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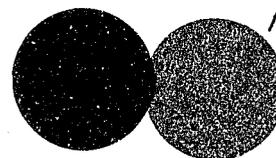
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# National Institute of Justice

Research in Brief

February 1994

## Psychoactive Substances and Violence

by Jeffrey A. Roth

As noted by the Panel on the Understanding and Control of Violent Behavior, the character of violence presents simultaneous challenges to understanding and opportunities for prevention. First, violence is *diverse*. Acts as different as spontaneous drive-by shootings and meticulously planned serial killings, for example, are both included in the legal and statistical category of murder. Second, the causes of violence are *complex*, involving a very wide variety of factors. The panel

found it useful to classify these factors in terms of four levels of analysis at which they are usually studied:

- Broad social and economic forces (macrosocial).
- Encounters between people in particular settings (microsocial).
- Individual behavioral development from childhood through adulthood (psychosocial).

● Neurobehavioral and other biological processes that underlie all human behavior (neurobehavioral).

Factors at these four levels operate and interact in chains of events that may begin long before the violent event that results. Therefore, the panel's classification framework also categorized causal factors in terms of their temporal proximity to the violent event itself: from the *immediate* triggering mechanism (for example, a response to an insult), back through the

### Issues and Findings

**Discussed in the Research in Brief:** The current status of research on the links connecting violence to alcohol and illegal psychoactive drugs, and evaluations of interventions to prevent violence related to these substances.

**Key issues:** Correlations between violence and psychoactive substances; the social, economic, cultural, psychosocial, neurobehavioral, and other factors that explain the correlations; and prevention strategies for reducing the violence associated with these substances.

#### Key findings:

◆ Research has uncovered strong correlations between violence and psychoactive substances, including alcohol and illegal drugs, but the underlying relationships differ by type of drug.

◆ The links between violence and psychoactive substances involve broad social and economic forces, the settings in which people obtain and consume the substances, and biological processes that underlie all human behavior. These factors interact in chains of events that

may extend back from an intermediate triggering event such as an argument to long-term predisposing processes that begin in childhood.

◆ Of all psychoactive substances, alcohol is the only one whose consumption has been shown to commonly increase aggression. After large doses of amphetamines, cocaine, LSD, and PCP, certain individuals may experience violent outbursts, probably because of preexisting psychosis. Research is needed on the pharmacological effects of crack, which enters the brain more directly than cocaine used in other forms.

◆ Alcohol drinking and violence are linked through pharmacological effects on behavior, through expectations that heavy drinking and violence go together in certain settings, and through patterns of binge drinking and fighting that sometimes develop in adolescence.

◆ The most promising strategies for reducing alcohol-related violence are to reduce underage drinking through substance abuse preventive education, taxes, law enforcement, and peer pressure.

◆ Illegal drugs and violence are linked primarily through drug marketing: disputes among rival distributors, arguments and robberies involving buyers and sellers, property crimes committed to raise drug money and, more speculatively, social and economic interactions between the illegal markets and the surrounding communities.

◆ The most promising strategy for reducing violence related to illegal drugs appears to be reducing the demand that fuels violent illegal markets. Promising tactics include preventive education, pretrial monitoring of arrestees through urinalysis and, for convicted violent offenders, in-prison therapeutic communities integrated with postrelease treatment followup.

◆ In the future, medications may reduce violence by reducing cocaine craving and by blocking the aggression-promoting effects of opiate withdrawal and alcohol consumption.

**Target audience:** State and local policymakers, court administrators, law enforcement and juvenile justice practitioners, and drug treatment program staff.

## Panel on the Understanding and Control of Violent Behavior

Violence is universally recognized as a pervasive part of contemporary American society and of our Nation's past as well. Many of the attempts to understand the phenomenon have been made in response to specific situations, such as the lawlessness of the Prohibition era, the assassination of President John F. Kennedy, and the urban riots of the mid-1960's. Other attempts at understanding violence singled out particular causes for analysis. In none of these studies, however, was the full body of research on violence reviewed comprehensively, and none of them took an interdisciplinary approach.

The Panel on the Understanding and Control of Violent Behavior was set up to meet the need for a more comprehensive assessment of what is known about violent behavior. It was established in response to a request made by three Federal agencies: the National Science Foundation (NSF), the National Institute of Justice (NIJ), and the Centers for Disease Control and Prevention (CDC). NSF asked for a review of current knowledge about the causes of violent behavior and recommendations for future research. The other two agencies shared these goals, but their areas of interest reflected their particular missions. As the research arm of the U.S. Department of Justice, NIJ wanted to find out about means to prevent and control violent crime. The CDC wanted assistance in setting priorities for preventing injuries and deaths caused by violence.

Created in 1989, the panel reviewed research on "interpersonal violence"—events involving at most a few perpetrators and victims. This limitation excluded suicide and self-mutilation as well as large-scale collective and State violence. The focus was on describing, understanding, and controlling violence in the United States. Research in bio-

medical, psychological, and other social sciences was reviewed. The work of the panel was intended both to help guide future research and evaluation projects aimed at prevention and control and to suggest strategic directions for violence control policy.

The findings, conclusions, and recommendations of the panel were published in Volume 1 of *Understanding and Preventing Violence*, published by the National Academy Press. Three volumes of background papers commissioned by the panel are forthcoming. The panel concluded that numerous, often interacting factors give rise to violent events. Although the underlying interactions are not well understood, attention to the factors suggests many promising preventive interventions. Testing and evaluating these interventions creates opportunities to prevent particular types of violence while gaining better understanding of them. The panel made recommendations in a number of areas, among them development of problem-solving initiatives to control and understand violence; better statistical systems for measuring violence; and a program of research to identify underlying causes. This Research in Brief is one of a series that summarizes the panel's findings.

NIJ is committed to implementing the recommendations of the panel. Its commitment has begun through support for the Program on Human Development and Criminal Behavior, a longitudinal, multicomunity research project that is exploring the factors associated with violence. In addition, the panel's recommendations have helped shape the goals of NIJ research and evaluation activities and its long-range plans for research.

Copies of *Understanding and Preventing Violence* are available from the National Academy Press, 2101 Constitution Avenue N.W., Washington, DC 20418 (800-624-6242).

nizing the causal complexity expands the list of options for preventing a particular violence problem by highlighting all the points at which chains of events leading to it may be breakable. Problem-solving initiatives—programs that involve design and evaluation of preventive interventions at various links in these chains of events, that revise these interventions in light of the evaluation findings, and that replicate the evaluations—have the potential to simultaneously reduce violence and increase the understanding of its causes.

Many chains of causal events for violence include links to alcohol or to illegal psychoactive drugs. The panel found these links worth exploring in depth for at least three reasons. First, statistics consistently demonstrate correlations between violent events and involvement with alcohol and other psychoactive drugs. Second, the variety of potential causal links between violence and different psychoactive substances—alcohol, opiates, cocaine in smokable and powdered form, amphetamines, hallucinogens, and other illegal drugs—presents an especially rich example of the panel's classification framework. Third, preliminary evidence from research and evaluations suggests that certain interventions related to psychoactive substances should be considered in developing strategies for controlling violence.

## Correlations between violence and psychoactive substances

Research supported by the National Institute of Justice and other organizations has repeatedly found strong correlations between violence and psychoactive substances:

- For at least the last several decades, alcohol drinking—by the perpetrator of a crime, the victim, or both—has immediately preceded at least half of all violent events, including murders, in the samples studied by researchers.
- Chronic drinkers are more likely than other people to have histories of violent behavior.
- Criminals who use illegal drugs<sup>1</sup> commit robberies and assaults more frequently than do nonuser criminals, and they com-

situation that led up to the triggering event, to *predisposing* factors that months or years earlier increased the risk of a future violent event.

This diversity and complexity might at first glance seem to discourage efforts to pre-

vent violence. In fact, however, they create promising opportunities. Merely acknowledging the diversity breaks the overall "violence problem" into separate problems that may be preventable through interventions by different public agencies. Recogn-

mit them especially frequently during periods of heavy drug use.

- In a study of New York City murders in 1988, researchers classified more than half the homicides (53 percent) as drug-related: 39 percent in the course of drug distribution, 8 percent through pharmacological effects on the offender, 2 percent while the offender was obtaining money to buy drugs, and 4 percent through more than one of these links.<sup>2</sup>

Data from the National Institute of Justice Drug Use Forecasting (DUF) program, which tests for drug use among booked arrestees in 24 sites nationwide, showed the following patterns in 1989:

- Most males and females who were interviewed after arrest for a violent crime reported drinking alcohol within 72 hours before the crime for which they were arrested.

- About 60 percent of arrestees booked for violent crimes were confirmed by laboratory test to have used at least one illegal drug<sup>3</sup> in the hours before arrest.

### Explaining the correlations

While these statistical patterns strongly suggest that psychoactive substances play significant roles in acts of violence, they do not explain the nature of those relationships. In trying to sort out links between violence and psychoactive substances, the panel categorized potential links in terms of the four levels noted above:

- **Social and economic forces (macrosocial):** Processes that affect large social units such as nations or communities. Examples include cultural practices related to alcohol use and, in the United States, economic and social processes surrounding the illegal markets in which

psychoactive drugs other than alcohol are sold.

- **Encounters between people (microsocial):** Characteristics of encounters between people. Examples include group drinking in settings where violence is expected and socially acceptable; arguments that are begun or aggravated because the participants are under the influence of drugs or alcohol; and disputes involving organizations, buyers, and sellers in illegal drug markets.

- **Psychosocial:** Influences on individuals' behavior patterns, which begin developing in early childhood and continue to evolve throughout adulthood. Examples include patterns of heavy drinking and aggression that develop during adolescence and psychoses that predispose a few individuals toward violent psychotic episodes while under the influence of certain drugs.

Table 1. Examples of Possible Risk Factors for Violence Related to Psychoactive Drugs

Level of Observation	Temporal Proximity		
	Predisposing	Situational	Immediate
<b>Social and Economic Forces (Macrosocial)</b>	A: Customs related to drinking.		
	D: Legal economic opportunities leave cities; illegal drug markets fill the gap.	D: Disputes between rival dealer organizations or buyers and sellers.	
<b>Encounters Between People (Microsocial)</b>	A: Regular drinker finds drinking place where recurrent violence is expected.	A: Misunderstandings, arguments.	A: Perpetrator overreacts to insults.
	D: Informal "rules" of illegal drug markets are in flux.	A,D: Bizarre behavior provokes violent attacks.	
<b>Psychosocial</b>	A: Adolescent male develops behavior pattern of aggression/alcohol abuse.	A: Young adult frequents "fighting bars."	
	D: Pre-existing psychosis modifies temporary drug effects on behavior.		D: Psychotic episode.
<b>Neuro-behavioral</b>	A: Mother drank alcohol during pregnancy.	A: Effects of consumed alcohol on behavior.	A: Altered neural activity.
	D: Chronic drug use changes brain chemistry.	D: Effects of smoked "crack" cocaine on behavior(?)	D: Altered neural activity.

Code: A - Alcohol  
D - Other Psychoactive Drugs

● **Neurobehavioral:** Processes in the brain that underlie all human behavior and that may be altered by pharmacological effects of alcohol and other drugs. Examples include effects of substance abuse during pregnancy on fetal development, effects of chronic substance abuse on brain functioning, and temporary neurological effects of being "high" or "blue."

These and other examples of links at all four levels between violence and alcohol or other drugs are displayed in table 1 (page 3). Much of the evidence for specific links is suggestive rather than conclusive. One challenge in understanding and verifying the links is the complexity of interactions among factors at different levels. It would be difficult at best to sort out such interactions. What makes the challenge even greater is that most studies measure factors at only one or two levels at a time, so that the full range of interactions is rarely observed in a single study. In addition, it is difficult to study violent events using methods that yield generalizable conclusions. Controlled experiments under laboratory conditions produce the strongest confirmation of factors that influence behavior, but practical and ethical constraints generally limit those methods to studies of behaviors that are far milder than the potentially lethal violence that occurs in homes and communities. At present, therefore, there are only fragments of scientific evidence providing partial support for the existence of many causal links between psychoactive substances and violence. These findings neither explain definitively how the links interact nor provide a basis for ranking them in order of importance in explaining variation in violence related to alcohol or other drugs.

## Neurobehavioral explanations

Research on humans and many animal species suggests there are several neurobehavioral links between violence and psychoactive substances:

- Expectant mothers' use of psychoactive substances during pregnancy adversely affects fetal development. The resultant damage causes learning and communication
- Alcohol is the only psychoactive drug that in many individuals tends to increase aggressive behavior temporarily while it is taking effect. However, factors at other levels—behavior patterns when people are not drinking, the setting in which people drink, and local drinking customs, for example—influence the strength of this relationship.
- Among alcohol abusers, those who also abuse other psychoactive substances, who are diagnosed with antisocial personality disorder, and whose parents have been diagnosed as alcohol abusers are at especially high risk of chronic violent behavior. Some researchers have suggested that a genetic process may contribute to this relatively rare pattern.
- Marijuana and opiates temporarily inhibit violent behavior, but withdrawal from opiate addiction tends to exaggerate both aggressive and defensive responses to provocations.

Individual humans and animals deviate widely from these "average" behaviors. For example, the aggression-promoting effects of alcohol are strongest in animals having high blood levels of testosterone, the principal male hormone that distinguishes males from females; humans may or may not exhibit the same pattern. A study of violent Finnish alcohol abusers suggests that the alcohol-violence link may be associated with abnormally low levels of blood sugar (that is, hypoglycemia) and of metabolites of the brain chemical serotonin. Another study suggests that the alcohol-violence link is especially strong in people who exhibit certain abnormal brain wave patterns, both at rest and while responding to outside stresses.

On the other hand, several common assumptions about connections between drugs and violence are called into question by research findings:

- There is no evidence to support the claim that snorting or injecting cocaine stimulates violent behavior. However, research is urgently needed on the behavioral effects of smoking cocaine in crack

form, which affects the brain more directly.

● Anecdotal reports notwithstanding, no research evidence supports the notion that becoming high on hallucinogens, amphetamines, or PCP stimulates violent behavior in any systematic manner. The anecdotes usually describe chronic users with histories of psychosis or antisocial behavior, which may or may not be related to their chronic use of drugs.

● Occasional anecdotes about "roid rages"—violent outbursts by men who use anabolic steroids to accelerate muscle growth—appear to describe isolated coincidences rather than any common, systematic effect.

## Psychosocial links

Evidence from research on animals and humans indicates that patterns of substance abuse and aggressive behavior reinforce each other. It cannot be said that one "causes" the other. For example, alcohol may trigger violent episodes in aggressive animals and people, but rarely in submissive ones.

Patterns of aggressive behavior and substance abuse often become intertwined starting in childhood. Early childhood aggression is a predictor of later heavy drinking, and the combination is associated with an above-average risk of adult violent behavior, especially among those who also abuse other psychoactive drugs.

Research suggests at least four possible explanations for the link between substance abuse and violent behavior in adolescents. First, adolescents may chronically use psychoactive substances to help them temporarily escape from such feelings as rage, guilt, worthlessness, or depression—emotions that often precede aggressive behavior. Second, repeated family arguments over teenage substance abuse may eventually take on a violent character. Next, underlying family problems or socially expected responses may lead some adolescent males to patterns of heavy drinking and fighting as ways to demonstrate their masculinity. Last, boys who regularly observe older males fighting

while drinking may learn to expect that violent behavior accompanies alcohol use. All of these processes may be at work, but their roles, interactions, and importance as explanations have not yet been sorted out.

Preexisting psychosis appears to account for occasional violent outbursts by people who are under the influence of amphetamines or hallucinogens, especially PCP. While these drugs are well known to cause disorganized, bizarre behavior, they trigger violence in very few people who are not also psychotic. In studies of laboratory mice and monkeys, bizarre behavior on the part of animals under the influence of PCP fairly commonly provokes violent attacks by others in the group. Anecdotal information and newspaper accounts report similar attacks on humans using alcohol, amphetamines, powdered cocaine, or LSD, but this relationship has not been systematically studied in humans.

## Encounters between people

In a variety of ways, alcohol and drugs modify encounters between people in ways that make these substances greater hazards for violence. In the case of alcohol, these hazards tend to be related to use, while for illegal psychoactive drugs they tend to be related to distribution and purchase.

**Alcohol use and sexual violence.** Some therapists who treat violent sex offenders have reported that their patients tend to have both histories of alcohol abuse and high blood levels of testosterone. Without comparisons to men who are not violent sex offenders, these clinical observations cannot demonstrate that alcohol abuse or high testosterone levels cause sexual violence. Studies of many animal species suggest a causal connection—that alcohol reduces testosterone levels but has stronger aggression-promoting effects in individual high-testosterone animals. However, that relationship has not yet been tested in humans. The frequent involvement of alcohol in acquaintance rapes suggests that social expectations may also be at work; that is, young men who expect to have sex after drinking may try to satisfy their expectations, sometimes forcibly if they encounter resistance.

**Illegal drug markets.** Illegal drug markets operate outside the world of contract law, courts and mediators for resolving disputes, and business customs that distinguish socially acceptable from unacceptable approaches to buying and selling. Illegal markets often develop substitute mechanisms that involve the threat or actual use of violence. Examples include:

- Violence by drug distributors in the course of territorial disputes between rival organizations, threats of violence to make “staff” obey organizational rules, violent punishment of rulebreakers to keep the threats credible, battles with police, and protection of sellers or drugs on the street.
- Violence between buyer and seller during a drug transaction, caused, for example, by attempted robbery of one or the other, failure to hand over drugs or money, or “honest” misunderstandings of local rules of the game on the part of buyers and sellers.
- Violence involving people other than buyers and sellers who are found around drug markets—third parties such as innocent bystanders and people operating in related illegal markets for “protection,” guns, or prostitution.

As places where violence tends to occur for the reasons listed above, illegal drug markets may also serve as “magnets.” As such, they attract valuable drugs and cash, weapons, and people who are accustomed to violence. The mix of these ingredients creates hazardous conditions for robberies and other forms of violence that may not be directly related to drugs.

**Obtaining drug purchase money.** In some settings, the need for money to buy drugs also increases the chance of a violent encounter. A taxi driver carrying a passenger late at night, for example, is presumably at greater risk of being robbed if the passenger wants to buy drugs but lacks the cash to do so. While robbery is still a common way to obtain money to buy drugs, it has been replaced by drug selling in some large cities.

**Using alcohol and drugs.** If alcohol caused violence only by making individuals behave more aggressively, violence

would be equally common in all places where drinking occurs. In fact, however, most drinking places are rarely scenes of violence. A few acquire reputations as “animal houses” or “fighting bars,” where people expect drinking and violence to go hand in hand.

Just what characteristics of a drinking place make it a hazard for violence are not precisely known, but there is supporting evidence for several possible explanations. People who drink in fighting bars may behave violently in order to “fit in” or to advance socially. People who experience anger or frustration may seek out such settings, because they believe that drinking in these types of establishments means social permission to engage in violent behavior. One study of a group of young men who were observed during an evening of drinking illustrates this by suggesting that behavior patterns and situational influences may play off each other. As the evening progressed, the group began both to behave more aggressively and to move on to establishments where aggressive behavior was more socially acceptable.

Connections between drinking and violence have been identified by researchers in many countries with predominantly European cultures. But they have not been found in many tribal and folk societies, even where binge drinking is common. For reasons not yet known, expectations that violence follows drinking have failed to develop in those cultures.

Finally, it seems likely that substance abuse is *indirectly* related to violence in ways that are difficult to identify and count. Examples of indirect relationships include robberies committed to replace household money spent on drugs or alcohol, or spouse assaults arising from disputes over money or time spent away from home drinking or taking drugs.

Violence is related to the distribution, purchase, and use of illegal drugs or alcohol in a wide variety of human interactions. Unfortunately, the difficulty of counting such interactions makes it also difficult to rank them in order of importance. Better counts would help in focusing violence prevention strategies on the most

common interactions in which drug- and alcohol-related violence occurs.

## Social and economic forces

If the patterns of behavior discussed above were the only links between illegal drug distribution and violence, every city that experienced a crack epidemic in the 1980's would also have seen a substantial increase in homicide at the same time. Indeed, policymakers have occasionally claimed a "uniform, straight line relationship" between illegal drug use and murder.<sup>4</sup>

The reality is more complex. The murder rate increased 350 percent in Washington, D.C., and by a smaller amount in New York City as their crack epidemics unfolded. However, during the crack epidemics in Detroit and Los Angeles these cities experienced decreases in the murder rate. This suggests that the relationships between illegal drug market activity and lethal violence are intertwined with social and economic processes in the surrounding community.

What are these processes? Because causal patterns at the social level are especially difficult to establish, the answers are necessarily speculative. Fragments of evidence suggest that some or all of the following factors may influence the relationship between levels of violence and illegal drug market activity:

- **Stability of drug market control:** Situations that produce violent encounters—fights over territorial allocations or misunderstandings between buyers and sellers, for example—arose relatively infrequently in markets controlled by old, stable organizations that had developed operating rules decades ago and enforced them through a standing threat to punish violators violently. Where the spread of crack manufacturing technology encouraged new organizations to enter the markets, the resulting destabilization may temporarily have increased the frequency of violent encounters.

- **Community access to legitimate economic opportunities:** Where the rise of crack markets followed the exodus of le-

gitimate economic opportunities from central cities, economic rewards shifted away from skills valued by legitimate employers to those valued by crack distribution organizations; these included the ability to threaten and use violence.

- **Strength of informal violence controls:** Where the exodus of legitimate economic opportunities from urban communities took with it many people committed to legal, nonviolent values, those people were no longer available for roles in preventing drug-related violence. They were not available, for example, as nonviolent role models for adolescents, as passers-by who might discourage drug buyers or intervene in emerging violent events, or as concerned individuals who might inform parents if their children began drifting toward involvement in drug markets.

- **Social status and moral authority:** During crack epidemics in some communities, successful young drug entrepreneurs either supplanted or intimidated neighborhood "old heads"—unofficial community leaders who upheld traditional values and had exercised moral authority in the neighborhood. Where this occurred, it tended to weaken cultural restraints against violence in all contexts, including drug markets.

Because such relationships are difficult to verify, evidence supporting their influence is only suggestive and fragmentary, and new research is needed to explore them more fully.

## Preventive interventions

A number of intervention strategies for preventing violence related to psychoactive substances have been proposed:

- Police disruption of illegal drug markets.
- Selectively longer incarceration of violent drug-using criminals.
- Reducing teenagers' access to alcohol.
- Substance abuse prevention.
- Drug abuse treatment.
- Pharmacological therapies to reduce drug craving and aggressive tendencies

associated with alcohol use and heroin addiction.

Some of these strategies have been evaluated to test their effectiveness in reducing violence. Only a few have demonstrated success under any conditions; none have shown universal effectiveness. Developing better interventions will require collaborative problem-solving initiatives that involve representatives of criminal justice agencies, providers of substance abuse treatment and other social services, and evaluation researchers. These initiatives are needed to turn promising ideas into workable programs, to evaluate the programs, and to refine them in light of the evaluation results. The findings of evaluations conducted thus far are summarized in the following sections.

**Disrupting illegal drug markets.** Police attack illegal drug markets through a number of tactics: undercover investigations leading to dealers' arrests; cooperation with community antidrug efforts; and large-scale, high-visibility crackdowns. Evaluations of these tactics in Birmingham, Alabama; Lawrence and Lynn, Massachusetts; New York City; Oakland, California; Philadelphia, Pennsylvania; and Washington, D.C., present a mixed picture. Perhaps the strongest supportable statement is that their chance of success is improved by intervening early in emerging markets, by creating a highly committed police force, and by generating community receptivity and cooperation in advance. NIJ's Drug Market Analysis (DMA) program is helping with the first prerequisite—early detection of drug markets. Specific techniques for creating supportive climates in police departments and the surrounding communities are less well understood, although many approaches are now being tested as part of community policing initiatives.

**Incarcerating violent drug-using criminals.** Researchers have generally found that compared to other violent offenders, those who use drugs tend to have higher average frequencies of violent crimes such as robbery and assault. This finding raises the possibility that sentencing drug-involved offenders who are convicted of these crimes to longer prison terms might

reduce violence. However, analyses suggest that this strategy of "selective incapacitation" would reduce violent crime levels very little unless it were accompanied by massive increases in prison populations.

A related strategy—monitoring pretrial releasees' drug use through urinalysis—showed rather surprising effects in a Washington, D.C., evaluation. Although positive drug test results did *not* predict significantly higher pretrial rearrest rates, failure to show up for the test was a strong predictor of subsequent new crimes leading to rearrest.

#### **Reducing teenagers' access to alcohol.**

Evidence is fairly clear that increases in tax rates and other measures that reduce the availability of alcohol to adolescents (social pressure and enforcement of underage drinking laws) in turn reduce drinking and certain associated problems such as death rates due to auto collisions. Therefore, these strategies may also reduce adolescents' disproportionate share of violence. That conjecture remains to be tested, however.

**Substance abuse prevention.** By reducing the demand that fuels violent, illegal drug markets, substance abuse prevention should, in theory, reduce violence levels. Many substance abuse prevention programs have been evaluated, including the Drug Abuse Resistance Education (DARE), which brings police officers into classrooms as instructors. Evaluations of prevention programs have generally found them effective in delaying the onset of tobacco, alcohol, and marijuana use. Evaluations have not generally found that education succeeds in preventing use of "harder" drugs, perhaps because use of those drugs was rare even in the control groups that did not receive preventive education. However, to the extent that minor drugs are "stepping stones" to the harder ones,<sup>5</sup> the programs may have meaningful, yet delayed, effects for violence reduction.

Prevention may have an especially important role to play for one category of

adolescents—males whose behavior meets diagnostic criteria for antisocial personality disorder and whose parents abuse alcohol. Research indicates that these two factors, coupled with both alcohol and drug abuse, create a high-risk profile for violent behavior in adulthood.

**Drug abuse treatment.** Successful drug treatment programs reduce criminal activity among adult clients. For drug abusers who are not in prison, stays of at least 3 months in therapeutic communities reduce the tendency to commit crime after discharge. Up to about 18 months, longer stays in the therapeutic community produce greater reductions.

For drug abusers in prison, treatment usually involves only individual or group sessions a few times a week with no postrelease followup. Evaluations of this approach have not found it sufficient to reduce criminal behavior following release. However, a more intensive approach—combining inprison therapeutic communities, planning for postrelease treatment, and postrelease treatment in the community—reduces overall rearrest rates of inmates who complete the program. At least three programs have used this approach: Stay 'n Out (in a New York prison), Cornerstone (in the Oregon State Hospital), and the California Civil Addict Program.

In addition to these beneficial effects of drug treatment on offenders' behavior, successful treatment may reduce aggregate levels of violence related to drug markets by lowering the demand that fuels the markets. Such an effect would, however, be difficult to measure.

**Pharmacological interventions.** Like other forms of drug treatment, pharmacological therapies that reduce drug craving may also lower the demand that supports violent drug markets. For decades, methadone and related chemicals have been used to reduce craving for heroin. There is no analogue to methadone for treating addiction to cocaine in powdered or smokable form. However, using animals as test subjects, researchers have identified the receptors for certain subtypes of two brain

chemicals, dopamine and norepinephrine, as promising sites to begin developing such medications. Animal research also suggests neurochemical starting points for developing medications that reduce violence in other ways: by disrupting the aggression-promoting effects of alcohol and by preventing aggression during withdrawal from heroin addiction.

## **Conclusion**

Too few of the links between violence and psychoactive substances have been established with enough certainty to advocate a comprehensive national policy for preventing violence related to those substances. Instead, a program of testing and evaluating tactics for implementing a variety of promising strategies is called for. Among these strategies, criminal justice agencies have particular roles in developing and testing tactics to disrupt illegal drug markets, in monitoring drug use of pretrial releasees, in establishing drug abuse treatment for convicted criminals, and in creating effective substance abuse prevention programs. Fulfilling these roles will require cooperation between the criminal justice system and drug treatment, prevention, and education authorities. Eventually, efforts to prevent drug-related violence may be assisted by pharmacological therapies to reduce the aggression-promoting effects of alcohol and the craving for other psychoactive drugs.

## **Notes**

1. Among studies of this relationship, many group all illegal drugs together. Those that distinguish among drugs usually list cocaine, heroin, amphetamines, barbiturates, and hallucinogens other than marijuana. See, for example, Elliott, D.S., and D. Huizinga, *The Relationship Between Delinquent Behavior and ADM [Alcohol, Drug, and Mental Health] Problems*, National Youth Survey Report No. 26. Boulder, Colorado: Behavioral Research Institute, 1984.

2. Goldstein, P.J., H.H. Brownstein, P.J. Ryan, and P.A. Bellucci, "Crack and Homicide in New York City, 1988: A Conceptually Based Event Analysis," *Contemporary Drug Problems* 16 (Winter 1989):651-687.

3. The DUF program uses urinalysis to confirm self-reports. The urine specimens are tested for cocaine, opiates, marijuana, PCP, methadone, benzodiazepine (Valium), methaqualone, propoxyphene (Darvon), barbiturates, and amphetamines. Samples are collected at the time of arrest on a voluntary basis; an average of 80 percent of arrestees voluntarily cooperate. Test criteria are set to detect use of most drugs in the preceding 24 to 48 hours, but marijuana and PCP can be detected in the urine several weeks after use.

4. Isikoff, M., and K. Sawyer, "Thornburgh Says All Drug Abusers Fuel Nation's Crisis," *Washington Post*, August 17, 1990.

5. Until recently, research on developmental pathways consistently found these drugs to be "gateways" or "stepping stones" to cocaine use. Preliminary findings, presented after the Panel completed its report, suggest that since the New York City "crack epidemic" of the early 1980's, crack-using youth in increasing numbers are skipping the gateway drugs and starting directly with crack.

Opinions or points of view expressed in this document are those of the author and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

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