), PTSD ($260.5 million), schizophrenia ($194.4 million), and attention-deficit/hyperactivity disorder ($128.4 million).

SUDs account for a smaller but measurable share of total wage losses, including $33.9 million associated with alcohol use disorder and $26.7 million associated with opioid use disorder. Phobic anxiety disorder, conduct disorder, and nicotine use disorder are each associated with smaller aggregate wage losses.

Table 1. Annual Lost Wages Among Unemployed Individuals With Treated Mental Health and/or Substance Use Disorders, by Condition

Condition	Lost Wages
Depressive Episode	$1.4B
Anxiety Disorder (non-phobic)	$1.1B
Bipolar Disorder	$478.9M
PTSD	$260.5M
Schizophrenia	$194.9M
ADHD	$128.4M
Alcohol Use Disorder	$33.9M
Opioid Use Disorder	$26.7M
Phobic Anxiety Disorder	$23.3M
Conduct Disorder	$21.2M
Nicotine Use Disorder	$15.8M

SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTE: Lost wages reflect earnings among unemployed individuals with treated MH/SUDs and represent descriptive associations, not causal effects. Condition categories are not mutually exclusive because of comorbidity. Dollar amounts are inflation-adjusted to 2023 dollars. PTSD = post-traumatic stress disorder; ADHD = attention-deficit/hyperactivity disorder.

3.2.3 Tax Revenue Losses

Lost wages due to unemployment also impact tax revenue. The estimated annual cost of lost tax revenue associated with MH/SUD-related unemployment is approximately $6.3 billion, including $3.0 billion in federal income taxes, $2.4 billion in payroll taxes, and $0.9 billion in state income taxes **(Table 2)**.

Table 2. Foregone Tax Revenue Associated With Unemployment Among Individuals With Treated Mental Health and/or Substance Use Disorders

Tax Type	Revenue Loss
Federal Income Taxes	$3.0B
Payroll Taxes	$2.4B
State Income Taxes	$0.9B
Total Lost Tax Revenue	**$6.3B**

SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTE: Revenue losses reflect reduced earnings among unemployed individuals with treated MH/SUDs and represent descriptive associations, not causal effects. Estimates are based on the application of effective federal, payroll, and state income tax rates to lost wages. Dollar amounts are inflation-adjusted to 2023 dollars.

3.3 Heartland Region Findings

3.3.1 Total & Per-Capita Economic Burden by State

This study shows that MH/SUDs impose a substantial and uneven economic burden across the seven heartland states, reflecting differences in population size, labor markets, health care capacity, and access to behavioral health services. In 2023, the measurable economic burden associated with treated MH/SUDs across Arkansas, Illinois, Indiana, Kansas, Missouri, Oklahoma, and Tennessee was approximately $11.2 billion, capturing direct medical expenditures and unemployment-related productivity losses (lost wages and associated foregone tax revenue). Illinois bears the largest share of the regional burden, with an estimated $3.7 billion in annual costs, accounting for approximately one-third of the total heartland burden. Indiana follows with $1.8 billion, while Tennessee and Missouri contribute $1.7 billion and $1.5 billion, respectively. Oklahoma accounts for $0.9 billion, and Arkansas and Kansas each account for approximately $0.7 billion annually **(Table 3)**.

Table 3. Total and Per-Capita Economic Burden Associated With Treated Mental Health and/or Substance Use Disorders in Heartland States

State	Total Economic Burden	Per-Capita Economic Burden
Arkansas	$0.7B	$14.6
Illinois	$3.7B	$76.9
Indiana	$1.8B	$38.1
Kansas	$0.7B	$14.2
Missouri	$1.5B	$31.6
Oklahoma	$0.9B	$19.6
Tennessee	$1.7B	$35.2

SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

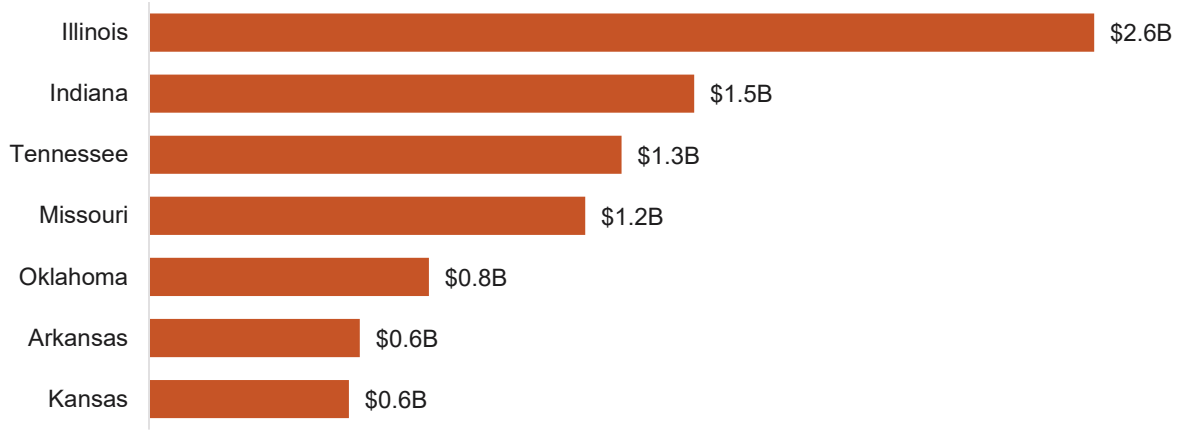
NOTE: State measurable burden includes direct medical expenditures, unemployment-related lost wages, and associated foregone tax revenue; absenteeism is excluded as MEPS public-use files do not support reliable state-level estimates of missed workdays.

3.3.2 Drivers of Regional Variation

Direct medical spending associated with treated MH/SUDs represents a substantial component of the measurable economic burden across the seven heartland states. In 2023, MH/SUD-associated health care expenditures across Arkansas, Illinois, Indiana, Kansas, Missouri, Oklahoma, and Tennessee totaled approximately $8.6 billion, reflecting differences in population size and overall health care spending intensity across states. Illinois accounts for the largest share of regional MH/SUD-associated medical spending, with an estimated $2.6 billion, representing nearly one-third of heartland medical costs. Indiana follows with $1.5 billion, while Tennessee and Missouri account for approximately $1.3

billion and $1.2 billion, respectively. Oklahoma contributes about $0.8 billion, and Arkansas and Kansas each account for roughly $0.6 billion in annual MH/SUD-associated medical spending **(Exhibit 8)**.

Exhibit 8. Average Annual Health Care Spending on Treated Mental Health and/or Substance Use Disorders, by State



SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTES: Absenteeism is excluded as MEPS public-use files do not support reliable state-level estimates of missed workdays. Estimates are based on the application of effective federal, payroll, and state income tax rates to lost wages. Dollar amounts are inflation-adjusted to 2023 dollars.

Treated MH/SUDs are associated with substantial labor-market and fiscal burdens across the seven heartland states. In 2023, unemployment among individuals with MH/SUDs corresponded to approximately 28,400 affected workers across Arkansas, Illinois, Indiana, Kansas, Missouri, Oklahoma, and Tennessee. These labor-market impacts were associated with an estimated $1.9 billion in lost wages and more than $680.1 million in foregone federal, state, and payroll tax revenue. Illinois accounts for the largest share of regional workforce losses, with approximately 10,900 affected workers and $812.7 million in lost wages, along with more than $311 million in foregone tax revenue. Indiana and Tennessee follow, each with roughly 4,300 affected workers and more than $250 million in associated lost wages. Arkansas and Kansas each account for approximately 1,600 to 1,700 affected workers and roughly $90 to $96 million in lost wages annually **(Table 4)**.

Across the seven heartland states, foregone public revenues represent a meaningful fiscal consequence of labor-market disruption among individuals with MH/SUDs. In 2023, unemployment among individuals with MH/SUDs was associated with approximately $318 million in lost federal income tax revenue, $256 million in lost payroll tax revenue, and $106 million in lost state income tax revenue.

Table 4. Workforce and Fiscal Impacts of Treated Mental Health and/or Substance Use Disorders in Heartland States

State	Attributable Unemployment (Persons)	Lost Wages	Lost Federal Income Tax	Lost State Income Tax	Lost Payroll Tax
Arkansas	1,614	$89.9M	$15.3M	$4.7M	$12.3M
Illinois	10,889	$812.7M	$137.9M	$62.4M	$111.0M
Indiana	4,347	$259.3M	$44.0M	$11.3M	$35.4M
Kansas	1,648	$96.3M	$16.3M	$6.5M	$13.1M
Missouri	3,358	$207.2M	$35.2M	$10.4M	$28.3M
Oklahoma	2,256	$127.1M	$21.6M	$6.4M	$17.4M
Tennessee	4,319	$279.5M	$47.4M	$4.1M	$38.2M
Total	28,431	$1.87B	$317.7M	$105.7M	$255.7M

SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTE: Lost wages, federal income tax, state income tax, and payroll tax are displayed in 2023 dollars.

Chapter 4: Considerations for Policy and Practice

4.1 Results Overview

This analysis documents a substantial measurable economic burden observed among individuals with treated MH/SUDs in the U.S. and across seven heartland states. This burden reflects both direct medical expenditures and productivity-related losses, including absenteeism, unemployment-related wage loss, and foregone tax revenue, observed among individuals with MH/SUDs. In 2023, MH/SUDs were associated with an estimated $107.3 billion in measurable national economic burden, comprising $59.5 billion in direct health care spending and $47.7 billion in productivity losses related to absenteeism, unemployment, and foregone tax revenue.

Across conditions, anxiety disorders and depressive episodes account for the largest share of the measurable burden. Together, these two conditions account for approximately $68.0 billion in annual economic burden, including $35.5 billion associated with depressive episodes and $32.5 billion attributable to non-phobic anxiety disorders. These patterns largely reflect the combination of high treated prevalence and sustained treatment needs, including long-term pharmacotherapy, psychotherapy, and recurrent outpatient care.[31,32] Although conditions such as bipolar disorder, schizophrenia, and PTSD are associated with higher per-person costs, their lower population treated prevalence results in a smaller aggregate economic impact. In contrast, anxiety and depression affect large segments of the working-age population, with treated prevalence of 7.9% for non-phobic anxiety

disorders and 6.7% for depressive episodes, and are associated with persistent functional impairment, making them the dominant contributors to both health care spending and productivity losses.[33]

At the financing level, Medicaid is the primary payer for MH/SUD care and bears a disproportionate share of MH/SUD-related medical expenditures relative to its enrollment share. Results from this analysis indicate that, nationally, Medicaid finances approximately $14.4 billion (24.2%) of MH/SUD-associated medical spending, compared with $24.0 billion (40.4) financed by private insurance and $7.1 billion (11.9%) financed by Medicare. Estimates from prior research follow a similar pattern, where private insurance paid for the largest share of MH/SUD care ($33.9 billion or 31.8%), followed by Medicaid ($27.6 billion or 25.9%) and Medicare ($20.4 billion or 19.1%) in 2019.[34] This pattern reflects the concentration of MH/SUDs among lower-income populations and individuals with disabilities, who are more likely to qualify for Medicaid coverage.[35,36] Elevated clinical severity, higher rates of comorbidity, and greater reliance on publicly financed behavioral health services contribute to Medicaid's outsized role in financing MH/SUD treatment.[37] Medicare's somewhat lower total contribution may also reflect the more limited scope of Medicare's behavioral health benefit relative to Medicaid, as well as Medicaid's role as payer of last resort for many dually eligible beneficiaries, which shifts a substantial portion of MH/SUD financing to Medicaid.[38,39] These findings underscore Medicaid's central role in the behavioral health safety net.[40]

The productivity losses estimated in this report reflect the labor market impacts experienced by individuals treated MH/SUDs.[41,42,43] Nationally, MH/SUDs are associated with approximately 154 million lost workdays annually, corresponding to $23.9 billion in absenteeism costs, as well as $17.6 billion in unemployment-related lost wages and $6.3 billion in foregone tax revenue. Prior research shows that higher symptom severity is associated with elevated risks of unemployment, increased absenteeism, and reduced work capacity.[44] These effects are not attributable to treatment failure, but rather to delayed engagement in care and unmet need among individuals whose conditions have progressed to clinically significant functional impairment. Earlier identification and timely intervention may reduce downstream productivity losses and help prevent long-term detachment from the workforce.[45]

At the regional level, the heartland accounts for a smaller share of the measurable national burden than would be expected based on population size alone. In 2023, the heartland region accounted for approximately $11.2 billion in measurable economic burden, compared with $107.3 billion nationally. This discrepancy is unlikely to reflect lower underlying treated prevalence. Rather, it is consistent with lower recorded utilization, reduced access to specialty care, thinner provider networks, and higher rates of untreated illness in rural and underserved communities.[46,47] As a result, a substantial portion of the region's true burden likely remains unobserved in administrative and survey-based medical spending data.

Compared with the national estimate, the heartland states have a greater proportion of direct medical spending. Approximately 55.5% of the national economic burden was associated with direct medical spending. In the heartland region, nearly 77.5% of the overall economic burden was associated with direct medical spending. The greater proportion of direct medical spending in the heartland region

relative to the national average may reflect a number of factors related to the challenges of health care access and delivery in rural areas.

There was state-level variation in the economic burden of MH/SUDs across the heartland region, reflecting differences in population size, labor markets, health care capacity, and access to behavioral health services. Among the seven heartland states included in the analysis, Illinois emerged as having the largest share of medical spending ($2.6 billion) and workforce losses ($1.1 billion).

4.2 Implications for Policy & Investment

4.2.1 Prevention & Early Treatment

These findings have several implications for policymakers, health system leaders, employers, and state agencies seeking to mitigate the economic and workforce impacts of MH/SUDs. Given the contribution of anxiety and depression to the overall economic burden, prevention, early identification, and timely treatment are frequently examined in the literature as potential areas of focus. Because these conditions are highly prevalent and often begin in adolescence or early adulthood interventions that delay onset, shorten episode duration, or prevent recurrence have the potential to generate large downstream savings in both medical spending and productivity losses.[48,49] Screening in primary care, school-based MH programs, and employer-based behavioral health initiatives may represent important points of early engagement.[50,51,52]

4.2.2 Workforce Retention

From a workforce perspective, the magnitude of labor-market disruption associated with MH/SUDs underscores the role of MH as an economic issue as much as a clinical one. Lost wages, unemployment-related exits from the labor force, and absenteeism represent nearly half of the total economic burden. These findings suggest that policies integrating clinical care with employment supports, workplace accommodations, and return-to-work programs may yield economic returns beyond the health sector.[53] For employers and state workforce agencies, investments in MH may function as a form of workforce stabilization.[54]

4.2.3 Targeting High-Impact Conditions

At the system level, targeting high-impact conditions may improve the efficiency of public and private spending. Although serious mental illnesses such as schizophrenia and bipolar disorder affect fewer individuals, with treated prevalence below 1% for each condition, they generate high per-capita costs and are associated with elevated hospitalization rates and sustained unemployment.[55] Conversely, anxiety and depression drive the largest aggregate burden due to their scale. Prior research suggests that both population-based approaches and targeted services for high-acuity populations are commonly considered in efforts to address overall economic burden.

4.3 Population Considerations

4.3.1 Rural & Underserved Access

The burden of MH/SUDs is not evenly distributed across populations or geographies. The heartland region includes a high concentration of rural and medically underserved communities alongside several large metropolitan areas. In rural and underserved communities, persistent provider shortages, hospital closures, long travel distances, and limited broadband access constrain both in-person and telehealth service delivery.[56,57]

Barriers to accessing care in rural communities contribute to delayed diagnosis and episodic, crisis-driven care, including greater reliance on emergency and inpatient services.[58,59] Across the heartland states, direct medical spending on MH/SUDs alone exceeds $8.6 billion annually, despite substantially lower recorded utilization than would be expected based on population share. This pattern is consistent with reduced access to diagnosis and treatment in rural and underserved areas, due in part to thinner provider networks and reduced MH and SUD specialty access, compared with non-rural areas. In addition to reduced access to care, stigma associated with MH and SUDs can prevent individuals from seeking treatment.[60] As a result, rural residents are more likely to experience untreated or undertreated illness, with downstream consequences for employment stability and household income.[61,62,63]

Policies that aim to mitigate barriers and expand access to care in rural areas can help. For example, the Certified Community Behavioral Health Clinic (CCBHC) model was designed to improve access to behavioral health care to any person who requests it, regardless of the person's place of residence, age, or ability to pay.[64] CCBHCs use various strategies to increase access to care, such as expanding operating hours, accommodating same-day appointments, providing care in individuals' homes and communities, and providing outreach to underserved populations. Several heartland states included in this analysis—Illinois, Indiana, Kansas, Missouri, and Oklahoma—have adopted the CCBHC model to promote access to MH and SUD care.[65,66]

4.3.2 Income & Insurance Disparities

Across income and insurance groups, disparities in access to care translate into unequal financial and health risks. Individuals with lower incomes are more likely to experience MH/SUDs, rely on Medicaid, and face disruptions in employment due to untreated symptoms.[67] Treated prevalence is nearly four times higher among Medicaid beneficiaries (16.9%) than among uninsured individuals (5.1%), a pattern that likely reflects barriers to accessing care rather than underlying need. Having inadequate insurance coverage and/or high-deductible health insurance plans can also pose barriers to accessing care. Uninsured individuals appear to have lower recorded prevalence in survey data, a pattern that likely reflects underdiagnosis rather than lower need.[68,69] This underrepresentation may mask a segment of the population with high unmet need and limited engagement with the formal health system.

4.3.3 Untreated Need

At the population level, untreated MH/SUDs remain a defining feature of the U.S. MH landscape. Prior national studies consistently show that nearly half of adults with high psychological distress do not receive treatment each year, with particularly large treatment gaps for those with anxiety disorders and SUDs.[70,71] Untreated illness has been linked to higher rates of crisis care, labor-force exit, and long-term disability.[72,73] This body of evidence underscores the importance of access, affordability, and continuity of care as central components of any strategy to reduce both clinical and economic burden.[74,75,76]

Chapter 5: Limitations

This study has limitations that should be considered when interpreting the results. The analysis relies on using MEPS data, which represent the civilian, noninstitutionalized U.S. population and captures treated and recorded cases linked to medical events. As a result, individuals who are institutionalized, unhoused, or receiving care outside of the formal health care system are not included. Because untreated MH/SUDs remain widespread, particularly in rural and underserved communities, our estimates should be interpreted as conservative and likely understate the full societal burden.

MH conditions and SUDs were identified based on at least one linked medical event with a qualifying diagnosis in a given person-year. This single-event definition was used to maximize sensitivity and maintain consistency with prior MEPS-based economic burden and utilization studies. Estimates, therefore, reflect treated cases observed in the health care system and may differ from true underlying prevalence.

State-level estimates exclude absenteeism costs due to limitations in the public-use MEPS files, which do not support reliable attribution of missed workdays at the state level. Accordingly, heartland state totals reflect measurable components only: direct medical spending, unemployment-related lost wages, and foregone tax revenue. Inclusion of absenteeism would increase total regional costs and likely widen observed state-level differences.

The analysis does not capture informal care costs, including unpaid caregiving provided by family members and lost household productivity. Prior research suggests that informal caregiving represents a substantial and often unmeasured component of the economic burden of MH and SUDs.[77] Exclusion of these costs further contributes to conservative estimates.

Although established attribution methods are used, including event-level diagnosis linkage for medical spending and population-attributable fractions for unemployment, the results should be interpreted as descriptive rather than causal. We do not directly observe whether absenteeism or unemployment was caused by MH/SUDs; rather, we estimate these outcomes among individuals with treated MH/SUDs and compare them to counterfactual predictions in the absence of the condition. The cross-sectional

nature of MEPS does not allow the determination of temporal ordering or causal direction; it is not possible to determine whether MH/SUD onset preceded adverse labor market outcomes or vice versa. Unobserved factors such as early-life adversity, educational attainment, housing instability, and local labor market conditions may jointly influence MH status and economic outcomes.[78,79]

Comparisons across states should be interpreted with caution. State-level estimates are derived by translating national MEPS estimates using external benchmarks for health spending and labor market conditions. While this approach ensures internal consistency and comparability, it does not fully capture within-state variation in prices, practice patterns, provider availability, insurance benefit design, or workforce capacity. Observed differences therefore reflect a combination of true burden, access patterns, and measurement constraints.

Finally, comorbidity across MH conditions and SUDs is common. Although union categories are used to estimate total burden without double-counting, condition-specific estimates are not additive and should be interpreted as descriptive indicators of relative contribution rather than independent components of total burden. This comorbidity limits the ability to isolate the unique economic contribution of any single condition.

Chapter 6: Conclusion

MH/SUDs impose a significant economic burden on both the U.S. and the heartland region. In 2023, an estimated 48.1 million individuals—14.6% of the U.S. population—received treatment for a MH/SUD, contributing to an overall measurable economic burden of approximately $107.3 billion nationally and $11.2 billion across the seven heartland states. These costs stem not only from direct medical expenditures but also from productivity losses, including absenteeism and unemployment-related lost wages and tax revenue. Direct medical spending accounted for approximately $59.5 billion nationally, while productivity losses accounted for an additional $47.7 billion, underscoring the scale of the workforce and fiscal impacts. Findings from this report demonstrate that MH/SUDs are as much an economic issue as they are a clinical one.

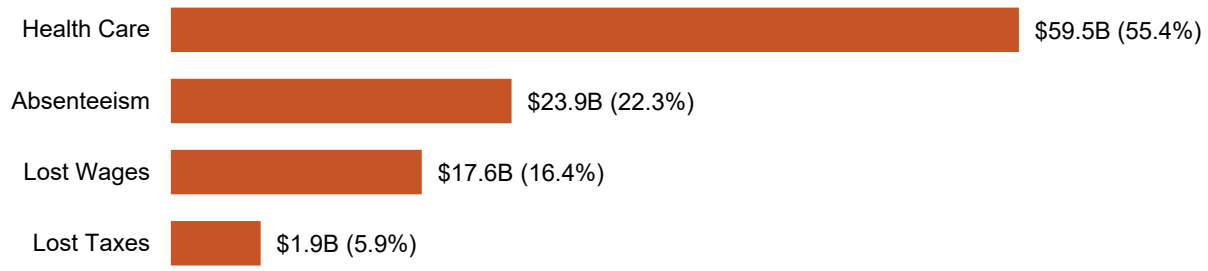
Despite the availability of MH/SUD treatments, unmet treatment needs remain high, particularly in rural and underserved communities facing structural barriers such as shortages of primary care physicians and behavioral health specialists, along with hospital closures, and broadband gaps. In the heartland region, lower recorded utilization and thinner provider networks contribute to a smaller measured share of national burden than would be expected based on population alone, suggesting that a substantial portion of the region’s true burden remains untreated and unobserved. Stigma surrounding mental illness and substance use, often more pronounced in rural communities, further constrains engagement with services. Together, these structural and social barriers indicate that much of the observed economic burden is preventable through strategies that expand access, strengthen the behavioral health workforce, and reduce stigma to facilitate earlier identification and sustained treatment.

Expanded access to timely, evidence-based mental and behavioral health care is frequently identified in the literature as a factor associated with reduced avoidable costs, improved workforce participation, and long-term economic outcomes. Strategies examined in prior research include investments in clinical infrastructure, workforce capacity, and telehealth. Coordination across policy, employer, health system, and community contexts may influence the effectiveness and sustainability of such approaches.

Attachments

Attachment A. Additional Exhibits

Exhibit A.1. National Measurable Economic Burden of Treated Mental Health and/or Substance Use Disorders



SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTE: Total measurable burden includes direct medical expenditures, absenteeism costs, unemployment-related lost wages, and foregone tax revenue.

Exhibit A.2. Condition-Specific Measurable Economic Burden Associated With Treated Mental Health and/or Substance Use Disorders

Condition	Total Economic Burden
Depressive Episodes	$35.5B
Anxiety Disorder (non-phobic)	$32.5B
Phobic Anxiety Disorder	$0.4B
PTSD	$9.9B
Bipolar Disorder	$10.6B
ADHD	$11.6B
Schizophrenia	$4.2B
Conduct Disorder	$1.1B
Alcohol Use Disorder	$1.9B
Opioid Use Disorder	$1.0B
Nicotine Use Disorder	$0.2B

SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTE: Condition-specific estimates are nonadditive because of comorbidity. PTSD = post-traumatic stress disorder; ADHD = attention-deficit/hyperactivity disorder.

Exhibit A.3. Per-Capita Expenditures on Prescription Medications, Office-based Visit, and Outpatient Care by Treated Mental Health and Substance Use Disorders

Condition	Prescription Medication Spending, Per-Capita	Office-Based Visit Spending, Per-Capita	Outpatient Spending, Per-Capita
Any MH/SUD	$300	$1,482	$2,059
Depressive Episode	$213	$1,037	$1,243
Anxiety Disorder (non-phobic)	$120	$1,015	$1,523
Phobic Anxiety Disorder	$128	$762	N/A
PTSD	$164	$1,204	$1,556
Bipolar Disorder	$615	$1,035	$1,705
Schizophrenia	$877	$1,236	$1,891
Conduct Disorder	$146	$1,154	N/A
ADHD	$439	$789	$1,537
Alcohol Use Disorder	$119	$2,437	N/A
Opioid Use Disorder	$551	$6,225	N/A
Nicotine Use Disorder	$255	N/A	N/A

SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTE: N/A indicates estimates suppressed due to insufficient MEPS sample size, consistent with MEPS reliability and disclosure standards. Estimates are not additive across conditions because of comorbidity. SUD = substance use disorder; PTSD = post-traumatic stress disorder; ADHD = attention-deficit/hyperactivity disorder.

Exhibit A.4. Per-Capita Expenditures on Inpatient Care, ED, and Home Health by Treated Mental Health and Substance Use Disorders

Condition	Inpatient Care Spending, Per-Capita	ED Spending, Per-Capita	Home Health Spending, Per-Capita
Any MH/SUD	$12,179	$1,471	$5,435
Depressive Episode	$7,652	$823	$3,284
Anxiety Disorder (non-phobic)	$6,802	$1,517	$2,957
Phobic Anxiety Disorder	N/A	N/A	N/A
PTSD	$11,667	$833	$2,239
Bipolar Disorder	$8,449	N/A	$4,372
Schizophrenia	N/A	N/A	$5,292
Conduct Disorder	N/A	N/A	N/A
ADHD	N/A	N/A	$5,328
Alcohol Use Disorder	N/A	N/A	N/A
Opioid Use Disorder	N/A	N/A	N/A
Nicotine Use Disorder	N/A	N/A	N/A

SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTE: N/A indicates estimates suppressed due to insufficient MEPS sample size, consistent with MEPS reliability and disclosure standards. Estimates are not additive across conditions because of comorbidity. ED = emergency department; SUD = substance use disorder; PTSD = post-traumatic stress disorder; ADHD = attention-deficit/hyperactivity disorder.

Exhibit A.5. Absenteeism Outcomes and Costs Among Individuals With Treated Mental Health and/or Substance Use Disorders, by Condition

Condition	Population	Average Days Missed	Average Daily Wage	Absentee Cost Per-Capita	Total Cost of Absenteeism
Any MH or SUD	48,124,113	3	$155	$496	$23.9B
MH and SUD	385,686	13	$143	$1,810	$698.1M
Any MH disorder	**47,903,046**	**3**	**$155**	**$492**	**$23.6B**
Anxiety Disorder (non-phobic)	26,004,626	3	$153	$494	$12.8B
Depressive Episode	22,050,614	4	$149	$595	$13.1B
ADHD	8,869,341	2	$154	$275	$2.4B
PTSD	5,169,848	4	$157	$632	$3.3B
Bipolar Disorder	2,713,447	6	$124	$767	$2.1B
Schizophrenia	600,262	6	$83	$530	$317.9M
Conduct Disorder	474,823	1	$84	$74	$35.1M
Phobic Anxiety	173,003	1	$106	$115	$19.8M
Any SUD	**606,753**	**11**	**$147**	**$1,596**	**$968.2M**
Alcohol Use Disorder	370,876	12	$155	$1,900	$704.5M
Nicotine Use Disorder	127,755	4	$137	$504	$64.4M
Opioid Use Disorder	111,304	9	$127	$1,145	$127.4M

SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTE: Missed workdays reflect days missed among employed individuals with the listed treated condition and represent descriptive associations, not causal effects. Condition categories are not mutually exclusive because of comorbidity. MH disorders and SUD includes only those with both MH and SUD conditions. PTSD = post-traumatic stress disorder; ADHD = attention-deficit/hyperactivity disorder; SUD = substance use disorder.

Exhibit A.6. Estimated Unemployment Counts Associated With Treated Mental Health and/or Substance Use Disorders

Condition	Attributable Unemployment
Any MH/SUD	243,759
Any MH disorder	241,333
Any SUD	8,239
MH and SUD	6,393

SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTES: Dollar amounts are inflation-adjusted to 2023 dollars. MH disorders and SUDs includes only those with both MH and SUD conditions.

Exhibit A.7. Treated Prevalence by Mental Health and/or Substance Use Disorders

Condition	Treated Prevalence	Affected Population (millions)
Any MH or SUD	14.6%	48.12
Depressive Episode	6.7%	22.05
Anxiety Disorder (non-phobic)	7.9%	26.00
Phobic Anxiety Disorder	0.1%	0.17
PTSD	1.6%	5.17
Bipolar Disorder	0.8%	2.71
ADHD	2.7%	8.87
Schizophrenia	0.2%	0.60
Conduct Disorder	0.1%	0.47
Alcohol Use Disorder	0.1%	0.37
Opioid Use Disorder	0.03%	0.11
Nicotine Use Disorder	0.04%	0.13

SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTE: Treated prevalence reflects recorded/treatment-linked cases, not underlying population prevalence. Condition-specific estimates are nonadditive because of comorbidity. PTSD = post-traumatic stress disorder; ADHD = attention-deficit/hyperactivity disorder.

Exhibit A.8. Measurable Economic Burden for Composite Treated Mental Health and/or Substance Use Disorder Conditions

Condition	Estimated Total Economic Burden
Any MH disorder or SUD	$59.5B
Any MH disorder	$57.5B
Any SUD	$2.0B
MH disorder and SUD	$1.9B

SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTE: SUD = substance use disorder. MH disorders and SUDs include only those with both MH and SUD conditions.

Exhibit A.9. National Absenteeism Costs Among Individuals with Treated Mental Health and/or Substance Use Disorders

Metric	Value
Total annual lost workdays (millions)	154
Average days lost per affected adult	3.20
Average daily wage ($)	$155
Total absenteeism cost ($B)	$23.9B

SOURCE: Medicare Expenditure Panel Survey (MEPS) (pooled, 2016-2023).

NOTES: Absenteeism costs reflect missed workdays among employed individuals with treated MH/SUDs and represent descriptive associations.

Attachment B. Supplemental Methods

Analytic File Construction and Data Linkage. A pooled person-year analytic dataset was constructed by harmonizing individual identifiers across MEPS survey years (2016–2023) and linking Full-Year Consolidated (FYC) files to all medical event files (inpatient, outpatient, office-based, emergency department, home health, and prescribed medicines), the Condition (COND) files, and the event–condition linkage (CLNK) files using MEPS-provided identifiers. Special MEPS negative values (−1 inapplicable, −7 refused, −8 don't know, −9 not ascertained) were recoded as missing. Medical events were classified into standardized service categories (prescription medications, office-based visits, outpatient visits, emergency department visits, inpatient stays, and home health services) to ensure consistent attribution of service type across survey years. A respondent was classified as having a given condition in a person-year if any linked medical event contained a qualifying diagnosis code. Treated prevalence, therefore, reflects conditions recorded in the health care system and does not represent underlying population prevalence, which includes untreated illness.

Survey Design, Weighting, and Inflation Adjustment. All analyses accounted for the MEPS complex survey design, including stratification, clustering, and weighting.[80] Person-level survey weights were normalized across pooled years. Variance estimation used pooled variance files with a lonely–primary sampling unit adjustment to produce nationally representative estimates.[81] MEPS data were supplemented with administrative sources to value labor market and fiscal impacts, including average wages (BLS Quarterly Census of Employment and Wages), unemployment counts (BLS Local Area Unemployment Statistics), state income tax collections (U.S. Census Bureau), federal income tax liability (IRS Statistics of Income), payroll tax rates (Social Security Administration), and health spending benchmarks for state-level scaling (KFF).[82,83,84,85,86,87] All monetary values were inflation-adjusted to 2023 dollars using the Consumer Price Index for All Urban Consumers.[88]

Data Source	Years	Use
Medicare Panel Expenditure Survey (MEPS) Public-Use Files	2016-2023	Analytic dataset
Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW)	2023	Average annual wages
BLS Local Area Unemployment Statistics (LAUS)	2023	Unemployment counts
BLS Consumer Price Index for All Urban Consumers (CPI-U)	2023	Inflation adjustment to 2023 dollars for all monetary values
US Census Bureau Survey of State Government Tax Collections (STC)	2023	State income tax collections
IRS Statistics of Income	2023	Federal income tax liability
KFF State Health Spending	2010-2020	Health spending benchmarks for state-level scaling
Social Security Administration (SSA) Trustees Report	2023	OASI, DI, and HI contributions to calculate payroll tax rates

NOTES: OASI = Old-Age and Survivors Insurance; DI = Disability Insurance; HI = Hospital Insurance.

Attachment C. Glossary of Terms

Term	Definition
Absenteeism	Missed workdays among employed individuals.
Attributed Spending	Portion of spending assigned to an MH/SUD diagnosis based on event–condition links.
Civilian, Noninstitutionalized Population	The population represented in MEPS (excludes incarcerated individuals, long-term care residents, and some unhoused populations).
Comorbidity	Co-occurrence of multiple MH and/or SUD diagnoses in the same person-year; implies condition-specific estimates are not additive.
Direct Medical Expenditures	Health care spending attributable to MH/SUDs across service types (inpatient, outpatient, office-based, ED, home health, prescription drugs).
Foregone Tax Revenue	Taxes not collected due to MH/SUD-attributable reductions in earnings (federal income, payroll, and state income taxes).
Heartland States	Arkansas, Illinois, Indiana, Kansas, Missouri, Oklahoma, and Tennessee (as defined in this report).
ICD-10-CM	International Classification of Diseases, Tenth Revision, Clinical Modification—diagnosis coding system used to identify conditions.
Mental Health (MH) Disorders	Conditions characterized by clinically significant disturbances in cognition, emotion regulation, or behavior that impair functioning.
MH/SUDs	Collective term used in this report to refer to the included mental health disorders and substance use disorders.
Per Capita	Amount expressed per resident of the total population (not per affected person).
Productivity Losses	Economic losses related to reduced work output, including absenteeism and unemployment-related wage losses.
Substance Use Disorders (SUDs)	Disorders involving recurrent substance use leading to clinically significant impairment, including loss of control, tolerance/withdrawal, and continued use despite harm.
Total Economic Burden	Sum of direct medical spending, absenteeism costs, unemployment-related lost wages, and foregone tax revenue (nonoverlapping components).
Treated Prevalence	The share of the population with a recorded diagnosis linked to a health care event during the year (observed in the health system), not necessarily the true underlying prevalence.
Unemployment-Related Lost Wages	Earnings not received due to MH/SUD-attributable unemployment.

References

[1] Substance Abuse and Mental Health Services Administration. (2025). *Key substance use and mental health indicators in the United States: Results from the 2024 National Survey on Drug Use and Health* (HHS Publication No. PEP25-07-007, NSDUH Series H-60). https://www.samhsa.gov/data/data-we-collect/nsduh-national-surveydrug-use-and-health/national-releases

[2] American Psychological Association. (2018). Mental Disorder. *APA Dictionary of Psychology.* https://dictionary.apa.org/mental-disorder

[3] American Psychological Association. (2023). Substance Use Disorder. *APA Dictionary of Psychology.* https://dictionary.apa.org/substance-use-disorder

[4] Cleveland Clinic. (2025). *Dual Diagnosis.* https://my.clevelandclinic.org/health/diseases/24426-dual-diagnosis

[5] Substance Abuse and Mental Health Services Administration. (2025). Key substance use and mental health indicators in the United States: Results from the 2024 National Survey on Drug Use and Health (HHS Publication No. PEP25-07-007, NSDUH Series H-60). https://www.samhsa.gov/data/data-we-collect/nsduh-national-surveydrug-use-and-health/national-releases

[6] Substance Abuse and Mental Health Services Administration. (2025). *Key substance use and mental health indicators in the United States: Results from the 2024 National Survey on Drug Use and Health* (HHS Publication No. PEP25-07-007, NSDUH Series H-60). https://www.samhsa.gov/data/data-we-collect/nsduh-national-surveydrug-use-and-health/national-releases

[7] U.S. Government Accountability Office. (2019). *Behavioral Health: Research on Health Care Costs of Untreated Conditions is Limited* (GAO-19-274). https://www.gao.gov/assets/gao-19-274.pdf

[8] U.S. Government Accountability Office. (2019). *Behavioral Health: Research on Health Care Costs of Untreated Conditions is Limited* (GAO-19-274). https://www.gao.gov/assets/gao-19-274.pdf

[9] Taylor, H. L., Menachemi, N., Gilbert, A., Chaudhary, J., & Blackburn, J. (2023). Economic burden associated with untreated mental illness in Indiana. *JAMA Health Forum*, *4*(10):e233535-e233535. doi:10.1001/jamahealthforum.2023.3535

[10] Stewart, W.F., Ricci, J.A., Chee, E., Hahn, S.R., Morganstein, D. (2003). Cost of Lost Productive Work Time Among US Workers With Depression. *JAMA*, *289*(23):3135–3144. doi:10.1001/jama.289.23.3135

[11] Thorpe, K.E. (2024). The role of chronic disease and multiple chronic conditions on the level and change in per capita health care spending, 2010–2021. *Journal of Chronic Diseases and Management, 8*(1):1035. doi:10.47739/2573-1300.chronicdiseases.1035

[12] Chapman, D., Cooper, A., Dombowsky, E., Kangelos, A., Kamal, K. Ratnatunga, M., Rodriguez-Alcala, M., Shideler, D., & Trivitt, J. (2022). *Health Care Access in the Heartland.* Heartland Forward. https://heartlandforward.org/case-study/rural-health-care-access/

[13] Chapman, D., Cooper, A., Dombowsky, E., Kangelos, A., Kamal, K. Ratnatunga, M., Rodriguez-Alcala, M., Shideler, D., & Trivitt, J. (2022). *Health Care Access in the Heartland*. Heartland Forward. https://heartlandforward.org/case-study/rural-health-care-access/

[14] Chapman, D., Cooper, A., Dombowsky, E., Kangelos, A., Kamal, K. Ratnatunga, M., Rodriguez-Alcala, M., Shideler, D., & Trivitt, J. (2022). *Health Care Access in the Heartland*. Heartland Forward. https://heartlandforward.org/case-study/rural-health-care-access/

[15] Hung, P., Negaro, S., Hantman, R., Boswell, E., Andrews, C., Odahowski, C., Crouch, E. (2025). *Access and Quality of Mental Health Services in Rural and Urban America.* Rural Health Research. https://www.ruralhealthresearch.org/publications/1722

[16] Coombs, N.C., Campbell, D.G., Caringi, J. (2022). A Qualitative Study of Rural Healthcare Providers' Views of Social, Cultural, and Programmatic Barriers to Healthcare Access. *BMC Health Serv Res, 22*(1):438. doi:10.1186/s12913-022-07829-2.

[17] Greenwood-Ericksen, M.B., Kocher, K. Trends in Emergency Department Use by Rural and Urban Populations in the United States. (2019). *JAMA Netw Open, 2*(4):e191919. doi: 10.1001/jamanetworkopen.2019.1919.

[18] Coughlin, S.S., Clary, C., Johnson, J.A., Berman, A., Heboyan, V., Benevides, T., Moore, J., George, V. (2019). Continuing Challenges in Rural Health in the United States. *J Environ Health Sci., 5*(2):90-92. https://pmc.ncbi.nlm.nih.gov/articles/PMC7043306/

[19] Bolin, J., Schulze, A., Helduser, J., et al. (2015). *The Burden of Diabetes in Rural America. Rural Health People 2020.* Texas A&M University Health Science Center, School of Public Health. https://srhrc.tamu.edu/documents/rhp2020-volume-1.pdf

[20] Priester, M.A., Browne, T., Iachini, A., Clone, S., DeHart, D., Seay, K.D. (2016). Treatment Access Barriers and Disparities Among Individuals with Co-Occurring Mental Health and Substance Use Disorders: An Integrative Literature Review. *J Sub Abuse Treat,* 61: 47–59. doi:10.1016/j.jsat.2015.09.006.

[21] Agency for Healthcare Research and Quality. (2024). *Medical Expenditure Panel Survey (MEPS), Household Component Public-Use Files (2016–2023): Full-Year Consolidated, Medical Event, Condition, Event–Condition Link, and JOBS files.* U.S. Department of Health and Human Services. https://meps.ahrq.gov/mepsweb/data_stats/download_data_files.jsp

[22] Centers for Disease Control and Prevention, National Center for Health Statistics. (2025). *International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM): Official guidelines for coding and reporting.* U.S. Department of Health and Human Services. https://www.cdc.gov/nchs/icd/icd-10-cm.htm

[23] Thorpe, K. E. (2024). The role of chronic disease and multiple chronic conditions on the level and change in per capita health care spending, 2010–2021. *Journal of Chronic Diseases and Management, 8*(1), 1035. doi:10.47739/2573-1300.chronicdiseases.1035.

[24] Kapitula, L. R. (2015). When two are better than one: Fitting two-part models using SAS. In *Proceedings of the SAS Global Forum 2015* (Paper 3600–2015). SAS Institute. https://support.sas.com/resources/papers/proceedings15/3600-2015.pdf

[25] Perraillon, M. C. (2020). *Cost data and generalized linear models.* Lecture notes, University of Colorado Anschutz Medical Campus, Health Systems Management and Policy. https://clas.ucdenver.edu/marcelo-perraillon/sites/default/files/attached-files/week_7_glm_and_costs_perraillon.pdf

[26] Rein, D. B., Wittenborn, J. S., Zhang, P., Sublett, F., Lamuda, P. A., Lundeen, E. A., & Saaddine, J. B. (2022). The Economic Burden of Vision Loss and Blindness in the United States. *Ophthalmology, 129*(4), 369–378. https://doi.org/10.1016/j.ophtha.2021.10.004.

[27] U.S. Census Bureau. (2024). *State Government Tax Collections (STC), 2023 annual survey: Individual income tax.* U.S. Department of Commerce. https://www.census.gov/programs-surveys/stc.html

[28] Internal Revenue Service. (2024). *Statistics of Income (SOI): Individual income tax statistics, tax year 2023.* U.S. Department of the Treasury. https://www.irs.gov/statistics/soi-tax-stats-individual-income-tax-statistics

[29] Social Security Administration. (2024). *The 2024 annual report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds.* U.S. Government Publishing Office. https://www.ssa.gov/oact/tr/

[30] Taylor, H. L., Menachemi, N., Gilbert, A., Chaudhary, J., & Blackburn, J. (2023). Economic burden associated with untreated mental illness in Indiana. *JAMA Health Forum*, *4*(10):e233535-e233535. doi:10.1001/jamahealthforum.2023.3535.

[31] Kessler, R.C., Chiu, W.T., Demler, O., Merikangas, K.R., Walters, E.E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry, 62*(6):617-27. doi:10.1001/archpsyc.62.6.617.

[32] Greenberg PE, Fournier AA, Sisitsky T, Simes M, Berman R, Koenigsberg SH, Kessler RC. (2021). The Economic Burden of Adults with Major Depressive Disorder in the United States (2010 and 2018). *Pharmacoeconomics, 39*(6):653-665. doi:10.1007/s40273-021-01019-4.

[33] Stewart WF, Ricci JA, Chee E, Hahn SR, Morganstein D. (2003). Cost of Lost Productive Work Time Among US Workers With Depression. *JAMA, 289*(23):3135–3144. doi:10.1001/jama.289.23.3135.

[34] Soni A. (2022). Healthcare Expenditures for Treatment of Mental Disorders: Estimates for Adults Ages 18 and Older, U.S. Civilian Noninstitutionalized Population, 2019. Statistical Brief #539. https://meps.ahrq.gov/data_files/publications/st539/stat539.pdf#page=10.82

[35] Substance Abuse and Mental Health Services Administration (SAMHSA). (2023). Behavioral Health Spending & Use Accounts, 1986–2021.

[36] Garfield RL. (2011). *Mental Health Financing in the United States: A Primer*. Kaiser Commission on Medicaid and the Uninsured. https://www.kff.org/wp-content/uploads/2013/01/8182.pdf

[37] KFF. (2023). *A Look at Substance Use Disorders (SUD) Among Medicaid Enrollees*. https://www.kff.org/mental-health/a-look-at-substance-use-disorders-sud-among-medicaid-enrollees

[38] KFF. (2017). *Medicaid's role in behavioral health*. https://www.kff.org/mental-health/medicaids-role-in-behavioral-health/

[39] Medicare Payment Advisory Commission. (2025). *March 2025 Report to the Congress: Medicare payment policy*. https://www.medpac.gov/document/march-2025-report-to-the-congress-medicare-payment-policy/

[40] Guth, M., Saunders, H., Corallo, B., & Moreno, S. (2023). *Medicaid coverage of behavioral health services in 2022: Findings from a survey of state Medicaid programs*. KFF. https://www.kff.org/mental-health/medicaid-coverage-of-behavioral-health-services-in-2022-findings-from-a-survey-of-state-medicaid-programs/

[41] Mojtabai R, Olfson M, Sampson NA, Jin R, Druss B, Wang PS, Wells KB, Pincus HA, Kessler RC. (2011). Barriers to Mental Health Treatment: Results from the National Comorbidity Survey Replication. *Psychol Med, 41*(8):1751-61. doi: 10.1017/S0033291710002291.

[42] Wang, P.S., Berglund, P., Olfson, M., Pincus, H.A., Wells, K.B., Kessler, R.C. (2005). Failure and delay in initial treatment contact after first onset of mental disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry, 62*(6):603-13. doi: 10.1001/archpsyc.62.6.603.

[43] Thornicroft G. (2007). Most People with Mental Illness Are Not Treated. *Lancet, 370*(9590):807-8. doi: 10.1016/S0140-6736(07)61392-0.

[44] de Oliveira, C., Saka, M., Bone, L., Jacobs, R. (2023). The Role of Mental Health on Workplace Productivity: A Critical Review of the Literature. *Appl Health Econ Health Policy, 21*(2):167-193. doi: 10.1007/s40258-022-00761-w.

[45] Gimm, G., Hoffman, D., Ireys, H.T. (2014). Early Interventions to Prevent Disability for Workers with Mental Health Conditions: Impacts from the DMIE. *Disabil Health J, 7*(1):56-63. doi: 10.1016/j.dhjo.2013.07.002.

[46] Andrilla, C.H.A., Patterson, D.G., Garberson, L.A., Coulthard, C., Larson, E.H. (2018). Geographic Variation in the Supply of Selected Behavioral Health Providers. *Am J Prev Med, 54*(6 Suppl 3):S199-S207. doi:10.1016/j.amepre.2018.01.004.

[47] Thomas, K.C., Ellis, A.R., Konrad, T.R., Holzer, C.E., Morrissey, J.P. (2009). County-Level Estimates of Mental Health Professional Shortage in the United States. *Psychiatr Serv, 60*(10):1323-8. doi: 10.1176/ps.2009.60.10.1323.

[48] Kessler, R.C., Amminger, G.P., Aguilar-Gaxiola, S., Alonso, J., Lee, S., Ustün, T.B. (2007). Age of Onset of Mental Disorders: A Review of Recent Literature. *Curr Opin Psychiatry, 20*(4):359-64. doi: 10.1097/YCO.0b013e32816ebc8c.

[49] Ghimire, R., Florence, C., Guy, G. (2025). Productivity Losses From Substance Use Disorder in the U.S. in 2023. *American Journal of Preventive Medicine, 70*(2). doi: 10.1016/j.amepre.2025.108102.

[50] Mulvaney-Day, N., Marshall, T., Downey Piscopo, K., Korsen, N., Lynch, S., Karnell, L.H., Moran, G.E., Daniels, A.S., Ghose, S.S. (2018). Screening for Behavioral Health Conditions in Primary Care Settings: A Systematic Review of the Literature. *J Gen Intern Med, 33*(3):335-346. doi: 10.1007/s11606-017-4181-0.

[51] Office of the Surgeon General. (2021). *Protecting Youth Mental Health: The U.S. Surgeon General's Advisory.* US Department of Health and Human Services. https://www.ncbi.nlm.nih.gov/books/NBK575984/

[52] Strudwick, J., Gayed, A., Deady, M., Haffar, S., Mobbs, S., Malik, A., Akhtar, A., Braund, T., Bryant, R.A., Harvey, S.B. (2023). Workplace Mental Health Screening: A Systematic Review and Meta-Analysis. *Occup Environ Med, 80*(8):469-484. doi: 10.1136/oemed-2022-108608.

[53] Goetzel, R.Z., Roemer, E.C., Holingue, C., Fallin, M.D., McCleary, K., Eaton, W., Agnew, J., Azocar, F., Ballard, D., Bartlett, J., Braga, M., Conway, H., Crighton, K.A., Frank, R., Jinnett, K., Keller-Greene, D., Rauch, S.M., Safeer, R., Saporito, D., Schill, A., Shern, D., Strecher, V., Wald, P., Wang, P., Mattingly, C.R. (2018). Mental Health in the Workplace: A Call to Action Proceedings From the Mental

Health in the Workplace-Public Health Summit. *J Occup Environ Med, 60*(4):322-330. doi: 10.1097/JOM.0000000000001271.

[54] Ballard, D.W., Lodge, G.C., Pike, K.M. (2025). Mental Health at Work: A Practical Framework for Employers. *Front Public Health,* 13:1552981. doi: 10.3389/fpubh.2025.1552981

[55] Kadakia, A., Catillon, M., Fan, Q., Williams, G.R., Marden, J.R., Anderson, A., Kirson, N., Dembek, C. (2022). The Economic Burden of Schizophrenia in the United States. *J Clin Psychiatry, 83*(6):22m14458. doi: 10.4088/JCP.22m14458. PMID: 36244006.

[56] Hung, P., Negaro, S., Hantman, R., Boswell, E., Andrews, C., Odahowski, C., Crouch, E. (2025). *Access and Quality of Mental Health Services in Rural and Urban America.* Rural Health Research. https://www.ruralhealthresearch.org/publications/1722

[57] Heartland Forward. (2022). *Health Care Access in the Heartland.* Heartland Forward. https://heartlandforward.org/case-study/rural-health-care-access/

[58] Coombs, N.C., Campbell, D.G., Caringi, J. (2022). A Qualitative Study of Rural Healthcare Providers' Views of Social, Cultural, and Programmatic Barriers to Healthcare Access. *BMC Health Serv Res. 22*(1):438. doi: 10.1186/s12913-022-07829-2.

[59] Greenwood-Ericksen, M.B., Kocher, K. (2019). Trends in Emergency Department Use by Rural and Urban Populations in the United States. *JAMA Netw Open, 2*(4):e191919. doi: 10.1001/jamanetworkopen.2019.1919.

[60] U.S. Government Accountability Office. (2019*). Behavioral Health: Research on Health Care Costs of Untreated Conditions is Limited* (GAO-19-274). https://www.gao.gov/assets/gao-19-274.pdf

[61] Coughlin, S.S., Clary, C., Johnson, J.A., Berman, A., Heboyan, V., Benevides, T., Moore, J., George, V. (2019). Continuing Challenges in Rural Health in the United States. *J Environ Health Sci., 5*(2):90-92. https://pmc.ncbi.nlm.nih.gov/articles/PMC7043306/

[62] Bolin, J., Schulze, A., Helduser, J., et al. (2015). *The Burden of Diabetes in Rural America. Rural Health People 2020.* Texas A&M University Health Science Center, School of Public Health. https://srhrc.tamu.edu/documents/rhp2020-volume-1.pdf

[63] Priester, M.A., Browne, T., Iachini, A., Clone, S., DeHart, D., Seay, K.D. (2016). Treatment Access Barriers and Disparities Among Individuals with Co-Occurring Mental Health and Substance Use Disorders: An Integrative Literature Review. *J Sub Abuse Treat,* 61: 47–59. doi:10.1016/j.jsat.2015.09.006.

[64] Substance Abuse and Mental Health Services Administration. (2023). *Certified Community Behavioral Health Clinics (CCBHCs).* https://www.samhsa.gov/communities/certified-community-behavioral-health-clinics

[65] Mathematica. (2022). *Implementation and Impacts of the Certified Community Behavioral Health Clinic Demonstration: Findings from the National Evaluation.* The Office of the Assistant Secretary for Planning and Evaluation (ASPE) at the U.S. Department of Health & Human Services. https://aspe.hhs.gov/sites/default/files/documents/60f121a777ee63b20008e43ad45518bf/ccbhc-implementation-impacts-findings.pdf

[66] Medicaid.gov. *Certified Community Behavioral Health Clinic (CCBHC) Demonstration.* https://www.medicaid.gov/medicaid/financial-management/certified-community-behavioral-health-clinic-ccbhc-demonstration

[67] Reeves, W.C., Strine, T.W., Pratt, L.A., Thompson, W., Ahluwalia, I., Dhingra, S.S., McKnight-Eily, L.R., Harrison, L., D'Angelo, D.V., Williams, L., Morrow, B., Gould, D., Safran, M.A. (2011). Mental illness surveillance among adults in the United States. Centers for Disease Control and Prevention (CDC). *MMWR Suppl, 60*(3):1-29.

[68] Walker, E.R., Cummings, J.R., Hockenberry, J.M., Druss, B.G. (2015). Insurance Status, Use of Mental Health Services, and Unmet Need for Mental Health Care in the United States. *Psychiatr Serv, 66*(6):578-84. doi:10.1176/appi.ps.201400248.

[69] Meiselbach, M.K., Ettman, C.K., Shen, K., Castrucci, B.C., Galea, S. (2024). Unmet Need for Mental Health Care is Common Across Insurance Market Segments in the United States. *Health Aff Sch, 2*(3):qxae032. doi:10.1093/haschl/qxae032.

[70] Substance Abuse and Mental Health Services Administration. (2024). *Key Substance Use and Mental Health Indicators in the United States: Results from the 2023 National Survey on Drug Use and Health.* https://www.samhsa.gov/data/sites/default/files/reports/rpt47095/National%20Report/National%20Report/2023-nsduh-annual-national.pdf

[71] Han, B., Compton, W.M., Mojtabai, R., Colpe, L., Hughes, A. (2016). Trends in Receipt of Mental Health Treatments Among Adults in the United States, 2008-2013. *J Clin Psychiatry, 77*(10):1365-1371. doi:10.4088/JCP.15m09982.

[72] Kessler RC, Frank RG. The impact of psychiatric disorders on work loss days. (1997). *Psychol Med, 27*(4):861-73. doi: 10.1017/s0033291797004807.

[73] Druss, B.G., Zhao, L., Von Esenwein, S., Morrato, E.H., Marcus, S.C. (2011). Understanding Excess Mortality in Persons with Mental Illness: 17-year Follow Up of a Nationally Representative US Survey. *Med Care, 49*(6):599-604. doi:10.1097/MLR.0b013e31820bf86e.

[74] Andrade, L.H., Alonso, J., Mneimneh, Z., Wells, J.E., Al-Hamzawi, A., Borges, G., Bromet, E., Bruffaerts, R., de Girolamo, G., de Graaf, R., Florescu, S., Gureje, O., Hinkov, H.R., Hu, C., Huang, Y., Hwang, I., Jin, R., Karam, E.G., Kovess-Masfety, V., Levinson, D., Matschinger, H., O'Neill, S., Posada-Villa, J., Sagar, R., Sampson, N.A., Sasu, C., Stein, D.J., Takeshima, T., Viana, M.C., Xavier, M.,

Kessler, R.C. (2014). Barriers to Mental Health Treatment: Results from the WHO World Mental Health Surveys. *Psychol Med, 44*(6):1303-17. doi:10.1017/S0033291713001943.

[75] Bayliss, E.A., Ellis, J.L., Shoup, J.A., McQuillan, D.B., Steiner, J.F., Zeng, C. (2017). Association Between Continuity of Care and Health-Related Quality of Life. *J Am Board Fam Med, 30*(2):205-212. doi:10.3122/jabfm.2017.02.160225.

[76] Wang, P.S., Berglund, P., Olfson, M., Pincus, H.A., Wells, K.B., Kessler, R.C. (2005). Failure and Delay in Initial Treatment Contact After First Onset of Mental Disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry, 62*(6):603-13. doi: 10.1001/archpsyc.62.6.603.

[77] Addo, R., Agyemang, S.A., Tozan, Y., Nonvignon, J. (2018). Economic Burden of Caregiving for Persons with Severe Mental Illness in Sub-Saharan Africa: A Systematic Review. *PLoS One, 13*(8):e0199830. doi: 10.1371/journal.pone.0199830.

[78] Johnson, R.C., Schoeni, R.F. (2011). The Influence of Early-Life Events on Human Capital, Health Status, and Labor Market Outcomes Over the Life Course(). *B E J Econom Anal Policy,* 6;11(3):2521. doi: 10.2202/1935-1682.2521.

[79] Kirkbride, J.B., Anglin, D.M., Colman, I., Dykxhoorn, J., Jones, P.B., Patalay, P., Pitman, A., Soneson, E., Steare, T., Wright, T., Griffiths, S.L. (2024). The Social Determinants of Mental Health and Disorder: Evidence, Prevention and Recommendations. *World Psychiatry, 23*(1):58-90. doi: 10.1002/wps.21160.

[80] Agency for Healthcare Research and Quality. (2024). *Medical Expenditure Panel Survey Household Component: Survey Design, Methodology, and Coverage Notes.* U.S. Department of Health and Human Services. https://meps.ahrq.gov/mepsweb/survey_comp/household.jsp

[81] Agency for Healthcare Research and Quality. (2024). *Medical Expenditure Panel Survey (MEPS) HC-036: 1996–2023 Pooled Estimation File.* U.S. Department of Health and Human Services. https://meps.ahrq.gov/data_stats/download_data/pufs/h36/h36u23doc.shtml

[82] U.S. Bureau of Labor Statistics. (2024). *Occupational Employment and Wage Statistics (OEWS), May 2023: State mean annual wages.* U.S. Department of Labor. https://www.bls.gov/oes/

[83] U.S. Bureau of Labor Statistics. (2024). *Local Area Unemployment Statistics (LAUS), 2023 annual averages.* U.S. Department of Labor. https://www.bls.gov/lau/

[84] U.S. Census Bureau. (2024). *State Government Tax Collections (STC), 2023 annual survey: Individual income tax.* U.S. Department of Commerce. https://www.census.gov/programs-surveys/stc.html

[85] Internal Revenue Service. (2024). *Statistics of Income (SOI): Individual income tax statistics, tax year 2023.* U.S. Department of the Treasury. https://www.irs.gov/statistics/soi-tax-stats-individual-income-tax-statistics

[86] Social Security Administration. (2024). *The 2024 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds.* U.S. Government Publishing Office. https://www.ssa.gov/oact/tr/

[87] KFF. (2023). *State Health Facts: State Health Spending (per capita and total), 2010–2020 Series.* https://www.kff.org/state-category/health-costs-budgets/

[88] U.S. Bureau of Labor Statistics. (2024). *Consumer Price Index for All Urban Consumers (CPI-U), U.S. City Average.* U.S. Department of Labor. https://www.bls.gov/cpi/