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Objective: To present national data on the prevalence, correlates, and comorbidity of nonmedical prescription drug use and drug use disorders for sedatives, tranquilizers, opioids, and amphetamines.

Method: Data were derived from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), a face-to-face nationally representative survey of 43,093 adults conducted during 2001 and 2002.

Results: Lifetime prevalences of nonmedical use of sedatives, tranquilizers, opioids, and amphetamines were 4.1%, 3.4%, 4.7%, and 4.7%, respectively. Corresponding rates of abuse and/or dependence on these substances were 1.1%, 1.0%, 1.4%, and 2.0%. The odds of nonmedical prescription drug use and drug use disorders were generally greater among men, Native Americans, young and middle-aged, those who were widowed/ separated/divorced or never married, and those residing in the West. Abuse/dependence liability was greatest for amphetamines, and nonmedical prescription drug use disorders were highly comorbid with other Axis I and II disorders. The majority of individuals with nonmedical prescription drug use disorders never received treatment.

Conclusions: Nonmedical prescription drug use and disorders are pervasive in the U.S. population and highly comorbid with other psychiatric disorders. Native Americans had significantly greater rates of nonmedical prescription drug use and drug use disorders, highlighting the need for culturally-sensitive prevention and intervention programs. Unprecedented comorbidity between nonmedical prescription drug use disorders and between nonmedical prescription drug use disorders and illicit drug use disorders suggests that the typical individual abusing or dependent on these drugs obtained them illegally, rather than through a physician. Amphetamines had the greatest abuse/dependence liability, and recent increases in the potency of illegally manufactured amphetamines may portend an epidemic in the youngest NESARC cohort.

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Prescription sedatives, tranquilizers, opioids, and amphetamines play an important role in the management of chronic and acute pain, insomnia, attentiondeficit/hyperactivity disorder, and many other psychiatric disorders. However, these substances can be used in a nonmedical manner, meaning without a prescription or more frequently or in larger doses than prescribed. Nonmedical use of sedatives, tranquilizers, opioids, and amphetamines can lead to cognitive deficits, mood changes, nonfatal and fatal overdoses, cardiac arrhythmias, respiratory depression, and injuries from motor vehicle crashes and other accidents.¹⁻⁷ Much of the concern surrounding nonmedical use of these controlled substances stems from their potential for abuse and dependence.^{8–11}

Despite national concern regarding the nonmedical use of these controlled substances, little is known about the prevalence and correlates of nonmedical use of tranquilizers, sedatives, opioids, and amphetamines or about drug use disorders (i.e., abuse and/or dependence) that may develop from their use in the general population. The few epidemiologic surveys that assessed nonmedical prescription drug use and abuse and/or dependence since the early 1980s all have at least one key methodologic limitation. Some did not differentiate between medical and nonmedical use,¹²⁻¹⁵ abuse, and/or dependence,^{15,16} while others used ambiguous definitions of nonmedical use.¹⁷ Clear definitions are critical since abuse and dependence symptoms are only queried among those deemed to be users of these drugs. For example, since 1994, one principal source of data, the ongoing National Survey on Drug Use and Health (NSDUH),^{17,18} defined nonmedical prescription drug use as "use without a prescription" or "you took the drug only for the experience or feeling it caused," leaving open the possibility that the "experience or feeling" was the one targeted by the prescribing medical practitioner and that, therefore, legitimate use was reported by mistake.

In addition, the majority of large national epidemiologic surveys19-21 did not collect drug-specific data, e.g., nonmedical use of sedatives, tranquilizers, opioids, and amphetamines. Others combined nonmedical abuse and/or dependence with abuse and/or dependence on illicit drugs, e.g., cannabis, cocaine, and hallucinogens.¹⁹⁻²² In the recent National Comorbidity Survey Replication (NCS-R),²¹ all respondents skipped questions on DSM-IV drug dependence if they did not respond positively to the corresponding questions on DSM-IV drug abuse, effectively using abuse as a screen for dependence. Since DSM-IV abuse is not required for DSM-IV dependence, and abuse and dependence are diagnostically distinct entities, NCS-R estimates of drug dependence were greatly underestimated, as demonstrated empirically.²³ Most earlier surveys also had small sample sizes, precluding precise and reliable estimates of nonmedical prescription drug use and drug use disorders associated with these specific controlled substances.

Even less is known regarding comorbidity between these nonmedical prescription drug use disorders and other specific psychiatric disorders. The Epidemiologic Catchment Area survey²⁴ examined the associations between nonmedical opioid, amphetamine, and tranquilizer (combined with sedative) use disorders and aggregate categories of any anxiety and any mood disorder, while the National Comorbidity Survey²¹ assessed the comorbidity with specific mood and anxiety disorders but combined all categories of drug use disorders. Several epidemiologic surveys of the International Consortium in Psychiatric Epidemiology^{25,26} also reported associations among aggregated categories of drug use disorders, mood disorders, and anxiety disorders. The National Longitudinal Alcohol Epidemiologic Survey²⁷ examined associations of sedative, tranquilizer, opioid, and amphetamine use disorders with major depression, but no other mood or anxiety disorders. Further, no previous survey assessed the comorbidity between nonmedical prescription drug use disorders and personality disorders.

The absence of information on specific nonmedical prescription drug use and abuse and/or dependence associated with sedatives, tranquilizers, opioids, and amphetamines represents a gap in our knowledge relevant to prevention and treatment. Below, data are presented on prevalence, correlates, and comorbidity of lifetime nonmedical use and abuse and/or dependence on each of these substances as assessed in the 2001–2002 National Institute on Alcohol Abuse and Alcoholism (NIAAA) National Epidemiologic Survey on Alcohol and Related Conditions (NESARC).^{28,29} The NESARC sample size (N = 43,093) allowed for the examination of the prevalence and correlates of nonmedical sedative, tranquilizer, opioid, and amphetamine use and abuse and/or dependence as defined in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV),³⁰ and the comorbidity of each nonmedical prescription drug use disorder with specific DSM-IV Axis I and II disorders. Further, conditional probabilities of specific nonmedical prescription drug use disorders (i.e., the percentage of nonmedical prescription drug users who developed abuse and/or dependence) were assessed to determine vulnerability to drug-specific abuse/dependence in the total sample and among important subgroups.

METHOD

Sample

The 2001–2002 NESARC is a representative sample survey of the United States conducted by NIAAA.^{28,29} The NESARC target population was the civilian population 18 years and older residing in households and group quarters. Face-to-face interviews were conducted with 43,093 respondents, for a response rate of 81%. Blacks, Hispanics, and young adults 18 to 24 years old were oversampled. Weighted data were adjusted to be representative of the U.S. civilian population based on the 2000 Census. The research protocol, including informed consent procedures, received full ethical review and approval from the U.S. Census Bureau and U.S. Office of Management and Budget.

Nonmedical Prescription Drug Use

Information was separately collected on the lifetime nonmedical use of sedatives, tranquilizers, opioids (excluding methadone and heroin), and amphetamines. Nonmedical use was defined as use "without a prescription, in greater amounts, more often, or longer than prescribed, or for a reason other than a doctor said you should use them."

Nonmedical Prescription Drug Abuse and/or Dependence

Nonmedical prescription drug use disorders, as defined in the DSM-IV, were ascertained separately for abuse and dependence and separately for tranquilizers (e.g., Valium, Librium, Xanax), sedatives (e.g., Seconal, Quaaludes, chloral hydrate), opioids (e.g., Vicodin, Demerol, codeine), and amphetamines (e.g., Benzedrine, Preludin). An extensive list of specific drugs within each drug category appears on the NIAAA NESARC public use website.²⁸ The diagnostic interview was the NIAAA Alcohol Use Disorder and Associated Disabilities Interview Schedule– DSM-IV Edition (AUDADIS-IV).³¹ This interview, designed for experienced lay interviewers, was developed to advance measurement of substance use and mental disorders in large-scale surveys.

Consistent with DSM-IV, lifetime AUDADIS-IV diagnoses of sedative, tranquilizer, opioid, and amphetamine abuse required at least 1 of the 4 criteria for abuse to be met in either the 12-month period preceding the interview or during a previous 12-month period. AUDADIS-IV lifetime dependence diagnoses required at least 3 of the 7 DSM-IV criteria for dependence to be met during the past year or during a prior 12-month period. For prior diagnoses of dependence on each of these substances, at least 3 criteria must have occurred within a 1-year period, following DSM-IV.

The good to excellent reliability of the AUDADIS-IV sedative, tranquilizer, opioid, and amphetamine use ($\kappa = 0.50-0.82$) and the associated substance use disorder diagnoses ($\kappa = 0.53-0.96$) and their validity are well documented in numerous psychometric studies, including clinical reappraisals conducted by psychiatrists, in clinical and general population samples^{32–39} and in several countries as part of the World Health Organization/National Institutes of Health's International Study on Reliability and Validity.^{40–44}

Other Psychiatric Disorders

The AUDADIS-IV also assessed 5 DSM-IV anxiety disorders (panic disorder with and without agoraphobia, social phobia, specific phobia, and generalized anxiety disorder) and 4 major mood disorders (dysthymia, major depressive disorder, and bipolar I and bipolar II). These disorders also followed DSM-IV criteria, required the clinical significance criterion to be met, and ruled out substance-induced episodes and those due to a medical condition.³⁰

AUDADIS-IV assessments of DSM-IV personality disorders have been described in detail previously.⁴⁵⁻⁴⁷ These include avoidant, dependent, obsessive-compulsive, paranoid, schizoid, and antisocial personality disorders. DSM-IV personality disorder diagnoses require evaluating long-term patterns of functioning. AUDADIS-IV personality disorder diagnoses were made accordingly. To receive a DSM-IV personality disorder diagnosis, respondents needed to endorse the required number of DSM-IV symptoms for the specific personality disorder, with at least 1 symptom causing distress and/or social or occupational dysfunction. Diagnoses of antisocial personality disorder required the specified number of DSM-IV symptoms for conduct disorder before age 15 and adult antisocial behavior since age 15.

As described in detail elsewhere, the reliability and validity of AUDADIS-IV mood, anxiety, and personality disorders were fair to good as assessed in both clinical and primarily general population samples.^{32,33,45-47}

Statistical Analyses

Crosstabulations were used to derive prevalence estimates of specific lifetime nonmedical prescription drug use and drug use disorders among the total sample and among lifetime users of each specific substance. Odds ratios (ORs), derived from logistic regression analyses, indicated the associations of nonmedical prescription drug use and abuse and/or dependence with sociodemographic correlates. Odds ratios derived from logistic regression analyses were also used to examine the relationships between each nonmedical prescription drug use disorder and other psychiatric disorders, controlling for age, raceethnicity, sex, education, income, marital status, urbanicity and region of the country. Weighted means and percentages were computed to determine age at onset, duration, and treatment. Hazard rates, reflecting the risk of onset of these specific nonmedical prescription drug use disorders at specific ages among the population at risk at those ages, were calculated using standard life table methods.⁴⁸ All standard errors and 95% confidence intervals were estimated using Software for Survey Data Analysis (SUDAAN),⁴⁹ which adjusts for design characteristics of complex sample surveys.

RESULTS

Prevalence and Odds Ratios of Nonmedical Prescription Drug Use

Lifetime prevalences of nonmedical use of sedatives, tranquilizers, opioids, and amphetamines were 4.1%, 3.4%, 4.7%, and 4.7%, respectively (Table 1).

The odds of nonmedical use of all 4 drugs were significantly greater for men than women. Compared with whites, Native Americans had significantly greater odds of nonmedical use of all 4 substances except sedatives, while the odds for blacks, Hispanics, and Asians were lower than for whites for each substance. Compared with respondents

Table 1. Prevalence and Odds	s Ratios (ORs) of Lifetime Nonmedic	cal Prescriptio	n Drug Use by Socioden	ographic Chan	acteristics ^a		
Sociodemographic	Sedative	2 (N = 1609)	Tranquil	izer (N = 1301)	Opioid	1 (N = 1815)	Ampheta	mine $(N = 1750)$
Characteristic	% (SE)	OR (95% CI)	% (SE)	OR (95% CI)	% (SE)	OR (95% CI)	% (SE)	OR (95% CI)
Total Sex	4.1 (0.16)		3.4 (0.14)		4.7 (0.20)		4.7 (0.22)	
Male	5.2 (0.24)	1.7 (1.51 to 1.89)	4.5 (0.21)	1.9 (1.66 to 2.18)	6.1(0.28)	1.8 (1.57 to 2.00)	6.1(0.29)	1.9 (1.65 to 2.11)
Female	3.1(0.15)	1.0	2.4 (0.14)	1.0	3.5(0.19)	1.0	3.4 (0.22)	1.0
Kace-ethnicity	10101	0	101017	1.0	(0,03)	1 0	(20 02 2	1.0
Wille	4.0(0.19)	1.U 0 5 /0 30 4 - 0 5 ()	4.0 (0.17)	1.0	(c7.0) c.c	1.0	(07.0) C.C	1.0
Black	2.2 (0.18)	(0C.0 01 82 0) C.0	1.4 (0.18)	(0.3)(0.27) to (0.43)	2.0 (0.23)	(9C.0 01 65.0) C.0	(81.0) C.1	0.3(0.21 to 0.33)
Native American	6.5(1.32)	1.4 (0.93 to 2.20)	6.1(1.15)	1.6(1.03 to 2.35)	9.1(1.34)	1.8 (1.29 to 2.44)	10.6(1.49)	2.0 (1.49 to 2.75)
Asian	3.0 (0.47)	0.6 (0.45 to 0.88)	1.5(0.34)	0.4 (0.21 to 0.58)	2.7(0.55)	0.5 (0.32 to 0.75)	1.3(0.35)	0.2 (0.13 to 0.39)
Hispanic	2.7 (0.24)	0.6 (0.47 to 0.68)	2.0 (0.25)	0.5 (0.38 to 0.64)	3.1 (0.29)	0.6 (0.46 to 0.69)	2.5(0.31)	0.4 (0.34 to 0.56)
Age, y	Î e e I				í : : :			
18-29	4.7(0.37)	4.5 (3.25 to 6.13)	4.7(0.33)	7.3 (4.86 to 10.93)	7.4 (0.45)	7.4 (5.50 to 9.95)	4.4(0.33)	10.9 (6.94 to 17.04)
30-44	5.1 (0.27)	4.9 (3.64 to 6.56)	4.2 (0.24)	6.5 (4.36 to 9.64)	5.7 (0.29)	5.6 (4.20 to 7.58)	6.8(0.37)	17.2 (10.87 to 27.15)
45-64	4.3 (0.23)	4.1 (3.08 to 5.58)	3.3(0.21)	5.0 (3.37 to 7.52)	3.9 (0.24)	3.8 (2.84 to 5.00)	4.9(0.32)	12.3 (7.75 to 19.45)
65+	1.1(0.15)	1.0	0.7(0.12)	1.0	1.1(0.15)	1.0	0.4 (0.09)	1.0
Marital status								
Married/cohabiting	3.6(0.16)	1.0	2.9(0.16)	1.0	3.9(0.19)	1.0	4.4 (0.24)	1.0
Widowed/separated/	5.0(0.31)	1.4 (1.24 to 1.66)	3.8(0.24)	1.3 (1.13 to 1.59)	5.0(0.32)	1.3 (1.11 to 1.47)	5.3(0.36)	1.2 (1.06 to 1.39)
divorced								
Never married	5.0(0.36)	1.4 (1.22 to 1.67)	4.7 (0.31)	1.7 (1.43 to 1.98)	7.0 (0.42)	1.9 (1.62 to 2.11)	4.8 (0.32)	1.1 (0.94 to 1.27)
Income								
\$0-19,999	3.9 (0.22)	1.0 (0.75 to 1.26)	3.6(0.20)	1.0 (0.69 to 1.33)	5.0(0.26)	1.3 (1.03 to 1.73)	4.1 (0.25)	0.8 (0.61 to 0.97)
\$20,000–39,999	4.1 (0.28)	1.0 (0.77 to 1.32)	3.3 (0.23)	0.9 (0.66 to 1.22)	5.0(0.31)	1.3 (1.02 to 1.71)	5.0(0.34)	0.9 (0.76 to 1.19)
\$40,000–69,999	4.5 (0.25)	1.1 (0.85 to 1.46)	3.1 (0.22)	0.8 (0.60 to 1.13)	4.3 (0.28)	1.1 (0.88 to 1.48)	5.4(0.33)	1.0 (0.81 to 1.29)
\$70,000+	4.1 (0.45)	1.0	3.7 (0.50)	1.0	3.8 (0.43)	1.0	5.2 (0.52)	1.0
Education								
Less than high school	3.8(0.31)	0.9 (0.74 to 1.05)	3.5(0.29)	1.0 (0.84 to 1.22)	4.6(0.33)	0.9~(0.80 to $1.10)$	3.7~(0.35)	$0.7 \ (0.60 \text{ to } 0.87)$
High school	4.0(0.24)	0.9 (0.81 to 1.07)	3.5(0.23)	$1.0\ (0.87\ to\ 1.20)$	4.7 (0.28)	$1.0\ (0.84\ to\ 1.09)$	4.4(0.30)	$0.9\ (0.75\ to\ 0.99)$
At least some college	4.3(0.19)	1.0	3.4(0.16)	1.0	4.8 (0.23)	1.0	5.1(0.25)	1.0
Region								
Northeast	3.6(0.28)	0.7 (0.54 to 0.88)	2.7 (0.21)	0.6(0.51 to 0.78)	3.6 (0.27)	0.5 (0.41 to 0.71)	3.7 (0.32)	0.5 (0.37 to 0.62)
Midwest	4.0(0.33)	0.8 (0.59 to 0.98)	3.2(0.30)	0.8 (0.60 to 0.96)	4.8 (0.36)	0.7 (0.56 to 0.96)	4.2(0.43)	0.5~(0.41 to 0.73)
South	3.8 (0.21)	0.7 (0.58 to 0.90)	3.5(0.23)	0.8 (0.68 to 1.00)	4.3 (0.25)	0.7 (0.51 to 0.84)	3.9(0.25)	$0.5\ (0.40\ to\ 0.64)$
West	5.2 (0.46)	1.0	4.2 (0.27)	1.0	6.4~(0.66)	1.0	7.3 (0.66)	1.0
Urbanicity								
Urban	4.2(0.19)	1.1 (0.95 to 1.36)	3.5(0.16)	1.1 (0.87 to 1.30)	4.8 (0.23)	1.0 (0.87 to 1.21)	4.6(0.26)	1.0 (0.81 to 1.17)
Rural	3.7 (0.28)	1.0	3.3 (0.28)	1.0	4.7 (0.30)	1.0	4.8 (0.32)	1.0
^a Ns based on unweighted data.								

aged 65 and older, all others had higher odds of nonmedical use of sedatives, tranquilizers, opioids, and amphetamines. The odds of nonmedical use of each substance except amphetamines were also significantly greater among respondents who were widowed/separated/divorced or never married, compared with those who were married/ cohabiting.

Respondents in the 2 lowest income brackets had significantly greater odds of nonmedical use of opioids than those in the highest income bracket. For amphetamines, respondents with at least some college education had greater odds of use relative to those with lower levels of education. The odds of nonmedical use of each substance were consistently and significantly greater in the West than in other regions in the country.

Prevalence and Odds Ratios of Nonmedical Prescription Drug Abuse and/or Dependence

Lifetime prevalences of nonmedical sedative, tranquilizer, opioid, and amphetamine use disorders were 1.1%, 1.0%, 1.4%, and 2.0%, respectively (Table 2). The odds of each nonmedical prescription drug use disorder were significantly greater for men than for women. With respect to race-ethnicity, the odds of each nonmedical prescription drug use disorder were significantly greater for Native Americans, and lower for blacks, Asians, and Hispanics, relative to whites. Respondents in the 3 youngest age groups were also at significantly greater risk of each nonmedical prescription drug use disorder compared with those in the oldest age group, as were respondents who were widowed/separated/divorced or never married relative to those who were married/cohabiting.

For tranquilizers and opioids, odds were significantly greater among those with less than a high school education compared with respondents who had attended college. The odds of each nonmedical prescription drug use disorder were also significantly greater in the West compared with the Northeast. Further, the odds of amphetamine use disorders were significantly greater in the West relative to all other regions.

Prevalence and Odds Ratios of Specific Nonmedical Prescription Drug Use Disorders Among Specific Nonmedical Prescription Drug Users

Column 1 of Table 3 shows the lifetime prevalence of nonmedical sedative use disorder (26.2%) among respondents who had ever used sedatives nonmedically. Corresponding prevalences for tranquilizer, opioid, and amphetamine use disorders were 28.6%, 30.0%, and 43.0%. For each drug use disorder, except amphetamine use disorder, men were significantly more likely than women to transition from use to abuse and/or dependence. A similar association was observed for Native Americans compared with whites. Respondents with less than a high school education were also significantly more likely to transition to abuse and/or dependence on tranquilizers, opioids, and amphetamines, relative to those with at least some college education.

The odds of nonmedical sedative and opioid use disorders among nonmedical users were significantly greater for the 3 youngest age groups compared with the oldest. Although the prevalences of tranquilizer and amphetamine use disorders were lower among respondents 65 years and older, the odds of these nonmedical prescription drug use disorders may not have significantly differed by age due to the extremely low number of elderly respondents who had these disorders. Further, the odds of developing amphetamine use disorders among nonmedical users were significantly greater among those in 2 lower income brackets relative to those in the highest, and significantly greater in the West compared with the Northeast and South.

Age at Onset, Course, and Treatment

Mean ages at onset of nonmedical sedative, tranquilizer, opioid, and amphetamine use disorders were 21.2, 21.9, 22.8, and 20.7 years and did not significantly differ. The hazard rates for the 4 nonmedical prescription drug use disorders were similar, peaking at about ages 17 to 18 years and declining rapidly by the fourth decade of life (Figure 1).

The mean durations of the only or longest episode of sedative (2.5 years), tranquilizer (2.7 years), opioid (2.7 years), and amphetamine (3.2 years) use disorders also did not differ significantly from one another. Any drug treatment was significantly greater among respondents with tranquilizer use disorders (38.6%, 95% CI = 32.3 to 44.9) than among those with amphetamine use disorders (28.6%, 95% CI = 25.0 to 32.2). There were no significant differences in drug treatment among those with nonmedical sedative (35.7%, 95% CI = 29.8 to 41.5), opioid (31.9%, 95% CI = 27.1 to 36.8), and tranquilizer (38.6%, 95% CI = 32.3 to 44.9) use disorders. Mean age at first drug treatment for any drug did not differ significantly among respondents with nonmedical sedative (26.3 years), tranquilizer (25.7 years), opioid (26.2 years), and amphetamine (24.5 years) use disorders.

Comorbidity of Nonmedical Prescription Drug Use Disorders and Other Psychiatric Disorders

Associations of lifetime nonmedical prescription drug use disorders and other Axis I and II disorders were overwhelmingly positive and statistically significant for each nonmedical prescription drug use disorder and all other DSM-IV Axis I and II disorders (Table 4).

Most notably, the associations between nonmedical sedative, tranquilizer, opioid, and amphetamine use disorders and other nonmedical prescription drug use disorders were unprecedented in their magnitude (ORs = 56.9-204.1). Associations between each nonmedical

Table 2. Prevalence and Odds	s Ratios (OR	s) of Lifetime Nonmedi	cal Prescriptio	n Drug Use Disorders by	v Sociodemogr	aphic Characteristics ^a		
Sociodemographic	Sedati	ve (N = 402)	Tranqu	lizer (N = 372)	Opioi	id $(N = 521)$	Amphet	amine $(N = 765)$
Characteristic	% (SE)	OR (95% CI)	% (SE)	OR (95% CI)	% (SE)	OR (95% CI)	% (SE)	OR (95% CI)
Total Sex	1.1 (0.07)		1.0(0.07)		1.4 (0.10)		2.0 (0.13)	
Male	1.6 (0.12)	2.8 (2.17 to 3.54)	1.4 (0.12)	2.6 (2.05 to 3.40)	2.0 (0.16)	2.4 (1.89 to 2.92)	2.5 (0.18)	1.7 (1.46 to 2.01)
Female	0.6(0.06)	1.0	0.6(0.06)	1.0	(0.0)(0.0)	1.0	1.5(0.13)	1.0
Race-ethnicity								
White	1.2(0.09)	1.0	1.1(0.08)	1.0	1.6(0.12)	1.0	2.3 (0.15)	1.0
Black	0.5(0.10)	0.4 (0.25 to 0.62)	0.3(0.08)	0.3 (0.14 to 0.46)	0.7 (0.12)	0.4 (0.29 to 0.61)	0.6(0.10)	0.2 (0.17 to 0.34)
Native American	3.7 (0.98)	3.2 (1.79 to 5.55)	3.7(1.01)	3.4 (1.88 to 5.98)	4.5 (1.05)	2.9 (1.78 to 4.79)	5.0(1.12)	2.2 (1.35 to 3.55)
Asian	0.4(0.19)	0.4 (0.15 to 0.88)	0.4(0.17)	0.3 (0.12 to 0.84)	0.8(0.28)	0.5 (0.25 to 1.03)	0.7(0.21)	0.3 (0.15 to 0.53)
Hispanic	0.6(0.11)	0.5 (0.35 to 0.76)	0.5(0.12)	0.5 (0.28 to 0.73)	0.9(0.16)	0.6 (0.38 to 0.80)	1.2 (0.21)	0.5 (0.37 to 0.73)
Age, y								
18–29	1.0(0.15)	14.3 (5.62 to 36.32)	1.2(0.15)	9.3 (3.75 to 22.94)	2.0 (0.24)	13.2 (6.60 to 26.33)	2.0 (0.22)	18.9 (7.85 to 45.48)
30-44	1.4(0.13)	20.7 (8.39 to 50.98)	1.3(0.14)	10.3 (4.13 to 25.87)	1.8(0.16)	11.7 (5.97 to 22.75)	2.9 (0.25)	27.2 (11.40 to 64.95)
45-64	1.3(0.14)	19.4 (7.73 to 48.74)	1.0(0.12)	7.9 (3.07 to 20.21)	1.3(0.15)	8.6 (4.35 to 16.87)	2.1(0.19)	19.0 (7.80 to 46.29)
65+	0.1(0.03)	1.0	0.1(0.06)	1.0	0.2(0.05)	1.0	0.1(0.05)	1.0
Marital status								
Married/cohabiting	(0.0)(0.08)	1.0	0.8(0.07)	1.0	1.2(0.11)	1.0	1.8(0.15)	1.0
Widowed/separated/	1.3(0.15)	1.4 (1.09 to 1.92)	1.3(0.14)	1.6 (1.23 to 2.15)	1.7(0.20)	1.5 (1.11 to 1.91)	2.4 (0.21)	1.3 (1.08 to 1.58)
divorced								
Never married	1.3(0.15)	1.4 (1.05 to 1.78)	1.3(0.16)	1.7 (1.32 to 2.19)	2.0 (0.22)	1.7 (1.30 to 2.18)	2.2 (0.21)	1.2 (0.99 to 1.55)
Income								
\$0-19,999	1.1(0.10)	1.1 (0.73 to 1.80)	1.1(0.10)	1.4 (0.82 to 2.27)	1.6(0.15)	1.4 (0.92 to 2.25)	2.0(0.17)	1.1 (0.83 to 1.59)
\$20,000–39,999	0.9(0.13)	0.9 (0.59 to 1.53)	1.0(0.13)	1.3 (0.73 to 2.15)	1.5(0.17)	1.4 (0.86 to 2.16)	2.2 (0.22)	1.3 (0.91 to 1.84)
\$40,000–69,999	1.1(0.13)	1.1 (0.67 to 1.78)	0.8(0.11)	1.0 (0.60 to 1.76)	1.1(0.14)	1.0 (0.60 to 1.58)	2.0 (0.21)	1.2 (0.84 to 1.71)
\$70,000+	1.0(0.21)	1.0	0.8(0.18)	1.0	1.1(0.22)	1.0	1.7(0.26)	1.0
Education								
Less than high school	1.1(0.18)	$1.0\ (0.69\ to\ 1.43)$	$1.3\ (0.19)$	1.5 (1.06 to 2.05)	1.7 (0.23)	1.4 (1.01 to 1.86)	1.9(0.23)	1.0 (0.75 to 1.22)
At least some college	11.0 (0.11)	0.2 (0.07 t0 1.16) 1 0	0.0 (0.08)	(1.C.1 0) 00.0) 1.1 1 0	(0.10) $C.1$	1.2 (0.94 to 1.94) 1 A	2.1 (0.21)	1.0 (0.04 to 1.20) 1 0
Region	((0.0) 1.1	0.1	(00.0) (.0	0.1	(71.0) (.1	0.1	(01.0) 0.2	1.0
Northeast	0.7 (0.10)	0.6.(0.40 to 0.79)	0.7 (0.11)	0 6 (0 43 to 0 95)	1 0/0 17)	050310081)	12.00160	0 3 (0 22 to 0 46)
Midwest	1.1 (0.16)	0.9 (0.62 to 1.24)	1.0 (0.16)	1.0 (0.65 to 1.40)	1.4 (0.20)	0.7 (0.48 to 1.15)	1.8 (0.25)	0.5(0.34 to 0.71)
South	1.1 (0.12)	0.9 (0.66 to 1.17)	1.1(0.13)	1.1 (0.84 to 1.52)	1.4 (0.14)	0.7 (0.50 to 1.07)	1.6 (0.16)	0.4 (0.31 to 0.58)
West	1.3(0.12)	1.0	1.0(0.10)	1.0	1.9(0.30)	1.0	3.6(0.41)	1.0
Urbanicity								
Urban	1.1 (0.07)	0.9 (0.66 to 1.26)	(0.0)(0.07)	0.7 (0.52 to 1.05)	1.4(0.11)	0.8 (0.60 to 1.08)	2.0(0.16)	0.9 (0.68 to 1.15)
Rural	1.2 (0.18)	1.0	1.2 (0.19)	1.0	1.7 (0.21)	1.0	2.2 (0.23)	1.0
^a Ns based on unweighted data.								

Table 3. Prevalence and Odds Sociodemographic Characteri	Ratios (ORs) o stics	f Each Nonmedical Pr	escription Drug	g Use Disorder Among	Nonmedical Us	ers of Each Substanc	e by	
Sociodemographic		edative	Tra	mquilizer		Dpioid	Amp	hetamine
Characteristic	% (SE)	OR (95% CI)	% (SE)	OR (95% CI)	% (SE)	OR (95% CI)	% (SE)	OR (95% CI)
Total	26.2 (1.36)		28.6 (1.59)		30.0 (1.48)		43.0 (1.59)	
Male	31.1 (1.92)	2.0 (1.49 to 2.56)	32.0 (2.14)	1.6 (1.19 to 2.13)	33.4 (1.92)	1.5 (1.20 to 1.92)	41.9 (1.98)	0.9 (0.70 to 1.11)
Female	18.7 (1.63)	1.0	22.8 (2.00)	1.0	24.8 (1.82)	1.0	44.9 (2.29)	1.0
Race-ethnicity	~		~		~			
White	25.9 (1.53)	1.0	28.0 (1.73)	1.0	29.6 (1.64)	1.0	42.4 (1.76)	1.0
Black	22.0 (4.02)	0.8 (0.49 to 1.33)	19.8 (4.87)	0.6 (0.34 to 1.20)	25.4 (3.72)	0.8 (0.54 to 1.22)	37.9 (4.68)	0.8 (0.55 to 1.25)
Native American	56.8(9.06)	3.8 (1.78 to 7.96)	60.1 (8.24)	3.9 (1.91 to 7.80)	49.1 (7.79)	2.3 (1.22 to 4.34)	47.2 (7.62)	1.2 (0.64 to 2.30)
Asian	14.8(6.10)	0.5 (0.19 to 1.30)	24.9 (10.5)	0.9 (0.28 to 2.60)	29.5 (9.50)	1.0 (0.40 to 2.51)	51.8 (11.80)	1.5 (0.55 to 3.83)
Hispanic	23.3 (3.89)	0.9 (0.55 to 1.38)	25.3 (5.08)	0.9 (0.49 to 1.56)	28.6 (3.69)	1.0 (0.65 to 1.41)	49.2 (4.89)	1.3 (0.89 to 1.95)
Age, y								
18-29	21.1 (2.92)	3.9 (1.44 to 10.56)	24.9 (2.82)	1.4 (0.51 to 3.92)	27.4 (2.47)	2.2 (1.01 to 4.75)	46.5 (3.32)	2.4 (0.87 to 6.91)
30-44	27.9 (2.15)	5.6 (2.20 to 14.48)	31.0 (2.63)	1.9 (0.69 to 5.32)	31.3 (2.19)	2.6 (1.25 to 5.58)	43.0 (2.38)	2.1 (0.76 to 5.98)
45-64	30.6 (2.36)	6.4 (2.48 to 16.76)	30.3(3.04)	1.9 (0.65 to 5.25)	33.9(3.00)	3.0 (1.38 to 6.49)	41.6 (2.30)	2.0 (0.71 to 5.67)
65+	6.4 (2.74)	1.0	19.0 (7.71)	1.0	14.7 (4.57)	1.0	26.2 (9.87)	1.0
Marital status								
Married/cohabiting	26.2 (1.75)	1.0	27.3 (2.06)	1.0	29.9 (2.13)	1.0	41.2 (2.16)	1.0
Widowed/separated/divorced	26.8 (2.64)	$1.0\ (0.74\ to\ 1.43)$	33.1 (2.95)	1.3 (0.94 to 1.85)	34.2 (3.15)	1.2 (0.86 to 1.73)	44.5 (2.65)	1.1 (0.88 to 1.49)
Never married	25.5 (2.68)	1.0 (0.71 to 1.31)	27.9 (2.76)	1.0 (0.76 to 1.41)	27.8 (2.52)	0.9 (0.66 to 1.24)	46.6 (2.87)	1.2 (0.94 to 1.64)
Income								
0-19,999	29.0 (2.19)	1.3 (0.75 to 2.11)	30.1 (2.29)	1.6 (0.92 to 2.76)	31.9(2.16)	1.1 (0.67 to 1.89)	47.8 (2.45)	1.9 (1.25 to 2.86)
\$20,000–39,999	23.2 (2.71)	0.9 (0.53 to 1.63)	29.8 (3.28)	1.6 (0.86 to 2.83)	30.4 (2.67)	1.1 (0.62 to 1.81)	44.1 (3.19)	1.6 (1.03 to 2.58)
\$40,000–69,999	24.1 (2.53)	1.0 (0.56 to 1.69)	26.7 (3.30)	1.3 (0.72 to 2.50)	25.2 (2.89)	0.8 (0.46 to 1.43)	37.9 (2.81)	1.3 (0.83 to 1.93)
\$70,000+	24.6 (4.34)	1.0	21.3 (4.35)	1.0	29.3 (4.89)	1.0	32.6 (3.90)	1.0
Education								
Less than high school	29.3 (3.97)	1.3 (0.79 to 2.07)	37.4 (4.30)	1.7 (1.11 to 2.65)	38.3 (4.04)	1.7 (1.18 to 2.55)	51.3(4.19)	1.6 (1.11 to 2.34)
High school	24.8 (2.33)	0.8 (0.58 to 1.25)	29.1 (2.68)	1.2 (0.85 to 1.64)	32.9 (2.78)	1.4 (0.99 to 1.88)	46.8 (3.12)	1.3 (1.02 to 1.78)
At least some college	26.1 (1.93)	1.0	25.8 (2.14)	1.0	26.4(1.89)	1.0	39.5(1.89)	1.0
Region								
Northeast	19.8 (2.62)	0.8 (0.51 to 1.12)	24.3 (3.76)	1.0 (0.61 to 1.65)	26.5 (4.17)	0.9 (0.53 to 1.41)	32.6 (3.30)	0.5 (0.34 to 0.72)
Midwest	28.0 (3.32)	1.2 (0.81 to 1.75)	30.1(3.49)	1.3 (0.87 to 2.08)	29.6 (3.07)	1.0 (0.68 to 1.47)	43.7 (2.99)	0.8 (0.57 to 1.11)
South	29.6 (2.57)	1.3 (0.94 to 1.77)	32.9 (2.74)	1.5 (1.05 to 2.23)	32.4 (2.52)	1.1 (0.82 to 1.61)	40.5 (2.89)	0.7 (0.50 to 0.97)
West	24.6 (1.88)	1.0	24.2 (2.58)	1.0	29.5 (2.59)	1.0	49.4 (2.83)	1.0
Urbanicity								
Urban	25.1 (1.36)	0.7~(0.51 to $1.08)$	26.5(1.64)	0.6(0.39 to 0.90)	28.6 (1.56)	0.7~(0.51 to $0.98)$	42.1 (1.82)	0.8 (0.63 to 1.12)
Rural	31.1 (3.88)	1.0	37.8 (4.38)	1.0	36.1(3.43)	1.0	46.5 (3.16)	1.0

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Disorder	Sedative OR (95% CI)	Tranquilizer OR (95% CI)	Opioid OR (95% CI)	Amphetamine OR (95% CI)
Any alcohol use disorder	13.4 (9.39 to 19.20)	14.2 (9.56 to 21.08)	11.4 (8.62 to 15.06)	16.1 (12.1 to 21.3)
Other nonmedical prescription drug use disorder	204.1 (144.7 to 287.9)	184.0 (130.3 to 259.8)	80.1 (58.7 to 109.1)	56.9 (43.6 to 74.4)
Other illicit drug use disorder	69.6 (46.5 to 104.1)	54.8 (37.4 to 80.4)	28.1 (20.4 to 38.7)	52.3 (39.1 to 70.1)
Nicotine dependence	7.5 (5.83 to 9.65)	6.7 (5.00 to 8.92)	6.7 (5.31 to 8.51)	6.9 (5.62 to 8.41)
Any mood disorder	4.9 (3.77 to 6.24)	4.8 (3.70 to 6.16)	4.6 (3.64 to 5.87)	4.0 (3.26 to 4.88)
Major depressive disorder	2.4 (1.73 to 3.40)	2.4 (1.69 to 3.28)	2.4 (1.77 to 3.19)	2.2 (1.77 to 2.66)
Bipolar I	5.9 (4.23 to 8.34)	5.5 (3.94 to 7.65)	4.9 (3.63 to 6.60)	5.0 (3.88 to 6.36)
Bipolar II	4.7 (2.79 to 7.97)	4.2 (2.44 to 7.32)	4.3 (2.60 to 7.02)	3.2 (2.05 to 5.03)
Dysthymia	3.9 (2.78 to 5.47)	3.4 (2.37 to 4.82)	3.0 (2.12 to 4.16)	3.4 (2.53 to 4.58)
Any anxiety disorder	3.7 (2.82 to 4.78)	4.2 (3.28 to 5.39)	3.0 (2.39 to 3.84)	3.3 (2.71 to 4.09)
Panic with agoraphobia	6.0 (3.52 to 10.18)	7.9 (4.56 to 13.64)	4.3 (2.44 to 7.64)	4.7 (2.86 to 7.80)
Panic without agoraphobia	4.2 (2.94 to 6.01)	3.8 (2.69 to 5.43)	4.0 (2.99 to 5.30)	3.1 (2.30 to 4.10)
Social phobia	2.5 (1.80 to 3.55)	3.0 (2.13 to 4.31)	2.4 (1.67 to 3.58)	2.6 (1.94 to 3.57)
Specific phobia	2.7 (1.93 to 3.85)	3.2 (2.36 to 4.38)	2.3 (1.68 to 3.08)	2.9 (2.30 to 3.69)
Generalized anxiety	3.8 (2.71 to 5.41)	4.3 (3.07 to 6.13)	2.7 (1.97 to 3.68)	3.2 (2.40 to 4.22)
Any personality disorder	5.6 (4.43 to 7.17)	6.6 (5.06 to 8.52)	4.9 (3.85 to 6.11)	5.1 (4.33 to 6.10)
Avoidant	3.9 (2.58 to 5.84)	3.5 (2.15 to 5.76)	4.0 (2.69 to 5.93)	3.5 (2.52 to 4.91)
Dependent	4.3 (1.83 to 10.22)	8.6 (3.94 to 18.76)	4.4 (1.83 to 10.51)	3.4 (1.47 to 7.76)
Obsessive-compulsive	3.1 (2.28 to 4.17)	2.9 (2.10 to 4.14)	2.5 (1.84 to 3.28)	2.8 (2.25 to 3.57)
Paranoid	4.4 (3.16 to 6.06)	4.7 (3.42 to 6.46)	3.5 (2.50 to 4.90)	3.9 (3.04 to 4.91)
Schizoid	3.9 (2.68 to 5.59)	4.7 (3.15 to 6.89)	3.5 (2.45 to 4.92)	4.4 (3.28 to 5.97)
Histrionic	4.4 (2.81 to 6.80)	5.3 (3.43 to 8.16)	4.6 (3.12 to 6.82)	4.1 (3.00 to 5.69)
Antisocial	8.9 (6.51 to 12.04)	9.9 (7.41 to 13.28)	8.1 (6.15 to 10.59)	8.7 (6.94 to 10.80)

Table 4. Odds Ratios (ORs) of Lifetime DSM-IV Nonmedical Prescription Drug Use Disorders and Other Lifetime DSM-IV Psychiatric Disorders

Figure 1. Hazard Rates for Age at Onset of Nonmedical Prescription Drug Abuse and/or Dependence



prescription drug use disorder and illicit drug use disorders were also high, ranging from ORs of 28.1 for opioids to 69.6 for sedatives. Associations of nonmedical prescription drug use disorders with alcohol use disorders (ORs = 11.4-16.1) were about twice as strong as with nicotine dependence (ORs = 6.7-7.5).

With respect to mood disorders, each nonmedical prescription drug use disorder was more strongly related to bipolar I disorder (ORs = 4.9-5.9) than other mood disorders (ORs = 2.2-4.7). Panic disorder with agoraphobia (ORs = 4.3-7.9) was the anxiety disorder most strongly related to each nonmedical prescription drug use disorder. Antisocial personality disorder (ORs = 8.1-9.9) was more strongly related to each nonmedical

prescription drug use disorder than any other personality disorder.

DISCUSSION

Nonmedical use of sedatives, tranquilizers, opioids, and amphetamines is pervasive in the general population. Overall, 4.1%, 3.4%, 4.7%, and 4.7% of adult Americans have used sedatives, tranquilizers, opioids, and amphetamines nonmedically at some time during their lives, and a majority of them have used more than 1 prescription drug nonmedically. Corresponding prevalences of nonmedical abuse and/or dependence were 1.1%, 1.0%, 1.4%, and 2.0%

This study was the first to document that many of the risk factors for nonmedical prescription drug use are similar to those of nonmedical abuse and/or dependence and similar across specific drugs. Nonmedical prescription drug use and disorders associated with sedatives, tranquilizers, opioids, and amphetamines were significantly more common among men, young and middleaged adults, Native Americans, those living in the West, and the widowed/separated/divorced or unmarried, while blacks, Hispanics, and Asians were at decreased risk. In general, men, Native Americans, individuals with lower education, and young and middle-aged adults were also at increased risk of developing abuse and/or dependence for all drugs. The exception to this pattern involved amphetamines, where no sex and race-ethnic differences were observed. Although similar risk factors have been found for nonmedical use of all 4 drugs among high school and college students,^{50–54} no comparable data are available for nonmedical prescription drug use disorders. These studies on young adults have consistently found rates of nonmedical use of sedatives, tranquilizers, opioids, and amphetamines to be greatest among whites. However, rates among Native Americans have not previously been reported in these populations, obscuring the higher risk incurred by Native Americans. The NESARC was the first national survey to examine rates of specific drug use and drug use disorders among adult Native Americans, and their risk highlights the need for attention to the mental health needs of this group. Further analyses are needed to understand the lower rates among blacks, Asians, and Hispanics, and whether disparities in treatment for these drug use disorders exist despite lower rates.

The abuse and dependence liability of use of each nonmedical prescription drug was high, with liability associated with amphetamines (43.0%) exceeding that of sedatives, tranquilizers, and opioids (26.2%-30.0%). A significantly greater (p < .01) percentage of individuals who used amphetamines nonmedically went on to develop abuse and/or dependence on them compared with any other prescription drug. Increased potency of amphetamines manufactured illegally in the United States may be implicated.⁵⁵ Prior to the 1990s, illegal amphetamine manufacturing employed phenyl-2-propanone (P2P) as its major precursor chemical. Early in the 1990s, P2P and other chemicals used in the manufacture of other illegal drugs were placed under federal control and illegal laboratories began to use ephedrine or pseudoephedrine as the major precursor in amphetamine synthesis. Using ephedrine and pseudoephedrine is simpler and more efficient than the earlier process using P2P and yields a more potent drug. If this explanation proves correct, there is great cause for concern regarding a potential epidemic of nonmedical amphetamine abuse and/or dependence among the youngest NESARC cohort (18- to 29-year-olds), all of whom entered the period of greatest risk for nonmedical amphetamine use between 1990 and 2002, the period that marked the introduction of higher-potency illegal amphetamines to the U.S. market. The epidemic may have already begun as the proportion of 18- to 29-year-old users of amphetamines who developed abuse and/or dependence exceeds that of all other age groups.

The nonmedical use and abuse and/or dependence on amphetamines was also significantly greater in the West relative to most other regions of the country, while abuse and dependence liability was greater in the West than in the South or Northeast. The establishment of illegal amphetamine superlabs in the Central Valley of California during the 1990s by Mexico-based polydrug trafficking organizations^{55,56} may be partly responsible for these results. Not only do these superlabs produce high-potency amphetamines, they are capable of producing over 10 lb of high-purity amphetamines in as little as 1 to 2 days.⁵⁶ Further research focusing on these geographic differentials is warranted.

This study found a mean age at onset of nonmedical prescription abuse and/or dependence between 20.7 and 22.8 years. Onsets of sedative, tranquilizer, opioid, and amphetamine use disorders were typically during late adolescence, with onsets later in life, especially after age 40 years, relatively rare. The NESARC also showed a lack of drug treatment for a substantial percentage of individuals with nonmedical prescription drug use disorders. About three fourths of individuals with nonmedical amphetamine use disorders and two thirds of individuals with sedative, tranquilizer, and opioid use disorders had never received treatment, with an average lag of 3 to 5 years between onset and first treatment. These results strongly suggest that increased efforts are required to deliver treatments for these nonmedical prescription drug use disorders and that treatments be delivered sooner to the many who need them.

Information on the comorbidity of specific nonmedical prescription drug use disorders and specific anxiety, mood, and personality disorders was not previously available. The data revealed an unprecedented magnitude of comorbidity between specific nonmedical prescription drug use disorders (ORs = 56.9-204.1), indicating that very few individuals developing abuse and/or dependence on 1 of these drugs did not also develop abuse and/or dependence on another. This, in conjunction with the finding that the association of nonmedical prescription drug use disorders and illicit drug use disorders was also exceedingly high (ORs = 28.1-69.6), suggests that the typical individual developing abuse and/or dependence on sedatives, tranquilizers, opioids, and amphetamines did not obtain them from a physician, but instead obtained them illegally.

Associations of nonmedical sedative, tranquilizer, opioid, and amphetamine use disorders with alcohol use disorders, nicotine dependence, and antisocial personality disorder were also high, as were associations with bipolar I disorder and panic disorder with agoraphobia. However, these were more in the normal range of associations seen in the comorbidity of complex disorders in psychiatry. Although associations between alcohol use disorders and drug use disorders in the aggregate and antisocial personality disorder have been well established in both clinical and epidemiologic literature, this was the first study to show that nonmedical prescription drug use disorder comorbidity is much greater than the comorbidity between nonmedical prescription drug use disorders and illicit drug use disorders related to cocaine/crack, marijuana, hallucinogens, and inhalants/solvents. Interestingly, associations between each nonmedical prescription drug use disorder and anxiety (ORs = 2.3-7.9) and mood disorders (ORs = 2.2-5.9) were similar to those of cannabis, cocaine, hallucinogens, and inhalants/solvents with mood

(ORs = 1.9-4.1) and anxiety (ORs = 1.9-4.6) disorders, again suggesting that nonmedical prescription drugs are more likely to have been obtained illegally than by legitimate prescription.

The findings of this study have several implications. First, individuals who abuse and/or are dependent on 1 type of prescription drug are very likely to have clinically significant drug use disorders related to other types of nonmedical prescription drugs as well as illicit drugs, highlighting the need for primary and specialty care physicians and substance abuse treatment professionals to assess individuals with nonmedical prescription drug use disorders for possible abuse and dependence on other nonmedical prescription drugs and illicit drugs. Each nonmedical prescription drug use disorder was also found to be highly comorbid with anxiety, mood, personality, and other substance use disorders, including alcohol use disorders and nicotine dependence. Comprehensive evaluation of patients with nonmedical prescription drug use disorders should also include systematic and detailed assessment and treatment of these comorbid disorders.

Results of this study also identified important subgroups of the population at risk for nonmedical sedative, tranquilizer, opioid, and amphetamine use and abuse and/or dependence and, more importantly, subgroups at greater risk of developing nonmedical abuse and/or dependence, underscoring the need for intensifying efforts at prevention and treatment among these subgroups of the population. Further, recommended methods to identify and treat patients who may be at risk for nonmedical use, abuse, or dependence are warranted, including behavioral contracts,57,58 the use of transdermal and controlledrelease oral formulations, and behavioral therapies in combination with pharmacotherapies such as naltrexone.⁵⁹ However, as the results of this study suggest, the typical individual developing abuse and/or dependence on these prescription drugs is more likely to obtain them illegally than by legitimate prescription, highlighting the need for future research on how these drugs get diverted and law enforcement action to stem the tide of illegal manufacturing and distribution.

As is common to most large-scale epidemiologic surveys, our study has several limitations. The NESARC sampled the civilian noninstitutionalized population residing in households and group quarters, and the data are not generalizable to other special populations such as adolescents or incarcerated individuals. Our definition of nonmedical prescription drug use and, consequently, of nonmedical prescription drug use disorders did not differentiate individuals who were initially prescribed these specific drugs and then used them inappropriately from those who used the drugs without a prescription. Other limitations of all cross-sectional studies, such as the potential prospective surveys of the general population. The

second wave of the NESARC that sought to reinterview all Wave I respondents (completed in 2005) was designed with this paradigm in mind.

Despite these limitations, the NESARC constitutes the largest survey to date to include information on specific nonmedical prescription drug use and drug use disorders using clear, unambiguous definitions of nonmedical use and, consequently, of abuse and dependence. Our findings identify groups in which the prevalence of use and abuse and/or dependence is particularly high and, importantly, define vulnerable subgroups of the population who are at greatest risk of developing nonmedical prescription drug use disorders. Given the great clinical utility of these prescription drugs, urgent action is needed to find public health and other approaches to balance access to these drugs for those who need them and limit their potential for abuse and/or dependence among vulnerable individuals. The results also document, for the first time, the pervasive comorbidity between nonmedical prescription drug use disorders and between these disorders and illicit drug use disorders, alcohol use disorders, and mood, anxiety, and personality disorders. Further, the findings of higher rates of nonmedical amphetamine use disorders among young adult amphetamine users that has coincided with increased potency of illegally manufactured amphetamines require special attention and monitoring as this cohort ages to avert a potential epidemic.

Drug names: acetaminophen and hydrocodone (Allay, Vicodin, and others), alprazolam (Xanax, Niravam, and others), chlordiazepoxide (Librium and others), diazepam (Valium and others), meperidine (Demerol and others), methadone (Methadose, Dolophine, and others), naltrexone (Vivitrol, Revia, and others), secobarbital (Seconal and others).

Disclosure of off-label usage: The authors have determined that, to the best of their knowledge, no investigational information about pharmaceutical agents that is outside U.S. Food and Drug Administration–approved labeling has been presented in this article.

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