

It is illegal to post this copyrighted PDF on any website.

Psychiatric Disorders and Crime in the US Population: Results From the National Epidemiologic Survey on Alcohol and Related Conditions Wave III

Kelly E. Moore, PhD^{a,b,*}; Lindsay M. S. Oberleitner, PhD^a; Howard V. Zonana, MD^a; Alec W. Buchanan, MD^a; Brian P. Pittman, MS^a; Terril L. Verplaetse, PhD^a; Gustavo A. Angarita, MD^a; Walter Roberts, PhD^a; and Sherry A. McKee, PhD^a

ABSTRACT

Objective: Current knowledge regarding the intersection of psychiatric disorders and crime in the United States is limited to psychiatric, forensic, and youth samples. This study presents nationally representative data on the relationship of *DSM-5* psychiatric disorders, comorbid substance and mental health disorders, and multimorbidity (number of disorders) with criminal behavior and justice involvement among non-institutionalized US adults.

Methods: Data were drawn from the National Epidemiologic Survey on Alcohol and Related Conditions Wave III (NESARC-III; 2012–2013; N = 36,309). Logistic regressions were used to examine the association of specific disorders (eg, mood, anxiety, eating, posttraumatic stress, substance use), comorbid substance use and mental health disorders, and multimorbidity with lifetime criminal behavior, incarceration experience, and past-12-month general, alcohol-related, and drug-related legal problems.

Results: Overall, 28.5% of participants reported a history of criminal behavior, 11.4% reported a history of incarceration, 1.8% reported current general legal problems, 0.8% reported current alcohol-related legal problems, and 2.7% reported current drug-related legal problems. The presence of any disorder was associated with a 4 to 5 times increased risk of crime outcomes. Drug use disorders were associated with the highest risk of lifetime crime (adjusted odds ratio [AOR] = 6.8; 95% CI, 6.1–7.6) and incarceration (AOR = 4.7; 95% CI, 4.1–5.3) and current legal problems (AOR = 3.3; 95% CI, 2.6–4.2). Multimorbidity and comorbid substance use and mental health disorders were associated with additional risk. Controlling for antisocial personality disorder did not change the findings.

Conclusions: Community adults with substance use disorders, comorbid substance use and mental health disorders, and increasing multimorbidity are most at risk of crime and justice involvement, highlighting the importance of community-based addiction treatment.

J Clin Psychiatry 2019;80(2):18m12317

To cite: Moore KE, Oberleitner LMS, Zonana HV, et al. Psychiatric disorders and crime in the US population: results from the National Epidemiologic Survey on Alcohol and Related Conditions Wave III. *J Clin Psychiatry*. 2019;80(2):18m12317.

To share: <https://doi.org/10.4088/JCP.18m12317>

© Copyright 2019 Physicians Postgraduate Press, Inc.

^aDepartment of Psychiatry, Division of Law and Psychiatry, Division of Substance Abuse, Yale University School of Medicine, New Haven, Connecticut

^bDepartment of Psychology, East Tennessee State University, Johnson City, Tennessee

*Corresponding author: Kelly E. Moore, PhD, Department of Psychology, East Tennessee State University, 420 Rogers-Stout Hall PO Box 70649, Johnson City, TN 37614 (mooreke2@etsu.edu).

The issue of mental illness and crime often attracts national attention and brings to question whether people with psychiatric disorders are more likely to engage in criminal behavior. Ample research supports the association of psychiatric disorders with crime and justice system involvement^{1,2}; however, the majority of this research is drawn from forensic populations,^{3–7} psychiatric populations,^{8,9} youth,^{10,11} or people with serious mental illness (eg, schizophrenia).^{12,13} While population-based studies have examined the association of psychiatric disorders with antisocial personality^{14,15} and violence,^{16,17} there have been few studies focused more broadly on crime and justice system involvement in the general population.¹⁸ Research on the current intersection of psychiatric disorders and crime among non-institutionalized US adults is needed to inform treatment efforts within community mental health and criminal justice systems and guide US policy.

Among forensic and psychiatric samples, people with substance use disorders (SUDs),^{19,20} psychotic disorders (eg, schizophrenia),^{13,21} and mood disorders^{4,8,9,22,23} demonstrate higher rates of criminal behavior and justice system involvement compared to people without these disorders. More recently, trauma-related disorders have been identified as a risk factor for crime,¹ with studies among veterans²⁴ and offenders^{7,25} showing that a posttraumatic stress disorder (PTSD) diagnosis increases risk for incarceration and arrests. Studies among youth suggest an added risk of multiple psychiatric disorders (ie, multimorbidity) on crime,¹¹ and comorbid substance and mental health disorders are associated with greater risk of crime outcomes among forensic^{4,5} and psychiatric^{26–28} populations.

Research on the association of psychiatric disorders and crime in community-based samples is limited. Studies in Sweden¹⁸ and New Zealand²⁹ have shown that people with major psychiatric disorders (eg, schizophrenia/psychosis, affective disorders) have increased risk of justice system involvement; however, there have been no studies to our knowledge examining these relationships in the United States. Moreover, less is known about the association of a variety of psychiatric disorders (eg, anxiety, eating) with crime outcomes, despite the shared emotional and behavioral dysregulation observed across disorders.^{1,30}

Clinical Points

- There are currently no national estimates of the relationship between *DSM-5* psychiatric disorders and crime outcomes among US adults.
- People with substance use disorders, posttraumatic stress disorder, bipolar disorder, or comorbid substance use and mental health disorders should be screened for criminal behavior to identify and target issues that lead to justice system involvement.
- Increased access to community-based substance use and mental health treatment may reduce crime and incarceration in the United States.

The present study drew from the National Epidemiologic Survey on Alcohol and Related Conditions Wave III (NESARC-III), the only nationally representative sample including *Diagnostic and Statistical Manual of Mental Disorders*, Fifth Edition (*DSM-5*), data as well as crime and justice system involvement among adults. This report examines the relationship between specific psychiatric disorders and criminal behavior (engaging in crime) and justice involvement (incarceration, current general, alcohol-related, and drug-related legal problems). We examined each disorder category (ie, mood, anxiety, eating, posttraumatic stress, schizophrenia/psychosis, substance use), disorders within each category, and multimorbidity (number of disorders) as predictors. We also distinguish between mental health disorders (mood, anxiety, eating, trauma, schizophrenia/psychosis) and SUDs to examine aspects of comorbidity (ie, SUD only, mental health disorder only, comorbid substance and mental health disorder). To our knowledge, this study is the first to examine the association of psychiatric disorders, comorbidity, and multimorbidity with crime and justice system involvement among the general US population.

METHODS

Study Design and Participants

Data were drawn from NESARC-III, a survey conducted by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) from April 2012 to June 2013.³¹ The original dataset is available from NIAAA (<https://www.niaaa.nih.gov/research/nesarc-iii>). The sample consisted of 36,309 non-institutionalized US adult men and women whose addresses were randomly selected from the 2010 census via probability sampling of counties in 50 states. Subjects provided written informed consent after receiving a description of the study. Trained NIAAA interviewers conducted an in-person computer-assisted interview (Alcohol Use Disorder and Associated Disabilities Interview Schedule-5 [AUDADIS-5])³², a reliable and valid measure of *DSM-5* criteria). The response rate was 72% for households, 84% for individuals, and 60.1% overall, which is comparable to rates in other national surveys.^{33,34} Data were weighted to adjust for nonresponse and were nationally representative

with regard to age, sex, and race/ethnicity. Original data collection and secondary analysis of data were approved by the institutional review board.

Measures

DSM-5 diagnoses. Lifetime and current (past-12-month) presence versus absence of *DSM-5* diagnoses available in the NESARC-III were categorized as follows: mood disorder (major depressive disorder, persistent depressive disorder, bipolar I disorder), anxiety disorder (generalized anxiety disorder, social anxiety disorder, specific phobia, panic disorder, agoraphobia), eating disorder (anorexia nervosa, bulimia, binge-eating disorder), PTSD, schizophrenia/psychosis, and SUD (includes alcohol use disorder [AUD] and drug use disorder [DUD; marijuana, cocaine, opiates, heroin, sedatives, stimulants, hallucinogens, inhalants/solvents, club drugs, other drugs]). AUDADIS-5 scoring was used for all disorders except for schizophrenia/psychosis, which, in the NESARC-III, was queried by asking, "Did a doctor or other health professional tell you that you had schizophrenia or a psychotic illness or episode in the last 12 months? Did this happen before 12 months ago?"

Multimorbidity and comorbidity. Multimorbidity was assessed by counting lifetime and current diagnoses. We created two 4-level variables (ie, lifetime, current): zero disorders, 1 disorder, 2 disorders, and 3 or more disorders. Two 4-level variables were created for lifetime and current comorbid disorders: zero disorders, SUDs only, mental health disorders only, and comorbid substance and mental health disorders. All levels of these variables were compared to the reference category of zero disorders.

Outcomes. We assessed 2 primary lifetime crime outcomes (N = 36,309). The lifetime presence versus absence of criminal behavior was assessed using questions that pertained to illegal behavior from the NESARC-III antisocial personality module. If participants endorsed (since age 15 years) ever using an alias, scamming someone, engaging in reckless behavior that could hurt someone (eg, driving while intoxicated), destroying property, setting fires, stealing, shoplifting, mugging, breaking into a house or car, forging checks, making money illegally, using a credit card without permission, forcing someone to have sex, starting fights, physically hurting someone (including family) on purpose, hitting and causing a serious injury, threatening or harassing, using weapons in a fight, hurting animals on purpose, or "something you could have been arrested for regardless of whether caught or not," they were coded as having endorsed adult criminal behavior. The presence versus absence of lifetime incarceration was assessed with the question, "Since you were 18, were you ever in jail, prison, or a correctional facility?" In addition to these 2 outcomes, among people who reported having been incarcerated (n = 4,130), the number of days incarcerated was assessed by asking, "About how long altogether were you in jail or a correctional facility since you were 18?" Responses were recorded in number of days.

We assessed 3 current crime outcomes: general, alcohol-related, and drug-related legal problems. General legal

It is illegal to post this copyrighted PDF on any website.

Table 1. Lifetime Crime Outcomes by Sociodemographic Characteristics (N = 36,309)

| Variable | Lifetime Crime, % ^a | P | Lifetime Incarceration, % ^a | P |
|---------------------------------|--------------------------------|-------|--|-------|
| Total | 28.50 | | 11.40 | |
| Sex | | <.001 | | <.001 |
| Women | 21.57 | | 5.96 | |
| Men | 37.40 | | 18.49 | |
| Age, y | | <.001 | | <.001 |
| 18–29 | 31.90 | | 9.52 | |
| 30–44 | 31.11 | | 13.66 | |
| 45–64 | 29.40 | | 13.35 | |
| 65 or older | 17.16 | | 6.20 | |
| Race/ethnicity | | <.001 | | <.001 |
| White | 31.46 | | 11.12 | |
| Black | 29.52 | | 14.72 | |
| Native American | 46.94 | | 25.30 | |
| Asian/Pacific Islander | 13.89 | | 2.73 | |
| Hispanic | 21.62 | | 9.91 | |
| Education | | <.001 | | <.001 |
| < High school | 25.11 | | 16.44 | |
| High school | 28.91 | | 14.09 | |
| Some college | 29.17 | | 8.89 | |
| Marital Status | | <.001 | | <.001 |
| Married/cohabitating | 25.69 | | 9.11 | |
| Widowed/separated/divorced | 29.46 | | 13.86 | |
| Never married | 32.21 | | 13.04 | |
| Income, \$ | | .203 | | <.001 |
| 0–19,999 | 28.14 | | 13.28 | |
| 20,000–34,999 | 28.17 | | 11.25 | |
| 35,000–69,999 | 29.38 | | 9.57 | |
| 70,000 or more | 28.84 | | 7.09 | |
| Urbanicity | | .147 | | .497 |
| Rural | 29.25 | | 11.69 | |
| Urban | 28.33 | | 11.38 | |
| Region | | .001 | | <.001 |
| Northeast | 27.57 | | 7.46 | |
| Midwest | 29.25 | | 12.19 | |
| South | 27.62 | | 12.02 | |
| West | 29.75 | | 12.14 | |
| Antisocial personality disorder | | <.001 | | <.001 |
| No | 25.44 | | 9.89 | |
| Yes | 94.37 | | 44.79 | |

^aUnweighted percentages.

problems were assessed by asking, “Did you have serious trouble with the police or law [in the past 12 months]?” If participants endorsed ever having used alcohol, they were asked, “Did you ever get arrested, held at a police station, or have other legal problems because of drinking? Did this happen in the last 12 months?” Participants who never drank were not asked this question, resulting in a sample size of 31,189. If participants endorsed ever having used illegal drugs, they were asked, “In the last 12 months, did you more than once get arrested, held at a police station or have any other legal problems because of your medicine or drug use?” Participants who never used drugs in the past 12 months were not asked this question, resulting in a sample size of 5,107. Of note, alcohol- and drug-related legal problems variables are not considered mutually exclusive from other variables, but are more focused on substance-related legal involvement. All items had recorded responses of *yes*, *no*, or *unknown*; *unknown* responses were recorded as missing.

Covariates. Analyses were adjusted for sociodemographic characteristics used in prior analyses of the NESARC (ie, sex, age, race/ethnicity, educational attainment, marital status, personal income, urbanicity, and region^{14,35,36,37}) and all other categories of psychiatric disorders (other than the disorder evaluated as the predictor).

Statistical Analysis

Data were analyzed using PROC SURVEYLOGISTIC in SAS, version 9.4 (Cary, North Carolina). This procedure allows for incorporating the stratification, clustering (ie, primary sampling unit [PSU]), and unequal weighting of the sampling design. Chi-square analyses compared sample descriptives across crime outcomes. Logistic regressions examined associations of lifetime psychiatric disorders, lifetime comorbid substance and mental health disorders, and lifetime multimorbidity with lifetime criminal behavior and incarceration and associations of current psychiatric disorders, current comorbid substance and mental health disorders, and current multimorbidity with current general, alcohol-related, and drug-related legal problems, controlling for sociodemographics and psychiatric comorbidity (see Tables 3 and 4). Adjusted odds ratios (AORs) are presented. Supplemental analyses present unadjusted odds ratios (Supplementary Tables 1 and 2) and analyses controlling for antisocial personality disorder (ASPD; ie, due to the potential influence of ASPD on crime outcomes) in addition to sociodemographics and psychiatric disorders (Supplementary Tables 3 and 4). We also explored the effect of sex on outcomes by examining whether associations across our primary analysis differed by sex, and we present results stratified by sex in Supplementary Tables 5–8. An analysis of variance (ANOVA) comparing mean lifetime days incarcerated by the presence versus absence of psychiatric disorders was examined, controlling for sociodemographic characteristics. All tests were 2-tailed, and the significance level was $P < .001$.³⁷

RESULTS

Unweighted prevalence estimates of sociodemographic characteristics by lifetime crime outcomes are reported in Table 1 and by current crime outcomes in Table 2. Regarding lifetime crime, 28.5% of US adults reported engaging in criminal behavior (since age 15 years) and 11.4% reported a history of incarceration as an adult. Adults who were male, younger, Native American, or unmarried/separated or had ASPD were more likely to report criminal behavior and incarceration. Adults in higher income brackets and who were more educated reported rates of criminal behavior similar to those in lower income brackets, but were less likely to be incarcerated. Regarding current crime, 1.8% of US adults reported general legal problems; among people who drank alcohol, 0.8% reported past-year alcohol-related legal problems, and among people who used drugs, 2.7% reported past-year drug-related legal problems. Adults who were male,

Table 2. Current Crime Outcomes by Sociodemographic Characteristics (N=36,309)

| Variable | Current ^a Legal Problems (n=36,309), % ^b | P | Current ^a Alcohol-Related Legal Problems (n=35,772), % ^b | P | Current ^a Drug-Related Legal Problems (n=36,121), % ^b | P |
|---------------------------------|--|-------|---|-------|--|-------|
| Total | 1.80 | | 0.80 | | 2.70 | |
| Sex | | <.001 | | <.001 | | <.001 |
| Women | 1.14 | | 0.33 | | 1.79 | |
| Men | 2.66 | | 1.33 | | 3.44 | |
| Age, y | | <.001 | | <.001 | | .018 |
| 18–29 | 3.67 | | 1.51 | | 3.49 | |
| 30–44 | 1.97 | | 0.81 | | 2.43 | |
| 45–64 | 1.14 | | 0.60 | | 2.21 | |
| 65 or older | 0.33 | | 0.04 | | 0.76 | |
| Race/ethnicity | | <.001 | | <.001 | | .155 |
| White | 1.50 | | 0.65 | | 2.27 | |
| Black | 2.43 | | 0.80 | | 3.61 | |
| Native American | 3.52 | | 1.36 | | 2.50 | |
| Asian/Pacific Islander | 0.67 | | 0.22 | | 1.57 | |
| Hispanic | 2.13 | | 1.22 | | 2.83 | |
| Education | | <.001 | | <.001 | | <.001 |
| < High school | 3.32 | | 1.36 | | 4.40 | |
| High school | 2.11 | | 1.06 | | 3.35 | |
| Some college | 1.27 | | 0.53 | | 1.91 | |
| Marital status | | <.001 | | <.001 | | .001 |
| Married/cohabitating | 1.04 | | 0.34 | | 1.89 | |
| Widowed/separated/ divorced | 1.63 | | 0.77 | | 1.92 | |
| Never married | 3.24 | | 1.54 | | 3.61 | |
| Income, \$ | | <.001 | | <.001 | | <.001 |
| 0–19,999 | 2.62 | | 1.08 | | 3.54 | |
| 20,000–34,999 | 1.61 | | 0.66 | | 2.63 | |
| 35,000–69,999 | 0.79 | | 0.50 | | 0.81 | |
| 70,000 or more | 0.62 | | 0.37 | | 0.00 | |
| Urbanicity | | .188 | | .015 | | .020 |
| Rural | 1.60 | | 0.51 | | 1.33 | |
| Urban | 1.85 | | 0.83 | | 2.89 | |
| Region | | .001 | | .071 | | .034 |
| Northeast | 1.35 | | 0.50 | | 1.18 | |
| Midwest | 2.21 | | 0.85 | | 3.32 | |
| South | 1.66 | | 0.76 | | 2.91 | |
| West | 1.97 | | 0.92 | | 2.72 | |
| Antisocial personality disorder | | <.001 | | <.001 | | <.001 |
| No | 1.51 | | 0.65 | | 2.26 | |
| Yes | 8.25 | | 3.49 | | 5.57 | |

^aRefers to the past 12 months.^bUnweighted percentages.

younger, or unmarried; had lower education and income; or had ASPD were more likely to report current legal problems.

About half (48.9%) of adults reported lifetime psychiatric disorders, and 33.4% reported current psychiatric disorders. For lifetime disorders, 24.1% had 1 disorder, 11.4% had 2, and 13.4% had 3 or more. For current disorders, 19.9% had 1 disorder, 17.2% had 2, and 6.4% had 3 or more. Among people with 3 or more lifetime disorders, the most prevalent disorders were AUD (71.0%), major depressive disorder (65.7%), and DUD (46.6%). Among people with 3 or more current disorders, the most prevalent disorders were major depressive disorder (59.6%), AUD (48.1%), and generalized anxiety (43.9%). In their lifetime, 15.0% of adults had a SUD only, 18.8% had a mental health disorder only, and 15.1% had comorbid substance and mental health disorders. In the past year, 9.9% of adults had SUDs only, 17.4% had a mental health disorder only, and 6.1% had comorbid substance and mental health disorders.

Lifetime psychiatric disorders were associated with increased risk for lifetime criminal behavior (see Table 3).

DUDs were associated with the greatest absolute risk of any disorder (75.8% of those with DUDs reported criminal behavior), followed by AUD. Among other disorders, the odds of criminal behavior were greatest for PTSD, social anxiety disorder, and bipolar I disorder. Multimorbidity and comorbidity were associated with increased risk; 47% of those with only SUDs reported criminal behavior, compared to 24% of those with only mental health disorders and 64% of those with comorbid substance and mental health disorders.

Lifetime psychiatric disorders were associated with increased risk for incarceration (see Table 3). DUDs were associated with the greatest absolute risk of incarceration, followed by AUD. Among other disorders, PTSD, followed by any anxiety disorder, was associated with the greatest risk of incarceration. Risk of incarceration over the lifetime increased as more lifetime disorders were present. Adults with comorbid substance and mental health disorders had the greatest risk of incarceration (26%) compared to those with SUDs only (23%) and mental health disorders only (8%). Analyses comparing the length of time incarcerated

It is illegal to post this copyrighted PDF on any website.

Table 3. Association of Lifetime Psychiatric Disorders With Lifetime Crime Outcomes Adjusted for Sociodemographic Characteristics and Other Disorders (N = 36,309)

| Lifetime Diagnosis | Lifetime Crime | | | Lifetime Incarceration | | |
|---|----------------|------------------|------------|------------------------|------------------|-----------|
| | % ^a | AOR ^b | 95% CI | % ^a | AOR ^b | 95% CI |
| No diagnosis | 14.11 | Reference | ... | 5.14 | Reference | ... |
| Any diagnosis | 43.50 | 4.34* | 4.06–4.62 | 18.01 | 4.11* | 3.71–4.56 |
| Any mood disorder | 43.65 | 1.61* | 1.50–1.73 | 16.08 | 1.21 | 1.08–1.35 |
| Major depressive disorder | 40.85 | 1.41* | 1.32–1.52 | 14.35 | 1.10 | 0.98–1.23 |
| Persistent depressive disorder | 50.07 | 1.60* | 1.39–1.85 | 18.52 | 1.11 | 0.92–1.34 |
| Bipolar I disorder | 69.12 | 2.20* | 1.72–2.81 | 31.46 | 1.48 | 1.13–1.94 |
| Any anxiety disorder | 44.31 | 1.46* | 1.36–1.57 | 16.90 | 1.29* | 1.15–1.45 |
| Generalized anxiety disorder | 49.65 | 1.47* | 1.32–1.64 | 18.72 | 1.23 | 1.07–1.42 |
| Social anxiety disorder | 52.24 | 1.63* | 1.41–1.88 | 21.96 | 1.35 | 1.11–1.65 |
| Specific phobia | 42.18 | 1.37* | 1.20–1.56 | 15.54 | 1.17 | 0.99–1.39 |
| Panic disorder | 48.50 | 1.21 | 1.05–1.40 | 19.61 | 1.20 | 0.97–1.48 |
| Agoraphobia | 53.86 | 1.39 | 1.15–1.67 | 23.07 | 1.30 | 0.96–1.78 |
| Eating disorders ^c | 50.41 | 1.39 | 1.05–1.83 | 14.42 | 1.16 | 0.81–1.66 |
| Posttraumatic stress disorder | 57.27 | 2.09* | 1.82–2.39 | 22.77 | 1.50* | 1.27–1.77 |
| Schizophrenia/psychosis | 46.45 | 1.44 | 1.13–1.83 | 24.22 | 1.42 | 1.05–1.92 |
| Any substance use disorder | 55.52 | 4.30* | 3.99–4.64 | 24.59 | 4.17* | 3.76–4.63 |
| Alcohol use disorder | 54.91 | 3.77* | 3.49–4.07 | 24.03 | 3.54* | 3.19–3.93 |
| Any drug use disorder | 75.80 | 6.81* | 6.12–7.58 | 38.07 | 4.65* | 4.08–5.30 |
| No. of diagnoses ^d | | | | | | |
| 1 | 31.67 | 2.62* | 2.43–2.83 | 12.91 | 2.72* | 2.39–3.09 |
| 2 | 45.65 | 4.90* | 4.47–5.37 | 18.75 | 4.44* | 3.89–5.05 |
| 3 or more | 62.97 | 10.60* | 9.61–11.70 | 26.55 | 7.55* | 6.67–8.54 |
| Comorbid substance use and mental health disorders ^d | | | | | | |
| Substance use disorder only | 47.44 | 4.36* | 3.97–4.79 | 22.95 | 4.63* | 4.07–5.27 |
| Mental health disorder only | 24.29 | 2.11* | 1.94–2.29 | 7.50 | 1.82* | 1.56–2.12 |
| Both | 63.58 | 9.51* | 8.75–10.34 | 26.23 | 6.72* | 5.94–7.59 |

^aUnweighted percentages.

^bOdds ratios are adjusted for sex, age, race/ethnicity, educational attainment, marital status, personal income, urbanicity, and region in addition to other psychiatric disorders.

^cCombined prevalence of anorexia nervosa, bulimia nervosa, and binge-eating disorder.

^dThese models controlled for sociodemographic characteristics only. Reference category for these analyses is "no diagnoses" (n = 18,548).

**P* < .001.

Abbreviation: AOR = adjusted odds ratio.

by the presence versus absence of psychiatric disorders show that adults with SUDs and in particular DUDs were incarcerated more days in their lifetime compared to adults without these disorders (see Table 4).

Any current psychiatric disorder was associated with increased risk of current legal problems (see Table 5). The presence of a SUD was associated with the greatest absolute risk of current legal problems, and within this category, AUDs and DUDs were associated with equal risk. Among other disorders, mood disorders were associated with the greatest risk of current legal problems, followed by major depressive disorder. Risk of current legal problems increased with multimorbidity and comorbidity; 5% of adults with SUDs only and 2% of adults with mental health disorders only reported current legal problems, compared to 8% of adults with comorbid substance use and mental health disorders.

Any current psychiatric disorder was associated with increased risk of alcohol-related legal problems; however, among specific disorders, only SUDs were associated with increased risk. Within the category of SUDs, adults with AUDs experienced the greatest risk of alcohol-related legal problems. Unlike other crime outcomes, more adults with SUDs only (4.2%) reported alcohol-related legal problems compared to adults with comorbid substance and mental

health disorders (3.5%). The only disorders associated with risk of current drug-related legal problems were DUDs. Similar to other crime outcomes, the risk of current drug-related legal problems increased as more current disorders were present. Additionally, 5% of adults with comorbid substance and mental health disorders reported current drug-related legal problems, compared to 4% of adults with SUDs only and 1% of adults with mental health disorders only.

Primary analyses stratified by sex are shown in Supplementary Tables 5–8; interaction analyses showed that within the comorbid substance and mental health variable (ie, no disorders, SUDs only, mental health disorders only, comorbid substance and mental health disorders), men with SUDs only had lower risk of criminal behavior compared to women (OR = 0.69; 95% CI, 0.58–0.81; *P* < .001). Additionally, men with SUDs (OR = 0.70; 95% CI, 0.59–0.82; *P* < .001), AUDs (OR = 0.76; 95% CI, 0.66–0.89; *P* < .001), DUDs (OR = 0.71; 95% CI, 0.58–0.87; *P* < .001), and comorbid substance and mental health disorders (OR = 0.55; 95% CI, 0.45–0.69; *P* < .001) had lower risk of incarceration than women. There were no significant sex differences in other crime outcomes. As is shown in Supplementary Tables 3 and 4, including ASPD as a covariate slightly decreased effect sizes but did not change the pattern of findings.

Table 4. Lifetime Days Incarcerated by Lifetime Psychiatric Diagnoses Adjusted for Sociodemographic Characteristics and Other Disorders (n = 4,076)

| Lifetime Diagnosis | n | Mean | SE | F ^a | P |
|-----------------------------------|-------|--------|-------|----------------|-------|
| Any diagnosis | 3,144 | 124.09 | 23.45 | 4.94 | .028 |
| No diagnosis | 932 | 62.91 | 28.51 | | |
| Any mood disorder diagnosis | 1,363 | 193.46 | 59.36 | 0.69 | .407 |
| No mood disorder | 2,713 | 167.58 | 52.92 | | |
| Major depressive disorder | 1,045 | 190.19 | 64.09 | 0.10 | .753 |
| No major depressive disorder | 3,031 | 179.18 | 53.25 | | |
| Persistent depressive disorder | 367 | 171.38 | 72.96 | 0.08 | .774 |
| No persistent depressive disorder | 3,709 | 185.70 | 54.29 | | |
| Bipolar I disorder | 233 | 238.86 | 71.64 | 1.40 | .239 |
| No bipolar I disorder | 3,843 | 168.32 | 56.12 | | |
| Any anxiety disorder | 1,001 | 169.13 | 53.18 | 0.55 | .462 |
| No anxiety disorder | 3,075 | 191.91 | 59.06 | | |
| Generalized anxiety disorder | 499 | 156.90 | 60.98 | 0.59 | .443 |
| No generalized anxiety disorder | 3,577 | 190.58 | 56.36 | | |
| Social anxiety disorder | 273 | 138.64 | 66.88 | 1.41 | .237 |
| No social anxiety disorder | 3,803 | 191.91 | 54.51 | | |
| Specific phobia | 350 | 169.17 | 67.59 | 0.07 | .789 |
| No specific phobia | 3,726 | 183.54 | 55.69 | | |
| Panic disorder | 352 | 179.61 | 65.35 | 0.00 | .968 |
| No panic disorder | 3,724 | 181.84 | 56.68 | | |
| Agoraphobia | 158 | 192.56 | 93.29 | 0.02 | .886 |
| No agoraphobia | 3,918 | 179.94 | 55.60 | | |
| Eating disorders ^b | 88 | 173.69 | 74.58 | 0.03 | .856 |
| No eating disorders | 3,988 | 187.36 | 55.58 | | |
| Posttraumatic stress disorder | 524 | 207.04 | 65.70 | 1.47 | .228 |
| No posttraumatic stress disorder | 3,552 | 154.00 | 49.82 | | |
| Schizophrenia/psychosis | 213 | 260.96 | 88.77 | 3.51 | .064 |
| No schizophrenia/psychosis | 3,863 | 100.09 | 40.64 | | |
| Any substance use disorder | 2,645 | 227.81 | 54.15 | 16.93 | <.001 |
| No substance use disorder | 1,431 | 133.23 | 56.33 | | |
| Alcohol use disorder | 2,365 | 219.24 | 56.01 | 4.43 | .038 |
| No alcohol use disorder | 1,711 | 164.24 | 54.82 | | |
| Any drug use disorder | 1,332 | 284.54 | 52.00 | 17.09 | <.001 |
| No drug use disorder | 2,744 | 134.51 | 58.72 | | |

^aAnalysis of covariance models are adjusted for sex, age, race/ethnicity, educational attainment, marital status, personal income, urbanicity, region, and other psychiatric diagnoses.

^bCombined prevalence of anorexia nervosa, bulimia nervosa, and binge-eating disorder.

DISCUSSION

This study evaluated the risk of crime outcomes (ie, criminal behavior, incarceration, general and substance-related legal problems) associated with specific psychiatric disorders, comorbid substance use and mental health disorders, and multimorbidity in the most recent representative US sample.

A considerable portion of the US population reported engaging in criminal behavior (28.5%) and having been incarcerated (11.4%) as an adult. Given that NESARC-III data capture any incarceration, including brief jail detention, this rate is greater than that from prior research, which predicted 6.6% of the US population will go to state or federal prison in their lifetime.³⁸ The United States has the highest rate of incarceration in the world, with 1% of its total population currently incarcerated.³⁹ The presence of any psychiatric disorder (controlling for sociodemographics and ASPD) was associated with 4 to 5 times the likelihood of crime outcomes. Multimorbidity, as well as comorbid substance and mental health disorders, was associated with higher risk of crime, consistent

with research^{40,41} showing poor health and social outcomes associated with increasing multimorbidity. Importantly, these findings do not suggest that all people with psychiatric disorders commit crime. The majority of adults with a psychiatric disorder (57%) denied engaging in criminal behavior; however, this contrasts with 86% of adults without psychiatric disorders who denied criminal behavior.

Adults most at risk of current substance-related and non-substance-related crime had multiple psychiatric disorders, SUDs (particularly DUDs), or comorbid substance use and mental health disorders, which is consistent with findings of international studies examining psychiatric disorders and violent crime.²⁹ Over a third of adults with DUDs reported having been incarcerated. These findings parallel research showing that veterans and offenders with substance use/comorbid substance use and mental health disorders have the highest risk for future crime.^{19,42–44} There are numerous pathways from substance use to crime, including possession of drugs, engagement in crime to financially support addiction, risky behavior while intoxicated, and being in environments wherein crime is common.⁴⁵ Community-based treatment of SUDs is necessary to reduce crime and justice-system involvement. Unfortunately, among US adults in need of substance use treatment, only 11% receive treatment.⁴⁶ Once people with SUDs become involved in the justice system, they are unlikely to receive evidence-based treatment⁴⁷ and have heightened rates of recidivism.⁴³

Although smaller in magnitude compared to crime outcomes associated with SUDs, several other mental health disorders had significant associations with crime outcomes. Bipolar I disorder and PTSD were associated with the strongest risk of lifetime crime and, in the case of PTSD, incarceration. The link between bipolar I disorder and crime is well documented⁴⁸ and may reflect engagement in reckless behavior during mania.²² Indeed, manic symptoms are commonly diagnosed (up to 50%) among inmates.⁴⁹ In addition, research has uncovered a heightened prevalence of risky, impulsive (including antisocial) behavior among people with PTSD.⁵⁰ Theories suggest that hypervigilance paired with aggression, or suspiciousness and subsequent distancing from prosocial individuals and communities among people with PTSD may be an explanatory mechanism,²⁵ although these theories have yet to be tested empirically. Alternatively, psychiatric disorders share common risk factors that may increase the propensity for illicit behaviors, such as emotion dysregulation.⁵¹ As noted by Skeem and colleagues,³ there are many factors associated with psychiatric disorders that contribute to crime in addition to uncontrolled symptoms, such as low socioeconomic status. Although controlling for such factors helps account

It is illegal to post this copyrighted PDF on any website.

Table 5. Association of Current Psychiatric Disorders With Current Crime Outcomes Adjusted for Sociodemographic Characteristics and Other Disorders (N = 36,309)

| Current Diagnosis | Current ^a Legal Problems | | | Current ^a Alcohol-Related Legal Problems | | | Current ^a Drug-Related Legal Problems | | |
|---|--|------------------|-----------|--|------------------|-------------|---|------------------|------------|
| | % ^b | AOR ^c | 95% CI | % ^b | AOR ^c | 95% CI | % ^b | AOR ^c | 95% CI |
| No diagnosis | 0.78 | Reference | ... | 0.13 | Reference | ... | 0.83 | Reference | ... |
| Any diagnosis | 3.85 | 3.94* | 3.24–4.79 | 2.26 | 12.22* | 6.40–23.34 | 3.59 | 3.73 | 1.84–7.57 |
| Any mood disorder | 4.04 | 1.78* | 1.40–2.27 | 1.55 | 0.98 | 0.63–1.54 | 3.75 | 1.51 | 0.94–2.41 |
| Major depressive disorder | 3.76 | 1.68* | 1.31–2.16 | 1.21 | 0.82 | 0.46–1.48 | 3.64 | 1.40 | 0.80–2.48 |
| Persistent depressive disorder | 4.39 | 1.54 | 1.08–2.21 | 2.07 | 1.35 | 0.68–2.67 | 3.21 | 1.40 | 0.59–3.37 |
| Bipolar I disorder | 5.58 | 1.50 | 0.87–2.60 | 2.93 | 1.30 | 0.58–2.92 | 4.13 | 1.18 | 0.55–2.55 |
| Any anxiety disorder | 3.30 | 1.37 | 1.02–1.85 | 1.09 | 0.66 | 0.44–0.97 | 3.14 | 0.91 | 0.53–1.58 |
| Generalized anxiety disorder | 4.30 | 1.79 | 1.27–2.54 | 1.13 | 0.75 | 0.39–1.44 | 3.11 | 0.96 | 0.51–1.82 |
| Social anxiety disorder | 3.78 | 0.96 | 0.62–1.49 | 1.27 | 0.60 | 0.27–1.36 | 4.98 | 1.60 | 0.82–3.12 |
| Specific phobia | 2.51 | 1.07 | 0.74–1.57 | 0.94 | 0.43 | 0.24–0.78 | 2.49 | 0.75 | 0.36–1.58 |
| Panic disorder | 4.71 | 1.08 | 0.72–1.60 | 1.54 | 1.00 | 0.52–1.94 | 4.55 | 1.28 | 0.58–2.80 |
| Agoraphobia | 4.01 | 0.90 | 0.52–1.58 | 1.77 | 0.97 | 0.40–2.34 | 5.52 | 2.09 | 0.84–5.21 |
| Eating disorders ^d | 1.55 | 0.41 | 0.16–1.08 | 1.01 | 1.03 | 0.29–3.69 | 2.06 | 0.92 | 0.20–4.17 |
| Posttraumatic stress disorder | 4.89 | 1.29 | 0.92–1.82 | 1.86 | 1.05 | 0.64–1.72 | 5.05 | 1.82 | 1.12–2.96 |
| Schizophrenia/psychosis | 8.31 | 2.18 | 1.14–4.19 | 2.80 | 1.22 | 0.43–3.48 | 4.17 | 1.12 | 0.33–3.75 |
| Any substance use disorder | 6.06 | 3.53* | 2.83–4.40 | 3.89 | 22.92* | 12.07–43.53 | 4.22 | 2.88 | 1.62–5.11 |
| Alcohol use disorder | 5.96 | 3.22* | 2.58–4.02 | 4.17 | 18.55* | 10.27–33.51 | 3.60 | 0.99 | 0.68–1.45 |
| Any drug use disorder | 10.36 | 3.27* | 2.57–4.17 | 5.71 | 5.04* | 3.34–7.62 | 5.99 | 3.14* | 1.98–4.99 |
| No. of diagnoses ^e | | | | | | | | | |
| 1 | 2.73 | 2.77* | 2.20–3.49 | 1.94 | 10.79* | 5.60–20.77 | 2.39 | 2.68 | 1.21–5.92 |
| 2 | 4.32 | 4.84* | 3.63–6.46 | 2.13 | 12.55* | 5.74–27.44 | 3.65 | 3.35 | 1.55–7.26 |
| 3 or more | 6.80 | 6.71* | 5.14–8.76 | 3.38 | 16.74* | 8.48–33.05 | 5.29 | 5.70* | 2.64–12.32 |
| Comorbid substance use and mental health disorders ^e | | | | | | | | | |
| Substance use disorder only | 5.04 | 4.16* | 3.20–5.39 | 4.16 | 20.80* | 10.62–40.74 | 3.80 | 3.62 | 1.74–7.52 |
| Mental health disorder only | 1.82 | 2.32* | 1.76–3.06 | 0.07 | 0.20 | 0.05–0.77 | 1.24 | 2.03 | 0.70–5.84 |
| Both | 7.73 | 7.03* | 5.46–9.04 | 3.45 | 14.77* | 7.16–30.45 | 4.73 | 4.74* | 2.15–10.45 |

^aRefers to the past 12 months.

^bUnweighted percentages.

^cOdds ratios are adjusted for sex, age, race/ethnicity, educational attainment, marital status, personal income, urbanicity, and region in addition to other psychiatric disorders.

^dCombined prevalence of anorexia nervosa, bulimia nervosa, and binge-eating disorder.

^eThese models controlled for sociodemographic characteristics only. Reference category for these analyses is “no diagnoses” (n = 18,548).

*P < .001.

Abbreviation: AOR = adjusted odds ratio.

for their contribution to crime risk, the association between mental illness and crime is complex and prospective data are needed to draw conclusions about mechanisms explaining this relationship.

Supplemental analysis of sex differences highlighted that women with SUDs and comorbid substance use and mental health disorders had greater risk of incarceration than men, which is consistent with findings of a national study of psychiatric disorders and crime in Sweden.¹⁸ Research has suggested that the well-documented “gender-gap” in crime (ie, men report more crime and violence than women) is smaller among those with psychiatric disorders, especially bipolar disorder, psychosis, or phobias.⁵² It may be that women with SUDs have more severe or impairing psychiatric symptoms that prompt arrest compared to men. More research is needed to clarify the mechanisms explaining such sex differences.

Although this study presents current data on the intersection of psychiatric disorders and crime in a nationally representative sample, there are limitations. Crime outcomes are self-reported, and there may be an unknown amount of underreporting or biased recall, although self-reported crime is adequately correlated with official records.^{53–55} We were limited to the available questions in NESARC-III; there

were no questions assessing types of justice involvement (eg, charges, convictions) or severity of crime (eg, misdemeanor vs felony). Questions about drug-related and alcohol-related legal problems differed slightly; participants were scored affirmatively for alcohol-related legal problems if they endorsed any legal issues, whereas only those with more than one legal issue were scored affirmatively on drug-related legal problems. Although we analyzed lifetime diagnoses with lifetime outcomes, and current diagnoses with current outcomes, the time of diagnosis may not have overlapped with when the crime was committed. Temporal precedence could not be established using NESARC-III. Finally, NESARC-III did not contain a comprehensive list of *DSM-5* diagnoses, and schizophrenia/psychosis may have been underrepresented, as it was assessed via self-report (which could explain our lack of findings for this diagnosis).

In conclusion, in a nationally representative sample, criminal behavior and incarceration are prevalent and SUDs, comorbid substance use and mental health disorders, and multimorbidity are most strongly associated with criminal behavior and justice system involvement. Our findings about disorders associated with crime risk parallel research on disorders that increase risk for recidivism among forensic populations.²³ Thus, high-risk individuals

(ie, those with SUDs, PTSD, or comorbid disorders) who are likely to become involved in the justice system are also more likely to stay in this system. With regard to clinical implications, improved access to community-based treatment, including diversion from the justice system to mental health or substance use treatment, may reduce crime and incarceration.^{56,57} At-risk individuals, including those with SUDs, PTSD, bipolar I disorder, or comorbidity, should be screened for criminal behavior in community-based systems to identify and target behaviors that lead to arrest. Psychiatric symptoms and other criminogenic factors should be treated to prevent continued criminal justice involvement.

Submitted: April 25, 2018; accepted September 5, 2018.

Published online: February 12, 2019.

Potential conflicts of interest: None.

Funding/support: This work was funded in part by the National Institute on Drug Abuse (NIDA; T32DA019426-12; KEM) and the State of Connecticut, Department of Mental Health and Addiction Services (DMHAS). The National Epidemiologic Survey on Alcohol and Related Conditions Wave III (NESARC-III) was sponsored by the National Institute on Alcohol Abuse and Alcoholism (NIAAA), with supplemental support from NIDA. Support is acknowledged from the intramural program, NIAAA, National Institutes of Health.

Role of the sponsor: Sponsors and funders of the NESARC-III and specific funders of this study had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and the decision to submit the manuscript for publication.

Disclaimer: This publication does not express the views of DMHAS, the State of Connecticut, NIDA, or NIAAA.

Supplementary material: Available at PSYCHIATRIST.COM.

REFERENCES

- McCormick S, Peterson-Badali M, Skilling T. Mental health and justice system involvement: a conceptual analysis of the literature. *Psychol Public Policy Law*. 2015;21(2):213–225.
- Andrews DA, Bonta J. Rehabilitating criminal justice policy and practice. *Psychol Public Policy Law*. 2010;16(1):39–55.
- Skeem JL, Manchak S, Peterson JK. Correctional policy for offenders with mental illness: creating a new paradigm for recidivism reduction. *Law Hum Behav*. 2011;35(2):110–126.
- Balyakina E, Mann K, Ellison M, et al. Risk of future offense among probationers with co-occurring substance use and mental health disorders. *Community Ment Health J*. 2014;50(3):288–295.
- Constantine RJ, Pettila J, Andel R, et al. Arrest trajectories of adult offenders with a serious mental illness. *Psychol Public Policy Law*. 2010;16(4):319–339.
- Martin MS, Dorken SK, Wamboldt AD, et al. Stopping the revolving door: a meta-analysis on the effectiveness of interventions for criminally involved individuals with major mental disorders. *Law Hum Behav*. 2012;36(1):1–12.
- Proctor SL, Alvarez de la Campa GJ, Medina-Reyes L, et al. Clinical and demographic correlates of the type and frequency of criminal behavior among jail inmates with a substance use disorder. *Am J Crim Justice*. 2017;42(4):746–758.
- Modestin J, Wuermle O. Criminality in men with major mental disorder with and without comorbid substance abuse. *Psychiatry Clin Neurosci*. 2005;59(1):25–29.
- Soyka M, Zingg C. Association for methodology and documentation in psychiatry profiles predict later risk for criminal behavior and violent crimes in former inpatients with affective disorder. *J Forensic Sci*. 2010;55(3):655–659.
- Ferguson KM, Bender K, Thompson SJ, et al. Exploration of arrest activity among homeless young adults in four US cities. *Soc Work Res*. 2012;36(3):233–238.
- Coker KL, Smith PH, Westphal A, et al. Crime and psychiatric disorders among youth in the US population: an analysis of the National Comorbidity Survey-Adolescent Supplement. *J Am Acad Child Adolesc Psychiatry*. 2014;53(8):888–898, 898.e1–898.e2.
- Tiihonen J, Isohanni M, Räsänen P, et al. Specific major mental disorders and criminality: a 26-year prospective study of the 1966 northern Finland birth cohort. *Am J Psychiatry*. 1997;154(6):840–845.
- Wallace C, Mullen PE, Burgess P. Criminal offending in schizophrenia over a 25-year period marked by deinstitutionalization and increasing prevalence of comorbid substance use disorders. *Am J Psychiatry*. 2004;161(4):716–727.
- Goldstein RB, Chou P, Saha TD, et al. The epidemiology of antisocial behavioral syndromes in adulthood: results from the National Epidemiologic Survey on Alcohol and Related Conditions-III. *J Clin Psychiatry*. 2017;78(1):90–98.
- Sareen J, Stein MB, Cox BJ, et al. Understanding comorbidity of anxiety disorders with antisocial behavior: findings from two large community surveys. *J Nerv Ment Dis*. 2004;192(3):178–186.
- Pulay AJ, Dawson DA, Hasin DS, et al. Violent behavior and DSM-IV psychiatric disorders: results from the national epidemiologic survey on alcohol and related conditions. *J Clin Psychiatry*. 2008;69(1):12–22.
- Harford TC, Chen CM, Kerridge BT, et al. Self- and other-directed forms of violence and their relationship with lifetime DSM-5 psychiatric disorders: results from the National Epidemiologic Survey on Alcohol Related Conditions-III (NESARC-III). *Psychiatry Res*. 2018;262(262):384–392.
- Hodgins S. Mental disorder, intellectual deficiency, and crime: evidence from a birth cohort. *Arch Gen Psychiatry*. 1992;49(6):476–483.
- Skjaervø I, Skurtveit S, Clausen T, et al. Substance use pattern, self-control and social network are associated with crime in a substance-using population. *Drug Alcohol Rev*. 2017;36(2):245–252.
- Comiskey CM, Stapleton R, Kelly PA. Ongoing cocaine and benzodiazepine use: Effects on acquisitive crime commitment rates amongst opiate users in treatment. *Drugs Educ Prev Policy*. 2012;19(5):406–414.
- Morgan VA, Morgan F, Valuri G, et al. A whole-of-population study of the prevalence and patterns of criminal offending in people with schizophrenia and other mental illness. *Psychol Med*. 2013;43(9):1869–1880.
- Graz C, Etschel E, Schoech H, et al. Criminal behaviour and violent crimes in former inpatients with affective disorder. *J Affect Disord*. 2009;117(1–2):98–103.
- Baillargeon J, Binswanger IA, Penn JV, et al. Psychiatric disorders and repeat incarcerations: the revolving prison door. *Am J Psychiatry*. 2009;166(1):103–109.
- Elbogen EB, Johnson SC, Newton VM, et al. Criminal justice involvement, trauma, and negative affect in Iraq and Afghanistan war era veterans. *J Consult Clin Psychol*. 2012;80(6):1097–1102.
- Sadeh N, McNiel DE. Posttraumatic stress disorder increases risk of criminal recidivism among justice-involved persons with mental disorders. *Crim Justice Behav*. 2015;42(6):573–586.
- Fazel S, Lichtenstein P, Grann M, et al. Bipolar disorder and violent crime: new evidence from population-based longitudinal studies and systematic review. *Arch Gen Psychiatry*. 2010;67(9):931–938.
- Ogloff JRP, Talevski D, Lemphers A, et al. Co-occurring mental illness, substance use disorders, and antisocial personality disorder among clients of forensic mental health services. *Psychiatr Rehabil J*. 2015;38(1):16–23.
- Robertson AG, Swanson JW, Frisman LK, et al. Patterns of justice involvement among adults with schizophrenia and bipolar disorder: key risk factors. *Psychiatr Serv*. 2014;65(7):931–938.
- Arseneault L, Moffitt TE, Caspi A, et al. Mental disorders and violence in a total birth cohort: results from the Dunedin Study. *Arch Gen Psychiatry*. 2000;57(10):979–986.
- Hofmann SG, Sawyer AT, Fang A, et al. Emotion dysregulation model of mood and anxiety disorders. *Depress Anxiety*. 2012;29(5):409–416.
- Grant BF, Amsbary M, Chu A, et al. *Source and Accuracy Statement: National Epidemiologic Survey on Alcohol and Related Conditions-III (NESARC-III)*. Rockville, MD: National Institute on Alcohol Abuse and Alcoholism; 2014.
- Hasin DS, Greenstein E, Aivadyan C, et al. The Alcohol Use Disorder and Associated Disabilities Interview Schedule-5 (AUDADIS-5): procedural validity of substance use disorders modules through clinical re-appraisal in a general population sample. *Drug Alcohol Depend*. 2015;148(123):40–46.
- Galea S, Tracy M. Participation rates in epidemiologic studies. *Ann Epidemiol*. 2007;17(9):643–653.
- Blackwell DL, Lucas JW, Clarke TC. Summary health statistics for US adults: national health interview survey, 2012. *Vital Health Stat 10*. 2014;260(1):1–161.
- Fearn NE, Vaughn MG, Nelson EJ, et al. Trends and correlates of substance use disorders among probationers and parolees in the United States 2002–2014. *Drug Alcohol Depend*. 2016;167:128–139.
- Chou SP, Goldstein RB, Smith SM, et al. The epidemiology of DSM-5 nicotine use disorder: results from the National Epidemiologic Survey on Alcohol and Related Conditions-III. *J Clin Psychiatry*. 2016;77(10):1404–1412.
- Grant BF, Goldstein RB, Saha TD, et al. Epidemiology of DSM-5 alcohol use disorder: results from the National Epidemiologic Survey on Alcohol and Related Conditions III. *JAMA Psychiatry*. 2015;72(8):757–766.

It is illegal to post this copyrighted PDF on any website.

38. Bonczar TP. Prevalence of imprisonment in the US population, 1974–2001. *Bureau of Justice Statistics Special Report*. 2003;(August):1–12.
39. Blumstein A. Bringing down the US prison population. *Prison J*. 2011;91(3_suppl):125–265.
40. Angst J, Sellaro R, Ries Merikangas K. Multimorbidity of psychiatric disorders as an indicator of clinical severity. *Eur Arch Psychiatry Clin Neurosci*. 2002;252(4):147–154.
41. Gamma A, Angst J. Concurrent psychiatric comorbidity and multimorbidity in a community study: gender differences and quality of life. *Eur Arch Psychiatry Clin Neurosci*. 2001;251(suppl 2):II43–II46.
42. Weaver CM, Trafton JA, Kimerling R, et al. Prevalence and nature of criminal offending in a national sample of veterans in VA substance use treatment prior to the Operation Enduring Freedom/Operation Iraqi Freedom conflicts. *Psychol Serv*. 2013;10(1):54–65.
43. Håkansson A, Berglund M. Risk factors for criminal recidivism—a prospective follow-up study in prisoners with substance abuse. *BMC Psychiatry*. 2012;12(1):111.
44. Sutherland R, Sindicich N, Barrett E, et al. Motivations, substance use and other correlates amongst property and violent offenders who regularly inject drugs. *Addict Behav*. 2015;45(45):207–213.
45. Newcomb MD, Galaif ER, Carmona V. The drug-crime nexus in a community sample of adults. *Psychol Addict Behav*. 2001;15(3):185–193.
46. Park-Lee E, Lipari RN, Hedden SL, et al. *Receipt of Services for Substance Use and Mental Health Issues Among Adults: Results from the 2016 National Survey on Drug Use and Health*. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2016.
47. Wakeman SE, Rich JD. Addiction treatment within US correctional facilities: bridging the gap between current practice and evidence-based care. *J Addict Dis*. 2015;34(2–3):220–225.
48. Swann AC, Lijffijt M, Lane SD, et al. Criminal conviction, impulsivity, and course of illness in bipolar disorder. *Bipolar Disord*. 2011;13(2):173–181.
49. James DJ, Glaze LE. Mental health problems of prison and jail inmates. *Bureau of Justice Statistics Special Report*. 2006;(September):1–12.
50. Weiss NH, Tull MT, Viana AG, et al. Impulsive behaviors as an emotion regulation strategy: examining associations between PTSD, emotion dysregulation, and impulsive behaviors among substance dependent inpatients. *J Anxiety Disord*. 2012;26(3):453–458.
51. Baumeister RF, Lobbstaël J. Emotions and antisocial behavior. *J Forensic Psychiatry Psychol*. 2011;22(5):635–649.
52. Stueve A, Link BG. Gender differences in the relationship between mental illness and violence: evidence from a community-based epidemiological study in Israel. *Soc Psychiatry Psychiatr Epidemiol*. 1998;33(suppl 1):S61–S67.
53. Pollock W, Menard S, Elliott DS, et al. It's official: predictors of self-reported vs officially recorded arrests. *J Crim Justice*. 2015;43(1):69–79.
54. Maxfield MG, Weiler BL, Widom CS. Comparing self-reports and official records of arrests. *J Quant Criminol*. 2000;16(1):87–110.
55. Babinski LM, Hartsough CS, Lambert NM. A comparison of self-report of criminal involvement and official arrest records. *Aggress Behav*. 2001;27(1):44–54.
56. Anestis JC, Carbonell JL. Stopping the revolving door: effectiveness of mental health court in reducing recidivism by mentally ill offenders. *Psychiatr Serv*. 2014;65(9):1105–1112.
57. Garnick DW, Horgan CM, Acevedo A, et al. Criminal justice outcomes after engagement in outpatient substance abuse treatment. *J Subst Abuse Treat*. 2014;46(3):295–305.

See supplementary material for this article at PSYCHIATRIST.COM.

You are prohibited from making this PDF publicly available.



THE JOURNAL OF CLINICAL PSYCHIATRY

THE OFFICIAL JOURNAL OF THE AMERICAN SOCIETY OF CLINICAL PSYCHOPHARMACOLOGY

Supplementary Material

Article Title: Psychiatric Disorders and Crime in the US Population

Author(s): Kelly E. Moore, PhD; Lindsay M. S. Oberleitner, PhD; Howard V. Zonana, MD; Alec W. Buchanan, MD; Brian P. Pittman, MS; Terril L. Verplaetse, PhD; Gustavo A. Angarita, MD; Walter Roberts, PhD; and Sherry A. McKee, PhD

DOI Number: <https://doi.org/10.4088/JCP.18m12317>

List of Supplementary Material for the article

1. [Table 1](#) Association of Lifetime Psychiatric Disorders with Lifetime Crime Outcomes (Unadjusted Odds Ratios) ($n = 36,309$)
2. [Table 2](#) Association of Current Psychiatric Disorders with Current Crime Outcomes (Unadjusted Odds Ratios) ($n = 36,309$)
3. [Table 3](#) Association of Lifetime Psychiatric Disorders with Lifetime Crime Outcomes Adjusted for Sociodemographic Characteristics, Other Disorders, and Antisocial Personality Disorder ($n = 36,309$)
4. [Table 4](#) Association of Current Psychiatric Disorders with Current Crime Outcomes Adjusted for Sociodemographic Characteristics, Other Disorders, and Antisocial Personality Disorder ($n = 36,309$)
5. [Table 5](#) Association of Lifetime Psychiatric Disorders with Lifetime Crime Outcomes Adjusted for Sociodemographic Characteristics and Other Disorders, Women Only ($n = 20,447$)
6. [Table 6](#) Association of Lifetime Psychiatric Disorders with Lifetime Crime Outcomes Adjusted for Sociodemographic Characteristics and Other Disorders, Men Only ($n = 15,862$)
7. [Table 7](#) Association of Current Psychiatric Disorders with Current Crime Outcomes Adjusted for Sociodemographic Characteristics and Other Disorders, Women Only ($n = 20,447$)
8. [Table 8](#) Association of Current Psychiatric Disorders with Current Crime Outcomes Adjusted for Sociodemographic Characteristics and Other Disorders, Men Only ($n = 15,862$)

Disclaimer

This Supplementary Material has been provided by the author(s) as an enhancement to the published article. It has been approved by peer review; however, it has undergone neither editing nor formatting by in-house editorial staff. The material is presented in the manner supplied by the author.

© Copyright 2019 Physicians Postgraduate Press, Inc.

Supplementary Table 1. Association of Lifetime Psychiatric Disorders with Lifetime Crime Outcomes (Unadjusted Odds Ratios) ($n = 36,309$)

| Lifetime Diagnosis | Lifetime Crime | | | Lifetime Incarceration | | |
|---|----------------|---------|--------------|------------------------|--------|-------------|
| | % ^a | OR | [95% CI] | % ^a | OR | [95% CI] |
| No Diagnosis | 14.11 | Ref | ---- | 5.14 | Ref | ---- |
| Any Diagnosis | 43.50 | 4.53 * | [4.26-4.82] | 18.01 | 4.13 * | [3.72-4.57] |
| Any Mood Disorder | 43.65 | 2.31 * | [2.18-2.44] | 16.08 | 1.69 * | [1.55-1.85] |
| Major Depression | 40.85 | 1.90 * | [1.79-2.02] | 14.35 | 1.36 * | [1.24-1.50] |
| Dysthymia | 50.07 | 2.63 * | [2.35-2.94] | 18.52 | 1.88 * | [1.62-2.18] |
| Bipolar I | 69.12 | 5.59 * | [4.56-6.86] | 31.46 | 3.67 * | [2.92-4.62] |
| Any Anxiety Disorder | 44.31 | 2.23 * | [2.10-2.38] | 16.90 | 1.75 * | [1.60-1.90] |
| Generalized Anxiety | 49.65 | 2.53 * | [2.32-2.75] | 18.72 | 1.83 * | [1.62-2.06] |
| Social Anxiety | 52.24 | 2.91 * | [2.62-3.23] | 21.96 | 2.23 * | [1.87-2.65] |
| Specific Phobia | 42.18 | 1.82 * | [1.64-2.02] | 15.54 | 1.43 * | [1.23-1.66] |
| Panic | 48.50 | 2.37 * | [2.11-2.66] | 19.61 | 1.94 * | [1.64-2.31] |
| Agoraphobia | 53.86 | 2.90 * | [2.52-3.35] | 23.07 | 2.32 | [1.79-3.00] |
| Eating Disorders ^a | 50.41 | 2.29 * | [1.87-2.80] | 14.42 | 1.36 | [1.01-1.84] |
| Posttraumatic Stress | 57.27 | 3.57 * | [3.17-4.01] | 22.77 | 2.49 * | [2.14-2.80] |
| Schizophrenia/Psychosis | 46.45 | 2.16 * | [1.75-2.66] | 24.22 | 2.41 * | [1.84-3.16] |
| Any Substance Use Disorder | 55.52 | 5.98 * | [5.59-6.39] | 24.59 | 5.26 * | [4.75-5.82] |
| Alcohol Use Disorder | 54.91 | 5.22 * | [4.87-5.59] | 24.03 | 4.44 * | [4.01-4.92] |
| Any Drug Use Disorder | 75.80 | 10.22 * | [9.23-11.32] | 38.07 | 6.58 * | [5.86-7.39] |
| # of Diagnoses ^c | | | | | | |
| 1 | 31.67 | 2.79 * | [2.60-2.99] | 12.91 | 2.76 * | [2.44-3.12] |
| 2 | 45.65 | 4.91 * | [4.48-5.38] | 18.75 | 4.29 * | [3.81-4.83] |
| 3+ | 62.97 | 9.80 * | [8.95-10.73] | 26.55 | 6.89 * | [6.06-7.83] |
| Comorbid Substance Use and Mental Health ^c | | | | | | |
| SUD Only | 47.44 | 5.41 * | [4.96-5.89] | 22.95 | 5.41 * | [4.77-6.14] |
| Mental Health Only | 24.29 | 1.84 * | [1.69-1.99] | 7.50 | 1.51 * | [1.30-1.76] |
| Both | 63.58 | 9.86 * | [9.12-10.67] | 26.23 | 6.59 * | [5.85-7.42] |

Note. * $p < .001$. ^a Unweighted percentages. ^b Combined prevalence of anorexia nervosa, bulimia nervosa, and binge eating disorder. ^c Reference category for these analyses is “no diagnoses” ($n = 18,548$).

Supplementary Table 2. Association of Current Psychiatric Disorders with Current Crime Outcomes (Unadjusted Odds Ratios) ($n = 36,309$)

| Current Diagnosis | Current ^a Legal Problems | | | | Current Alcohol-related Legal Problems | | | | Current Drug-related Legal Problems | | | |
|---|-------------------------------------|-------|---|--------------|--|-------|---|---------------|-------------------------------------|------|---|--------------|
| | % ^b | OR | | [95% CI] | % ^b | OR | | [95% CI] | % ^b | OR | | [95% CI] |
| No Diagnosis | 0.78 | Ref | | ---- | 0.13 | Ref | | ---- | 0.83 | Ref | | ---- |
| Any Diagnosis | 3.85 | 5.49 | * | [4.52-6.66] | 2.26 | 17.53 | * | [8.90-34.52] | 3.59 | 4.24 | * | [2.12-8.49] |
| Any Mood Disorder | 4.04 | 3.17 | * | [2.63-3.82] | 1.55 | 1.73 | | [1.16-2.56] | 3.75 | 1.87 | | [1.23-2.86] |
| Major Depression | 3.76 | 2.68 | * | [2.16-3.31] | 1.21 | 1.28 | | [0.75-2.16] | 3.64 | 1.57 | | [0.94-2.60] |
| Dysthymia | 4.39 | 2.82 | * | [2.06-3.84] | 2.07 | 1.95 | | [1.00-3.78] | 3.21 | 1.79 | | [0.80-3.99] |
| Bipolar I | 5.58 | 4.65 | * | [2.97-7.30] | 2.93 | 3.49 | | [1.64-7.42] | 4.13 | 2.05 | | [0.94-4.47] |
| Any Anxiety Disorder | 3.30 | 2.21 | * | [1.74-2.81] | 1.09 | 0.95 | | [0.65-1.38] | 3.14 | 1.26 | | [0.75-2.14] |
| Generalized Anxiety | 4.30 | 2.75 | * | [2.02-3.74] | 1.13 | 1.00 | | [0.56-1.79] | 3.11 | 1.27 | | [0.64-2.54] |
| Social Anxiety | 3.78 | 2.13 | | [1.44-3.16] | 1.27 | 0.99 | | [0.45-2.19] | 4.98 | 2.24 | | [1.16-4.33] |
| Specific Phobia | 2.51 | 1.55 | | [1.09-2.22] | 0.94 | 0.57 | | [0.31-1.04] | 2.49 | 0.94 | | [0.43-2.03] |
| Panic | 4.71 | 2.55 | * | [1.71-3.79] | 1.54 | 1.73 | | [0.89-3.34] | 4.55 | 1.74 | | [0.92-3.29] |
| Agoraphobia | 4.01 | 2.18 | | [1.30-3.65] | 1.77 | 1.64 | | [0.73-3.68] | 5.52 | 2.65 | | [1.22-5.78] |
| Eating Disorders ^c | 1.55 | 0.81 | | [0.33-1.97] | 1.01 | 1.23 | | [0.34-4.48] | 2.06 | 1.14 | | [0.21-6.05] |
| Posttraumatic Stress | 4.89 | 2.93 | * | [2.21-3.88] | 1.86 | 1.73 | | [1.05-2.84] | 5.05 | 2.15 | | [1.26-3.65] |
| Schizophrenia/Psychosis | 8.31 | 6.35 | * | [3.75-10.76] | 2.80 | 3.15 | | [1.22-8.14] | 4.17 | 2.14 | | [0.61-7.56] |
| Any Substance Use Disorder | 6.06 | 6.87 | * | [5.70-8.28] | 3.89 | 37.41 | * | [19.55-71.59] | 4.22 | 3.90 | * | [2.22-6.84] |
| Alcohol Use Disorder | 5.96 | 5.87 | * | [4.82-7.15] | 4.17 | 29.60 | * | [16.54-52.97] | 3.60 | 1.27 | | [0.89-1.81] |
| Any Drug Use Disorder | 10.36 | 8.88 | * | [7.16-11.02] | 5.71 | 10.61 | * | [7.35-15.32] | 5.99 | 4.51 | * | [2.86-7.12] |
| # of Diagnoses ^d | | | | | | | | | | | | |
| 1 | 2.73 | 3.70 | * | [2.93-4.68] | 1.94 | 14.96 | * | [7.57-29.56] | 2.39 | 2.94 | | [1.35-6.44] |
| 2 | 4.32 | 6.84 | * | [5.17-9.06] | 2.13 | 18.79 | * | [8.45-41.76] | 3.65 | 3.96 | | [1.85-8.47] |
| 3+ | 6.80 | 9.83 | * | [7.67-12.59] | 3.38 | 24.41 | * | [12.01-49.59] | 5.29 | 6.38 | * | [3.04-13.41] |
| Comorbid Substance Use and Mental Health ^d | | | | | | | | | | | | |
| SUD Only | 5.04 | 7.19 | * | [5.64-9.17] | 4.16 | 35.01 | * | [17.73-69.17] | 3.80 | 4.42 | * | [2.14-9.12] |
| Mental Health Only | 1.82 | 2.48 | * | [1.88-3.27] | 0.07 | 0.20 | | [0.05-0.81] | 1.24 | 1.83 | | [0.67-5.05] |
| Both | 7.73 | 11.97 | * | [9.58-14.97] | 3.45 | 24.93 | * | [11.88-52.30] | 4.73 | 5.40 | * | [2.52-11.59] |

Note. * $p < .001$. ^a Refers to the past 12 months. ^b Unweighted percentages. ^c Combined prevalence of anorexia nervosa, bulimia nervosa, and binge eating disorder. ^d Reference category for these analyses is “no diagnoses” ($n = 18,548$).

Supplementary Table 3. Association of Lifetime Psychiatric Disorders with Lifetime Crime Outcomes Adjusted for Sociodemographic Characteristics, Other Disorders, and Antisocial Personality Disorder ($n = 36,309$)

| Lifetime Diagnosis | Lifetime Crime | | | Lifetime Incarceration | | |
|---|----------------|--------|-------------|------------------------|--------|-------------|
| | % ^a | AOR | [95% CI] | % ^a | AOR | [95% CI] |
| No Diagnosis | 14.11 | Ref | ---- | 5.14 | Ref | ---- |
| Any Diagnosis | 43.50 | 3.92 * | [3.67-4.19] | 18.01 | 3.64 * | [3.28-4.04] |
| Any Mood Disorder | 43.65 | 1.51 * | [1.41-1.63] | 16.08 | 1.12 | [1.00-1.25] |
| Major Depression | 40.85 | 1.37 * | [1.27-1.48] | 14.35 | 1.06 | [0.94-1.19] |
| Dysthymia | 50.07 | 1.55 * | [1.34-1.78] | 18.52 | 1.05 | [0.87-1.27] |
| Bipolar I | 69.12 | 1.86 * | [1.47-2.37] | 31.46 | 1.24 | [0.93-1.66] |
| Any Anxiety Disorder | 44.31 | 1.42 * | [1.31-1.53] | 16.90 | 1.24 | [1.10-1.39] |
| Generalized Anxiety | 49.65 | 1.42 * | [1.26-1.59] | 18.72 | 1.15 | [1.00-1.33] |
| Social Anxiety | 52.24 | 1.59 * | [1.37-1.85] | 21.96 | 1.29 | [1.06-1.58] |
| Specific Phobia | 42.18 | 1.32 * | [1.16-1.51] | 15.54 | 1.13 | [0.95-1.34] |
| Panic | 48.50 | 1.19 | [1.02-1.39] | 19.61 | 1.16 | [0.93-1.44] |
| Agoraphobia | 53.86 | 1.30 | [1.06-1.59] | 23.07 | 1.22 | [0.88-1.68] |
| Eating Disorders ^b | 50.41 | 1.27 | [0.95-1.71] | 14.42 | 1.08 | [0.75-1.55] |
| Posttraumatic Stress | 57.27 | 1.86 * | [1.62-2.14] | 22.77 | 1.33 | [1.12-1.59] |
| Schizophrenia/Psychosis | 46.45 | 1.31 | [1.03-1.66] | 24.22 | 1.33 | [0.99-1.78] |
| Any Substance Use Disorder | 55.52 | 4.05 * | [3.75-4.39] | 24.59 | 3.85 * | [3.47-4.27] |
| Alcohol Use Disorder | 54.91 | 3.57 * | [3.30-3.87] | 24.03 | 3.27 * | [2.95-3.63] |
| Any Drug Use Disorder | 75.80 | 6.23 * | [5.57-6.95] | 38.07 | 4.11 * | [3.58-4.72] |
| # of Diagnoses ^c | | | | | | |
| 1 | 31.67 | 2.55 * | [2.36-2.76] | 12.91 | 2.62 * | [2.30-2.98] |
| 2 | 45.65 | 4.47 * | [4.07-4.91] | 18.75 | 4.01 * | [3.51-4.57] |
| 3+ | 62.97 | 8.76 * | [7.90-9.71] | 26.55 | 6.05 * | [5.31-6.90] |
| Comorbid Substance Use and Mental Health ^c | | | | | | |
| SUD Only | 47.44 | 4.19 * | [3.82-4.60] | 22.95 | 4.37 * | [3.83-4.97] |
| Mental Health Only | 24.29 | 1.97 * | [1.81-2.15] | 7.50 | 1.71 * | [1.47-2.00] |
| Both | 63.58 | 8.01 * | [7.31-8.78] | 26.23 | 5.46 * | [4.80-6.21] |

Note. * $p < .001$. ^a Unweighted percentages. ^b Combined prevalence of anorexia nervosa, bulimia nervosa, and binge eating disorder. ^c These models only controlled for sociodemographic characteristics and antisocial personality disorder. Reference category for these analyses is “no diagnoses” ($n = 18,548$). Odds ratios are adjusted for gender, age, race/ethnicity, educational attainment, marital status, personal income, urbanicity, region, other psychiatric disorders, and antisocial personality disorder.

Supplementary Table 4. Association of Current Psychiatric Disorders with Current Crime Outcomes Adjusted for Sociodemographic Characteristics, Other Disorders, and Antisocial Personality Disorder ($n = 36,309$)

| Current Diagnosis | Current ^a Legal Problems | | | | Current Alcohol-related Legal Problems | | | | Current Drug-related Legal Problems | | |
|---|-------------------------------------|------|---|-------------|--|-------|---|---------------|-------------------------------------|------|----------------|
| | % ^b | AOR | | [95% CI] | % ^b | AOR | | [95% CI] | % ^b | AOR | [95% CI] |
| No Diagnosis | 0.78 | Ref | | ---- | 0.13 | Ref | | ---- | 0.83 | Ref | ---- |
| Any Diagnosis | 3.85 | 3.44 | * | [2.76-4.29] | 2.26 | 11.70 | * | [6.11-22.43] | 3.59 | 3.42 | [1.70-6.90] |
| Any Mood Disorder Diagnosis | 4.04 | 1.65 | | [1.28-2.13] | 1.55 | 0.95 | | [0.62-1.46] | 3.75 | 1.45 | [0.91-2.30] |
| Major Depression | 3.76 | 1.63 | * | [1.28-2.07] | 1.21 | 0.81 | | [0.46-1.42] | 3.64 | 1.41 | [0.81-2.46] |
| Dysthymia | 4.39 | 1.48 | | [1.03-2.12] | 2.07 | 1.31 | | [0.68-2.52] | 3.21 | 1.38 | [0.59-3.21] |
| Bipolar I | 5.58 | 1.25 | | [0.70-2.26] | 2.93 | 1.22 | | [0.53-2.79] | 4.13 | 1.03 | [0.46-2.31] |
| Any Anxiety Disorder | 3.30 | 1.31 | | [0.97-1.76] | 1.09 | 0.64 | | [0.43-0.96] | 3.14 | 0.87 | [0.51-1.49] |
| Generalized Anxiety | 4.30 | 1.68 | | [1.18-2.39] | 1.13 | 0.72 | | [0.37-1.41] | 3.11 | 0.88 | [0.48-1.63] |
| Social Anxiety | 3.78 | 0.91 | | [0.59-1.42] | 1.27 | 0.59 | | [0.26-1.35] | 4.98 | 1.53 | [0.79-2.99] |
| Specific Phobia | 2.51 | 1.02 | | [0.69-1.49] | 0.94 | 0.42 | | [0.23-0.75] | 2.49 | 0.71 | [0.34-1.46] |
| Panic | 4.71 | 0.99 | | [0.67-1.49] | 1.54 | 0.96 | | [0.49-1.90] | 4.55 | 1.18 | [0.54-2.58] |
| Agoraphobia | 4.01 | 0.79 | | [0.44-1.42] | 1.77 | 0.91 | | [0.37-2.23] | 5.52 | 1.90 | [0.76-4.77] |
| Eating Disorders ^c | 1.55 | 0.37 | | [0.14-0.97] | 1.01 | 0.99 | | [0.28-3.48] | 2.06 | 0.83 | [0.19-3.77] |
| Posttraumatic Stress | 4.89 | 1.14 | | [0.79-1.65] | 1.86 | 0.99 | | [0.60-1.64] | 5.05 | 1.66 | [1.01-2.71] |
| Schizophrenia/Psychosis | 8.31 | 1.99 | | [1.01-3.90] | 2.80 | 1.16 | | [0.41-3.31] | 4.17 | 1.09 | [0.33-3.59] |
| Any Substance Use Disorder | 6.06 | 3.26 | * | [2.57-4.14] | 3.89 | 22.37 | * | [11.74-42.63] | 4.22 | 2.78 | [1.58-4.89] |
| Alcohol Use Disorder | 5.96 | 3.00 | * | [2.38-3.79] | 4.17 | 18.10 | * | [10.00-32.77] | 3.60 | 0.95 | [0.66-1.39] |
| Any Drug Use Disorder | 10.36 | 2.95 | * | [2.29-3.79] | 5.71 | 4.74 | * | [3.10-7.25] | 5.99 | 3.06 | * [1.94-4.83] |
| # of Diagnoses ^d | | | | | | | | | | | |
| 1 | 2.73 | 2.59 | * | [2.03-3.30] | 1.94 | 10.59 | * | [5.48-20.46] | 2.39 | 2.60 | [1.17-5.76] |
| 2 | 4.32 | 4.28 | * | [3.13-5.85] | 2.13 | 12.12 | * | [5.52-26.59] | 3.65 | 3.18 | [1.46-6.89] |
| 3+ | 6.80 | 5.34 | * | [3.93-7.25] | 3.38 | 15.54 | * | [7.90-30.54] | 5.29 | 4.96 | * [2.34-10.50] |
| Comorbid Substance Use and Mental Health ^d | | | | | | | | | | | |
| SUD Only | 5.04 | 3.85 | * | [2.92-5.08] | 4.16 | 20.28 | * | [10.29-39.95] | 3.80 | 3.50 | [1.69-7.27] |
| Mental Health Only | 1.82 | 2.10 | * | [1.58-2.79] | 0.07 | 0.19 | | [0.05-0.74] | 1.24 | 1.87 | [0.64-5.44] |
| Both | 7.73 | 5.66 | * | [4.22-7.61] | 3.45 | 13.51 | * | [6.64-27.48] | 4.73 | 4.10 | [1.89-8.93] |

Note. * $p < .001$. ^a Refers to the past 12 months. ^b Unweighted percentages. ^c Combined prevalence of anorexia nervosa, bulimia nervosa, and binge eating disorder. ^d Reference category for these analyses is “no diagnoses” ($n = 18,548$).

Supplementary Table 5. Association of Lifetime Psychiatric Disorders with Lifetime Crime Outcomes Adjusted for Sociodemographic Characteristics and Other Disorders, Women Only ($n = 20,447$)

| Lifetime Diagnosis | Lifetime Crime | | | Lifetime Incarceration | | |
|---|----------------|------------------|--------------|------------------------|--------|--------------|
| | % ^a | AOR ^d | [95% CI] | % ^a | AOR | [95% CI] |
| No Diagnosis | 9.43 | Ref | ---- | 2.11 | Ref | ---- |
| Any Diagnosis | 34.42 | 4.63 * | [4.22-5.08] | 10.04 | 5.03 * | [4.20-6.03] |
| Any Mood Disorder | 35.77 | 1.56 * | [1.42-1.72] | 10.10 | 1.29 | [1.08-1.54] |
| Major Depression | 33.68 | 1.35 * | [1.23-1.47] | 8.98 | 1.07 | [0.90-1.27] |
| Persistent Depressive Disorder | 42.66 | 1.57 * | [1.29-1.90] | 11.77 | 1.05 | [0.81-1.37] |
| Bipolar I | 62.09 | 2.49 * | [1.90-3.26] | 23.69 | 1.92 | [1.28-2.90] |
| Any Anxiety Disorder | 37.41 | 1.39 * | [1.27-1.53] | 10.64 | 1.20 | [0.98-1.47] |
| Generalized Anxiety | 42.10 | 1.37 * | [1.17-1.60] | 12.09 | 1.10 | [0.88-1.39] |
| Social Anxiety | 44.35 | 1.42 | [1.18-1.71] | 15.47 | 1.60 | [1.21-2.13] |
| Specific Phobia | 36.20 | 1.30 | [1.12-1.51] | 10.05 | 1.05 | [0.84-1.30] |
| Panic | 43.46 | 1.22 | [1.03-1.45] | 14.65 | 1.36 | [1.01-1.82] |
| Agoraphobia | 47.50 | 1.24 | [0.97-1.58] | 16.83 | 1.39 | [0.93-2.08] |
| Eating Disorders ^b | 47.03 | 1.32 | [0.97-1.80] | 12.07 | 1.37 | [0.92-2.03] |
| Posttraumatic Stress | 52.11 | 2.13 * | [1.84-2.47] | 16.67 | 1.41 | [1.13-1.75] |
| Schizophrenia/Psychosis | 39.33 | 1.62 | [1.17-2.24] | 14.71 | 1.15 | [0.78-1.69] |
| Any Substance Use Disorder | 48.82 | 4.70 * | [4.25-5.20] | 15.40 | 5.01 * | [4.25-5.92] |
| Alcohol Use Disorder | 48.18 | 4.03 * | [3.63-4.47] | 14.84 | 3.98 * | [3.39-4.66] |
| Any Drug Use Disorder | 70.05 | 7.40 * | [6.45-8.50] | 25.81 | 5.13 * | [4.24-6.22] |
| # of Diagnoses ^c | | | | | | |
| 1 | 21.94 | 2.59 * | [2.29-2.92] | 6.05 | 2.98 * | [2.35-3.76] |
| 2 | 33.74 | 4.56 * | [4.07-5.11] | 9.39 | 4.75 * | [3.63-6.22] |
| 3+ | 54.13 | 9.98 * | [8.90-11.18] | 16.70 | 8.71 * | [7.20-10.54] |
| Comorbid Substance Use and Mental Health ^c | | | | | | |
| SUD Only | 37.08 | 5.62 * | [4.82-6.55] | 12.15 | 7.17 * | [5.56-9.26] |
| Mental Health Only | 20.60 | 2.37 * | [2.12-2.65] | 4.91 | 2.29 * | [1.82-2.90] |
| Both | 55.90 | 10.71 * | [9.64-11.89] | 17.36 | 9.49 * | [7.82-11.51] |

Note. * $p < .001$. ^aUnweighted percentages. ^bCombined prevalence of anorexia nervosa, bulimia nervosa, and binge eating disorder. ^cThese models only controlled for sociodemographic characteristics. Reference category for these analyses is “no diagnoses” ($n = 10,508$). ^dOdds ratios are adjusted for age, race/ethnicity, educational attainment, marital status, personal income, urbanicity, and region in addition to other psychiatric disorders. Abbreviations: AOR=Adjusted Odds Ratio.

Supplementary Table 6. Association of Lifetime Psychiatric Disorders with Lifetime Crime Outcomes Adjusted for Sociodemographic Characteristics and Other Disorders , Men Only ($n = 15,862$)

| Lifetime Diagnosis | Lifetime Crime | | | Lifetime Incarceration | | |
|---|----------------|------------------|--------------|------------------------|--------|-------------|
| | % ^a | AOR ^d | [95% CI] | % ^a | AOR | [95% CI] |
| No Diagnosis | 20.22 | Ref | ---- | 9.11 | Ref | ---- |
| Any Diagnosis | 55.05 | 4.17 * | [3.83-4.54] | 28.15 | 3.88 * | [3.45-4.37] |
| Any Mood Disorder | 59.52 | 1.66 * | [1.47-1.86] | 28.15 | 1.16 | [1.02-1.33] |
| Major Depression | 56.46 | 1.50 * | [1.33-1.69] | 26.03 | 1.10 | [0.96-1.27] |
| Persistent Depressive Disorder | 64.87 | 1.67 * | [1.34-2.08] | 31.99 | 1.16 | [0.90-1.49] |
| Bipolar I | 77.23 | 1.91 | [1.33-2.74] | 40.46 | 1.25 | [0.92-1.71] |
| Any Anxiety Disorder | 59.48 | 1.56 * | [1.38-1.78] | 30.65 | 1.34 * | [1.16-1.56] |
| Generalized Anxiety | 65.52 | 1.68 * | [1.37-2.05] | 32.64 | 1.34 | [1.12-1.62] |
| Social Anxiety | 66.08 | 2.03 * | [1.61-2.56] | 33.33 | 1.17 | [0.86-1.57] |
| Specific Phobia | 58.16 | 1.55 | [1.22-1.96] | 30.21 | 1.30 | [1.03-1.64] |
| Panic | 62.04 | 1.17 | [0.89-1.55] | 32.92 | 0.99 | [0.76-1.27] |
| Agoraphobia | 70.97 | 1.86 | [1.23-2.82] | 39.78 | 1.11 | [0.73-1.70] |
| Eating Disorders ^b | 63.28 | 1.70 | [1.02-2.83] | 23.44 | 0.79 | [0.47-1.33] |
| Posttraumatic Stress | 69.93 | 2.01 * | [1.61-2.52] | 37.72 | 1.51 * | [1.19-1.92] |
| Schizophrenia/Psychosis | 55.75 | 1.28 | [0.92-1.76] | 36.67 | 1.65 * | [1.08-2.52] |
| Any Substance Use Disorder | 60.91 | 4.03 * | [3.69-4.40] | 31.98 | 3.83 * | [3.41-4.30] |
| Alcohol Use Disorder | 60.25 | 3.59 * | [3.26-3.95] | 31.32 | 3.34 * | [2.98-3.73] |
| Any Drug Use Disorder | 80.24 | 6.34 * | [5.36-7.49] | 47.51 | 4.43 * | [3.82-5.13] |
| # of Diagnoses ^c | | | | | | |
| 1 | 42.51 | 2.64 * | [2.40-2.91] | 20.58 | 2.67 * | [2.32-3.07] |
| 2 | 60.93 | 5.25 * | [4.61-5.97] | 30.78 | 4.44 * | [3.77-5.22] |
| 3+ | 77.19 | 11.51 * | [9.88-13.41] | 42.36 | 7.07 * | [6.04-8.28] |
| Comorbid Substance Use and Mental Health ^c | | | | | | |
| SUD Only | 52.68 | 3.89 * | [3.51-4.32] | 28.41 | 4.12 * | [3.59-4.72] |
| Mental Health Only | 34.91 | 1.96 * | [1.71-2.24] | 14.95 | 1.78 * | [1.46-2.16] |
| Both | 73.14 | 8.83 * | [7.91-9.86] | 37.28 | 5.83 * | [5.02-6.78] |

Note. * $p < .001$. ^a Unweighted percentages. ^b Combined prevalence of anorexia nervosa, bulimia nervosa, and binge eating disorder. ^c These models only controlled for sociodemographic characteristics. Reference category for these analyses is “no diagnoses” ($n = 8,040$). ^d Odds ratios are adjusted for age, race/ethnicity, educational attainment, marital status, personal income, urbanicity, and region in addition to other psychiatric disorders. *Abbreviations:* AOR=Adjusted Odds Ratio.

Supplementary Table 7. Association of Current Psychiatric Disorders with Current Crime Outcomes Adjusted for Sociodemographic Characteristics and Other Disorders, Women Only ($n = 20,447$)

| Current Diagnosis | Current ^a Legal Problems | | | Current Alcohol-related Legal Problems | | | Current Drug-related Legal Problems | | |
|---|-------------------------------------|------------------|----------------|--|-------|------------------|-------------------------------------|------|--------------|
| | % ^b | AOR ^c | [95% CI] | % ^b | AOR | [95% CI] | % ^b | AOR | [95% CI] |
| No Diagnosis | 0.47 | Ref | ---- | 0.04 | Ref | ---- | 0.52 | Ref | ---- |
| Any Diagnosis | 2.45 | 4.49 | * [2.97-6.79] | 0.83 | 22.80 | * [8.23-63.11] | 2.41 | 4.60 | [1.60-13.26] |
| Any Mood Disorder | 3.02 | 2.11 | * [1.49-2.98] | 0.78 | 1.57 | [0.79-3.12] | 3.34 | 2.33 | [1.18-4.61] |
| Major Depression | 2.78 | 1.73 | [1.22-2.46] | 0.61 | 0.88 | [0.35-2.17] | 3.23 | 1.59 | [0.58-4.31] |
| Persistent Depressive Disorder | 3.04 | 1.20 | [0.67-2.18] | 0.71 | 0.67 | [0.19-2.35] | 2.62 | 1.06 | [0.36-3.17] |
| Bipolar I | 5.63 | 1.78 | [0.85-3.70] | 2.53 | 4.49 | [1.54-13.13] | 3.64 | 1.61 | [0.34-7.65] |
| Any Anxiety Disorder | 2.24 | 1.37 | [0.93-2.02] | 0.48 | 0.78 | [0.39-1.55] | 2.78 | 1.04 | [0.42-2.57] |
| Generalized Anxiety | 3.31 | 1.85 | [1.20-2.85] | 0.51 | 0.77 | [0.31-1.94] | 3.08 | 0.71 | [0.32-1.60] |
| Social Anxiety | 2.83 | 0.99 | [0.50-1.96] | 0.36 | 0.31 | [0.07-1.33] | 4.83 | 2.50 | [0.81-7.72] |
| Specific Phobia | 1.76 | 1.16 | [0.66-2.04] | 0.61 | 0.87 | [0.43-1.75] | 2.08 | 1.08 | [0.39-2.94] |
| Panic | 3.47 | 1.05 | [0.64-1.74] | 0.68 | 1.25 | [0.45-3.49] | 3.49 | 1.10 | [0.44-2.74] |
| Agoraphobia | 3.02 | 0.86 | [0.41-1.78] | 0.56 | 0.67 | [0.17-2.67] | 5.26 | 2.46 | [0.80-7.53] |
| Eating Disorders ^c | 1.32 | 0.41 | [0.13-1.24] | 0.70 | 0.72 | [0.16-3.20] | 1.25 | 0.23 | [0.03-2.01] |
| Posttraumatic Stress | 3.59 | 1.23 | [0.72-2.12] | 0.61 | 0.61 | [0.25-1.51] | 4.41 | 2.08 | [0.95-4.58] |
| Schizophrenia/Psychosis | 5.85 | 2.50 | [1.08-5.71] | 1.23 | 0.92 | [0.17-5.09] | 2.13 | 1.03 | [0.10-11.09] |
| Any Substance Use Disorder | 4.66 | 4.65 | * [3.19-6.76] | 2.11 | 65.01 | * [23.89-176.91] | 2.84 | 1.86 | [0.69-5.03] |
| Alcohol Use Disorder | 4.55 | 3.97 | * [2.73-5.77] | 2.35 | 63.37 | * [26.47-176.55] | 1.97 | 0.59 | [0.28-1.23] |
| Any Drug Use Disorder | 8.76 | 4.73 | * [3.23-6.95] | 3.16 | 4.75 | * [2.20-10.25] | 4.47 | 2.77 | [1.07-7.12] |
| # of Diagnoses ^d | | | | | | | | | |
| 1 | 1.48 | 2.85 | * [1.69-4.82] | 1.91 | 17.91 | * [5.95-53.92] | 1.11 | 2.68 | [0.93-7.74] |
| 2 | 2.44 | 4.30 | * [2.59-7.12] | 0.03 | 17.11 | * [4.84-60.50] | 1.65 | 2.95 | [0.66-13.20] |
| 3+ | 4.98 | 8.46 | * [5.30-13.50] | 2.32 | 37.71 | * [12.81-111.09] | 4.29 | 7.55 | [2.36-24.20] |
| Comorbid Substance Use and Mental Health ^d | | | | | | | | | |
| SUD Only | 3.15 | 5.44 | * [2.93-10.10] | 0.54 | 58.04 | * [18.15-185.64] | 1.26 | 2.75 | [1.07-7.05] |
| Mental Health Only | 1.22 | 2.35 | [1.46-3.77] | 0.84 | 0.57 | [0.06-5.21] | 1.32 | 3.48 | [0.80-15.15] |
| Both | 6.22 | 10.55 | * [6.62-16.82] | 1.57 | 52.21 | * [17.47-156.04] | 3.99 | 6.56 | [2.02-21.28] |

Note. * $p < .001$. ^a Current refers to the past 12 months. ^b Unweighted percentages. ^c Combined prevalence of anorexia nervosa, bulimia nervosa, and binge eating disorder. ^d These models only controlled for sociodemographic characteristics. Reference category for these analyses is “no diagnoses” ($n = 10,508$). ^e Odds ratios are adjusted for age, race/ethnicity, educational attainment, marital status, personal income, urbanicity, and region in addition to other psychiatric disorders. *Abbreviations:* AOR=Adjusted Odds Ratio.

Supplementary Table 8. Association of Current Psychiatric Disorders with Current Crime Outcomes Adjusted for Sociodemographic Characteristics and Other Disorders, Men Only ($n = 15,862$)

| | Current ^a Legal Problems | | | | Current Alcohol-related Legal Problems | | | Current Drug-related Legal Problems | | | | |
|---|-------------------------------------|------------------|---|-------------|--|-------|---|-------------------------------------|----------------|------|---|--------------|
| Current Diagnosis | % ^b | AOR ^c | | [95% CI] | % ^b | AOR | | [95% CI] | % ^b | AOR | | [95% CI] |
| No Diagnosis | 1.18 | Ref | | ---- | 0.17 | Ref | | ---- | 1.09 | Ref | | ---- |
| Any Diagnosis | 5.76 | 3.73 | * | [2.97-4.68] | 3.52 | 12.24 | * | [6.11-24.52] | 4.61 | 3.51 | | [1.46-8.43] |
| Any Mood Disorder | 6.11 | 1.61 | | [1.14-2.26] | 2.36 | 0.81 | | [0.46-1.44] | 4.30 | 1.30 | | [0.70-2.44] |
| Major Depression | 5.97 | 1.63 | | [1.15-2.30] | 1.94 | 0.80 | | [0.38-1.69] | 4.24 | 1.32 | | [0.67-2.63] |
| Persistent Depressive Disorder | 7.09 | 1.92 | | [1.19-3.09] | 3.67 | 1.73 | | [0.82-3.66] | 3.95 | 1.56 | | [0.49-4.92] |
| Bipolar I | 7.58 | 1.35 | | [0.60-3.01] | 2.49 | 0.58 | | [0.22-1.53] | 4.63 | 1.06 | | [0.46-2.49] |
| Any Anxiety Disorder | 5.67 | 1.38 | | [0.93-2.04] | 1.84 | 0.57 | | [0.34-0.96] | 3.69 | 0.77 | | [0.38-1.57] |
| Generalized Anxiety | 6.40 | 1.74 | | [1.08-2.82] | 1.82 | 0.74 | | [0.33-1.64] | 3.14 | 0.92 | | [0.38-2.22] |
| Social Anxiety | 5.51 | 0.98 | | [0.56-1.69] | 2.27 | 0.72 | | [0.29-1.83] | 5.17 | 1.14 | | [0.45-2.91] |
| Specific Phobia | 4.49 | 0.97 | | [0.58-1.62] | 1.18 | 0.22 | | [0.09-0.53] | 3.11 | 0.51 | | [0.19-1.34] |
| Panic | 8.11 | 1.10 | | [0.61-1.96] | 2.96 | 0.79 | | [0.33-1.91] | 6.93 | 1.28 | | [0.36-4.54] |
| Agoraphobia | 6.62 | 0.89 | | [0.38-2.10] | 3.60 | 1.13 | | [0.36-3.55] | 6.12 | 1.59 | | [0.36-6.89] |
| Eating Disorders ^c | 2.38 | 0.32 | | [0.07-1.47] | 1.39 | 1.22 | | [0.16-9.62] | 5.88 | 2.77 | | [0.46-16.63] |
| Posttraumatic Stress | 8.02 | 1.28 | | [0.84-1.95] | 3.77 | 1.25 | | [0.69-2.27] | 6.15 | 1.49 | | [0.71-3.13] |
| Schizophrenia/Psychosis | 11.41 | 2.09 | | [0.95-4.60] | 3.15 | 1.43 | | [0.40-5.07] | 6.12 | 1.29 | | [0.36-4.64] |
| Any Substance Use Disorder | 7.11 | 3.09 | * | [2.44-3.91] | 5.13 | 22.62 | * | [11.43-44.79] | 5.22 | 3.55 | | [1.59-7.96] |
| Alcohol Use Disorder | 7.00 | 2.93 | * | [2.28-3.76] | 5.51 | 17.91 | * | [9.62-33.35] | 4.70 | 1.19 | | [0.73-1.95] |
| Any Drug Use Disorder | 11.54 | 2.81 | * | [2.08-3.78] | 6.98 | 5.77 | * | [3.68-9.07] | 7.11 | 3.28 | * | [1.82-5.90] |
| # of Diagnoses ^d | | | | | | | | | | | | |
| 1 | 4.24 | 2.75 | * | [2.10-3.59] | 3.09 | 11.08 | * | [5.52-22.27] | 3.32 | 2.67 | | [1.00-7.17] |
| 2 | 7.08 | 5.22 | * | [3.62-7.53] | 3.31 | 13.35 | * | [5.76-30.96] | 5.08 | 3.36 | | [1.34-8.44] |
| 3+ | 10.22 | 5.67 | * | [4.08-7.89] | 5.60 | 15.31 | * | [7.09-33.04] | 6.58 | 5.24 | | [2.03-13.53] |
| Comorbid Substance Use and Mental Health ^d | | | | | | | | | | | | |
| SUD Only | 6.06 | 3.76 | * | [2.85-4.96] | 5.33 | 20.88 | * | [10.32-42.24] | 5.01 | 3.63 | | [1.47-8.99] |
| Mental Health Only | 3.30 | 2.52 | * | [1.79-3.55] | 0.13 | 0.13 | | [0.03-0.63] | 1.11 | 1.15 | | [0.29-4.50] |
| Both | 9.58 | 5.57 | * | [4.08-7.61] | 4.64 | 13.01 | * | [5.67-29.81] | 5.57 | 4.29 | | [1.59-11.56] |

Note. * $p < .001$. ^a Current refers to the past 12 months. ^b Unweighted percentages. ^c Combined prevalence of anorexia nervosa, bulimia nervosa, and binge eating disorder. ^d These models only controlled for sociodemographic characteristics. Reference category for these analyses is “no diagnoses” ($n = 8,040$). ^e Odds ratios are adjusted for age, race/ethnicity, educational attainment, marital status, personal income, urbanicity, and region in addition to other psychiatric disorders. *Abbreviations:* AOR=Adjusted Odds Ratio.