CBHSQ DATA REVIEW

Past Year Arrest among Adults in the United States: Characteristics of and Association with Mental Illness and Substance Use

Authors

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Abstract

Objectives. The objectives of this study are to (1) examine the characteristics of adults with a past year arrest by their mental illness and substance use status and (2) investigate the prevalence and correlates of arrests among adults with mental illness in the general U.S. population. Previous studies suggesting that the prevalence of arrest may be higher among individuals with mental illness have typically been conducted among persons in the criminal justice setting or among individuals receiving mental health treatment and may not be representative of all adults with mental illness. Also, little is known about the prevalence and correlates of arrest among adults with mental illness in the general U.S. population. Information on this link in the general population is critical for targeting programs to those most at risk for arrest.

Methods. Data are from the 2008 and 2009 National Surveys on Drug Use and Health (NSDUHs). Past year arrest was defined as being arrested and booked in the past 12 months, not counting arrests for minor traffic violations. It should be noted that being arrested and booked does not necessarily translate to convictions or incarcerations. In addition to mental illness (none, low/mild, moderate, or a serious mental illness [SMI]), other hypothesized correlates of arrest included past year substance use and demographic characteristics. Descriptive statistics were used to estimate the prevalence of arrest and examine the characteristics of adults with a past year arrest. Logistic regression was used to examine the association between mental illness and arrests after controlling for substance use and demographics among all adults and among adults with any mental illness (AMI).

Results. Descriptive analyses indicated that the prevalence of past year arrests was higher among adults with AMI than among adults without AMI (5.4 vs. 1.8 percent). The prevalence of past year arrest was also higher among adults with a substance use disorder (SUD) than among adults without an SUD (13.0 vs 1.5 percent). The demographic characteristics of arrestees were similar between those with and without AMI; the majority of adults who had been arrested in the past year were younger than the age of 35, male, non-Hispanic white, never married, living at or above the Federal poverty level, and had no further education beyond high school. Adult arrestees with AMI, compared with adult arrestees without AMI, were less likely to be female or non-Hispanic black and more likely to be out of the labor force. Among all adults, logistic regression models indicated that having mental illness—particularly SMI (adjusted odds ratio [OR] = 2.36)—was significantly associated with the odds of arrest, even when models controlled for demographic factors and substance use status. Among adults with AMI, the odds of arrest were higher among adults with SMI (adjusted OR = 1.48) than among adults with low/mild mental illness, but the odds of arrests among adults with moderate mental illness were not significantly different from the odds for those with low/mild mental illness. Among all adults, having an SUD was the strongest correlate of arrest (adjusted OR = 6.44), followed by not completing high school (adjusted OR = 3.53), past year illicit drug use without an SUD (adjusted OR = 2.81), and male gender (adjusted OR = 2.70). No characteristics were associated with arrest among adults with AMI that were not also associated with arrest among all adults.

Conclusions. The presence of mental illness was a significant predictor of past year arrests in the U.S. general population, even in models that controlled for substance use and other correlates. However, the presence of an SUD was the strongest correlate of past year arrest among all adults and among adults with AMI or SMI. This suggests that programs may reduce arrest and recidivism by focusing on addressing the needs of people with co-occurring mental illness and SUDs. Diversion programs and mental health and drug courts may be one way to address the needs of people with mental illness and SUDs who come into contact with the criminal justice system.

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Introduction

Studies have consistently documented high rates of mental illness among persons involved with the criminal justice system, including jail[1,2,3,4,5,6] and prison populations,[2,6,7,8] suggesting that the risk of arrest may be higher for individuals with a mental illness. Some research has pointed to the "criminalization of mentally disordered behavior," whereby the limited availability of mental health services has often resulted in jails becoming the placement of last resort for persons with mental illness.[9,10,11,12,13] Multiple local studies have found high rates of criminal justice contact among people receiving mental health treatment in the public mental health system.[14,15] In one large study linking Los Angeles County mental health treatment records to court records, 24 percent of those who received public- or Medicaid-funded mental health treatment had at least one arrest in the 10-year period covered by the study.[16] The majority of these arrests (62 percent) were for nonviolent crimes, and less than half led to convictions. Similarly, a recent study found that individuals receiving mental health treatment in the Massachusetts public mental health system had 60 percent greater odds of being arrested over the 9.5 years of follow-up than did age-matched individuals in the general population.[17] The rate of arrest was greater in the treatment sample than in the general population sample (32.8 vs. 23.2 percent). Studies comparing the odds of arrest among adults with a mental illness (regardless of treatment status) and adults without a mental illness in a nationally representative household sample are lacking at this time.

Additionally, few nationally representative studies have looked at the sociodemographic characteristics associated with arrest among adults with mental illness. In the aforementioned studies of arrest among persons receiving mental health treatment, the factors associated with criminal justice contact included homelessness,[14] younger age,[16,18] male gender,[16,19] African American race,[16] higher levels of impairment,[14,18] and type of mental illness.[16] However, these studies all focused on criminal justice contact among people receiving mental health treatment in the public mental health system. This subgroup does not represent the overall population of people with mental illness because not everyone with a mental illness receives treatment,[20,21,22,23] or receives it in the public sector. To our knowledge, no study has examined the characteristics associated with arrest among those with mental illness in a national, population-based sample.

One of the most consistently identified risk factors for arrest in people with mental illness is having co-occurring substance use disorders (SUDs).[14,15,16] Some studies have found that the overlap between mental illness and contacts with the criminal justice system is largely due to the high co-occurrence of SUDs among those with mental illness.[5,24,25,26] Thus, it is important to consider the risk of arrest associated with mental illness independent of the risk associated with SUDs. Studies using data from nationally representative samples to examine these issues are lacking.

This report uses data from the National Survey on Drug Use and Health (NSDUH), a nationally representative sample of persons in the civilian, noninstitutionalized U.S. population, to examine the prevalence and characteristics of past year arrest among adults with mental illness as a benchmark for evaluating future change. Thus, this report helps fill the previously described gaps in the literature on arrests among persons with mental illness in the general population. This report works toward meeting a goal within the Substance Abuse and Mental Health Services Administration's (SAMHSA's) Trauma and Justice Strategic Initiative for 2011 to 2014 to "address the needs of people with mental and substance use disorders and with histories of trauma within the criminal and juvenile justice systems."[27]

Methods

Data Source

Data are from the 2008 and 2009 NSDUHs, a nationally representative sample of the civilian, noninstitutionalized U.S. population aged 12 or older sponsored by SAMHSA. NSDUH data are collected in hour-long, face-to-face household interviews. Questions about less sensitive topics, such as demographic characteristics, are interviewer administered. Questions about sensitive topics—including criminal justice

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contact, substance use, and mental health issues—are administered via audio computer-assisted self-interviewing (ACASI). ACASI provides maximum privacy for respondents in the household setting, to promote accurate reporting of data on sensitive topics.

Sample

In the 2008 NSDUH, half of the adults who reported psychological distress (see the Mental Illness subsection in the Measures section for a description of the measurement of psychological distress) in the past 12 months received the World Health Organization Disability Assessment Schedule (WHODAS),[28] which is a scale of psychological impairment, and half received the Sheehan Disability Scale (SDS),[29] another impairment scale. In the 2009 NSDUH, all respondents who reported psychological distress received the WHODAS. For the sake of consistency, all analyses for this report were limited to the half of the 2008 sample that was eligible to receive the WHODAS and all adult respondents from the 2009 NSDUH, for a total sample size of approximately 69,000. Additional methodological details can be found in the 2009 mental health findings report, the 2009 national findings report, and the 2008 national findings report.[30,31,32] Analyses were conducted among the adult sample described previously as well as in the subsample of individuals with any mental illness (AMI; see the Mental Illness subsection in Measures). Approximately 17,600 respondents were defined as having AMI.

Measures

Outcome

All NSDUH respondents were asked if they had ever been arrested and booked for breaking the law. Respondents who reported being arrested and booked in their lifetime were then asked to report the number of times that they were arrested and booked in the past 12 months, not counting arrests for minor traffic violations. Adults who reported being arrested and booked at least once in the past 12 months were classified as arrested. Those who reported arrests only for juvenile-status offenses or traffic violations were not counted as having been arrested. Of the total sample, approximately 5,700 adult respondents indicated having a past year arrest in 2008 or 2009.

Mental Illness

Measurement of mental illness in NSDUH was based on adult respondents' answers to the Kessler-6 (K6) scale of general psychological distress[33] and an abridged version of the WHODAS impairment scale.[34] Adults with a K6 score greater than zero were defined as having psychological distress and were administered the WHODAS questions. The method for determining national estimates of mental illness was based on a statistical model developed from clinical interviews conducted over the telephone with a subset of respondents. In the clinical interviews, adults were defined as having AMI if they had a diagnosable mental disorder (excluding SUDs) in the past 12 months based on criteria in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV),[35] regardless of the level of functional impairment.[30,35] Adults with diagnosable mental disorders in the past 12 months that resulted in mild, moderate, or severe functional impairment were defined as having low/mild mental illness, moderate mental illness, or serious mental illness (SMI), respectively. Based on the results of these clinical interviews, prediction models were fit to determine AMI and the level of mental illness (low/mild mental illness, moderate mental illness, or SMI) from responses to the K6 and WHODAS for the full sample.[36] In 2008 and 2009, more than 17,600 NSDUH respondents were classified as having AMI.

Other Correlates

Substance Use. Illicit drug use in NSDUH was defined as any use of marijuana, cocaine (including crack), heroin, hallucinogens, or inhalants or the nonmedical use of pain relievers, tranquilizers, stimulants, or sedatives. Substance use in the past year was categorized into three groups: no illicit drug use, illicit drug use but no substance use disorder (SUD) present, or SUD present (including for alcohol or illicit drugs). The first two groups could include persons who used alcohol in the past 12 months but did not have an alcohol use disorder. The third group included persons who had an alcohol use disorder regardless of whether

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they used illicit drugs in the past 12 months, those who had an SUD related to their use of illicit drugs regardless of whether they used alcohol in the past 12 months, and those who had SUDs for both alcohol and illicit drugs in the past 12 months. Adults were classified as having an SUD if they met DSM-IV criteria for alcohol or illicit drug dependence or abuse in the past 12 months.[35] Of the total adult sample, approximately 9,800 respondents indicated past year illicit drug use but did not have an SUD, and approximately 9,900 had an alcohol or illicit drug SUD.

An additional analysis examined the prevalence of arrest according to whether adults had both an alcohol and an illicit drug SUD, only an alcohol SUD, only an illicit drug SUD, or no SUD. Adults were classified as having an alcohol and an illicit drug SUD if they met DSM-IV criteria for dependence or abuse for alcohol and at least one illicit drug in the past 12 months. Adults were classified as having only an alcohol SUD if they met DSM-IV criteria for alcohol dependence or abuse but they did not meet dependence or abuse criteria for any of the illicit drugs mentioned previously. Adults were classified as having only an illicit drug SUD if they met DSM-IV criteria for any of the illicit drugs but did not meet dependence or abuse criteria for alcohol.

Demographic Characteristics. Demographic characteristics included in the analyses were age group, which was categorized according to the age-crime curve demonstrated in the literature (18 to 25, 26 to 34, 35 or older);[37] gender (male, female); race/ethnicity (non-Hispanic white, black, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, or Asian; two or more races; or Hispanic); marital status (married; widowed, divorced, or separated; never married); poverty status (at or above 200 percent of the Federal poverty level, 100 to 199 percent of the Federal poverty level, below the Federal poverty level); education (less than high school, high school, some college, college graduate); current employment status (full time, part time, unemployed, other); and population density (large metropolitan, small metropolitan, non-metropolitan). Definitions for these characteristics are given in Appendix C of the 2009 mental health findings report.[30]

Analytic Approach

Weighted data were used to make inferences for adults in the civilian, noninstitutionalized population of the United States. All analyses used SUDAAN® to account for the complex survey design in NSDUH.[38] All hypothesis tests were two-sided and tested at an alpha level of 0.05.

Descriptive analyses examined the prevalence and correlates of past year arrests among all adults and also among those with AMI. Percentages and standard errors (SEs) were used to describe categorical variables. Simple and multiple logistic regression analysis were used to calculate unadjusted and adjusted odds ratios (ORs) and their 95 percent confidence intervals (CIs) for demographic, substance use, and mental illness correlates of past year arrest among all adults and among adults with AMI.

Unless explicitly stated that a difference is not statistically significant, all statements that describe differences are significant at the .05 level. Statistically significant differences are described using terms such as "higher," "lower," "more likely," or "less likely." Statements that use terms such as "similar," "comparable," or "no difference" to describe the relationship between estimates denote that a difference is not statistically significant. When a set of estimates is presented for population subgroups or for another characteristic of interest without a statement of comparison, statistically significant differences among these estimates are not implied, and testing may not have been conducted.

Results
Prevalence of Arrest

In 2008 and 2009, an annual average of 5.7 million adults had a past year arrest. The prevalence of past year arrest among the 44.5 million adults with AMI was 5.4 percent (SE = 0.31), which was higher than the prevalence of past year arrest among the 181.6 million adults without AMI (1.8 percent, SE = 0.08). The prevalence of past year arrest among adults with an SUD was 13.0 percent (SE = 0.65), which was higher than the prevalence of past year arrest among adults without an SUD (1.5 percent, SE = 0.08).

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The prevalence of past year arrest varied by level/degree of mental illness and by substance use. The lowest prevalence of arrest was among adults without AMI or an SUD (1.2 percent) (Figure 1). Among adults with AMI and no SUD, the prevalence of past year arrest ranged from 2.4 percent of those with low/mild mental illness to 4.1 percent of those with SMI. Having an SUD increased the likelihood of arrest among adults, regardless of the presence or level of mental illness. For example, the prevalence of past year arrest was 2.8 percent for adults with AMI who did not have an SUD, but was 16.1 percent for those with AMI and an illicit drug use disorder only. Similarly, in adults without AMI or an SUD the prevalence of arrest was 1.2 percent, but the prevalence of arrest was 13.1 percent for adults without AMI who had an illicit drug use disorder only.

The prevalence of arrest was consistently highest among adults with both illicit drug and alcohol use disorders and lowest among individuals with no SUD. Among adults with AMI, the prevalence of arrest did not differ significantly between adults who had an illicit drug use disorder only and those who had an alcohol use disorder only, regardless of the level of mental illness.

Characteristics of Arrestees by Mental Illness Status

Among adults with AMI, the majority of adults with a past year arrest were male (63.1 percent), non-Hispanic white (63.8 percent), and never married (56.2 percent) (Table 1). In addition, 30.8 percent of arrestees with AMI were below the Federal poverty level, 32.8 percent had not completed a high school education, 16.9 percent were unemployed, 39.9 percent were employed full

Figure 1. Prevalence of Arrest in the Past Year among Persons Aged 18 or Older with Any Mental Illness, by Level of Mental Illness and Substance Use Disorder Type: Annual Averages Based on 2008 and 2009
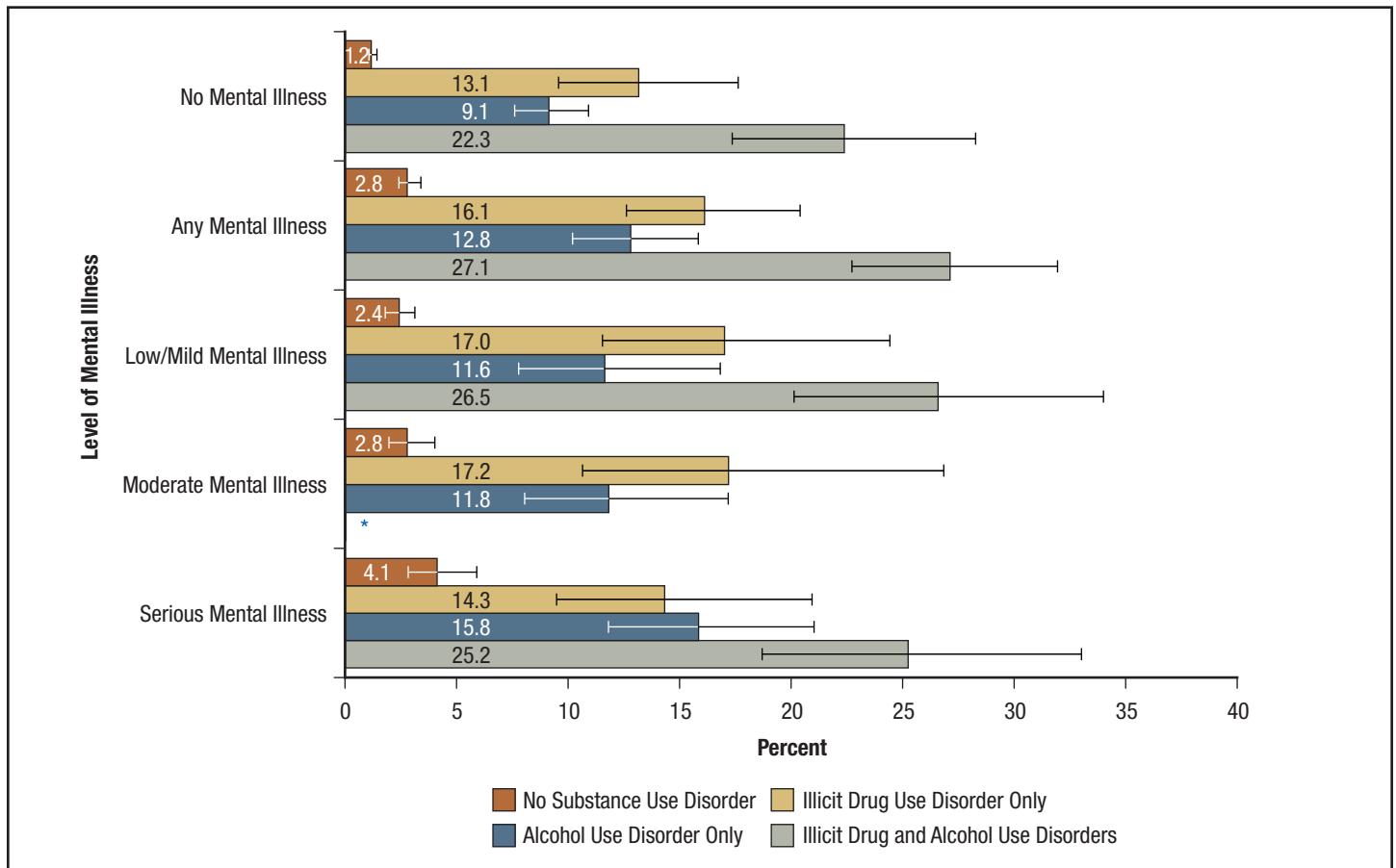
*Low precision; no estimate reported.

NOTE: Error bars denote the bounds of asymmetric 95 percent confidence intervals.

Source: 2008 and 2009 SAMHSA National Surveys on Drug Use and Health (NSDUHs).

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Table 1. Demographic Characteristics of Persons Aged 18 or Older with a Past Year Arrest, by Any Mental Illness (AMI) and Substance Use Disorder (SUD) Status: 2008 and 2009 Annual Averages

Characteristic	All Adults		Adults with No AMI		Adults with AMI	
	No AMI Percent (SE)	AMI Percent (SE)	No SUD Percent (SE)	SUD Percent (SE)	No SUD Percent (SE)	SUD Percent (SE)
Age Group						
18 to 25	41.2 (1.97)	34.8 (2.19)	37.7 (2.37)	47.2 (3.39)	26.0 (2.84)	41.4 (3.24)
26 to 34	22.0 (1.93)	27.7 (2.32)	22.6 (2.40)	21.0 (3.27)	26.6 (3.64)	28.4 (3.02)
35 or Older	36.8 (2.37)	37.6 (3.17)	39.7 (3.02)	31.8 (3.90)	47.3 (5.08)	30.2 (3.80)
Gender						
Male	79.0 (1.79)	63.1 (2.78)	75.7 (2.44)	84.8 (2.58)	50.9 (4.97)	72.3 (2.43)
Female	21.0 (1.79)	36.9 (2.78)	24.3 (2.44)	15.2 (2.58)	49.1 (4.97)	27.7 (2.43)
Race/Ethnicity						
Not Hispanic or Latino	84.2 (1.72)	87.2 (1.48)	84.4 (2.13)	83.7 (2.88)	87.1 (2.26)	87.3 (1.97)
White	53.9 (2.33)	63.8 (2.59)	49.6 (2.96)	61.2 (3.45)	63.1 (4.35)	64.4 (3.23)
Black or African American	26.0 (2.25)	18.8 (2.19)	31.5 (3.03)	16.7 (2.74)	19.9 (3.54)	18.0 (2.83)
American Indian or Alaska Native	1.5 (0.32)	1.6 (0.52)	0.8 (0.27)	2.7 (0.70)	1.5 (0.99)	1.6 (0.48)
Native Hawaiian or Other Pacific Islander	0.4 (0.22)	0.1 (0.08)	0.3 (0.22)	0.5 (0.47)	+	0.2 (0.13)
Asian	0.7 (0.29)	1.1 (0.41)	0.8 (0.43)	0.5 (0.26)	1.0 (0.80)	1.1 (0.40)
Two or More Races	1.6 (0.37)	1.7 (0.45)	1.4 (0.41)	2.0 (0.70)	1.5 (0.75)	2.0 (0.54)
Hispanic or Latino	15.8 (1.72)	12.8 (1.48)	15.6 (2.13)	16.3 (2.88)	12.9 (2.26)	12.7 (1.97)
Marital Status						
Married	21.7 (2.03)	19.2 (2.60)	23.2 (2.61)	19.1 (3.15)	24.5 (5.05)	15.2 (2.29)
Widowed, Divorced, or Separated	19.2 (2.17)	24.6 (3.00)	20.5 (2.87)	17.2 (3.27)	29.9 (4.91)	20.6 (3.72)
Never Married	59.1 (2.37)	56.2 (3.02)	56.4 (2.94)	63.8 (3.91)	45.6 (4.69)	64.3 (3.72)
Federal Poverty Level ++						
At or above 200 Percent of the Federal Poverty Level	46.3 (2.22)	41.3 (3.12)	40.3 (2.82)	56.4 (3.40)	33.0 (4.82)	47.6 (3.91)
100 to 199 Percent of the Federal Poverty Level	25.9 (1.94)	27.9 (2.79)	28.5 (2.56)	21.5 (2.91)	34.3 (5.12)	23.0 (2.69)
Below the Federal Poverty Level	27.8 (2.19)	30.8 (2.48)	31.2 (2.99)	22.0 (2.77)	32.7 (4.14)	29.4 (3.10)
Education						
Less than High School	30.5 (2.11)	32.8 (2.54)	31.6 (2.91)	28.8 (3.06)	32.9 (4.10)	32.7 (3.25)
High School	38.7 (2.19)	33.2 (2.37)	41.9 (2.90)	33.4 (3.22)	29.9 (3.89)	35.8 (2.97)
Some College	22.4 (1.84)	24.2 (2.64)	19.2 (2.12)	27.7 (3.25)	22.9 (4.33)	25.2 (3.31)
College Graduate	8.4 (1.38)	9.8 (2.50)	7.3 (1.50)	10.1 (2.55)	+	6.2 (1.45)
Current Employment						
Full Time	50.7 (2.26)	39.9 (3.01)	47.7 (2.88)	55.6 (3.33)	36.6 (4.81)	42.3 (3.74)
Part Time	13.7 (1.30)	14.6 (2.25)	13.3 (1.69)	14.5 (1.93)	+	15.1 (1.85)
Unemployed	16.4 (1.41)	16.9 (1.70)	17.4 (1.92)	14.7 (1.99)	14.0 (2.33)	19.1 (2.41)
Other+++	19.2 (2.11)	28.7 (2.59)	21.6 (3.02)	15.3 (2.38)	35.5 (4.58)	23.5 (2.87)

(continued)

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Table 1. Demographic Characteristics of Persons Aged 18 or Older with a Past Year Arrest, by Any Mental Illness (AMI) and Substance Use Disorder (SUD) Status: 2008 and 2009 Annual Averages *(continued)*

Characteristic	All Adults		Adults with No AMI		Adults with AMI	
	No AMI Percent (SE)	AMI Percent (SE)	No SUD Percent (SE)	SUD Percent (SE)	No SUD Percent (SE)	SUD Percent (SE)
Population Density						
Large Metropolitan	48.4 (2.23)	49.1 (3.09)	49.7 (2.87)	46.1 (3.53)	47.7 (4.93)	50.2 (3.86)
Small Metropolitan	31.8 (2.04)	34.9 (3.07)	32.2 (2.55)	31.1 (3.30)	35.0 (4.86)	34.8 (3.90)
Non-metropolitan	19.9 (1.84)	16.0 (1.68)	18.1 (2.35)	22.8 (2.90)	17.3 (2.74)	15.0 (1.92)

SE = standard error.

NOTE: Respondents with unknown past year arrest data were excluded from the analysis. For analysis purposes, minor traffic violations and offenses applicable only to persons aged 17 or younger were not considered valid arrests. In 2008, a split-sample design assigned adults aged 18 or older randomly to one of two impairment scales: the World Health Organization Disability Assessment Schedule (WHODAS) or the Sheehan Disability Scale (SDS). The WHODAS was chosen as the impairment scale for 2009 onward. For comparability purposes, estimates were based on the WHODAS half sample of adults in 2008 and the full sample of adults in 2009.

NOTE: Mental illness is defined as having a diagnosable mental, behavioral, or emotional disorder, other than a substance use disorder, that met the criteria found in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV). Three categories of mental illness severity are defined based on the level of functional impairment: mild mental illness, moderate mental illness, and serious mental illness (SMI). AMI includes persons in any of the three categories. SUD is based on definitions found in the DSM-IV.

[+] Low precision; no estimate reported.

[++] Federal poverty level is defined based on family size, number of children in the household, and total family income. The Federal poverty level is calculated as a percentage of the U.S. Census Bureau's poverty threshold amount by dividing the total family income by the appropriate poverty threshold amount. Persons aged 18 to 22 who were living in a college dormitory were excluded from the Federal poverty level calculations.

[+++] The "other" employment category includes retired persons, disabled persons, homemakers, students, or other persons not in the labor force.

Source: 2008 and 2009 SAMHSA National Surveys on Drug Use and Health (NSDUHs).

time, and 49.1 percent lived in a large metropolitan area. Some differences were found between arrestees with AMI and those without AMI with respect to gender, race/ethnicity, and employment status. Among arrestees with AMI, 36.9 percent were female, and 18.8 percent were non-Hispanic black. In comparison, 21.0 percent of arrestees without AMI were female, and 26.0 percent were non-Hispanic black. An estimated 28.7 percent of arrestees with AMI were not in the labor force compared with 19.2 percent of arrestees without AMI.

Characteristics of Arrestees, by Mental Illness and Substance Use

The characteristics of arrestees also differed by SUD status (Table 1). Regardless of mental illness status, arrestees with an SUD were younger and were more likely to be male than arrestees without an SUD. For example, among arrestees with AMI, 26.0 percent of those who had no SUD were aged 18 to 25 compared with 41.4 percent of those with co-occurring AMI and an SUD. In addition, only about half of arrestees with AMI and no SUD were male (50.9 percent). In contrast, males comprised nearly three fourths of arrestees with AMI and a co-occurring SUD (72.3 percent).

The distribution by race/ethnicity was similar among arrestees with AMI, regardless of SUD status. Among arrestees without AMI or an SUD, 49.6 percent were non-Hispanic white compared with 61.2 percent of those with an SUD but without AMI.

Arrestees with AMI and no SUD were less likely than those with co-occurring AMI and an SUD to have never been married (45.6 vs. 64.3 percent). Among arrestees without AMI, the prevalence of arrest by marital status did not differ significantly for those with or without SUD.

Adult arrestees without an SUD were less likely than their counterparts with an SUD to be at or above 200 percent of the Federal poverty level. Adult arrestees with AMI and without an SUD were less likely than their counterparts with co-occurring AMI and an SUD to be at or above 200 percent of the Federal poverty level (33.0 vs. 47.6 percent). An estimated 40.3 percent of arrestees without AMI or an SUD were at or above 200 percent of the Federal poverty level compared with 56.4 percent of arrestees with an SUD but without AMI.

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Correlates of Arrest among Adults

Models examining the unadjusted odds of arrest among all adults indicated that the following were associated with increased odds for a past year arrest (see Table 2): being younger than 35; being male; being black, being American Indian or Alaska Native, or reporting two or more races; being unmarried; living below 200 percent of the Federal poverty level; not having completed college; and being unemployed. Being Asian and living in a large metropolitan area were associated with decreased odds for a past year arrest.

In the unadjusted models, having AMI, particularly SMI, and using illicit drugs or having an SUD were associated with increased odds of arrest. Compared with adults without AMI, low/mild mental illness was associated with 2.44 greater odds of arrest, adults with moderate mental illness had 3.23 times the odds of arrest, and SMI was associated with 4.26 times greater odds of arrest. Past year illicit drug use without an SUD was associated with 4.76 times greater odds of arrest compared with adults with no past year illicit drug use or SUD. Having an SUD was associated with an odds of arrest 13.27 times those of adults without past year illicit drug use or an SUD.

Results of the regression model among all adults that included all covariates were consistent with the unadjusted ORs in direction, but with attenuated ORs. The adjusted odds of arrest among adults was 2.11 times higher among those aged 18 to 25 and 1.94 times higher among those aged 26 to 34 than among those aged 35 or older. Males had adjusted odds of arrest 2.70 times that of females. Blacks had 1.87 times the odds of arrest of their white counterparts, and American Indian or Alaska Natives had odds of arrest 1.92 times those of whites. Asians had odds for arrest 64 percent lower than those of whites. The odds for arrest among widowed, divorced, or separated adults were 2.49 times greater than those for married adults, and the odds for arrest among those who were never married were 1.82 times those of married adults. For the Federal poverty level measure, the odds of arrest were highest among adults living below the Federal poverty level (1.98) but were also higher among adults living between 100 and 199 percent of the Federal poverty level (1.45) than among

those at or above 200 percent of the Federal poverty level. Compared with adult college graduates, adults with some college had 1.77 times the odds of arrest, adults with a high school education had 2.34 times the odds of arrest, and adults who did not complete high school had 3.53 times the odds of arrest. Additionally, the odds of arrest for unemployed adults were 1.48 times the odds for adults employed full time.

The addition of the covariates, particularly substance use, in the adjusted regression model greatly attenuated the ORs associated with mental illness, but mental illness remained a significant predictor of arrest. The adjusted odds of arrest among adults with low/mild mental illness were 1.57 times those of adults without AMI. The odds of arrest for adults with moderate mental illness were 1.64 times the odds for adults without AMI, and the odds of arrest among adults with SMI were 2.36 times the odds for adults without AMI.

Substance use remained the strongest risk factor for arrest in the adjusted regression model. Adults with past year illicit drug use but no SUD had 2.81 times the odds of arrest as adults who did not use illicit drugs or have an SUD. The odds of arrest associated with having an SUD were 6.44 times the odds for adults with no past year illicit drug use or SUD.

Correlates of Arrest among Adults with Any Mental Illness

With a few exceptions, the correlates of arrest among adults with AMI were similar to the correlates of arrest among all adults. Several correlates significantly associated with arrest among all adults were not significantly associated with arrest among adults with AMI: being Native Hawaiian or Other Pacific Islander, being Asian, living between 100 and 199 percent of the Federal poverty level, having completed some college, and being unemployed (Table 2). The adjusted ORs for these correlates were similar among all adults and among adults with AMI; however, the p value was larger for adults with AMI, suggesting that the change in significance may have resulted from the smaller sample and wider confidence intervals.

The majority of correlates that were significantly associated with the odds of arrest among all adults

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Table 2. Prevalence and Correlates of Arrest in the Past 12 Months among All Adults Aged 18 or Older and among Adults with Mental Illness: 2008 and 2009

Characteristic	All Adults Aged 18 or Older			Adults with Any Mental Illness		
	Percent (SE)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Percent (SE)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Age Group						
18 to 25	6.7 (0.19)	5.24 (4.45, 6.17)	2.11 (1.71, 2.60)	8.2 (0.35)	2.50 (1.91, 3.28)	1.45 (1.04, 2.02)
26 to 34	3.9 (0.27)	2.95 (2.41, 3.60)	1.94 (1.55, 2.42)	7.8 (0.74)	2.36 (1.72, 3.25)	1.91 (1.34, 2.73)
35 or Older	1.4 (0.10)	1.00 (N/A)	1.00 (N/A)	3.5 (0.44)	1.00 (N/A)	1.00 (N/A)
Gender						
Male	3.8 (0.17)	2.90 (2.48, 3.39)	2.70 (2.29, 3.19)	9.0 (0.65)	3.00 (2.37, 3.80)	2.36 (1.86, 3.01)
Female	1.3 (0.09)	1.00 (N/A)	1.00 (N/A)	3.2 (0.29)	1.00 (N/A)	1.00 (N/A)
Race/Ethnicity						
White, Not Hispanic	2.1 (0.10)	1.00 (N/A)	1.00 (N/A)	4.8 (0.38)	1.00 (N/A)	1.00 (N/A)
Black, Not Hispanic	5.1 (0.40)	2.48 (2.05, 2.99)	1.87 (1.52, 2.30)	9.5 (1.13)	2.07 (1.54, 2.79)	1.61 (1.17, 2.23)
American Indian or Alaska Native, Not Hispanic	7.2 (1.35)	3.56 (2.36, 5.37)	1.92 (1.20, 3.06)	+	+	+
Native Hawaiian or Other Pacific Islander, Not Hispanic	1.8 (0.94)	0.82 (0.28, 2.38)	0.90 (0.31, 2.61)	+	+	+
Asian, Not Hispanic	0.5 (0.14)	0.23 (0.13, 0.40)	0.36 (0.19, 0.65)	1.6 (0.61)	0.32 (0.14, 0.71)	0.44 (0.18, 1.07)
Two or More Races, Not Hispanic	4.1 (0.68)	1.94 (1.36, 2.77)	1.20 (0.81, 1.78)	5.5 (1.41)	1.15 (0.65, 2.02)	1.03 (0.55, 1.91)
Hispanic or Latino	2.7 (0.25)	1.29 (1.05, 1.58)	0.82 (0.66, 1.02)	5.6 (0.62)	1.17 (0.88, 1.55)	0.83 (0.62, 1.13)
Marital Status						
Married	0.9 (0.08)	1.00 (N/A)	1.00 (N/A)	2.5 (0.39)	1.00 (N/A)	1.00 (N/A)
Widowed, Divorced, or Separated	2.9 (0.29)	3.11 (2.39, 4.03)	2.49 (1.88, 3.28)	5.9 (0.88)	2.51 (1.61, 3.89)	2.11 (1.31, 3.39)
Never Married	5.6 (0.20)	6.23 (5.14, 7.54)	1.82 (1.44, 2.28)	8.3 (0.44)	3.61 (2.59, 5.02)	1.52 (1.04, 2.22)
Federal Poverty Level ++						
At or above 200 Percent of the Federal Poverty Level	1.6 (0.09)	1.00 (N/A)	1.00 (N/A)	3.7 (0.39)	1.00 (N/A)	1.00 (N/A)
100 to 199 Percent of the Federal Poverty Level	3.6 (0.25)	2.27 (1.89, 2.72)	1.45 (1.17, 1.79)	6.5 (0.75)	1.81 (1.32, 2.49)	1.41 (0.97, 2.04)
Below the Federal Poverty Level	6.4 (0.40)	4.17 (3.50, 4.96)	1.98 (1.64, 2.39)	9.4 (0.76)	2.69 (2.04, 3.54)	1.57 (1.18, 2.11)
Education						
Less than High School	5.3 (0.31)	6.92 (4.97, 9.64)	3.53 (2.45, 5.09)	10.5 (0.88)	5.44 (3.06, 9.66)	3.43 (1.73, 6.81)
High School	3.0 (0.17)	3.80 (2.74, 5.27)	2.34 (1.63, 3.34)	5.9 (0.49)	2.90 (1.63, 5.16)	2.02 (1.03, 3.94)
Some College	2.3 (0.18)	2.91 (2.06, 4.11)	1.77 (1.22, 2.58)	4.6 (0.60)	2.22 (1.20, 4.08)	1.60 (0.80, 3.21)
College Graduate	0.8 (0.13)	1.00 (N/A)	1.00 (N/A)	2.1 (0.58)	1.00 (N/A)	1.00 (N/A)
Current Employment						
Full Time	2.2 (0.13)	1.00 (N/A)	1.00 (N/A)	4.8 (0.50)	1.00 (N/A)	1.00 (N/A)
Part Time	2.6 (0.23)	1.16 (0.94, 1.43)	0.84 (0.65, 1.08)	4.6 (0.75)	0.96 (0.64, 1.42)	0.84 (0.52, 1.37)
Unemployed	8.4 (0.55)	4.02 (3.37, 4.80)	1.48 (1.23, 1.78)	12.4 (1.15)	2.83 (2.09, 3.82)	1.37 (1.00, 1.89)
Other+++	2.0 (0.17)	0.92 (0.75, 1.12)	0.90 (0.72, 1.12)	5.0 (0.51)	1.04 (0.77, 1.40)	1.05 (0.73, 1.50)

(continued)

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Table 2. Prevalence and Correlates of Arrest in the Past 12 Months among All Adults Aged 18 or Older and among Adults with Mental Illness: 2008 and 2009 (continued)

Characteristic	All Adults Aged 18 or Older			Adults with Any Mental Illness		
	Percent (SE)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	Percent (SE)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Population Density						
Large Metropolitan	2.3 (0.12)	0.83 (0.69, 0.99)	0.87 (0.71, 1.07)	5.1 (0.43)	1.05 (0.80, 1.38)	1.11 (0.81, 1.53)
Small Metropolitan	2.8 (0.19)	0.98 (0.80, 1.21)	1.01 (0.81, 1.26)	6.0 (0.67)	1.24 (0.91, 1.69)	1.27 (0.90, 1.79)
Non-metropolitan	2.8 (0.21)	1.00 (N/A)	1.00 (N/A)	4.9 (0.50)	1.00 (N/A)	1.00 (N/A)
Level of Mental Illness						
None	1.8 (0.08)	1.00 (N/A)	1.00 (N/A)	N/A	N/A	N/A
Low/Mild Mental Illness	4.4 (0.41)	2.44 (1.98, 3.00)	1.57 (1.25, 1.98)	4.4 (0.41)	1.00 (N/A)	1.00 (N/A)
Moderate Mental Illness	5.7 (0.60)	3.23 (2.55, 4.08)	1.64 (1.27, 2.11)	5.7 (0.60)	1.32 (0.99, 1.77)	1.06 (0.79, 1.42)
Serious Mental Illness	7.4 (0.73)	4.26 (3.38, 5.36)	2.36 (1.78, 3.12)	7.4 (0.73)	1.74 (1.32, 2.30)	1.48 (1.10, 2.00)
Substance Use, Past 12 Months						
Substance Use Disorder (SUD) for Alcohol or Illicit Drugs	13.0 (0.65)	13.27 (11.16, 15.80)	6.44 (5.29, 7.85)	16.1 (1.11)	8.38 (6.09, 11.53)	5.68 (4.04, 7.98)
No SUD but Used Illicit Drugs	5.1 (0.36)	4.76 (3.92, 5.77)	2.81 (2.29, 3.43)	5.9 (0.67)	2.71 (1.88, 3.91)	2.30 (1.57, 3.37)
No SUD and Did Not Use Illicit Drugs	1.1 (0.07)	1.00 (N/A)	1.00 (N/A)	2.2 (0.30)	1.00 (N/A)	1.00 (N/A)

SE = standard error; OR = odds ratio; CI = confidence interval; N/A = not applicable (reference group).

NOTE: Respondents with unknown past year arrest data were excluded from the analysis. In 2008, a split-sample design assigned adults aged 18 or older randomly to one of two impairment scales: the World Health Organization Disability Assessment Schedule (WHODAS) or the Sheehan Disability Scale (SDS). The WHODAS was chosen as the impairment scale for 2009 onward. For comparability purposes, estimates were based on the WHODAS half sample of adults in 2008 and the full sample of adults in 2009.

NOTE: Mental illness is defined as having a diagnosable mental, behavioral, or emotional disorder, other than a substance use disorder, that met the criteria found in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV). Three categories of mental illness severity are defined based on the level of functional impairment: mild mental illness, moderate mental illness, and SMI. SMI refers to disorders that resulted in serious functional impairment. SUD is based on definitions found in the DSM-IV. Persons who did not have a past year SUD and used illicit drugs in the past 12 months also could have used alcohol in the past 12 months. Illicit drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically. Persons who did not have a past year SUD and did not use illicit drugs in the past 12 months include persons who did or did not use alcohol in the past 12 months.

+ Low precision; no estimate (or OR) reported.

++ Federal poverty level is defined based on family size, number of children in the household, and total family income. The Federal poverty level is calculated as a percentage of the U.S. Census Bureau's poverty threshold amount by dividing the total family income by the appropriate poverty threshold amount. Persons aged 18 to 22 who were living in a college dormitory were excluded from the Federal poverty level calculations.

+++ The "other" employment category includes retired persons, disabled persons, homemakers, students, or other persons not in the labor force.

Source: 2008 and 2009 SAMHSA National Surveys on Drug Use and Health (NSDUHs).

were also significant risk factors for arrest in adults with AMI. Younger age, being male or black, being unmarried, living below the Federal poverty level, not having any college education, having SMI, and using illicit drugs or having an SUD all increased the odds of having a past year arrest (Table 2). With a few exceptions, the magnitude of these associations also remained largely unchanged. The adjusted odds of arrest for adults younger than 26 years old was 2.11 in all adults but was attenuated to 1.45 in adults with AMI. The adjusted odds of arrest associated with having a past year SUD were attenuated from 6.44 among all adults to 5.68 among adults with AMI. Despite this attenuation, SUD remained the strongest risk factor for arrest among adults with AMI.

Additionally, although the odds for arrest among all adults were higher across all levels of mental illness, among adults who had AMI, only SMI was associated with the increased odds of arrest. This finding suggests that having AMI was a risk factor for arrest overall, but the risk of arrest among adults with low/mild mental illness and those with moderate mental illness was similar after controlling for potential confounders.

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Discussion

The prevalence of past year arrest in NSDUH among adults with AMI was 3 times that of adults without AMI (5.4 vs. 1.8 percent). Although this prevalence of arrest was low among adults with AMI, particularly among adults with AMI and no SUD (2.8 percent), it nevertheless was higher than the prevalence among adults without AMI in the civilian noninstitutionalized population. The prevalence of arrest among adults with AMI equated to an annual average of 2.4 million people for 2008 and 2009.

Among adults with AMI, the prevalence of arrest notably increased with the presence of an SUD. As noted previously, less than 3 percent of adults with AMI but no SUD were arrested in the past year. At the other extreme, more than one in four adults with AMI and co-occurring SUDs for both illicit drugs and alcohol were arrested in the past year. Even among adults with SMI, the prevalence of arrest was relatively low when no SUD was present (4.1 percent).

The results of the adjusted logistic regression model examining the correlates of arrest among all adults suggested that the strongest correlate for arrest was the presence of an SUD, which was associated with a sixfold increase in the odds of arrest. This correlate was followed by the correlates of not completing high school or only having completed high school; using illicit drugs in the past year, exclusive of having an SUD; being male; being widowed, divorced, or separated; having SMI; being aged 18 to 25; living below the Federal poverty level; being aged 26 to 34; being American Indian or Alaska Native; being black; having never been married; having moderate mental illness; being unemployed; and living at 100 to 199 percent of the Federal poverty level. Also, the association between arrest and past year illicit drug use or having an SUD was stronger than the association between AMI and arrest, once the additional correlates were adjusted for. Despite this, mental illness—particularly SMI—remained a significant correlate of past year arrest.

Results of the adjusted regression model examining the odds of arrest among adults with AMI demonstrate that the correlates of arrest among adults with AMI were similar to the correlates of arrest among all adults. No factors were identified that were uniquely correlated with arrest among adults with AMI that were not also correlated with arrest among all adults. In particular, having an SUD remained the strongest factor associated with arrest among adults with AMI. Relative to the model for all adults, the major differences in the model for adults with AMI were that the odds associated with being in the youngest age group were attenuated, as were the odds associated with having an SUD and using illicit drugs in the past year.

These analyses have consistently demonstrated that SUDs and illicit drug use were more strongly associated with past year arrest than mental illness. One concern, however, is that this association could be explained by including illicit drug use in one of the correlates and as part of the outcome (i.e., drug-related arrests). In addition, one of the criteria for determining the presence of an SUD includes "problems with the law as a result of alcohol or other drug use"; this could include being arrested. Therefore, the adjusted regression analyses among adults with AMI were replicated after excluding arrests for drug-related offenses from the outcome and treating adults as not having an SUD if their only reported problem was legal trouble associated with substance use. The results of these analyses were largely unchanged from the model results that were presented (detailed data not shown), confirming that SUD and illicit drug use were associated with past year arrest, even when the overlap of legal trouble in the SUD measure and arrests for drug-related activity were taken into account.

Mental illness, particularly SMI, was associated with higher odds of arrest even in a model that controlled for the strong association between substance use and arrest. Thus, the increased risk of arrest for adults with mental illness is not completely explained by the co-occurrence of mental disorders and SUDs.

Past research suggests that most arrests involving adults with mental illness were for nonviolent offenses and did not lead to conviction.[16] However, the prevalence of mental illness among criminal justice samples suggests that many people with mental illness are being

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incarcerated in jails and prisons.[2] Diversion programs and mental health and drug courts may be one way to address the needs of people with mental illness and SUDs who come into contact with the criminal justice system.[39] Diversion programs aim to connect people with mental illness to effective treatment in the community, with the goal of reducing recidivism.[40] These programs can operate at many points, including when police first make an arrest (prebooking), when arrestees arrive at the detention facility (postbooking), when arrestees appear in court (mental health and drug courts), and if persons violate the terms of probation or parole. These analyses suggest that targeting programs to individuals with SMI and co-occurring substance use or SUDs may be particularly efficient. Continued work with law enforcement, such as Crisis Intervention Team Model training,[41] can help law enforcement officers develop the necessary skills to recognize SMI and co-occurring SUDs to facilitate the entrance of adults with these co-occurring disorders into appropriate diversion programs.

These findings also have implications for the provision of substance abuse treatment services. Given the strong association between SUDs and arrest among adults with AMI, substance abuse treatment programs that effectively screen for and treat co-occurring mental disorders in addition to treating SUDs may have a particularly large impact on the likelihood of arrest or re-arrest among clients with co-occurring disorders.

One limitation of this study is that NSDUH data are cross-sectional rather than longitudinal (i.e., NSDUH gathers data for one time point, whereas a longitudinal study would follow adults with co-occurring mental illness and SUDs over time). Consequently, as the number of diversion programs increases, any associated decreases in the prevalence of arrest among adults with mental illness, as measured by NSDUH, cannot conclusively demonstrate the effectiveness of these programs. Similarly, the lack of change or even increases in the prevalence of arrest among adults with mental illness in future NSDUHs cannot be used to make inferences about the ineffectiveness of a local diversion program. In particular, increases in prevalence could be attributable to the limited availability of diversion programs rather than their limited effectiveness. Changes in other societal factors could be responsible for changes in the prevalence estimates. For example, changes in drug criminalization may also affect the prevalence of arrest among adults, particularly those with substance use disorders, which may obscure the impact of diversion programs.

In addition, NSDUH measures of AMI and level of mental illness were limited to adults. Therefore, these findings cannot be generalized to the risk of arrest among adolescents with mental illness and SUDs or the potential benefits of diversion programs for adolescents with these disorders.

A third issue to note is that NSDUH defines having an "arrest" as being arrested and booked. Therefore, NSDUH does not capture information about participation in pre-arrest diversion programs. Because diversion programs are designed to direct persons with mental illness who have criminal justice contact into treatment without receiving criminal sanctions,[42] persons involved in pre-arrest diversion programs would not be counted in NSDUH as having an arrest. Consequently, the findings of risk factors associated with arrest among adults with mental illness cannot be generalized to any criminal justice contact short of arrest and booking. However, this limitation would not preclude determining whether the availability of pre-arrest diversion programs affects the prevalence of arrests among adults with mental illness.

Furthermore, reports of arrest and booking do not necessarily translate to convictions or incarcerations. The target population for NSDUH is the civilian, noninstitutionalized population; therefore, adult respondents in NSDUH who were arrested and booked in the past 12 months represent persons for whom a final legal outcome has not been reached or whose legal outcome did not involve incarceration for a year or more. This latter group includes persons whose charges were dropped or those who were acquitted. The associations identified in NSDUH between mental illness, substance use or SUD, and arrest in the civilian, noninstitutionalized population do not include arrestees who were still incarcerated while awaiting trial (or the outcome of their trials) or those who were

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sentenced to prison for more than a year. However, Cuellar and colleagues[16] have demonstrated that most arrests involving persons with mental illness are for nonviolent offenses and do not lead to conviction, thereby minimizing the impact of this limitation.

Another population not represented in NSDUH is that of homeless individuals not living in shelters. Studies have demonstrated that homeless individuals have higher rates of mental illness and SUDs. Moreover, studies have found higher rates of prior homelessness in jail inmates, particularly among inmates with SMI.[43,44] Therefore, these results may underrepresent the association between mental illness and arrest.

A final limitation to note for NSDUH is that estimates and associations are based on respondent self-reports. For example, relationships between mental illness and arrests in NSDUH could be exaggerated if adults without mental illness are more likely than those with AMI to underreport arrests. However, the findings from NSDUH are consistent with other literature using court reports and treatment records that indicate that individuals with mental illness or SUDs are at higher risk of being arrested.[16]

Despite the limitations, this report provides important data on the prevalence and correlates of arrest among adults with mental illness in the United States. This information may help policy makers and diversion program administrators target resources to individuals most at risk for arrest. Future studies will be needed to observe changes in these estimates over time and to document the consistency of and differences among these results in other populations, including adolescents.

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