Criminal Victimization and Comorbid Substance Use and Psychiatric Disorders in the United States: Results from the NESARC

MICHAEL G. VAUGHN, PhD, QIANG FU, MD, PhD, MATT DELISI, PhD,
KEVIN M. BEAVER, PhD, BRIAN E. PERRON, PhD, AND MATTHEW O. HOWARD, PhD

PURPOSE: Criminal victimization produces enormous personal and societal costs, yet few investigations have systematically examined substance use and psychiatric disorders of crime victims. Our objectives were to (i) examine the prevalence and patterns of criminal victimization in the United States and (ii) their associations with specific substance use disorders, prevalent psychiatric conditions, and violent and nonviolent antisocial behaviors in controlled multivariate analyses.

METHODS: Data were derived from the National Epidemiologic Survey on Alcohol and Related Conditions, a nationally representative sample of US residents 18 years of age and older (N = 43,093). Interviews conducted between 2001 and 2002 included measures of past-year criminal victimization and *Diagnostic and Statistical Manual* of Mental Disorders, IV mood, anxiety, substance use, and personality disorders.

RESULTS: More than 1-in-25 adults in the United States (4.1%) reported past-year criminal victimization. Respondents who reported lower levels of income, lived in urban areas, and were separated or divorced were at significantly heightened risk for criminal victimization. Persons reporting various forms of violent and nonviolent antisocial behavior also were more likely to be victims of crime. In controlled multivariate analyses, crime victims evidenced significantly increased rates of alcohol, cocaine, and opioid use disorders. Paranoid personality disorder, major depressive disorder, and a family history of antisocial behavior were also significantly associated with past-year criminal victimization.

CONCLUSIONS: Criminal victimization is prevalent in the United States and associated with significant psychiatric comorbidities and behavioral dysfunction. Poor, unmarried persons living in urban areas who have family histories of antisocial conduct and personal histories of specific substance use and psychiatric disorders are at substantially elevated risk for criminal victimization.
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INTRODUCTION

Criminal victimization has a profound effect on mental and physical health, and its costs to society are extensive (1–5). Although national victimization surveys differ in estimates of past-year prevalence rates (6), results indicate that millions of Americans in all age groups experience one or more lifetime victimization episodes. By using nationally representative data from the Injury Control and Risk Survey (ICARIS-2), administered in 2001 to 2003, Simon et al. (7) found that 5.4% of the US adult population and 6.9% of persons in the 25- to 34-year age range experienced at least one violent victimization episode in the previous year. Importantly, this figure exceeds prevalence rates found from the National Criminal Victimization Survey (NCVS), which found that 3.4% of persons in the 25- to 34-year age range experienced a robbery victimization and 1.2% experienced a rape/sexual assault victimization in 2007 (8). The disparities between these studies are largely the result of methodology, with the NCVS emphasizing criminal events and ICARIS-2 capturing victimization events not thought of necessarily as crimes. Weaknesses of these national surveys are the lack of extensive data on mental health and substance use disorders.

The authors of previous research (9, 10) suggest that individuals with mental health disorders are at heightened risk for violent victimization. Overall, rates of victimization are greater among persons with mental health disorders than in the general population. In a recent systematic review, Maniglio (11) synthesized nine studies comprising

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Selected Abbreviations and Acronyms

ICARIS-2 = Injury Control and Risk Survey
NCVS = National Criminal Victimization Survey
NESARC = Epidemiologic Survey on Alcohol and Related Conditions
DSM = Diagnostic and Statistical Manual of Mental Disorders
OR = odds ratio
95% CI = 95% confidence interval

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more than 5000 participants and found that the prevalence of victimization episodes experienced by persons with severe mental health disorders ranged from 4.3% to 35% across studies. Six of nine studies found rates of victimization greater than 10%. Variables most associated with victimization across studies were alcohol and drug use, prior criminality, and psychiatric symptom severity. Another recent systematic review (12) examining studies published since 1990 found rates as high as 44% (13); only three studies examined victimization and perpetration in the same sample, finding greater levels of victimization than perpetration. Clearly, the research literature is composed of far more studies of perpetration of violence by persons with mental health disorders, thereby obscuring their involvement as victims of violence.

Studies of the drugs/alcohol-victimization nexus suggest a close relationship between substance use (predominately alcohol) and risk for criminal victimization. Buss et al. (14) found that nearly 70% of assault victims seeking medical treatment screened positive for alcohol or illicit drug use. Studies have indicated that substance use is more prevalent among crime victims compared with nonvictims (2, 6) and heightens risk for further victimization (15–18). This finding is particularly of concern given the interrelationship between substances of abuse and victimization risk. Ramos-Lira et al (19) found that exposure to substances such as marijuana, cocaine, and inhalants increased risk for violent victimization. Much less attention has been devoted to evaluating associations of comorbid substance use and mental health disorders to criminal victimization. One of few such studies (20) found that individuals with comorbid substance use and mental health disorders experienced greater criminal victimization than individuals with either a mental health or substance use disorder alone. Unfortunately, these conclusions were based on small, nonrepresentative samples.

Study Purpose

In the present study, we used data from the National Epidemiologic Survey on Alcohol and Related Conditions to (i) examine the prevalence and patterns of criminal victimization across sociodemographic categories, (ii) assess the associations between past year criminal victimization and a range of antisocial behaviors, and (iii) estimate the strength of the associations between substance use disorders, specifically alcohol abuse/dependence, marijuana abuse/dependence, nicotine dependence, and illicit substance use disorders (i.e., opioid, sedative, stimulant, tranquilizer, cocaine, and hallucinogens) in multivariate analyses while controlling for sociodemographic characteristics, personality disorders, and psychiatric diagnoses. Because their association with risky settings and/or psychologically disinhibiting effects, we hypothesize that alcohol abuse/dependence and the abuse/dependence on marijuana, cocaine, stimulants, opioids, and heroin will significantly increase the likelihood of experiencing a criminal victimization even while controlling for aforementioned mental health and psychiatric diagnoses and demographic variables.

MATERIALS AND METHODS

Participants

Study findings are based on data from the 2001 to 2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). NESARC is a nationally representative sample of 43,093 noninstitutionalized US residents aged 18 years and older (21). To be reflective of the general population, the survey gathered information on alcohol use and comorbid psychiatric disorders from individuals living in households in all 50 states and the District of Columbia. NESARC used a three-stage cluster sampling design, oversampling young adult, Hispanic, and African-American subjects in the interest of obtaining reliable statistical estimation in these subpopulations and to ensure appropriate representation of racial/ethnic subgroups, with an overall response rate of 81%. Data were weighted at the individual and household levels to adjust for oversampling and nonresponse on demographic variables (i.e., age, race/ethnicity, sex, region, and place of residence). Data also were adjusted to be representative (on the basis of region, age, race, and ethnicity) of the US adult population as assessed during the 2000 Census. Study participants provided fully informed consent. The U.S. Census Bureau and the U.S. Office of Management and Budget approved the research protocol and informed consent procedures.

Diagnostic Assessment and Sociodemographic Measures

Data were collected through face-to-face interviews conducted by US Census workers trained by the National Institute on Alcohol and Alcoholism and U.S. Census Bureau. Interviewers administered the Alcohol Use Disorder and Associated Disabilities Interview Schedule–*Diagnostic and Statistical Manual* of Mental Disorders (DSM)-IV version, which has been shown to have good-to-excellent reliability

in assessing alcohol and drug use in the general population (22, 23).

Information regarding past-year criminal victimization was determined on the basis of a single item embedded in the medical conditions interview module. All NESARC participants were asked the following question: "How many times were you personally a victim of a crime in the last 12 months?" Data did not allow for distinguishing whether this victimization was violent or nonviolent in nature. Analysis of the distributional properties of this item showed that there was a truncated distribution, with the vast majority of respondents answering zero ($N = 40,237$), and of those individuals responding yes to experiencing a criminal victimization, most answered once or twice ($N = 1,779$). Only a few respondents answered more than twice. Because of low power we therefore coded this past-year criminal victimization as a dichotomous response (0 = no, 1 = yes).

Several substance use disorders were assessed in NESARC. We used lifetime alcohol (alcohol abuse/dependence) and drug (abuse/dependence on heroin, hallucinogens, cocaine/crack, marijuana, stimulants, painkillers, tranquilizers, and sedatives) use disorders, and nicotine dependence. In addition, numerous psychiatric disorders were examined, including pathological gambling, and lifetime DSM-IV mood (major depression, dysthymia, and mania/hypomania) and anxiety (social phobia, generalized anxiety disorder, panic disorder, and specific phobia) disorders. Consistent with previous research (24, 25), personality disorder diagnoses reflected long-standing impairments, characteristic patterns of behavior, and exclusion of cases in which substance use intoxication or withdrawal, other medication use, or physical illnesses could have affected behavior. Disorders assessed included antisocial, avoidant, dependent, obsessive-compulsive, paranoid, schizoid, and histrionic personality disorders. Family history of antisocial behavior on the basis of any parental or sibling history of antisocial behavior also was assessed. Response categories for region of residence in United States, urbanicity, race/ethnicity, sex, age, marital status, educational background, unemployment status, and individual and family income are listed in Table 1.

Statistical Analyses

Weighted prevalence estimates and standard errors were computed by the use of SUDAAN Version 9.0 (26). This system implements a Taylor series linearization to adjust standard errors of estimates for complex survey sampling design effects including clustered data. Multivariate logistic regression analyses were conducted with simultaneous entry of previously described sociodemographic covariates, substance use disorders and psychiatric variables. Adjusted odds ratios (ORs) and 95% confidence intervals (95% CIs) are presented to reflect association strength and significance. Adjusted ORs were considered significant only if associated CIs did not include the value 1.0.

RESULTS

Sociodemographic Characteristics

Approximately 4.1% of US adults reported past-year criminal victimization. The prevalence of past-year criminal victimization in the US population was 4.1%. Table 1 provides comparisons of persons with and without a history of past-year criminal victimization across NESARC sociodemographic characteristics. Unadjusted analyses revealed that persons reporting a past-year criminal victimization were less likely to be age 35 and older and more likely to be between the ages of 18 and 34. Individuals reporting lower levels of annual income were more likely to be victimized compared with persons earning $70,000 or more annually. With respect to marital status, those who were widowed/separated/divorced were 53% more likely to report a criminal victimization compared to married or cohabitating persons. Spatially, respondents residing in urban environments (i.e., central city) were 31% more likely to report a criminal victimization than persons living in rural/suburban environments and those living in the Northeast (OR, 0.71; 95% CI, 0.52–0.98) and Midwest (OR, 0.74; 95% CI, 0.56–0.96) were significantly less likely than persons living in the West to report an episode of criminal victimization. There were no significant differences with respect to gender, race, and education.

Victimization and Associated Antisocial Behaviors

Table 2 displays results for the proportion of persons who reported an antisocial behavior who were victims and nonvictims. Among those respondents who endorsed an antisocial behavior, past-year crime victims reported engaging in significantly more antisocial behaviors than their nonvictimized counterparts. The largest ORs among violent behaviors between victimized and nonvictimized respondents were for robbing/mugging someone (OR, 4.49; 95% CI, 2.3–8.28), forcing someone to have sex (OR, 3.86; 95% CI, 1.41–10.59), and use of a weapon in a fight (OR, 3.38; CI, 2.61–4.38). With respect to nonviolent behaviors, the strongest effects were found for "scamming or conning" someone for money (OR, 3.61; 95% CI, 2.61–4.99), use of an alias (OR, 3.10; 95% CI, 2.33–4.10), and having no regular place to live (OR, 3.14; 95% CI, 2.40–4.11). Conversely, the weakest effects found were for getting three or more traffic tickets (OR, 1.27; 95% CI, 1.05–1.54).

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Multivariate Logistic Regression Analysis Examining Associations between Victimization and Substance Use and Psychiatric Comorbidity

Table 3 presents the prevalence of substance use and psychiatric disorders for persons reporting and not reporting a past-year criminal victimization. ORs were adjusted for sociodemographic factors (i.e., race, sex, education, marital status, age, income, region, and urbanicity) and previously described lifetime DSM-IV psychiatric disorders. The most prevalent substance use and psychiatric disorders among persons with a history of victimization were any past year alcohol use disorder (16.55%; 95% CI, 14.25%–19.13%) and nicotine dependence (22.19%; 95% CI, 19.39%–25.28%). Although not classified as a disorder, having a family history of antisocial behavior was prevalent among

victimized persons (37.31%; 95% CI, 33.58–41.21). Following adjustments, significant associations were found for major depressive disorder (OR, 1.27; 95% CI, 1.01–1.60), panic disorder (OR, 1.42; 95% CI, 1.01–1.99), any alcohol use disorder (OR, 1.35; 95% CI, 1.10–1.65), nicotine dependence (OR, 1.25; 95% CI, 1.04–1.49), opioid use disorder (OR, 2.56; 95% CI, 1.18–5.56), cocaine use disorder (OR, 3.84; 95% CI, 1.83–8.08), paranoid personality disorder (OR, 1.38; 95% CI, 1.08–1.75),and family history of antisocial behavior (OR, 1.36; 95% CI, 1.13–1.62).

DISCUSSION

To our knowledge, this is the largest national epidemiological study examining the associations between criminal

TABLE 1. Sociodemographic characteristics of NESARC respondents with and without a past 12-month criminal victimization

Characteristic	Nonvictim (n = 40,237) % CI	Victim (n = 1,779) % CI	OR (95% CI)
Sex			
Men	47.77 (47.24–48.48)	50.73 (46.86–54.58)	1.10 (0.98–1.25)
Women	52.23 (51.61–52.86)	49.27 (45.42–53.14)	1.00
Race			
Hispanic	11.51 (9.28–14.20)	11.62 (8.66–15.41)	0.97 (0.80–1.18)
Asian/Alaska/Indian	4.43 (3.46–5.64)	2.90 (1.80–4.63)	0.92 (0.60–1.42)
Native American	2.09 (1.80–2.43)	2.33 (1.14–4.70)	1.00 (0.61–1.65)
African American	10.93 (9.72–12.26)	13.30 (10.59–16.57)	0.98 (0.81–1.19)
White	71.04 (67.73–74.14)	69.86 (65.51–73.87)	1.00
Nativity			
Born in the US	85.34 (82.06–88.10)	89.39 (86.19–91.91)	1.22 (0.98–1.51)
Born in a foreign country	14.66 (11.90–17.94)	10.61 (8.09–13.81)	1.00
Age, years			
65+	16.51 (15.86–17.19)	7.29 (5.61–9.42)	**0.42 (0.34–0.52)**
50–64	21.35 (20.82–21.90)	10.53 (8.65–12.76)	**0.50 (0.41–0.61)**
35–49	30.98 (30.34–31.63)	34.94 (31.37–38.70)	**0.83 (0.72–0.96)**
18–34	31.16 (30.27–32.05)	47.23 (43.34–51.16)	1.00
Education			
Less than high school	15.53 (14.58–16.53)	13.67 (10.82–17.13)	0.97 (0.81–1.18)
High school graduate	29.39 (28.26–30.54)	24.32 (21.40–27.49)	0.89 (0.77–1.02)
Some college or higher	55.12 (53.86–56.38)	62.01 (58.15–65.73)	1.00
Income			
0–19,999	23.23 (22.29–24.20)	27.07 (23.60–30.85)	**1.55 (1.25–1.91)**
20,000–34,999	20.03 (19.37–20.71)	21.07 (18.26–24.17)	**1.43 (1.18–1.73)**
35,000–69,999	32.27 (31.61–32.94)	32.49 (29.17–36.00)	**1.25 (1.06–1.48)**
70,000+	24.46 (23.07–25.91)	19.37 (16.51–22.60)	1.00
Marital status			
Never married	20.36 (19.42–21.34)	31.70 (28.26–35.36)	1.14 (0.97–1.33)
Widowed/separated/divorced	17.20 (16.74–17.67)	20.57 (17.84–23.59)	**1.53 (1.28–1.83)**
Married/cohabitating	62.43 (61.48–63.38)	47.73 (43.51–51.99)	1.00
Urbanicity			
Central city	29.17 (24.97–33.74)	38.40 (33.24–43.85)	**1.31 (1.13–1.51)**
Rural/suburban	70.83 (66.26–75.03)	61.60 (56.15–66.76)	1.00
Region			
Northeast	19.83 (13.86–27.56)	16.57 (11.27–23.69)	**0.71 (0.52–0.98)**
Midwest	23.30 (17.53–30.27)	21.88 (15.59–29.82)	**0.74 (0.56–0.96)**
South	35.01 (28.86–41.70)	35.01 (27.24–43.66)	0.81 (0.62–1.05)
West	21.86 (15.71–29.57)	26.55 (18.31–36.82)	1.00

95% CI = 95% confidence interval; OR = odds ratio.
OR values in bold are statistically significant.

TABLE 2. Past 12-month criminal victimization among adults endorsing a particular antisocial behavior

Behavior	Nonvictims (n = 39,998) % (95% CI)	Victims (n = 1,966) % (95% CI)	OR (95% CI)
Violent			
Bullied people	3.84 (3.52–4.18)	7.44 (6.29–8.79)	**2.02 (1.67–2.44)**
Set a fire on purpose	3.99 (3.69–4.32)	9.82 (6.65–14.25)	**2.62 (1.75–3.92)**
Do things that could have easily hurt you/others	3.81 (3.50–4.15)	5.59 (4.84–6.44)	**1.49 (1.28–1.74)**
Hurt an animal on purpose	4.00 (3.69 - 4.34)	7.39 (5.39–10.04)	**1.91 (1.37–2.66)**
Destroy others' property	3.87 (3.56–4.20)	8.93 (7.14–11.12)	**2.44 (1.91–3.11)**
Force someone to have sex	4.05 (3.74–4.39)	14.02 (5.60–30.96)	**3.86 (1.41–10.59)**
Get into lots of fights that you started	3.94 (3.63–4.28)	8.36 (6.63–10.48)	**2.22 (1.73–2.86)**
Get into a fight that came to swapping blows with Husband/Wife or boyfriend/Girlfriend	3.69 (3.37–4.03)	9.39 (8.14–10.82)	**2.71 (2.28–3.22)**
Use a weapon in a fight	3.88 (3.57–4.21)	10.85 (8.63–13.55)	**3.02 (2.35–3.87)**
Hit someone so hard that you injure them	3.74 (3.44–4.07)	8.90 (7.32–10.78)	**2.51 (2.03–3.11)**
Harass/threaten/blackmail someone	3.92 (3.61–4.26)	12.12 (9.70–15.02)	**3.38 (2.61–4.38)**
Hurt another person on purpose	3.84 (3.53–4.18)	8.28 (6.94–9.85)	**2.26 (1.87–2.73)**
Nonviolent			
Cut class and leave without permission	3.49 (3.18–3.84)	6.08 (5.43–6.80)	**1.79 (1.56–2.05)**
Stay out late at night	3.63 (3.32–3.96)	5.31 (4.69–6.01)	**1.49 (1.30–1.71)**
Run away from home	3.79 (3.49–4.12)	8.75 (7.35–10.39)	**2.43 (2.00–2.95)**
Be absent from work/ school a lot	3.69 (3.39–4.02)	9.04 (7.60–10.71)	**2.59 (2.13–3.15)**
Quit a job without knowing where to find another	3.67 (3.35–4.01)	7.02 (6.16–8.00)	**1.98 (1.70–2.32)**
Quit a school program without knowing what to do next	3.98 (3.66–4.31)	6.02 (4.79–7.54)	**1.55 (1.22–1.96)**
Travel around more than 1 month without plans	3.86 (3.55–4.20)	9.63 (7.75–11.92)	**2.65 (2.08–3.39)**
Have no regular place to live at least 1 month	3.86 (3.55–4.20)	11.19 (8.84–14.08)	**3.14 (2.40–4.11)**
Live with others at least 1 month	3.75 (3.43–4.11)	6.51 (5.69–7.45)	**1.79 (1.52–2.10)**
Lie a lot	3.82 (3.51–4.16)	8.23 (6.96–9.71)	**2.26 (1.86–2.74)**
Use a false or made up name/ alias	3.90 (3.60–4.23)	11.19 (8.59–14.45)	**3.10 (2.33–4.12)**
Scam/con someone for money	3.93 (3.62–4.26)	12.86 (9.66–16.91)	**3.61 (2.61–4.99)**
Get three or more traffic tickets for reckless driving/causing accidents	3.97 (3.65–4.33)	5.01 (4.22–5.94)	**1.27 (1.05–1.54)**
Have a driver's license suspended/revoked	3.79 (3.48–4.13)	7.29 (6.15–8.63)	**2.00 (91.65–2.42)**
Fail to pay off your debts	3.84 (3.54–4.17)	9.05 (7.31–11.16)	**2.49 (1.97–3.14)**
Steal anything from others	3.83 (3.53–4.15)	6.42 (5.36–7.67)	**1.72 (1.43–2.07)**
Forge someone's signature	3.94 (3.63–4.28)	9.65 (7.52–12.29)	**2.60 (1.97–3.44)**
Shoplift	3.72 (3.44–4.03)	6.73 (5.64–8.01)	**1.87 (1.56–2.23)**
Rob/mug someone or snatch a purse	4.03 (3.71–4.37)	15.85 (9.27–25.76)	**4.49 (2.43–8.28)**
Make money illegally	3.89 (3.59–4.21)	10.30 (7.90–13.33)	**2.84 (2.14–3.77)**
Do something you could have been arrested for	3.60 (3.31–3.91)	6.66 (5.82–7.61)	**1.91 (1.66–2.20)**

95% CI = 95% confidence interval; OR = odds ratio.
OR values in bold are statistically significant.

victimization, substance use and psychiatric disorders and antisocial behavior among residents in the United States. The prevalence of past-year criminal victimization in the US population was 4.1%, which is greater than the NCVS estimates but somewhat lower than those from the ICA-RIS-2. Demographically, findings indicated that the prevalence of criminal victimization was greater among persons reporting lower levels of income, who were separated or divorced, and residing in urban areas. However, we found no significant relationship between victimization and education, which is correlated with income. This finding may reflect that income itself is a stronger factor in its association with heightened exposure to risk of experiencing a criminal victimization rather than education per se. Further, among those engaging in various forms of antisocial

behavior, there was a uniform pattern of increased odds of experiencing a criminal victimization.

Thus, the present study provides solid evidence of the heightened level of risk experienced by different forms of antisocial behavior. The hypothesis that alcohol, marijuana, cocaine, stimulants, opioids, and heroin abuse/dependence would significantly increase the likelihood of experiencing a criminal victimization even while controlling for aforementioned mental health and psychiatric diagnoses and demographic variables was partially supported. Marijuana, stimulants and heroin use disorders, although elevated, were not significantly associated with criminal victimization. The strongest effects were found for adults with cocaine use disorder who were nearly four times more likely to be victimized than persons without such disorders,

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TABLE 3. Psychiatric comorbidities of adults with and without a past 12-month criminal victimization

Comorbid psychiatric disorder	Nonvictims (n = 40,237) % (95% CI)	Victims (n = 1,779) % (95% CI)	Adjusted ORs OR (95% CI)
Mood disorders			
Major depressive disorder	9.58 (9.10–10.07)	8.50 (7.30–9.87)	**1.27 (1.01–1.60)**
Mania/hypomania	2.77 (2.56–3.00)	5.51 (4.03–7.49)	1.13 (0.83–1.27)
Dysthymia	2.46 (2.26–2.68)	4.06 (3.74–4.40)	1.32 (0.93–1.86)
Anxiety disorders			
Panic disorder	2.51 (2.30–2.74)	2.46 (1.45–4.13)	**1.42 (1.01–1.99)**
Social phobia	2.27 (2.05–2.51)	2.84 (1.72–4.64)	1.06 (0.73–1.54)
Specific phobia	2.33 (2.12–2.55)	2.05 (1.25–3.36)	1.20 (0.97–1.48)
Generalized anxiety disorder	2.09 (1.89–2.32)	3.71 (2.35–5.81)	1.10 (0.81–1.48)
Substance use disorders[a]			
Alcohol use disorder	8.10 (7.64–8.58)	16.55 (14.25–19.13)	**1.35 (1.10–1.65)**
Nicotine dependence	12.46 (11.71–13.25)	22.19 (19.39–25.28)	**1.25 (1.04–1.49)**
Marijuana use disorder	1.32 (1.17–1.49)	4.88 (3.76 - 6.30)	1.29 (0.91–1.83)
Drug use disorders		0.28 (0.42–1.62)	
Stimulant	0.14 (0.10–0.19)	0.52 (0.74–2.98)	1.91 (0.63–5.76)
Opioid	0.04 (0.24–0.40)	0.15 (0.09–0.82)	**2.56 (1.18–5.56)**
Sedative	0.02 (0.12–0.21)	0.15 (0.14–0.82)	0.50 (0.10–2.57)
Tranquilizer	0.12 (0.08–0.17)	0.51 (0.94–3.09)	0.68 (0.10–4.62)
Cocaine	0.03 (0.16–0.27)	0.29 (0.51–1.72)	**3.84 (1.83–8.08)**
Hallucinogens	0.02 (0.07–0.16)	0.58 (0.27–1.24)	2.39 (0.93–6.10)
Heroin	0.19 (0.15 - 0.25)		1.70 (0.66 - 4.35)
Psychotic disorder	0.42 (0.35–0.51)	1.32 (0.78–2.23)	1.78 (0.90–3.52)
Personality disorders			
Avoidant	2.30 (2.09–2.54)	5.98 (94.16–8.54)	0.74 (0.51–1.06)
Dependent	0.44 (0.35–0.55)	2.17 (1.17–3.97)	1.47 (0.83–2.62)
Obsessive-compulsive	7.81 (7.36–8.29)	15.44 (12.81–18.49)	1.16 (0.95–1.43)
Paranoid	4.21 (3.91–4.54)	12.51 (9.85–15.76)	**1.38 (1.08–1.75)**
Schizoid	3.02 (2.78–3.29)	8.28 (6.30–10.81)	1.26 (0.96–1.67)
Antisocial	3.49 (3.21–3.80)	9.89 (7.90–12.31)	1.19 (0.95–1.50)
Histrionic	1.77 (1.60–1.95)	4.96 (3.53–6.93)	0.95 (0.72–1.27)
Family history of antisocial behavior	22.54 (21.48–23.64)	37.31 (33.58–41.21)	**1.36 (1.13–1.62)**

95% CI = 95% confidence interval; OR = odds ratio adjusted for sociodemographic variables, lifetime psychiatric disorders, and a family history of antisocial behavior. OR values in bold are statistically significant.
[a]Substance use disorders reflect past 12-month diagnosis.

whereas respondents with opioid disorders had approximately doubled risk for victimization compared with nondependent respondents.

That drugs of abuse may increase victimization is consistent with theories and findings from genetics, developmental psychology, and criminology that describe generalized disinhibitory neuroregulatory processes (e.g., diminished self-control) that increase risk exposure to violence (27–29). Research (30) suggests that the links between substance abuse and victimization are somewhat bidirectional in that drug use predicts later victimization and early victimization is associated with later illicit substance use. In addition, drug transactions often involve situations and persons that may pose environmental risks for victimization. These explanations are consistent with the psychopharmacologic and systemic components of Goldstein's tripartite framework (31).

Another mechanism placing persons at increased risk for victimization is derived from behavior genetics. Consistent behavior genetic research has implicated monoamine oxidase A in decreased regulation in prefrontal functioning among male subjects (32). Recent research, for example, has suggested that male subjects with low-activity monoamine oxidase A alleles were associated with gang membership but also weapon use while in a gang (33). Thus, genetic liability is one mechanism by which individuals are at increased risk for placing themselves in victimization situations. In addition, drug transactions often involve situations and persons that may pose environmental risks for victimization. Another set of factors to consider is that crime and victimization tends to co-occur, at least in most industrialized countries, in areas that experience relatively high levels of concentrated disadvantage (e.g., poverty, racial segregation, high unemployment).

Unraveling the conjunction of individual liability and structural factors will require a more "syndemic" approach that is beyond the scope of the present investigation. Given the complexity of the substance abuse and criminal victimization relationship, future research might beneficially employ an explicit syndemic biosocial framework in

facilitating systematic study of the various components of this relationship.

Limitations

As with other studies, current study findings require interpretation within the context of several limitations. One limitation is the data are cross-sectional. As such, the findings cannot clarify the causal relations between experiencing a criminal victimization and identified correlates. However, findings do suggest that criminal victimization and substance abuse are intertwined. The prognostic relationship between victimization and substance use disorders and psychiatric disorders will require longitudinal study designs beginning earlier in the life course. Although the NESARC is a nationally representative sample, it is uncertain how the association between victimization and substance use disorders and psychiatric comorbidity would be similar or different if enriched correctional or clinical samples were employed. An additional important limitation is that the data on victimization were assessed by a single item and thus did not include important contextual, situational, and precipitating information that is important to understanding the nature of victimization episodes. Future studies on victimization and substance use disorders would benefit from including these natural history features in such assessments. Despite these limitations, findings from this study provide new epidemiologic insights from which additional hypotheses can be derived. As victimization costs are extensive, in-depth analyses in large representative data sets becomes a valuable source for guiding prevention and policy efforts.

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