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Epidemiology of *DSM-5* Drug Use Disorder:

Results From the National Epidemiologic Survey on Alcohol and Related Conditions–III

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Abstract

IMPORTANCE—Current information on the prevalence and sociodemographic and clinical profiles of individuals in the general population with *DSM-5* drug use disorder (DUD) is limited. Given the present societal and economic context in the United States and the new diagnostic system, up-to-date national information is needed from a single uniform data source.

OBJECTIVE—To present nationally representative findings on the prevalence, correlates, psychiatric comorbidity, disability, and treatment of *DSM-5* DUD diagnoses overall and by severity level.

DESIGN, SETTING, AND PARTICIPANTS—In-person interviews were conducted with 36 309 adults in the 2012–2013 National Epidemiologic Survey on Alcohol and Related Conditions–III, a cross-sectional representative survey of the United States. The household response rate was 72%; person-level response rate, 84%; and overall response rate, 60.1%. Data were collected April 2012 through June 2013 and analyzed from February through March 2015.

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MAIN OUTCOMES AND MEASURES—Twelve-month and lifetime DUD, based on amphetamine, cannabis, club drug, cocaine, hallucinogen, heroin, nonheroin opioid, sedative/tranquilizer, and/or solvent/inhalant use disorders.

RESULTS—Prevalences of 12-month and lifetime DUD were 3.9% and 9.9%, respectively. Drug use disorder was generally greater among men, white and Native American individuals, younger and previously or never married adults, those with lower education and income, and those residing in the West. Significant associations were found between 12-month and lifetime DUD and other substance use disorders. Significant associations were also found between any 12-month DUD and major depressive disorder (odds ratio [OR], 1.3; 95% CI, 1.09–1.64), dysthymia (OR, 1.5; 95% CI, 1.09–2.02), bipolar I (OR, 1.5; 95% CI, 1.06–2.05), posttraumatic stress disorder (OR, 1.6; 95% CI, 1.27–2.10), and antisocial (OR, 1.4; 95% CI, 1.11–1.75), borderline (OR, 1.8; 95% CI, 1.41–2.24), and schizotypal (OR, 1.5; 95% CI, 1.18–1.87) personality disorders. Similar associations were found for any lifetime DUD with the exception that lifetime DUD was also associated with generalized anxiety disorder (OR, 1.3; 95% CI, 1.06–1.49), panic disorder (OR, 1.3; 95% CI, 1.06–1.59), and social phobia (OR, 1.3; 95% CI, 1.09–1.64). Twelve-month DUD was associated with significant disability, increasing with DUD severity. Among respondents with 12-month and lifetime DUD, only 13.5% and 24.6% received treatment, respectively.

CONCLUSIONS AND RELEVANCE—*DSM-5* DUD is a common, highly comorbid, and disabling disorder that largely goes untreated in the United States. These findings indicate the need for additional studies to understand the broad relationships in more detail; estimate present-day economic costs of DUDs; investigate hypotheses regarding etiology, chronicity, and treatment use; and provide information to policy makers about allocation of resources for service delivery and research. Findings also indicate an urgent need to destigmatize DUD and educate the public, clinicians, and policy makers about its treatment to encourage affected individuals to obtain help.

Drug use disorders (DUDs) are associated with substantial burden through impairment in major life roles and increased risk for suicidality, neuropsychological deficits, diminished quality of life, and infectious disease (eg, human immunodeficiency virus and hepatitis).[1–7] Drug use disorders also confer substantial burden on families, social networks, and society as a whole through violent and property crime, incarceration, poverty, and homelessness.[4,8] Changing societal factors in the last 15 years suggest changes in the distribution of DUDs in the general US adult population. These include public attitudes that have become increasingly permissive toward some types of drug use and legalization.[9–12] Also, prescriptions for opioid analgesics and other psychoactive medications with addiction potential have increased greatly, with consequences such as drug overdoses.[13–15] In addition, obtaining secure employment has become more difficult for many; unemployment is robustly associated with increased risk for DUDs.[16] Using *DSM-IV* definitions of DUDs, national survey data indicate that prevalence may have increased. Comparisons of 12-month and lifetime *DSM-IV* DUD prevalence in the general adult population in 2001–2002 (2.0% and 10.3%, respectively)[17] and 2012–2013 (4.1% and 15.6%, respectively)[18,19] indicate that rates of 12-month DUDs more than doubled, while rates of lifetime DUDs increased by 50%. With a wider segment of the population now affected by DUDs, up-to-date information is needed on other aspects of DUDs distribution in the general population, including sociodemographic correlates, associated comorbidity and disability, and treatment use.

In addition, in 2013, a new diagnostic system, the *DSM-5*,[20] replaced *DSM-IV*,[21] which had been used to define mental disorders in epidemiologic studies for more than 20 years. Changes in the *DSM-5* definitions of DUDs included a higher threshold to diagnose DUDs (2 criteria rather than 1), the addition of craving, a cannabis withdrawal criterion, and the severity metric based on criterion counts.[22] While agreement between *DSM-IV* and *DSM-5* DUD was good, some nonoverlap occurred in case identification between the 2 nosologic systems,[19] suggesting that assumptions about the distribution of *DSM-5* DUD and its correlates in the general population could not be assumed a priori from older data based on *DSM-IV*. Further, opinions on appropriate severity indicators for substance use disorders have varied widely,[23] suggesting the need to establish the utility of the new *DSM-5* severity metric.

Considering the seriousness of DUDs and their consequences identified in previous studies, a pressing need exists for current, comprehensive, nationally representative data on the epidemiology of DUDs from a single uniform data source. Further, given the present societal and economic context, and the new diagnostic classification system, up-to-date national information is critically needed on *DSM-5* DUD prevalence and associations with sociodemographic characteristics, psychiatric comorbidity, disability, and treatment use. Such information is important for informing estimation of present-day economic and societal costs of DUDs, generating hypothesis-driven studies, and justifying the allocation of resources for service delivery and research. Accordingly, to our knowledge, this study reports the first nationally representative findings on the prevalence, sociodemographic correlates, psychiatric comorbidity, disability, and treatment of *DSM-5* DUD, overall and by severity, from the 2012–2013 National Epidemiologic Survey on Alcohol and Related Conditions–III.[24]

Methods

Sample

The target population of NESARC-III comprised noninstitutionalized civilian US residents 18 years and older of households and selected group quarters, as detailed elsewhere.[24] Respondents were selected through multistage probability sampling. Primary sampling units were counties or groups of contiguous counties; secondary sampling units, groups of Census-defined blocks; and tertiary sampling units, households within sampled secondary sampling units, from which eligible adult respondents were selected. Black, Asian, and Hispanic household members were assigned higher selection probabilities than nonminority individuals. Two respondents were selected from households (n = 1661) with 4 or more eligible minority adults. Data were adjusted for nonresponse and weighted to represent the civilian US population based on the 2012 American Community Survey.[25] These weighting adjustments compensated adequately for nonresponse.[26] The total sample size was 36 309: the household response rate was 72%; person-level response rate, 84%; and overall response rate, 60.1%, comparable with other current US national surveys.[27,28] Oral informed consent was electronically recorded and respondents received $90 for their survey participation. Protocols and informed consent procedures were approved by the institutional review boards of the National Institutes of Health and Westat (the contractor for the NESARC-III).

Assessments

The diagnostic interview was the National Institute on Alcohol Abuse and Alcoholism Alcohol Use Disorder and Associated Disabilities Interview Schedule–5 (AUDADIS-5),[29] designed to measure specific *DSM-5* DUDs, alcohol use disorder (AUD), nicotine use disorder (NUD), and selected mood, anxiety, trauma-related, and personality disorders (PDs). The 970 lay NESARC-III interviewers had an average of 5 years of field experience working on health-related and other surveys. Each interviewer completed a 1-day self-study and participated in a 4-day in-class training session on interview administration, study procedures, and confidentiality and security of NESARC-III data.

Drug Use Disorder

Drug use disorders included sedative/tranquilizer, cannabis, amphetamine, cocaine, nonheroin opioid, heroin, hallucinogen, club drug (eg, ecstasy, ketamine, and 3,4-methylenedioxy-methamphetamine), and solvent/inhalant use disorders. Drug-specific diagnoses were aggregated to yield any past-year (PY) and any lifetime DUD. Consistent with *DSM-5*, lifetime DUD diagnoses required 2 or more of 11 criteria arising from use of the same substance in PY or prior to the past year (PPY). The PPY diagnoses required clustering of 2 or more criteria for the same drug in the same year. Also consistent with *DSM-5*, AUDADIS-5 DUD diagnoses were classified as mild (2–3 criteria), moderate (4–5 criteria), or severe (≥6 criteria) based on the highest-severity substance-specific DUD with which a respondent was diagnosed as having during the time frame of interest. In this report, moderate and severe cases of *DSM-5* DUD were combined to increase precision of the prevalence estimates and associations with other variables.

Test-retest reliability of *DSM-5*–specific DUD diagnoses (κ = 0.40–0.54) was fair, and of the associated dimensional criteria scales (intraclass correlation coefficient [ICC] = 0.45–0.84) was fair to excellent in a large general population sample.[30] Procedural validity was assessed using the semi-structured, clinician-administered Psychiatric Research Interview for Substance and Mental Disorders, *DSM-5* version (PRISM-5)[31] in a large general population sample. Concordances between AUDADIS-5 and PRISM-5 DUD diagnoses were generally fair to good (κ = 0.40–0.66) except for PPY hallucinogens and stimulants (κ = 0.39–0.35); concordances between their dimensional criteria scales were excellent (ICC > 0.68 except for PY sedatives and stimulants [ICC, 0.38 and 0.44, respectively]).[32]

Other Psychiatric Disorders

DSM-5 AUD and NUD diagnoses were derived similarly to those for DUDs. Test-retest reliabilities were fair to good (κ = 0.60–0.62) for AUD, fair to excellent for NUD (κ = 0.50–0.87), and higher for their criteria scales (ICC = 0.83–0.85 for AUD and 0.83–0.84 for NUD).[30] Concordances between AUDADIS-5 and PRISM-5 diagnoses and criteria scales were generally fair to good for AUD (κ = 0.42–0.62; ICC = 0.82–0.85) and NUD (κ = 0.54–0.68; ICC = 0.80–0.84).[32]

Mood disorders included primary major depressive disorder, dysthymia, bipolar I, and bipolar II. Anxiety disorders included *DSM-5* panic, agoraphobia, social and specific phobias, and generalized anxiety disorder. Consistent with *DSM-5*, primary AUDADIS-5

mood and anxiety diagnoses excluded substance- and medical illness–induced disorders. In addition to mood and anxiety disorders, posttraumatic stress disorder (PTSD), eating disorders (anorexia nervosa, bulimia nervosa, and binge-eating disorder), and schizotypal, borderline, and antisocial PDs were assessed. Details on the psychometric properties of AUDADIS-5 psychiatric diagnoses are given elsewhere.[30,33]

Disability and Impairment

Current disability was measured using the 12-Item Short-Form Health Survey version 2 (SF-12v2), a reliable and valid measure widely used in population surveys.[34] The SF-12v2 scales included in this study were mental health, social functioning, role emotional functioning, and mental component summary. Each SF-12v2 norm-based disability score has a mean (SD) of 50 (10) and a range of 0 to 100, with lower scores indicating greater disability.

Statistical Analysis

Weighted means and percentages were computed for continuous and categorical correlates, respectively, of overall 12-month and lifetime *DSM-5* DUD and by DUD severity level (mild and moderate to severe). Odds ratios (ORs) obtained from multivariable logistic regressions estimated associations between DUD and each sociodemographic characteristic, adjusted for all others. Logistic regressions of psychiatric comorbidity on DUD were adjusted for sociodemographic characteristics and all other substance use and psychiatric disorders. These analyses examined unique relationships of DUD to other disorders that themselves have considerable comorbidity. Although eating disorders were too rare to assess comorbid associations with DUD, they were included as covariates in comorbidity analyses. Relationships of 12-month DUD to SF-12v2 scales were assessed using normal-theory regression, controlling for sociodemographic characteristics and all other substance use and psychiatric disorders. All analyses used SUDAAN version 11.0 (Research Triangle Institute)[35] to account for the complex sample design of NESARC-III.

Results

Prevalence, Onset, and Sociodemographic Correlates

Prevalences of 12-month and lifetime *DSM-5* DUD were 3.9% and 9.9%, respectively (Table 1). Twelve-month prevalences of mild and moderate-to-severe DUD were 1.9% and 2.0%, respectively; and lifetime prevalences, 3.4% and 6.6%, respectively. Mean (SE) age at DUD onset was 23.9 (0.23) years (mean [SE], mild: 25.7 [0.43]; moderate to severe: 23.0 [0.24]). Twelve-month and lifetime prevalences of specific DUDs are shown in the eTable in the Supplement. The highest prevalences were found for cannabis, opioids, and cocaine, with lower prevalences for the remaining drugs. Rates were generally greater for men compared with women.

Table 1 and Table 2 show prevalences and ORs, respectively, of *DSM-5* DUD by sociodemographic characteristics. The odds of 12-month and lifetime DUD across severity levels were generally greater among men, younger individuals, unmarried or previously married individuals, and those with high school or less education and lower income. The

odds of DUD were lower among Hispanic and Asian/Pacific Islander individuals and respondents residing in the Midwest and South, regardless of time frame and severity level. The odds of lifetime DUD across severity levels were also lower among black individuals and those residing in the Northeast for mild 12-month and any lifetime DUD.

Comorbidity

Drug use disorder was highly associated with alcohol and nicotine use disorders, with ORs (95% CIs) ranging from 2.5 (2.00–3.06) to 4.4 (3.80–5.19) across time frames and severity levels (Table 3). Twelve-month DUD was also positively associated with major depressive disorder, bipolar I, posttraumatic stress disorder, and antisocial PD (any and moderate to severe); dysthymia (any and mild); and borderline and schizotypal PDs across severity levels. Lifetime DUD was associated with major depressive disorder and generalized anxiety disorder (any and mild); bipolar I, dysthymia, posttraumatic stress disorder, and borderline and schizotypal PDs (except mild); and panic disorder, social phobia, and antisocial PD across severity levels.

Disability

After adjustment for sociodemographic and psychiatric covariates, respondents with 12-month DUD had significantly lower mental health, social functioning, role emotional functioning, and mental component summary scores than those without. Disability increased with greater DUD severity (Table 4).

Treatment for Drug Use Disorder

Of respondents with 12-month and lifetime *DSM-5* DUD, 13.5% and 24.6%, respectively, received any treatment (Table 5). The mean age at first treatment for *DSM-5* DUD was 27.7 years, nearly 4 years later than mean onset.

Among those with 12-month DUD, 8.2% received treatment from health professionals; 6.1% attended 12-step groups, and 3.6% and 3.2% attended outpatient or rehabilitation facilities, respectively. Other settings were used less frequently. Respondents with lifetime DUD showed similar treatment patterns except that rehabilitation programs (12.5%) were used more frequently than health care professionals (11.4%). Treatment patterns across 12-month and lifetime severity levels generally resembled those for overall DUD, although treatment was significantly greater in moderate-to-severe than in mild 12-month (19.5% vs 6.9%; $\chi^2_1=27.1$; $P < .001$) and lifetime (32.5% vs 9.4%; $\chi^2_1=164.5$; $P < .001$) DUD.

Discussion

In 2012–2013, the NESARC-III, a large national survey of US adults, assessed 12-month and lifetime disorders, including DUDs, diagnosed according to the new *DSM-5*. The NESARC-III used rigorous survey and field methods and incorporated measures of functioning and detailed assessments of treatment use. The NESARC-III results indicate that the prevalence rates of 12-month and lifetime *DSM-5* DUD were 3.9% and 9.9%, respectively, representing approximately 9 131 250 and 23 310 135 US adults, respectively. Thus, a large number of US adults were affected by DUDs, as were an unmeasured

additional number of individuals in the families and social networks of those with the disorder. Further, *DSM-5* DUD was characterized by considerable psychiatric comorbidity and disability, thus indicating a serious condition. Associations with comorbidity and disability increased as the severity of *DSM-5* DUD increased, indicating validity and utility for the *DSM-5* DUD severity metric. Moreover, consistent with previous studies, DUDs largely went untreated, even among those with severe disorders, indicating that lack of treatment use continues to be a substantial problem.

Consistent with findings under previous diagnostic systems and those from the NESARC-III concerning *DSM-5* AUD and NUD,[18,26,36–38] rates of DUD were higher among men and inversely related to age. Additionally, ORs for associations of DUD with age were significantly greater for moderate-to-severe than mild lifetime DUD within age groups. Further prospective research is needed to elucidate underlying mechanisms. Nevertheless, both substantial associations in all 3 younger age groups, and significant differences in age-specific lifetime ORs by DUD severity, reinforce the importance of continued and expanded age-appropriate prevention and treatment strategies across the lifespan.

Compared with non-Hispanic white individuals, Asian/Pacific Islander and Hispanic individuals exhibited lower risks across time frames and black individuals for lifetime DUD. Conversely, Native American individuals exhibited higher odds of moderate-to-severe lifetime DUD. However, even among minority groups with lower prevalences, culturally appropriate prevention efforts against both drug use and DUD and effective interventions when these occur are necessary. Risk factors among white and Native American individuals and protective factors among other minority groups should be further examined to expand understanding of DUD etiology and improve treatment and prevention approaches.

Also compatible with previous findings based on earlier diagnostic systems,[18,26,39–42] after adjustment for sociodemographics and additional comorbidity, we observed significant, positive associations of 12-month and lifetime DUD with other SUDs and a broad range of mood, anxiety, posttraumatic stress, and personality disorders. Stronger associations and significantly different ORs by DUD severity, particularly for lifetime comorbidity, with adjustment only for sociodemographic characteristics (data not shown), suggest that factors common to DUD and comorbid disorders partly explain both magnitudes and variations by DUD severity of the associations. However, persistence of significant relationships after adjustment for additional comorbidity suggests important unique contributory factors. These results, along with those of previous epidemiologic[18,42] and genetic[43–45] studies, warrant further study of etiologic factors underlying DUD comorbidity, including DUD severity.

As represented by the SF-12v2 scores, disability was significantly related to 12-month DUD even after adjustment for sociodemographic and diagnostic covariates. Disability was greatest in moderate-to-severe DUD. Together with findings on comorbidity, these results highlight the clinical significance of even mild DUD and suggest that treatment should continue to target functional impairment and drug-related symptoms.[46,47]

Even among moderate-to-severe cases, less than 20% of respondents with 12-month DUD and less than one-third with lifetime DUD received treatment or participated in self-help

programs. These low prevalences of treatment may reflect continued skepticism, including concerns about the effectiveness and value of treatment, as well as persistent barriers related to stigma, insufficient resources within health care systems, and health care professionals' lack of knowledge and skill regarding identification of potentially problematic drug use.[23,47–50] Nonetheless, a large literature supports the efficacy of behavioral treatments for DUDs, including cognitive-behavioral, motivational enhancement, contingency management, and community reinforcement approaches.[46,51–56] However, opioid use disorders are currently the only DUDs for which empirically supported pharmacotherapies are available, including methadone, buprenorphine, and naltrexone.[46,51–56] The appropriateness of existing behavioral treatments for mild DUDs, medications for mild opioid use disorders, and medications under development to treat other DUDs across severity levels warrants examination. More work is needed to destigmatize DUDs and educate the public, including health care professionals, about recent advances in treatment and their effectiveness, as well as how and where to obtain help.[51,52,57–59]

The most common treatment health care professionals for individuals with DUDs included private health professionals, highlighting these clinicians' key roles in identifying and linking affected individuals to appropriate help. In contrast to alcohol and tobacco, evidence is limited for the effectiveness of brief interventions in reducing drug use and problems among nonhelp-seeking individuals in primary care.[53,54] Nevertheless, identifying and addressing drug use are essential components of good clinical practice for reasons including appropriate diagnosis of medical and psychiatric conditions, safe prescribing of medications, and enabling referrals to DUD treatment when indicated.[53,55] The prevalence of DUD in this study underscores the need for continued efforts to develop and implement screening tools and protocols to refer individuals with DUDs to appropriate treatment.[46,50,51]

Study limitations included the cross-sectional design of the NESARC-III. Prospective investigations are needed to assess stability of the survey estimates over time. The exclusion of most institutionalized individuals, including those in jails and prisons, and active-duty military personnel may have led to underestimation of DUD prevalence in the NESARC-III.[60] Social desirability biases in responding may also have led to an underestimate of DUD prevalence[61]; however, we cannot identify obvious disincentives to accurate reporting, particularly given the strict confidentiality provisions of the NESARC-III. Prevalences of disorders comorbid with DUD based on the fully structured AUDADIS-5 may differ from those that are clinically derived and further study in this area is warranted. An additional consideration is that these results reflect the aggregation of drug-specific use disorders into diagnoses of any 12-month and any lifetime DUD, whereas sociodemographic correlates, comorbid associations, disability profiles, and patterns of treatment and help-seeking may differ by drug. The epidemiology of DUDs associated with several specific drugs in the NESARC-III is warranted.

The NESARC-III also had considerable strengths. It is the first survey of the epidemiology of *DSM-5* DUD in US adults based on a large nationally representative sample using rigorous methods. Additional strengths included coverage of the full spectrum of common mental disorders, including mood, anxiety, and personality disorders, as well as a well-validated measure of functioning. An additional strength that will be tapped in future

research was the availability of genetic data from a large subsample of the NESARC-III sample. The present article lays important groundwork for future studies using the genetic data.

Conclusions

DSM-5 DUD is prevalent among US adults. The public is increasingly less likely to disapprove of specific types of drug use (eg, marijuana) or to see it as risky, and consistent with these attitudes, laws governing drug use are becoming more permissive. However, the present NESARC-III findings on disability and comorbidity indicate that DUDs as defined by the new *DSM-5* nosology are serious conditions affecting many millions of Americans.

With these findings now available, studies can now begin to examine the broad relationships in more detail; estimate the present-day economic and societal costs of DUDs; investigate hypotheses about etiology, chronicity, and treatment use; and provide information to policy makers for decision making about the allocation of resources for service delivery and research. Study results also reinforce the urgency of destigmatizing DUD and educating the public, clinicians, and policy makers about its treatments, thus enabling more affected individuals to obtain help.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Prevalence of 12-Month and Lifetime *DSM-5* Drug Use Disorder by Sociodemographic Characteristics

Characteristics	Drug Use Disorder, % (SE)					
	12-mo			Lifetime		
	Any (n = 1487)	Mild (n = 722)	Moderate to Severe (n = 765)	Any (n = 3548)	Mild (n = 1192)	Moderate to Severe (n = 2356)
Total	3.9 (0.13)	1.9 (0.08)	2.0 (0.10)	9.9 (0.27)	3.4 (0.13)	6.6 (0.21)
Sex						
Male	4.9 (0.22)	2.3 (0.13)	2.5 (0.17)	12.3 (0.39)	4.3 (0.18)	8.1 (0.31)
Female	3.0 (0.16)	1.5 (0.11)	1.5 (0.11)	7.7 (0.28)	2.5 (0.15)	5.2 (0.23)
Race/ethnicity						
White	3.7 (0.16)	1.8 (0.10)	1.8 (0.12)	10.8 (0.36)	3.7 (0.17)	7.1 (0.30)
Black	5.9 (0.45)	2.9 (0.24)	3.0 (0.32)	9.9 (0.57)	3.5 (0.27)	6.4 (0.46)
Native American	6.9 (1.53)	3.3 (1.31)	3.7 (1.01)	17.2 (2.14)	4.6 (1.28)	12.6 (1.78)
Asian/Pacific Islander	1.4 (0.30)	0.5 (0.22)	1.0 (0.27)	4.0 (0.66)	1.3 (0.40)	2.7 (0.46)
Hispanic	3.9 (0.26)	1.7 (0.20)	2.2 (0.22)	7.2 (0.50)	2.3 (0.23)	5.0 (0.39)
Age, y						
18–29	8.3 (0.44)	3.9 (0.28)	4.4 (0.30)	14.2 (0.61)	4.8 (0.32)	9.4 (0.46)
30–44	4.2 (0.25)	2.0 (0.16)	2.2 (0.20)	12.0 (0.45)	3.7 (0.22)	8.3 (0.37)
45–64	2.5 (0.16)	1.2 (0.10)	1.3 (0.12)	9.7 (0.39)	3.3 (0.22)	6.3 (0.30)
≥65	0.8 (0.14)	0.5 (0.11)	0.3 (0.08)	2.0 (0.25)	1.1 (0.18)	0.9 (0.14)
Marital status						
Married/cohabiting	2.2 (0.12)	1.2 (0.08)	1.1 (0.10)	8.0 (0.27)	2.8 (0.17)	5.2 (0.23)
Widowed/separated/divorced	3.8 (0.29)	1.8 (0.20)	2.0 (0.20)	10.3 (0.46)	3.3 (0.26)	7.0 (0.37)
Never married	8.3 (0.42)	3.8 (0.26)	4.5 (0.27)	14.5 (0.51)	4.8 (0.26)	9.7 (0.42)
Education						
<High school	5.0 (0.35)	2.2 (0.23)	2.8 (0.30)	10.2 (0.60)	2.9 (0.25)	7.3 (0.51)
High school	4.6 (0.27)	2.2 (0.18)	2.5 (0.22)	11.6 (0.45)	3.9 (0.23)	7.8 (0.38)
Some college or higher	3.3 (0.17)	1.7 (0.11)	1.7 (0.11)	9.1 (0.27)	3.2 (0.17)	5.9 (0.21)
Family income, $						

Characteristics	Drug Use Disorder, % (SE)					
	12-mo			Lifetime		
	Any (n = 1487)	Mild (n = 722)	Moderate to Severe (n = 765)	Any (n = 3548)	Mild (n = 1192)	Moderate to Severe (n = 2356)
0–19 999	7.2 (0.36)	3.1 (0.22)	4.1 (0.28)	13.5 (0.57)	3.9 (0.24)	9.5 (0.50)
20 000–34 999	4.2 (0.28)	2.2 (0.20)	2.0 (0.18)	10.5 (0.45)	3.6 (0.24)	6.9 (0.35)
35 000–69 999	3.2 (0.20)	1.6 (0.15)	1.6 (0.17)	9.6 (0.33)	3.5 (0.24)	6.1 (0.29)
≥70 000	1.9 (0.17)	1.0 (0.12)	0.9 (0.12)	7.2 (0.34)	2.7 (0.21)	4.6 (0.29)
Urbanicity						
Urban	4.1 (0.15)	2.0 (0.10)	2.1 (0.11)	10.1 (0.27)	3.4 (0.14)	6.7 (0.21)
Rural	3.0 (0.26)	1.5 (0.18)	1.6 (0.20)	9.3 (0.60)	3.1 (0.32)	6.2 (0.55)
Region						
Northeast	3.9 (0.26)	1.8 (0.20)	2.2 (0.19)	10.8 (0.48)	3.6 (0.41)	7.2 (0.33)
Midwest	3.6 (0.28)	1.7 (0.18)	2.0 (0.21)	10.0 (0.51)	3.3 (0.25)	6.8 (0.46)
South	3.6 (0.24)	1.8 (0.12)	1.8 (0.18)	8.4 (0.53)	3.0 (0.22)	5.4 (0.42)
West	4.6 (0.28)	2.3 (0.20)	2.2 (0.26)	11.5 (0.42)	3.9 (0.23)	7.6 (0.32)

Table 2

AORs of 12-Month and Lifetime *DSM-5* Drug Use Disorder By Sociodemographic Characteristics

	Drug Use Disorder, AOR (95% CI)					
	12-mo			Lifetime		
Characteristic	Any	Mild	Moderate to Severe	Any	Mild	Moderate to Severe
Sex						
Male	1.7 (1.47–2.00)[a]	1.7 (1.39–2.04)[a]	1.7 (1.42–2.13)[a]	1.7 (1.58–1.89)[a]	1.8 (1.59–2.08)[a]	1.7 (1.50–1.88)[a]
Female	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]
Race/ethnicity						
White	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]
Black	1.1 (0.87–1.30)	1.1 (0.88–1.36)	1.0 (0.78–1.39)	0.7 (0.58–0.81)[a]	0.8 (0.63–0.91)[a]	0.7 (0.53–0.79)[a]
Native American	1.5 (0.91–2.34)	1.4 (0.64–3.14)	1.5 (0.82–2.73)	1.3 (0.99–1.78)	1.1 (0.64–1.96)	1.4 (1.02–1.98)[a]
Asian/Pacific Islander	0.3 (0.18–0.42)[a]	0.2 (0.07–0.43)[a]	0.4 (0.21–0.68)[a]	0.3 (0.18–0.37)[a]	0.3 (0.14–0.47)[a]	0.3 (0.18–0.39)[a]
Hispanic	0.6 (0.50–0.72)[a]	0.5 (0.40–0.67)[a]	0.7 (0.51–0.92)[a]	0.4 (0.34–0.48)[a]	0.4 (0.32–0.49)[a]	0.4 (0.33–0.50)[a]
Age, y						
18–29	10.4 (7.18–15.10)[a]	7.6 (4.67–12.41)[a]	15.9 (8.33–30.45)[a]	9.1 (6.76–12.32)[a]	5.7 (3.73–8.59)[a]	13.1 (9.47–18.17)[a]
30–44	7.1 (4.89–10.26)[a]	5.0 (3.17–7.89)[a]	11.2 (5.73–21.87)[a]	8.9 (6.79–11.66)[a]	4.8 (3.32–7.07)[a]	13.6 (10.00–18.57)[a]
45–64	3.8 (2.63–5.59)[a]	2.8 (1.71–4.57)[a]	5.9 (3.17–10.84)[a]	6.3 (4.80–8.25)[a]	3.9 (2.66–5.70)[a]	9.0 (6.62–12.35)[a]
≥65	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]
Marital status						
Married/cohabiting	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]
Widowed/separated/divorced	1.8 (1.46–2.29)[a]	1.6 (1.25–2.17)[a]	2.0 (1.49–2.81)[a]	1.5 (1.33–1.62)[a]	1.4 (1.13–1.65)[a]	1.5 (1.35–1.73)[a]
Never married	1.7 (1.48–2.04)[a]	1.6 (1.22–2.05)[a]	1.9 (1.51–2.40)[a]	1.2 (1.10–1.39)[a]	1.2 (1.01–1.47)[a]	1.3 (1.07–1.45)[a]
Education						
<High school	1.3 (1.09–1.60)[a]	1.2 (0.94–1.61)	1.4 (1.05–1.89)[a]	1.2 (1.08–1.41)[a]	1.0 (0.86–1.25)	1.3 (1.14–1.58)[a]
High school	1.2 (1.01–1.41)[a]	1.1 (0.89–1.41)	1.3 (1.02–1.56)[a]	1.3 (1.13–1.40)[a]	1.2 (1.01–1.42)[a]	1.3 (1.14–1.47)[a]
Some college or higher	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]
Family income, $						

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Characteristic	Drug Use Disorder, AOR (95% CI)					
	12-mo			Lifetime		
	Any	Mild	Moderate to Severe	Any	Mild	Moderate to Severe
0–19 999	2.9 (2.28–3.73)[a]	2.5 (1.78–3.51)[a]	3.4 (2.34–4.82)[a]	2.0 (1.73–2.36)[a]	1.7 (1.32–2.06)[a]	2.2 (1.85–2.70)[a]
20 000–34 999	1.9 (1.44–2.46)[a]	1.9 (1.36–2.75)[a]	1.8 (1.26–2.65)[a]	1.6 (1.39–1.87)[a]	1.5 (1.27–1.87)[a]	1.7 (1.37–1.99)[a]
35 000–69 999	1.5 (1.17–1.92)[a]	1.5 (1.05–2.05)[a]	1.5 (1.06–2.23)[a]	1.4 (1.20–1.57)[a]	1.4 (1.12–1.66)[a]	1.4 (1.14–1.66)[a]
≥70 000	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]
Urbanicity						
Urban	1.2 (0.98–1.44)	1.2 (0.94–1.57)	1.2 (0.89–1.53)	1.1 (0.96–1.28)	1.1 (0.90–1.38)	1.1 (0.92–1.33)
Rural	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]
Region						
Northeast	0.8 (0.67–1.01)	0.7 (0.54–0.95)[a]	0.9 (0.70–1.27)	0.9 (0.76–0.99)[a]	0.8 (0.63–1.07)	0.9 (0.78–1.02)
Midwest	0.7 (0.55–0.86)[a]	0.6 (0.43–0.81)[a]	0.8 (0.57–1.07)	0.7 (0.60–0.81)[a]	0.7 (0.53–0.81)[a]	0.7 (0.61–0.86)[a]
South	0.7 (0.53–0.79)[a]	0.6 (0.49–0.78)[a]	0.7 (0.50–0.93)[a]	0.6 (0.51–0.70)[a]	0.6 (0.51–0.76)[a]	0.6 (0.49–0.71)[a]
West	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]

Abbreviation: AOR, adjusted odds ratio.

[a]Significant ORs ($P < .05$).

Table 3

AORs of 12-Month and Lifetime *DSM-5* Drug Use Disorder and Other Psychiatric Disorders[a]

	Drug Use Disorder, AOR (95% CI)					
	12-mo			Lifetime		
Psychiatric Disorder	Any	Mild	Moderate to Severe	Any	Mild	Moderate to Severe
Alcohol use disorder	3.2 (2.81–3.66)[b]	3.2 (2.65–3.84)[b]	3.2 (2.62–3.94)[b]	4.0 (3.59–4.40)[b]	3.5 (2.91–4.13)[b]	4.4 (3.78–5.00)[b]
Nicotine use disorder	3.2 (2.78–3.68)[b]	2.5 (2.00–3.06)[b]	4.2 (3.44–5.16)[b]	3.6 (3.22–4.09)[b]	2.7 (2.27–3.11)[b]	4.4 (3.80–5.19)[b]
Any mood disorder	1.9 (1.58–2.27)[b]	1.6 (1.26–2.09)[b]	2.2 (1.69–2.78)[b]	1.5 (1.32–1.68)[b]	1.2 (0.99–1.42)	1.7 (1.44–1.99)[b]
Major depressive	1.3 (1.09–1.64)[b]	1.3 (0.98–1.81)	1.3 (1.03–1.76)[b]	1.2 (1.01–1.32)[b]	1.3 (1.02–1.53)[b]	1.1 (0.94–1.31)
Bipolar						
I	1.5 (1.06–2.05)[b]	1.0 (0.65–1.64)	1.8 (1.22–2.65)[b]	1.4 (1.14–1.74)[b]	0.8 (0.55–1.29)	1.6 (1.29–2.02)[b]
II	1.3 (0.63–2.69)	0.9 (0.26–2.74)	1.7 (0.73–3.74)	1.3 (0.64–2.56)	0.5 (0.17–1.75)	1.5 (0.72–3.29)
Dysthymia	1.5 (1.09–2.02)[b]	1.6 (1.05–2.42)[b]	1.4 (0.94–2.07)	1.3 (1.11–1.51)[b]	1.1 (0.81–1.44)	1.4 (1.16–1.67)[b]
Any anxiety disorder	1.2 (0.99–1.50)	1.2 (0.94–1.58)	1.2 (0.92–1.62)	1.3 (1.11–1.42)[b]	1.4 (1.13–1.63)[b]	1.2 (1.04–1.40)[b]
Panic disorder	1.0 (0.73–1.44)	0.8 (0.48–1.39)	1.2 (0.81–1.69)	1.3 (1.06–1.59)[b]	1.4 (1.02–1.96)[b]	1.3 (1.01–1.56)[b]
Agoraphobia	1.0 (0.63–1.43)	0.9 (0.49–1.49)	1.0 (0.63–1.60)	1.2 (0.83–1.60)	0.9 (0.58–1.52)	1.2 (0.88–1.72)
Social phobia	1.1 (0.84–1.49)	0.9 (0.58–1.37)	1.3 (0.90–1.84)	1.3 (1.09–1.64)[b]	1.4 (1.03–1.97)[b]	1.3 (1.03–1.66)[b]
Specific phobia	0.9 (0.73–1.20)	0.8 (0.54–1.25)	1.0 (0.74–1.44)	1.0 (0.80–1.13)	0.9 (0.67–1.24)	1.0 (0.80–1.17)
Generalized anxiety disorder	1.2 (0.89–1.55)	1.3 (0.89–1.86)	1.1 (0.80–1.52)	1.3 (1.05–1.49)[b]	1.4 (1.06–1.76)[b]	1.2 (0.99–1.46)
Posttraumatic stress disorder	1.6 (1.27–2.10)[b]	1.0 (0.70–1.44)	2.2 (1.61–3.03)[b]	1.5 (1.26–1.81)[b]	1.2 (0.88–1.51)	1.7 (1.36–2.04)[b]
Personality disorder						
Antisocial	1.4 (1.11–1.75)[b]	1.4 (1.00–1.83)	1.4 (1.07–1.88)[b]	2.0 (1.71–2.39)[b]	1.8 (1.34–2.32)[b]	2.1 (1.76–2.58)[b]
Borderline	1.8 (1.41–2.24)[b]	1.7 (1.21–2.32)[b]	1.9 (1.37–2.57)[b]	1.7 (1.43–1.95)[b]	1.2 (0.97–1.54)	1.9 (1.60–2.35)[b]
Schizotypal	1.5 (1.18–1.87)[b]	1.4 (1.04–1.87)[b]	1.6 (1.15–2.09)[b]	1.5 (1.23–1.73)[b]	1.3 (0.98–1.63)	1.5 (1.27–1.86)[b]

Abbreviation: AOR, adjusted odds ratio.

[a]AOR adjusted for age, race/ethnicity, sex, education, family income, marital status, urbanicity, geographic region, and additional psychiatric comorbidity.

[b]Significant ORs ($P < .05$).

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Table 4

Norm-Based Past-Month Disability Scores by 12-Month Drug Use Disorder

	Norm-Based Scores, Mean (SE)			
Drug Use Disorder	**Mental Health**	**Social Functioning**	**Role Emotional Functioning**	**Mental Component Summary**
None	52.0 (0.08)	50.9 (0.09)	48.7 (0.12)	51.2 (0.08)
Any	45.0 (0.40)[a]	44.5 (0.46)[a]	42.2 (0.46)[a]	43.7 (0.41)[a]
Mild	47.0 (0.44)[b]	46.4 (0.52)[b]	43.8 (0.53)[a]	45.8 (0.47)[b]
Moderate/severe	43.2 (0.56)[a]	42.8 (0.59)[a]	40.7 (0.59)[a]	41.7 (0.55)[a]

[a]Significantly different ($P < .001$) from the score for individuals with no drug use disorder, after adjusting for sociodemographic characteristics and 12-month psychiatric comorbidity.

[b]Significantly different ($P < .05$) from the score for individuals with no drug use disorder, after adjusting for sociodemographic characteristics and 12-month psychiatric comorbidity.

Table 5

Percentage of Respondents With 12-Month and Lifetime Drug Use Disorder Who Received Treatment or Help in Specific Types of Settings

	Drug Use Disorder, Mean (SE)					
	12-mo			Lifetime		
Type of Treatment or Help	Any	Mild	Moderate to Severe	Any	Mild	Moderate to Severe
Total	13.45 (1.27)	6.92 (1.49)	19.53 (1.93)	24.64 (0.91)	9.40 (1.09)	32.45 (1.28)
12-Step program	6.14 (0.77)	1.50 (0.41)	10.47 (1.43)	17.04 (0.82)	4.20 (0.63)	23.60 (1.15)
Family/social services	1.35 (0.29)	0.39 (0.26)	2.24 (0.51)	4.59 (0.44)	1.86 (0.45)	5.99 (0.62)
Detoxification	2.64 (0.54)	0.32 (0.22)	4.80 (1.02)	9.47 (0.67)	2.02 (0.46)	13.28 (1.00)
Other inpatient facility	2.32 (0.55)	0.16 (0.11)	4.33 (1.04)	6.61 (0.49)	1.64 (0.45)	9.16 (0.70)
Outpatient clinic	3.55 (0.53)	1.24 (0.60)	5.69 (1.03)	9.77 (0.62)	1.75 (0.45)	13.88 (0.88)
Rehabilitation program	3.16 (0.54)	1.24 (0.59)	4.94 (1.02)	12.50 (0.68)	2.70 (0.50)	17.52 (1.03)
Methadone maintenance	0.76 (0.24)	0.00 (0.00)	1.47 (0.47)	2.25 (0.30)	0.35 (0.19)	3.23 (0.44)
Emergency department	1.48 (0.38)	0.20 (0.20)	2.68 (0.67)	5.30 (0.41)	0.48 (0.16)	7.76 (0.61)
Halfway house	0.41 (0.23)	0.07 (0.07)	0.74 (0.43)	3.31 (0.40)	0.20 (0.12)	4.90 (0.61)
Crisis center	0.57 (0.20)	0.27 (0.22)	0.84 (0.33)	1.48 (0.24)	0.28 (0.15)	2.09 (0.35)
Employee-assistance program	0.02 (0.02)	0.00 (0.00)	0.04 (0.04)	1.08 (0.24)	0.25 (0.15)	1.50 (0.35)
Clergy	1.41 (0.34)	0.16 (0.16)	2.57 (0.64)	3.17 (0.35)	0.51 (0.24)	4.54 (0.52)
Physician or other health care professional	8.22 (1.07)	5.11 (1.41)	11.12 (1.55)	11.40 (0.68)	5.12 (1.03)	14.62 (0.99)
Any other agency or professional	1.03 (0.32)	0.07 (0.07)	1.92 (0.60)	1.53 (0.23)	0.58 (0.21)	2.01 (0.33)

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