

ANALYSIS

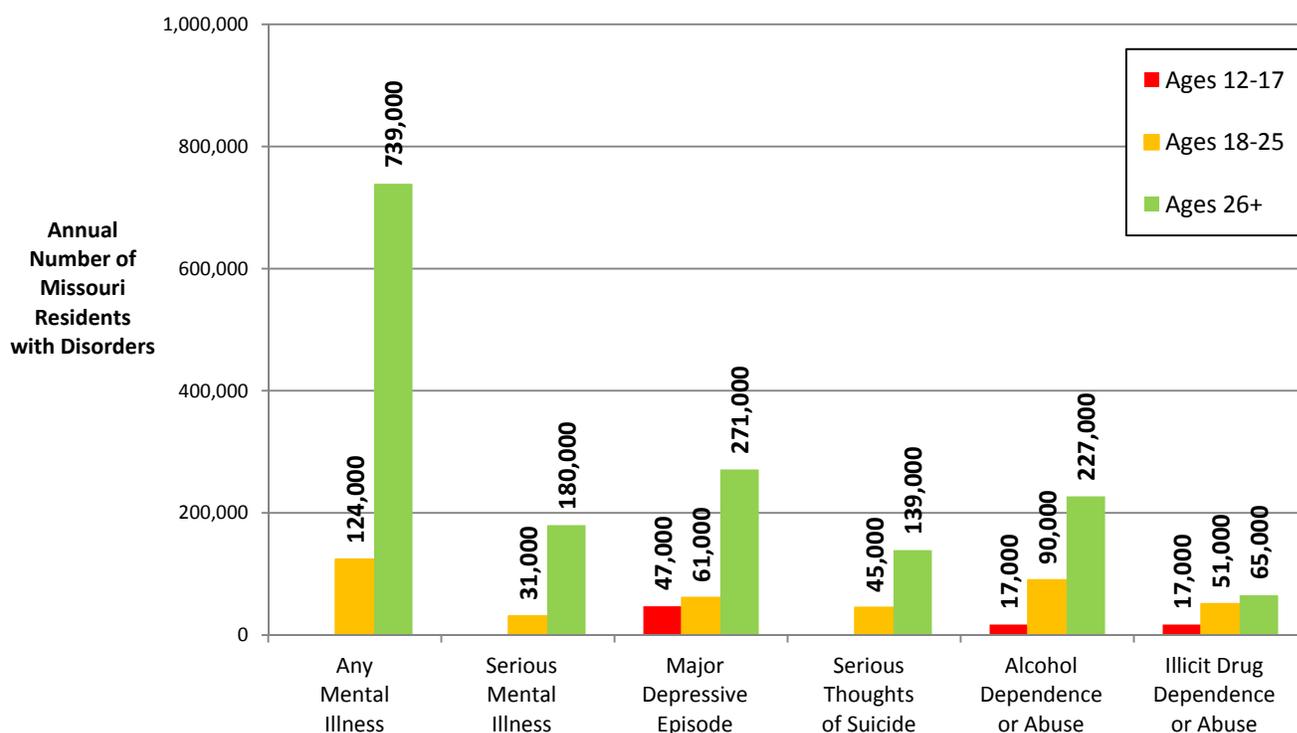
OVERVIEW

Nearly one-fifth of U.S. and Missouri adults suffer from a mental disorder. Combined data collected in years 2012 and 2013 for the National Survey on Drug Use and Health (NSDUH) indicate that an estimated 18.5% of U.S. adults ages 18 and older report any past-year mental illness, and 4.1% report a serious mental illness. Missouri adults have slightly higher rate estimates — 19.1% with any mental illness and 4.7% with serious mental illness. Young adults ages 18-25 and adults over age 25 have similar mental illness rates.

Nearly one-tenth of U.S. and Missouri adolescents experience major depressive episodes. The 2012 and 2013 NSDUH data indicate 9.9% of U.S. and Missouri youth ages 12-17 report a past-year major depressive episode. Among Missouri adults, 7.4% report a past-year episode, including 9.4% of young adults 18-25 years of age and 7.0% of older adults.

Over one-twelfth of U.S. and Missouri adults report substance use disorders. The NSDUH rate estimates from 2012-2013 for U.S. and Missouri adults are identical at 8.7% for past-year alcohol or illicit drug dependence or abuse. Seven percent of Missouri adults report alcohol disorders and 2.6% report drug disorders, including nearly 1% who report dependence or abuse of both alcohol and illicit drugs. Young adults 18-25 years of age have much higher rates of substance use disorders (18.1% of that age group) than adults over age 25 (7.1%) and adolescents under age 18 (5.8%). The number of Missouri adolescents with substance use disorders has steadily declined from a peak estimate of 51,000 in 2004 to 27,000 in 2013. Among the 27,000 adolescents are approximately 10,000 with alcohol use disorders, 10,000 with illicit drug use disorders, and 7,000 with both alcohol and drug use disorders.

Figure 1: Age Group Estimates for Past-Year Mental Illness and Substance Use Disorders, Missouri 2012-2013

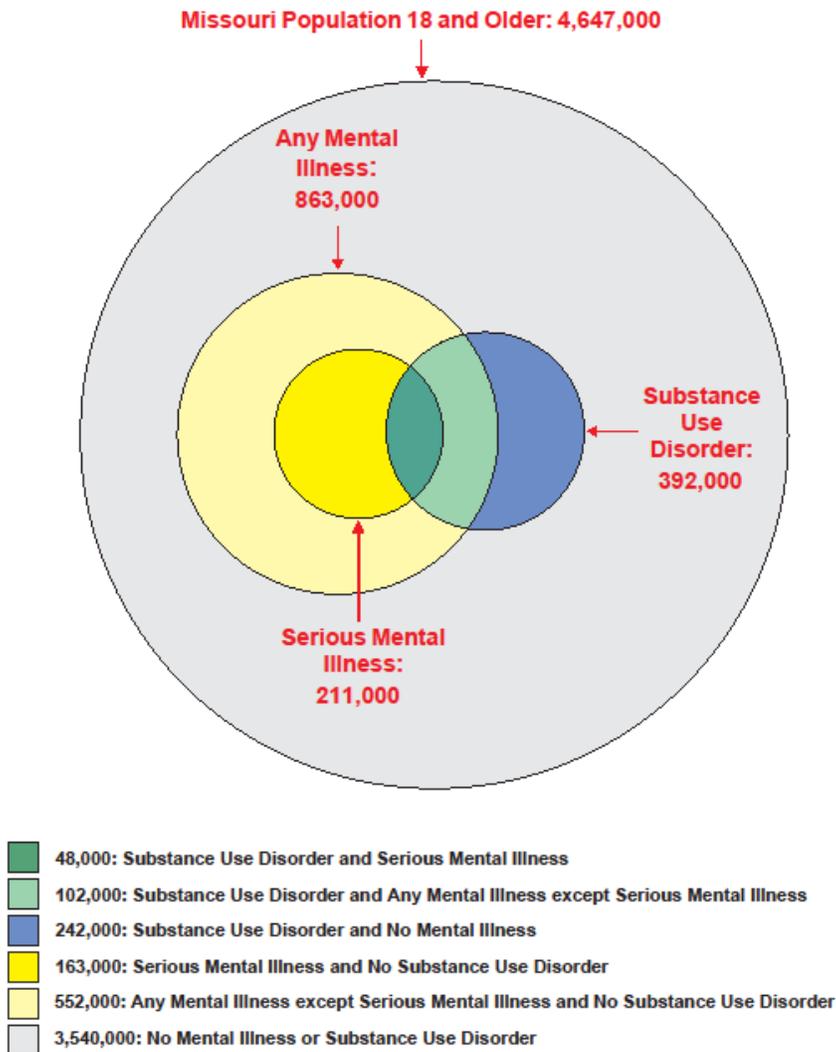


Data Source: U.S. Dept. of Health and Human Services, Substance Abuse and Mental Health Services Administration (SAMHSA). National Survey on Drug Use and Health, 2012-2013. Estimates are 2-year averages. Some individuals are in more than one disorder category. Estimates are not available for ages 12-17 for Any Mental Illness, Serious Mental Illness, and Serious Thoughts of Suicide.

CO-OCCURRING DISORDERS

Nearly one-fourth of adults with serious mental illness have a co-occurring substance use disorder. Past-year rates for substance use disorders are 17.5% among U.S. adults with any mental illness and 23.1% among adults with serious mental illness. Missouri projections from these national rates reciprocally indicate that approximately 150,000 Missouri adults with any mental illness—including 48,000 with serious mental illness—have substance use disorders. Nationally, adults with co-occurring serious mental illness and substance use disorders consist of 17.4% with an alcohol use disorder and 10.5% with an illicit drug disorder. These rates suggest that the 48,000 Missouri adults with co-occurring serious mental illness include approximately 26,000 with alcohol use disorders, 11,000 with illicit drug use disorders, and 11,000 with alcohol and drug use disorders. By contrast, only 6.5% of adults with no mental illness have a substance use disorder. An estimated one-third of adults with serious mental illness are past-years users of illicit drugs and nearly one-half are past-year smokers. Only 13% of adults with no past-year mental illness are past-year users of illicit drugs. Alcohol use rates are only slightly higher for adults with past-year mental illness than for those with no mental disorders.

Figure 2: Missouri Prevalence Estimates for Mental Illness and Substance Use Disorders, 2013:

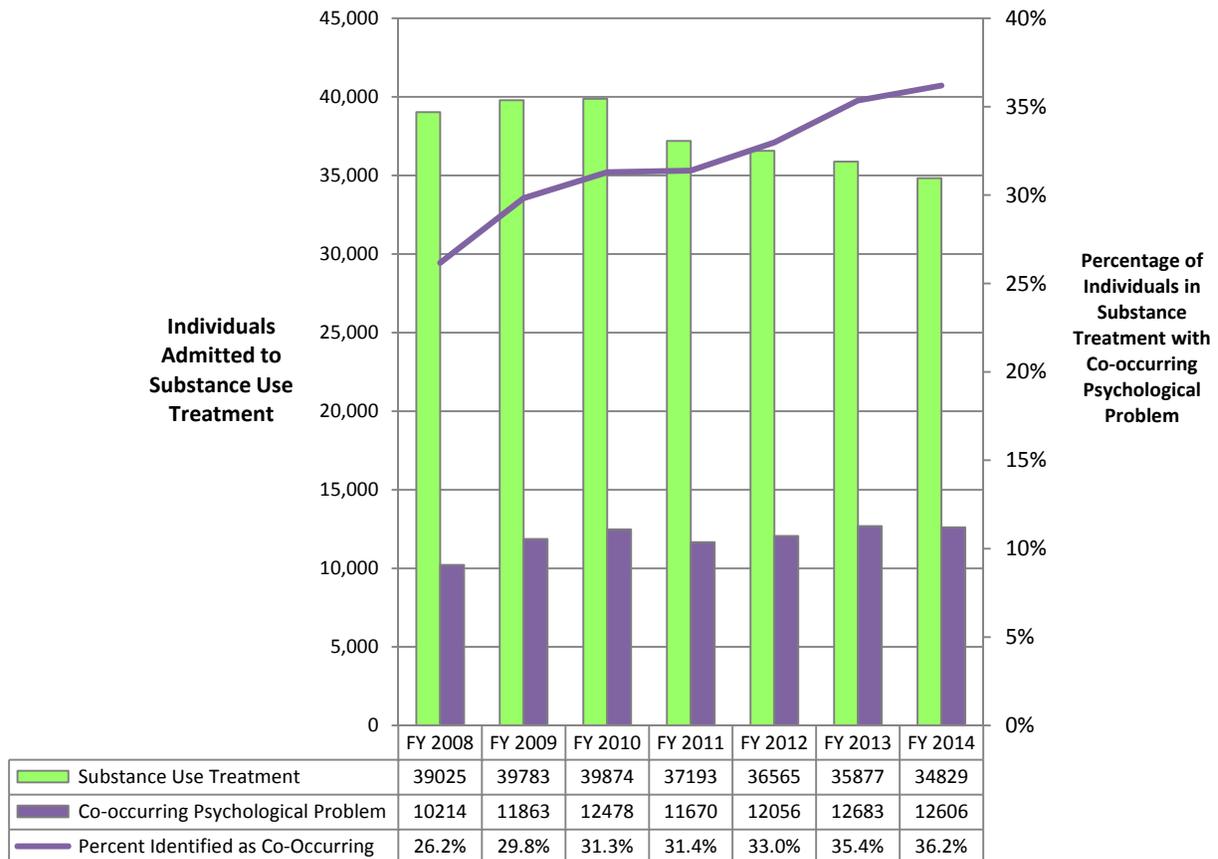


Data Sources: Substance Abuse and Mental Health Services Administration, National Survey on Drug Use and Health (NSDUH). Data are based on U.S. rates from the 2013 NSDUH and Missouri rates from the combined 2012 and 2013 NSDUH. Estimates for Any Mental Illness (AMI), Serious Mental Illness (SMI) and Substance Use Disorder (SUD) are based on Missouri rates from the 2012-2013 surveys applied to the 2013 Missouri adult population. Estimates for Missouri co-occurring AMI with SUD and SMI with SUD are approximations derived from the national rates.

Three out of eight adults with substance use disorders have co-occurring mental illness. Data from the 2013 NSDUH indicates that 37.8% of U.S. adults with a past-year substance use disorder also have a past-year mental illness. In contrast, only 16.7% of adults with no past-year substance use disorder have past-year mental illness. Applying national co-occurring rates to the Missouri NSDUH data, approximately 150,000 of the 392,000 Missouri adults with substance use disorders would have any past-year mental illness. These include 48,000 with serious mental illness.

Over one-third of DBH substance treatment recipients have co-occurring mental disorders. Data from substance use treatment programs that receive funding from the Missouri Department of Mental Health’s Division of Behavioral Health (DBH) are consistent with national estimates. These programs reported in fiscal year 2014 that 36% of consumers admitted for alcohol or drug treatment have a co-occurring mental health problem.

Figure 3: Co-occurring Psychological Problem among Individuals Admitted to Substance Use Treatment Programs

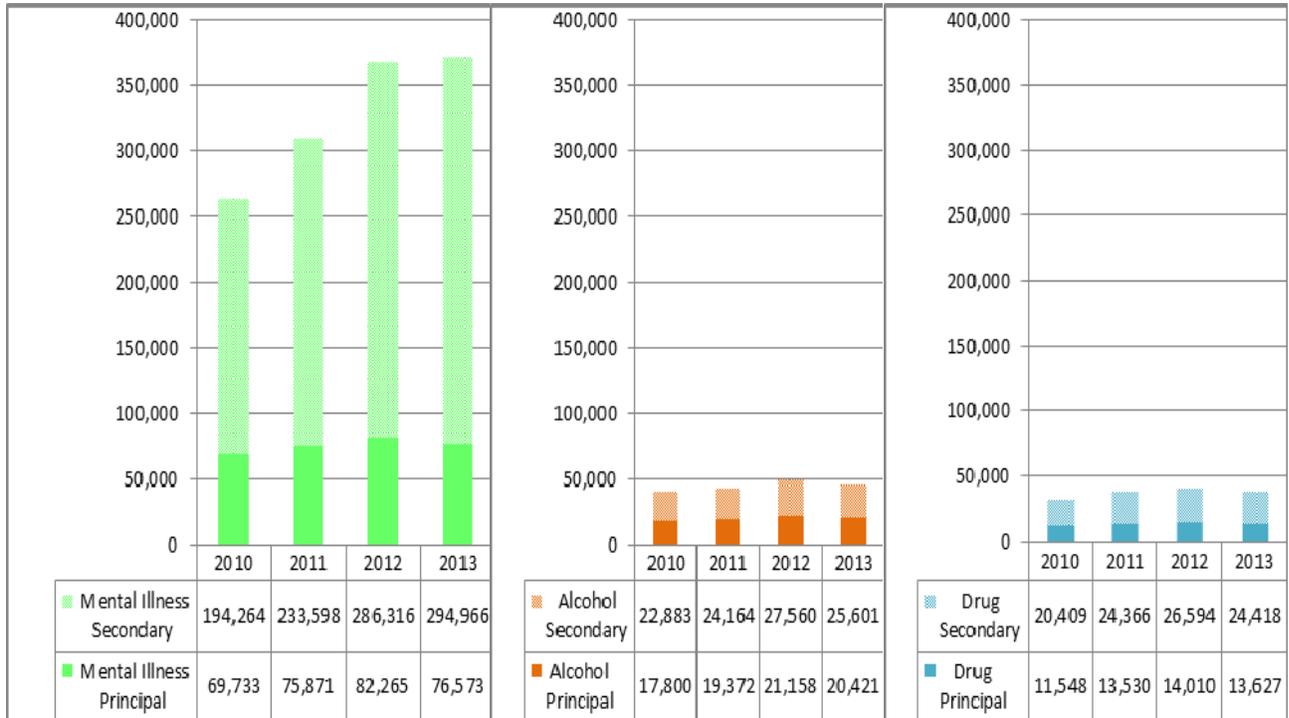


Data Source: Missouri Department of Mental Health, Customer Information Management, Outcomes & Reporting (CIMOR) System.

HOSPITAL EMERGENCY DEPARTMENT SERVICES

Over 100,000 Missouri residents enter emergency rooms each year for mental or substance use disorders. In the four-year period from 2010-2013, an average of 76,000 emergency room visits per year were attributed principally to mental illness, nearly 20,000 were for alcohol use, and 13,000 were for drug use. In addition, mental illness was a contributing factor in 250,000 episodes, alcohol use in 25,000, and drug use in 24,000. Hospital admissions followed the emergency room services in 32% of the episodes that *primarily* involved mental illness and 23% of those that *primarily* involved alcohol and drug use. Among the emergency room episodes with mental illness and substance use as *contributing* factors, 39% of the mental illness related, 45% of the alcohol related, and 34% of the drug related visits led to hospitalizations.

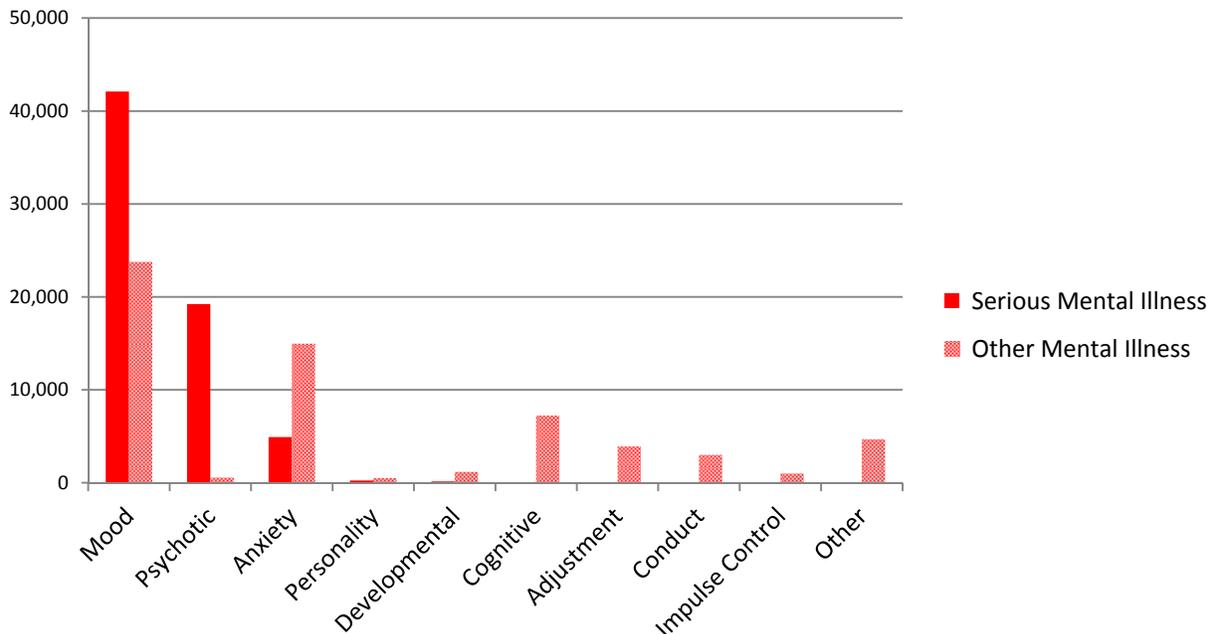
Figure 4: Emergency Room Episodes Involving Mental and Substance Use Disorders, Missouri Residents:



Data Source: Missouri Department of Health and Senior Services. Data are based on ICD-9 code categories developed by the federal Healthcare Cost and Utilization Project (HCUP). Some individuals may be in more than one secondary diagnosis category. Figures do not include hospitalizations.

Mood disorders account for a large portion of mental illness. In 2011 there were 127,000 Missouri hospital admissions and emergency room episodes with a *principal* diagnosis of mental disorders and 336,000 identified as mental disorder related. Among the hospitalizations and emergency room encounters principally due to mental illness, 42,000 had a diagnosis indicating serious mental illness. These mainly consisted of mood (63%), psychotic (29%), and anxiety (7%) disorders.

Figure 5: Mental Illness Severity and Diagnosis Categories among Missouri Hospitalizations and Emergency Room Encounters with Principal Diagnosis of Mental Illness, 2011:

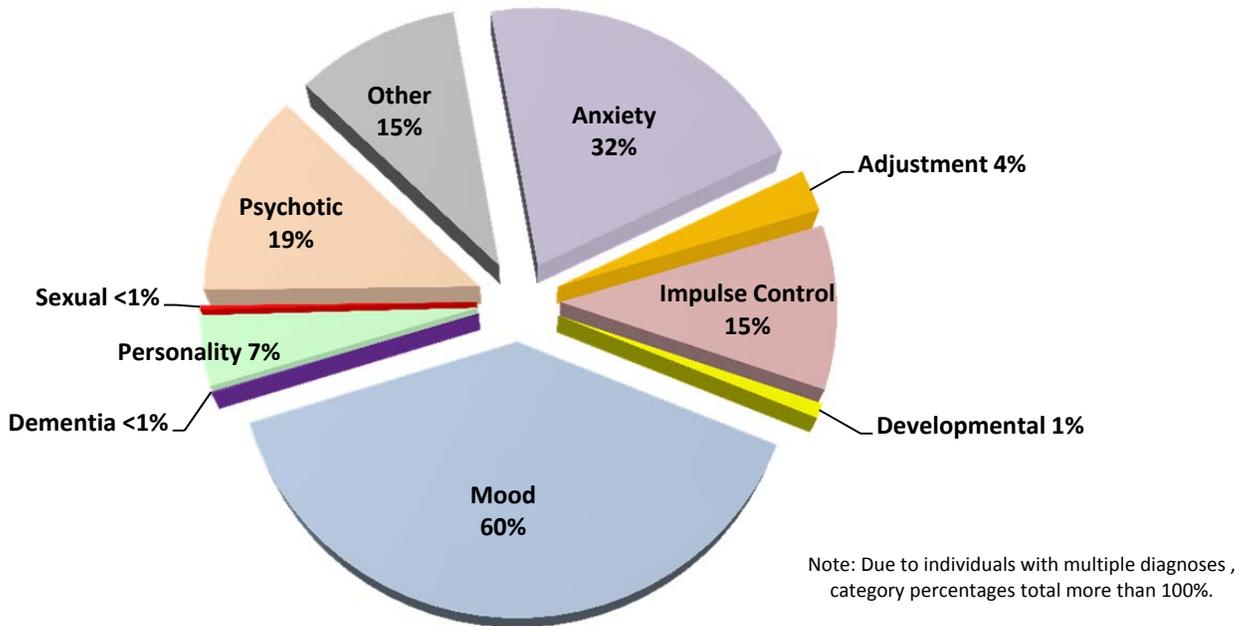


Data Source: Missouri Department of Health and Senior Services. Data are based on ICD-9 code categories developed by the federal Healthcare Cost and Utilization Project (HCUP).

TREATMENT FOR MENTAL DISORDERS

Mood disorders are prominent among individuals receiving mental illness treatment funded by the Missouri Department of Mental Health. Among nearly 76,000 individuals served in the Department’s Division of Behavioral Health (DBH) psychiatric programs during fiscal year 2014, more than 45,000 were diagnosed with mood disorders. Also, 24,000 were diagnosed with anxiety disorders, 14,000 with psychotic disorders, 11,000 with impulse control disorders, and 5,000 with personality disorders. The number of diagnoses is larger than the number served because some individuals have multiple disorders.

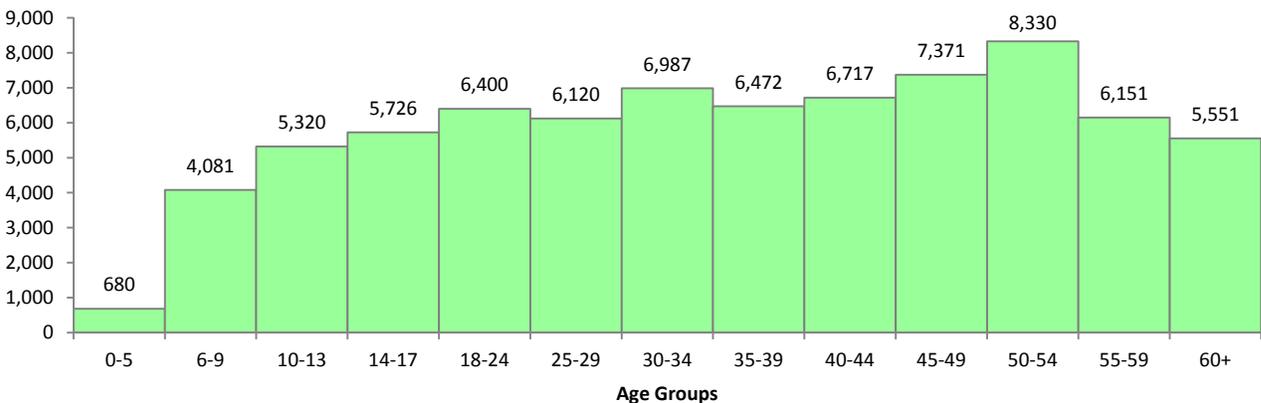
Figure 6: Mental Illness Disorders Treated in DMH Division of Behavioral Health Programs, FY 2014:



Data Source: Missouri Department of Mental Health, Customer Information Management, Outcomes & Reporting (CIMOR) System.

Most individuals receive mental health treatment on a voluntary basis. Among the 76,000 consumers served in DBH psychiatric programs in fiscal year 2014, only 4,000 were in court-ordered or court-referred treatment. Nearly 37,000 were self-referred or entered treatment on the recommendation of a family member or friend. More than 11,000 were referred by a health care provider and 6,000 by a mental health provider. Schools referred 1,500 to treatment programs. Those served in the psychiatric programs consisted of approximately 7,000 children under age 12, 8,800 adolescents ages 12-17, 7,600 young adults ages 18-25, and 52,500 adults over age 25.

Figure 7: Numbers Served in Division of Behavioral Health Psychiatric Treatment Programs, FY 2014:

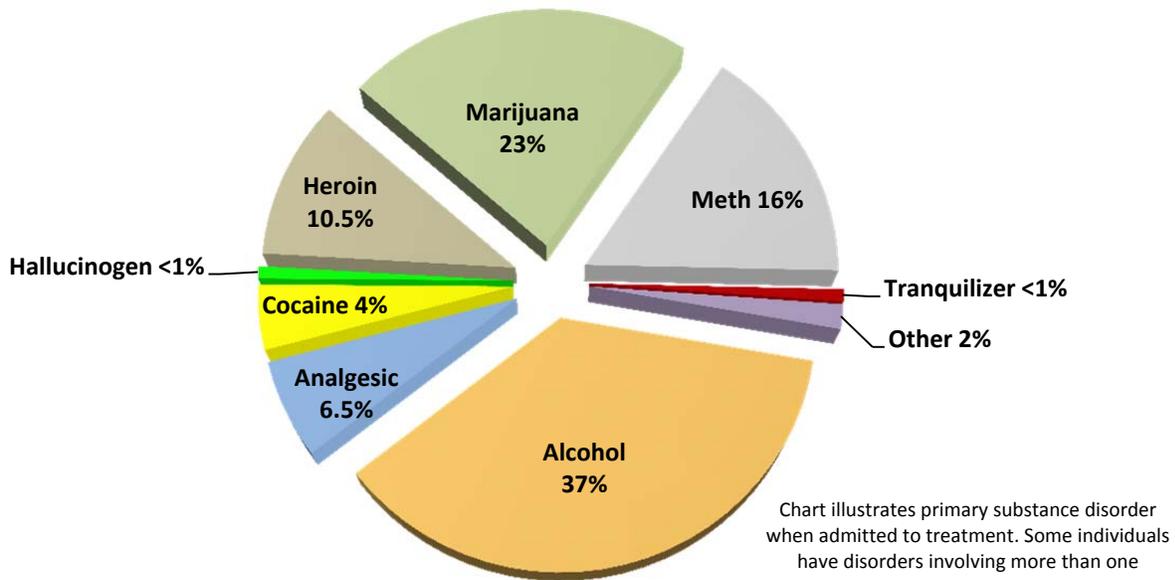


Data Source: Missouri Department of Mental Health, Customer Information Management, Outcomes & Reporting (CIMOR) System.

TREATMENT FOR SUBSTANCE USE DISORDERS

Alcohol use disorders remain prominent among individuals admitted to substance use treatment programs funded by the Missouri Department of Mental Health. Among nearly 35,000 individuals admitted to the Department’s Division of Behavioral Health (DBH) substance treatment programs during fiscal year 2014, three out of eight identified beverage alcohol as their primary substance disorder. Marijuana was the primary substance problem in 23% of admissions, methamphetamine in 16%, and heroin 10%. The remaining 14% consisted chiefly of non-heroin analgesics, cocaine, hallucinogens, and tranquilizers. Many individuals were also treated for a secondary substance.

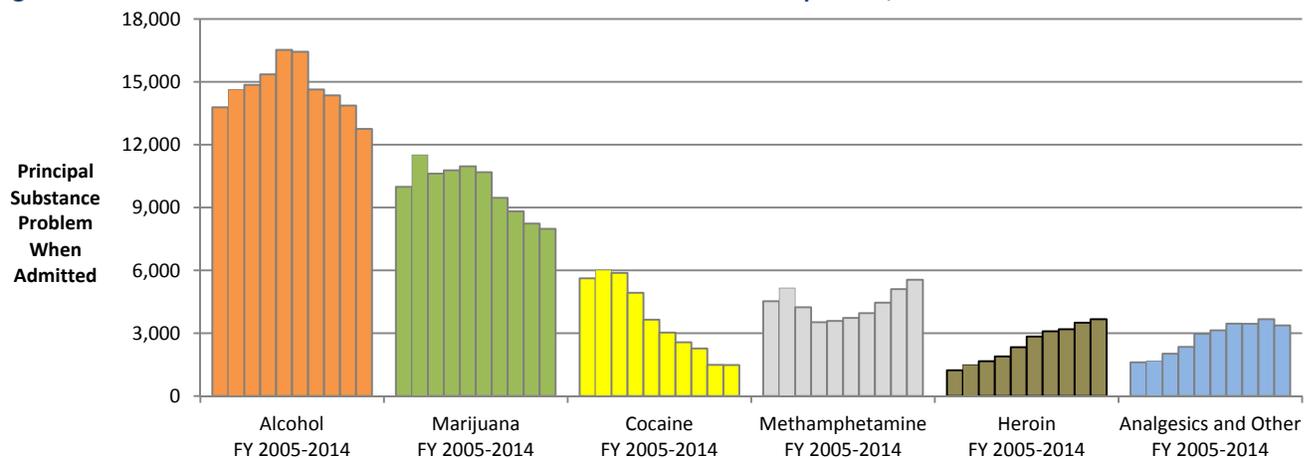
Figure 8: Substance Use Disorders Treated in Missouri Division of Behavioral Health Programs, Fiscal Year 2014



Data Source: Missouri Department of Mental Health, Customer Information Management, Outcomes & Reporting (CIMOR) System.

During the past decade, DBH treatment admissions for marijuana and cocaine have declined, while admissions for methamphetamine and heroin have increased. Treatment admissions for heroin and other analgesics have doubled from nearly 3,000 (8% of admissions) in fiscal year 2005 to 6,000 (17% of admissions) in fiscal year 2014. During that period, marijuana admissions have declined from 10,000 to 8,000 and cocaine from 5,600 to 1,500. Prescription drugs annually account for more than 1,200 admissions. Nearly one-half of fiscal year 2014 admissions began as criminal justice system referrals and one-third were self-referrals or prompted by family or friends.

Figure 9: Substance Use Disorders Based on Consumers’ First Treatment Episodes, Fiscal Years 2005-2014



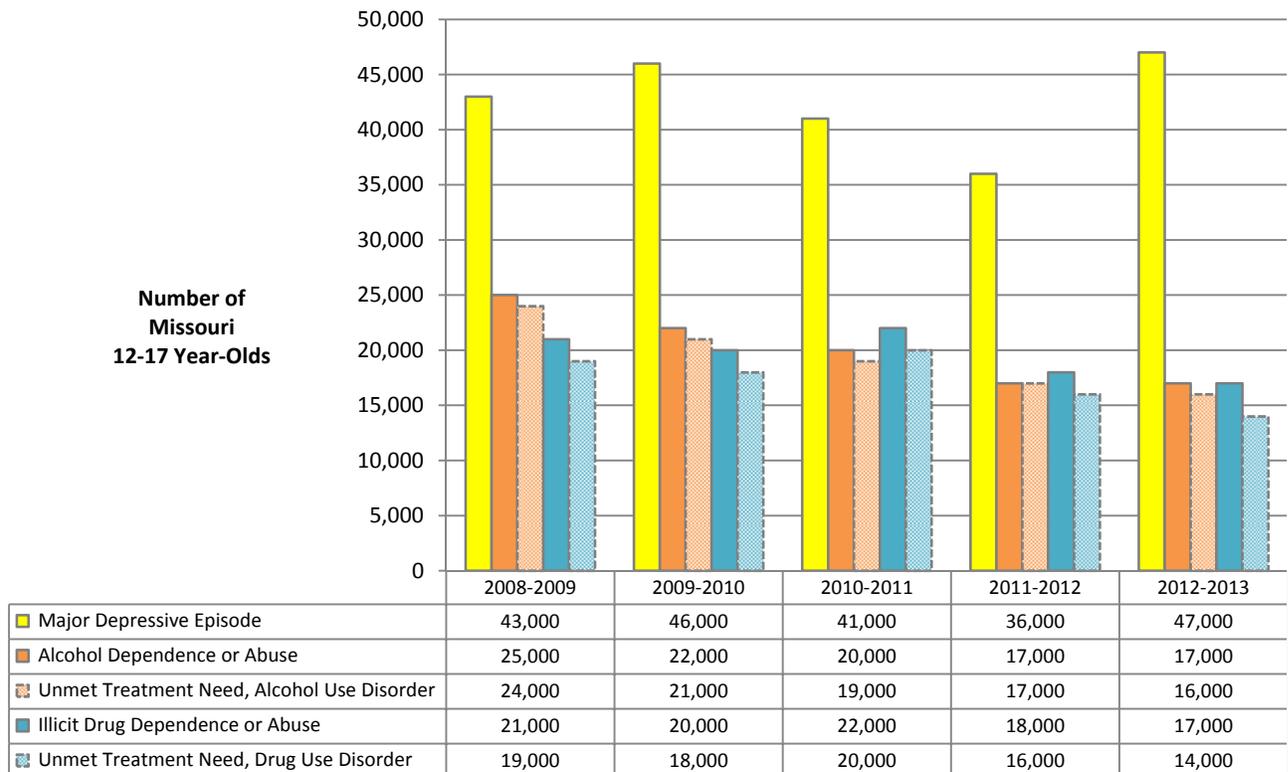
Data Source: Missouri Department of Mental Health, Customer Information Management, Outcomes & Reporting (CIMOR) System.

CHILDREN AND ADOLESCENTS

An estimated 47,000 Missouri adolescents suffer from depression. Based on combined 2012 and 2013 NSDUH data, these adolescents 12-17 years of age experienced at least one major depressive episode, a type of mood disorder, in the past year. This was considerably higher than the previous estimate of 36,000. Nationwide, over 70% of adolescents with major depressive episodes experience severe impairment.¹ This suggests that at least 33,000 of the 47,000 adolescents with past-year major depression need mental health treatment. Among the 8,800 adolescents served in DBH programs in fiscal year 2014, 5,000 were diagnosed with mood disorders—chiefly depression. Nearly 4,000 adolescents were also diagnosed with impulse control disorders and 2,500 with anxiety disorders.

Among Missouri adolescents, substance use disorders are equally divided between alcohol and illicit drugs. According to the 2012-2013 NSDUH, an estimated 17,000 Missouri adolescents 12-17 years of age have an alcohol use disorder and 17,000 have a drug use disorder, including 7,000 that have an alcohol *and* drug use disorder. Among these adolescents, 16,000 have an unmet need for treatment of alcohol use disorders and an overlapping 14,000 have an unmet need for treatment of drug use disorders.

Figure 10: Past-Year Major Depressive Episodes and Substance Use Disorders among Missouri Youth Ages 12-17



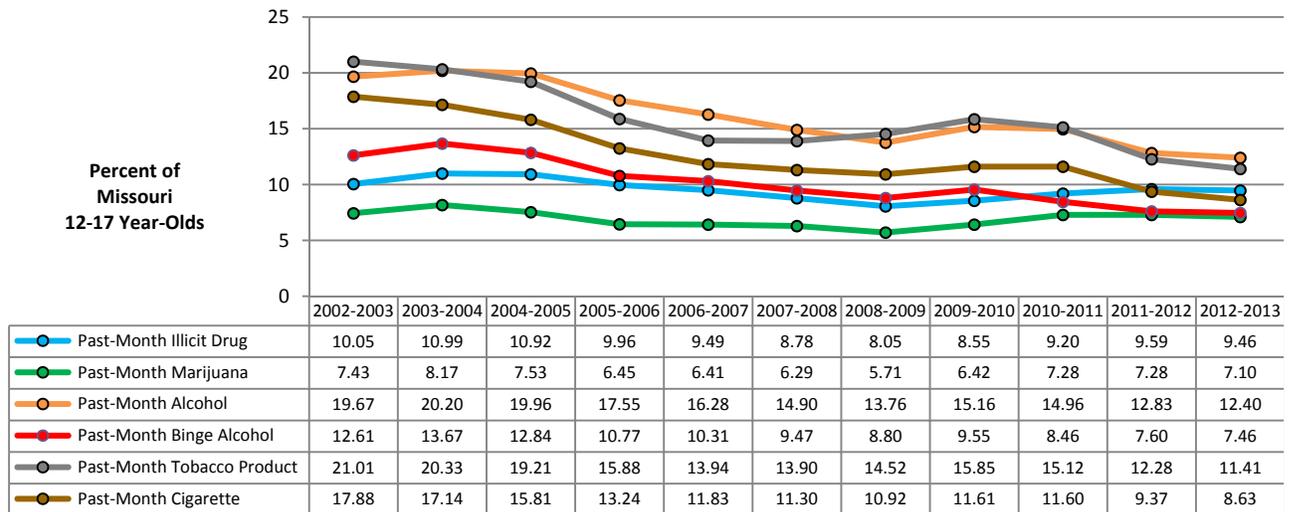
Data Source: U.S. Dept. of Health and Human Services, Substance Abuse and Mental Health Services Administration (SAMHSA), National Survey on Drug Use and Health. Estimates are annual averages for the Missouri population 12-17 years of age.

In FY 2014, Missouri Division of Behavioral Health treatment programs provided mental health services to nearly 7,000 children under age 12 and 9,000 adolescents ages 12-17. Many of the children were treated for impulse control disorders and the adolescents were mainly treated for mood disorders. During that same period, 2,200 adolescents were admitted to treatment for substance use—chiefly marijuana and alcohol.

¹Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality. (September 4, 2014). The NSDUH Report: Substance Use and Mental Health Estimates from the 2013 National Survey on Drug Use and Health: Overview of Findings. Rockville, MD.

Alcohol and tobacco use continues to decline among Missouri adolescents. The 2012-2013 NSDUH indicates that past-month smoking rates in the 12-17 age group are approximately one-half the estimates from the 2002-2003 NSDUH ten years ago. During that same period, past-month alcohol use and binge alcohol use have declined by more than one-third. Estimated adolescent use of marijuana and other illicit drugs have fluctuated by only a couple of percentage points and remain near the levels of a decade ago. Trends and rates from the Missouri Student Survey (MSS) are similar to those from the NSDUH. According to the 2014 MSS, past-month alcohol use is 13.9%, cigarette use is 8.1%, and marijuana use is 7.6% for school grades 6-12 combined.

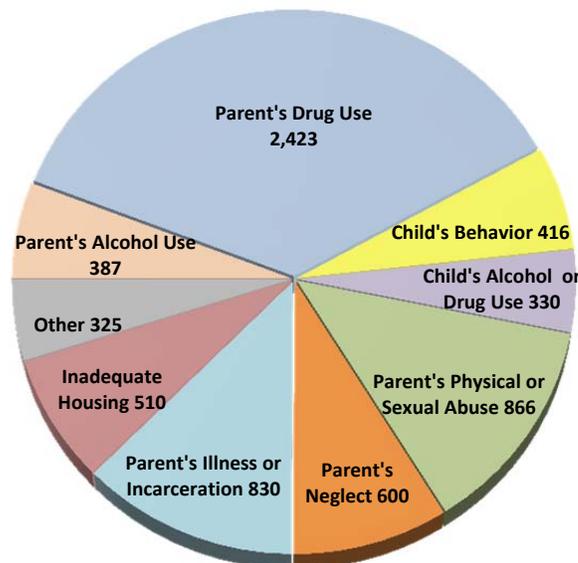
Figure 11: Past-Month Substance Use by Missouri Adolescents, 2003-2013



Data Source: U.S. Dept. of Health and Human Services, Substance Abuse and Mental Health Services Administration (SAMHSA), National Survey on Drug Use and Health. Estimates are annual averages for the Missouri population 12-17 years of age.

Parental substance use is the number one reason Missouri courts order children removed from their homes and parents. In 2013, 42% of the 6,687 out-of-home placements by juvenile courts involved drug and/or alcohol use by the children’s parents. Other major placement reasons were abuse, neglect, caretaker illness, incarceration, inadequate housing, and behavior problems of the children.

Figure 12: Missouri Out-of-Home Placements of Children by Removal Reason, 2013.

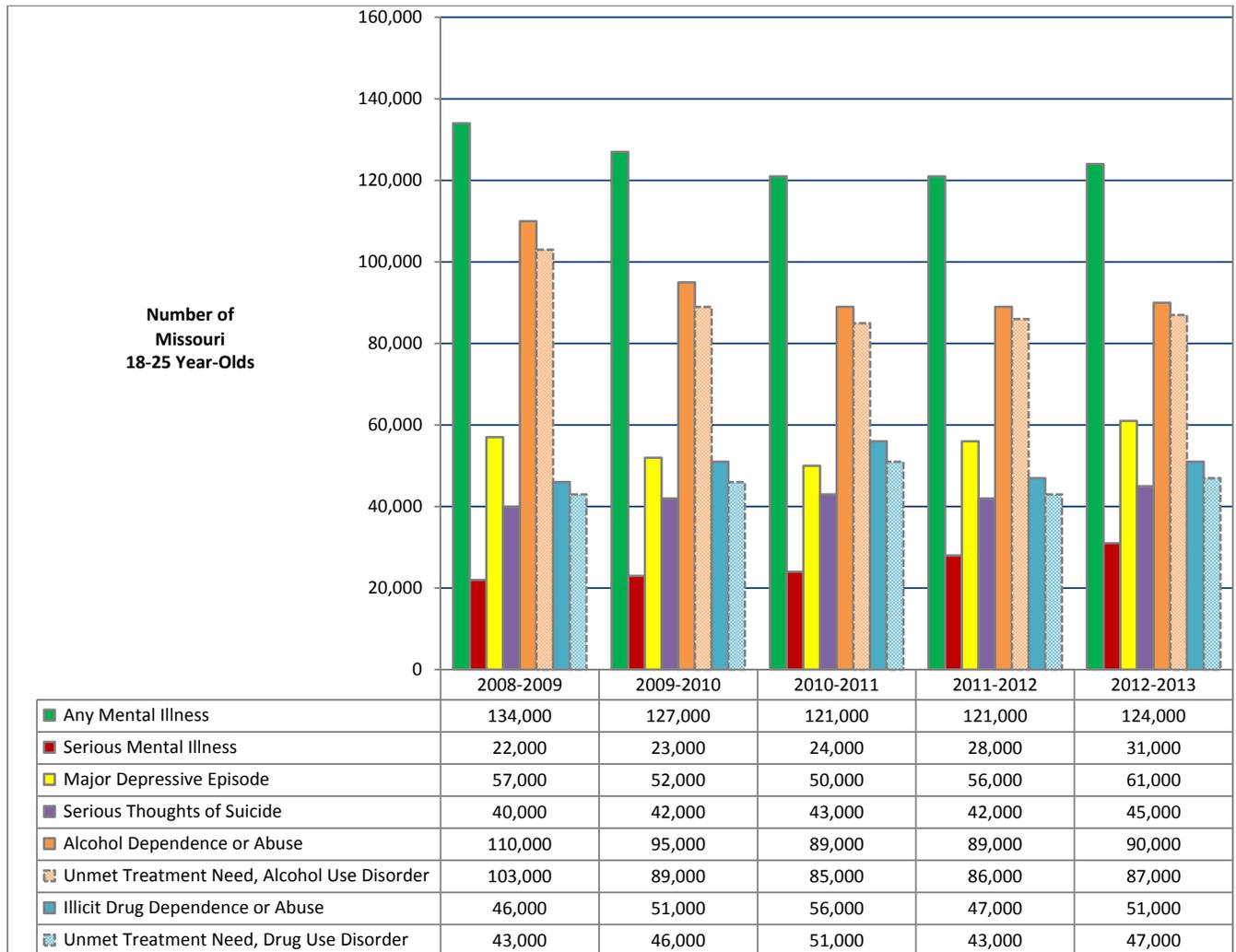


Data Source: Missouri Department of Social Services.

YOUNG ADULTS

Adults under age 26 have the highest rates of substance use disorders. According to state data from the National Survey on Drug Use and Health (NSDUH) for years 2012-2013, 18.1% of Missouri adults in the age group of 18-25 have a past-year substance use disorder—considerably higher than the estimated rate of 5.8% for adolescents and 7.1% for older adults. Among these 118,000 young adults, 90,000 have an alcohol use disorder and 51,000 have a drug use disorder. Included are 23,000 with alcohol *and* drug disorders. In fiscal year 2014, approximately 6,200 young adults were admitted to Missouri Division of Behavioral Health (DBH) treatment programs for substance use disorders. The NSDUH estimates that 87,000 young adults have an unmet need for treatment of alcohol use disorders and 47,000 for drug use disorders.

Figure 13: Past-Year Mental Illness and Substance Use Disorders among Missouri Adults Ages 18-25



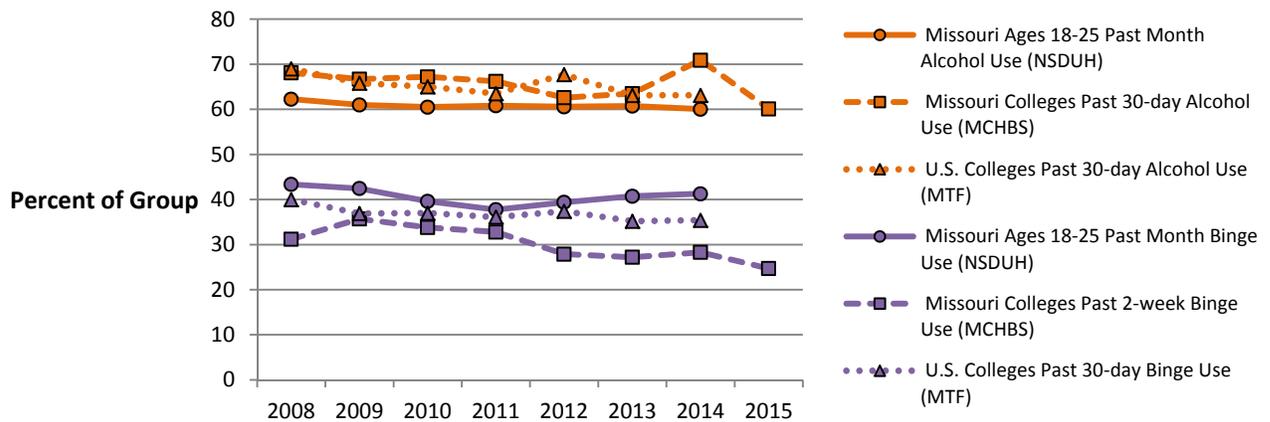
Data Source: U.S. Dept. of Health and Human Services, Substance Abuse and Mental Health Services Administration (SAMHSA), National Survey on Drug Use and Health. Estimates are annual averages for the Missouri population 18-25 years of age.

Young adults are nearly twice as likely to contemplate suicide as older adults. The 2012-2013 NSDUH indicates that 6.8% of adults 18-25 years of age report past-year serious thoughts of suicide, compared to 3.6% of those over age 25. The survey estimates that 124,000 young adults have any past-year mental illness. Among these are 31,000 with serious mental illness (SMI), 61,000 who report a past-year major depressive episode, and 45,000 who report serious thoughts of suicide. In fiscal year 2014, DBH psychiatric programs served approximately 7,600 adults in the 18-25 age group—chiefly for mood, anxiety, and impulse control disorders.

Anxiety and depression are prevalent among Missouri college students. According to the 2015 Missouri College Health Behavior Survey (MCHBS), 45% of students at 21 Missouri universities and colleges had past-year mental health problems with anxiety, and 21% with major depression. The survey also indicates that 17% of students experienced panic attacks and 15% had suicidal thoughts. In contrast, the 2012-2013 NSDUH household survey finds that only 9.4% of Missouri residents 18-25 years of age experience major depression and 6.9% have serious thoughts of suicide in a one-year period.

Three-fourths of Missouri college students have used alcohol in the past year and one-fourth are binge drinkers. The MCHBS also finds that 60% of Missouri college students in 2015 have used alcohol in the past 30 days, matching the 2014 estimated past-month rate for the Missouri 18-25 age group. This rate is slightly lower than the past 30-day rate of 63% for U.S. college students from the nationwide Monitoring the Future (MTF) 2014 survey. The MCHBS reports that 24.7% of college students are current binge drinkers, considerably lower than the 2014 NSDUH estimate of 41% for binge drinking in the Missouri 18-25 age group. This rate is also lower than the binge drinking rate of 35% for U.S. college students.

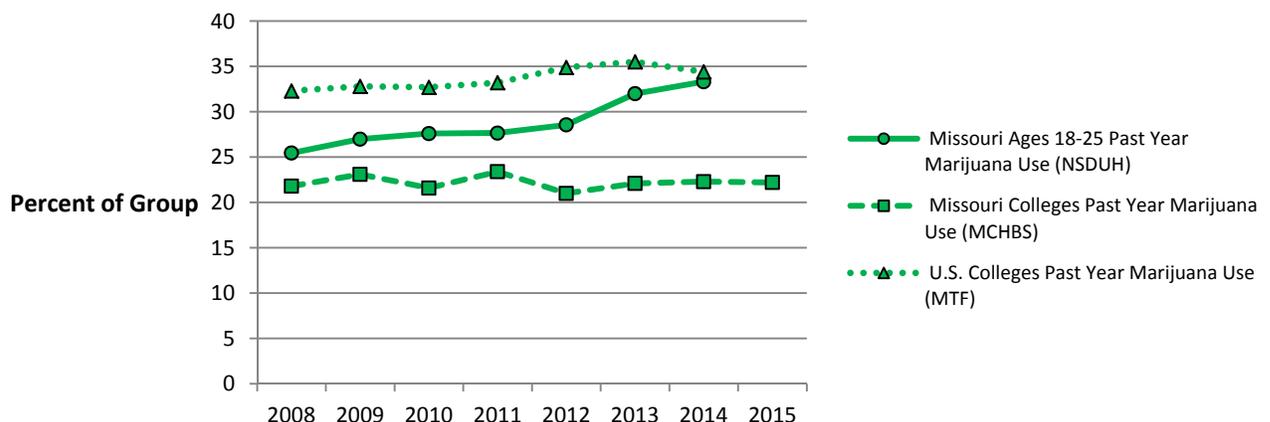
Figure 14: Alcohol Use and Binge Alcohol Use among Missouri Young Adults and College Students



Data Sources: Substance Abuse and Mental Health Services Administration (SAMHSA), National Survey on Drug Use and Health. University of Michigan, Institute for Social Research, Monitoring the Future survey. Partners in Prevention Statewide Coalition, Missouri College Health Behavior Survey.

In the past year, 22% of Missouri college students have used marijuana. This percentage is considerably lower than the 2014 past-year estimates of 34% for U.S. college students and 33% for Missouri adults in the 18-25 age group.

Figure 15: Marijuana Use among Missouri Young Adults and College Students

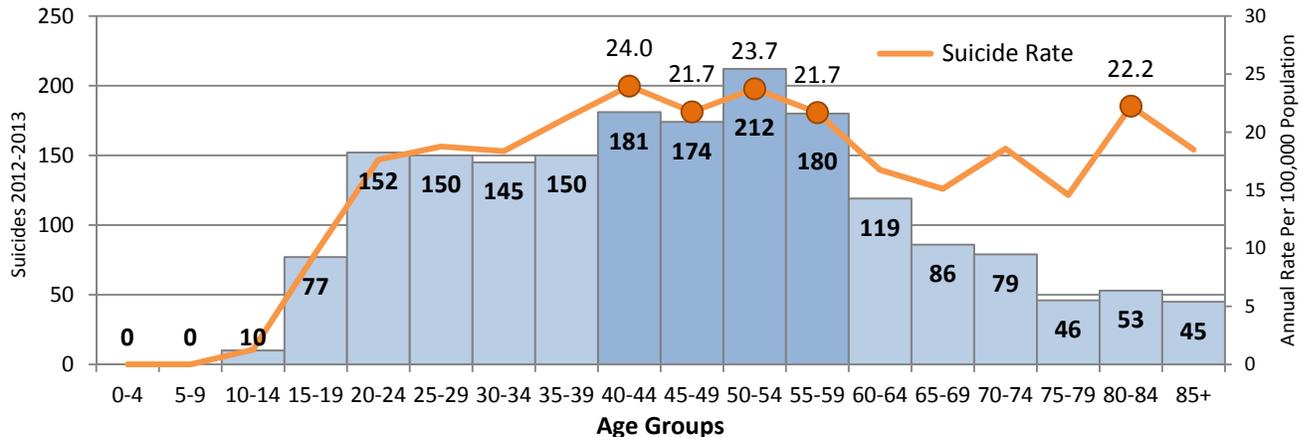


Data Sources: Substance Abuse and Mental Health Services Administration (SAMHSA), National Survey on Drug Use and Health. University of Michigan, Institute for Social Research, Monitoring the Future survey. Partners in Prevention Statewide Coalition, Missouri College Health Behavior Survey.

ADULTS OLDER THAN AGE 25

Missouri suicides are highest among mid-life adults. Despite the high rates of suicide contemplation among young adults, actual suicides and population-based rates in the two-year period 2012-2013 were highest among Missouri residents in their 40's and 50's. The 747 suicides in these age groups comprised 40% of the two-year state total. There was also a suicide spike among elderly residents. According to the 2012-2013 NSDUH, an estimated 271,000 Missouri adults over age 25 experienced at least one past-year major depressive episode and 139,000 had serious thoughts of suicide.

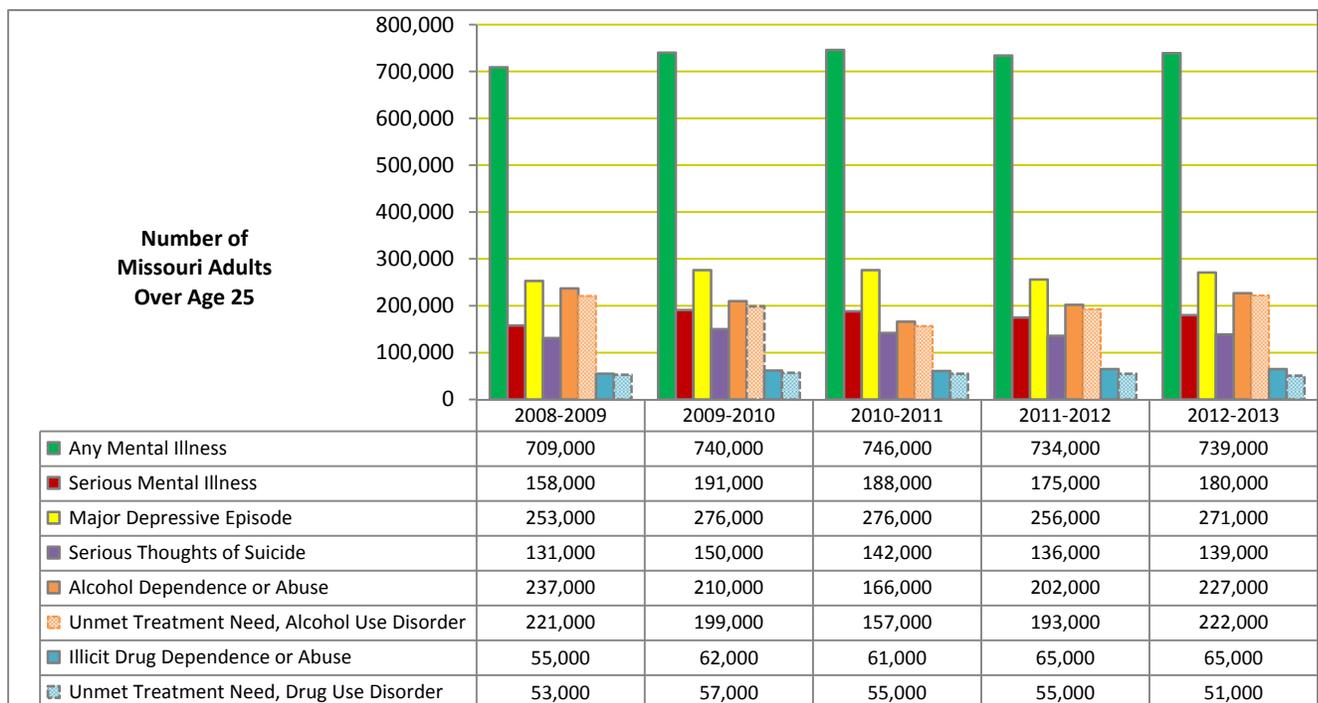
Figure 16: Deaths by Suicide, and Suicide Rate per 100,000 Population by Age Group: Missouri Residents, 2012-2013



Data Sources: Missouri Dept. of Health and Senior Services: Missouri Vital Statistics 2012 and 2013, Tables 21A. U.S. Dept. of Commerce, Bureau of the Census, Annual County Resident Population Estimates by Age, Sex, Race, and Hispanic Origin: 2012 and 2013 tables.

Most Missouri adults over age 25 with substance disorders have alcohol use disorders. According to estimates from the 2012-2013 NSDUH, 273,000 in this age group have past-year substance dependence or abuse. These include approximately 208,000 (76%) with an alcohol use disorder, 46,000 (17%) with a drug use disorder, and 19,000 (7%) with alcohol and drug use disorders.

Figure 17: Past-Year Mental Illness and Substance Use Disorders among Missouri Adults Ages 26+

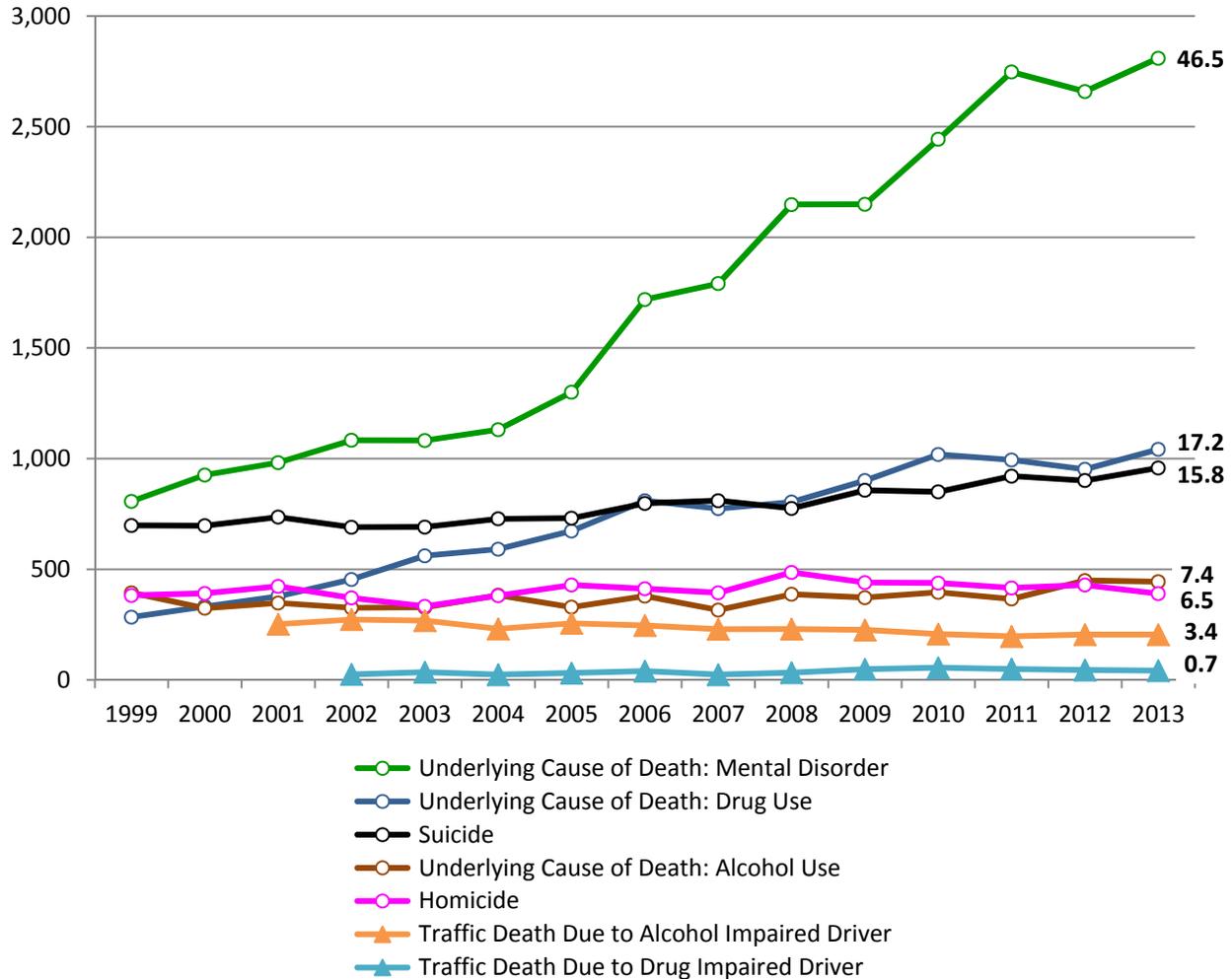


Data Source: U.S. Dept. of Health and Human Services, Substance Abuse and Mental Health Services Administration (SAMHSA), National Survey on Drug Use and Health. Estimates are annual averages for the Missouri population older than age 25.

DEATHS

More than 2,500 Missouri resident deaths per year are attributed to mental disorders. In 2013, 2,800 deaths resulted from mental and behavioral disorders excluding alcohol and drug use disorders. Most of these involved a physiological condition such as cerebral disease, brain injury, or dementia. A record number of Missouri residents died from illicit drug use and suicide in 2013. The 1,042 drug induced deaths surpassed the previous number and rate from 2010. There were 958 recorded deaths from suicide—higher than the 2011 count of 921.

Figure 18: Missouri Deaths Due to Selected Causes, with 2013 Rates per 100,000 Population.



Data Sources:

Missouri Department of Health and Senior Services

Missouri Department of Public Safety, Missouri State Highway Patrol

U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, WONDER online database.

Smoking-attributable deaths in Missouri topped 10,000 in 2013. Missouri had an estimated 10,109 smoking attributable deaths in 2013, exceeding the estimated total of 10,073 in 2008 to reach the highest level since the 1990's. The 2013 smoking death rate of 167.2 per 100,000 population was nearly ten times the rate of 17.2 per 100,000 for illicit drug use.² The Centers for Disease Control and Prevention estimates that 480,000 deaths in the United States each year are attributable to smoking.

²Missouri Department of Health and Senior Services, using the Smoking Attributable Mortality, Morbidity, and Economic Costs (SAMMEC) methodology model developed by the U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.