



# National Institute of Justice

## Research in Brief

Jeremy Travis, Director

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### Issues and Findings

**Discussed in this Brief:** The history of hallucinogen use in the United States, a comparison of past and present user groups, and the impact of today's use and distribution patterns on law enforcement and public health and safety.

**Key issues:** Psychedelic drugs figured prominently in the hippie culture of the 1960s and 1970s, but their popularity declined during the 1980s. Recent studies reveal that hallucinogen use is on the rise in the 1990s, particularly among young adults of the same socioeconomic class as those who embraced these substances in previous decades. While current hallucinogen users seem to have little involvement in criminal activities, their drug-taking behavior places them at risk of harming themselves or others.

**Key findings:** Five sources were used to study the resurgence of hallucinogen use in this country. Data from these sources indicate that:

- Hallucinogens are relatively inexpensive, domestically produced, and not part of a network of distributors battling over markets or territory.
- Between 1991 and 1996, the percentage of Americans who had used psychedelics at least once in their lives grew from 6 to 14 percent.
- The percentage of high school seniors who believe that trying LSD or using it regularly is a "great risk"

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## Rise of Hallucinogen Use

by Dana Hunt

In the public imagination, few periods in history have been so linked to a type of drug as the 1960s were to psychedelics, or hallucinogens. Widespread experimentation with drugs such as LSD, peyote, and psilocybin ("magic mushrooms") influenced many aspects of American pop culture—clothing, music, art, and language. Many people discussed but few followed Timothy Leary's advice to "tune in and turn on." Americans nevertheless tried psychedelic drugs at an unprecedented rate. According to the first National Household Survey on Drug Abuse (NHSDA) in 1972, 5 percent of Americans, almost all of them under the age of 18, had used psychedelics at least once; by 1979 lifetime prevalence was reported as 25 percent among young adults ages 18–25.

In the mid-1980s the use of psychedelics dramatically declined as cocaine became the drug of choice. Law enforcement seizures of LSD and other hallucinogens dropped precipitously, as did emergency room reports of adverse effects of hallucinogen use. However, by the early 1990s, interest in hallucinogens seemed to resurface among users whose demographic profile was similar to that of users in the 1960s—young men and women, often middle class, who typically declined to use heroin or cocaine. Reports of LSD use and distribution at places as surpris-

ing as the U.S. Naval Academy<sup>1</sup> highlight the return of these drugs among student populations. In addition to familiar hallucinogens, newer compounds have surfaced (see "Drugs Classified as Hallucinogens or Psychedelics").

This Research in Brief traces the historical use of hallucinogens in the United States and discusses the implications—in terms of law enforcement and public safety—of their current popularity among youths and young adults. To conduct the analysis for the study summarized here, researchers from Abt Associates Inc. relied on national survey data and two telephone surveys conducted specifically for this report (see "Data Sources").

### Recent history of hallucinogen use

Hallucinogens are not new. Many naturally occurring substances such as peyote, psilocybin, or mescaline have long been used in cultural and religious contexts, and LSD was synthesized in Europe in the late 1930s. However, until the 1950s, when psychiatric researchers investigated the possible therapeutic value of LSD, recognition that certain drugs had hallucinogenic properties was very limited.

LSD did not receive popular attention until the early 1960s when the late Timothy Leary and Richard Alpert, his colleague

## Issues and Findings

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has declined significantly. Between 1991 and 1996, the percentage of seniors who said they disapproved of LSD use even once or twice fell from 90 to 80 percent.

- Thirty-four percent of college and university officials reported that hallucinogen use, particularly of LSD and psilocybin, is increasing on their campuses. Campus sources identified hallucinogen users today as mainstream students, not the more marginal or “hippie” students of the 1960s. Private and public campuses are equally likely to report hallucinogen use; religious schools are most likely to report little or no use. Larger campuses and institutions in urban areas report the widest range of drug use.
- The rise in hallucinogen use coincided with the growth of “raves,” underground dance parties that cater to those under age 21.
- Systemic violence associated with the trafficking of heroin and cocaine has not been found with hallucinogen trafficking. The Drug Enforcement Administration reports that a relatively small number of producers and distributors located in Northern California have controlled the LSD market for a number of years.
- Repeated doses of hallucinogens or ingestion of multiple substances can produce highly adverse effects, including death. In addition, the auditory and visual distortion resulting from hallucinogen ingestion can last for 10 to 12 hours, thus endangering a user who drives, his or her passengers, pedestrians, and the occupants of other cars in proximity.

**Target audience:** Drug enforcement and drug treatment practitioners, college and university officials, high school administrators, public health officials, drug policy coordinators, and researchers.

at Harvard University, began experimenting with the drug on themselves, other academics, local artists, and students. Leary was dismissed from Harvard for promoting LSD, but he continued to advocate its use as a positive mind-altering experience and identified psychedelics as part of a countercultural or lifestyle choice. Although nonmedical use of LSD continued to rise throughout the 1960s, scientific interest declined. In 1974 the National Institute of Mental Health concluded that LSD had no therapeutic use.<sup>2</sup>

The interest in LSD during the 1960s also prompted users to seek out naturally occurring substances that produced the same experiential effects. In fact, a variety of substances in nature produce transitory visual or auditory distortion, e.g., cannabis, thornapple, peyote, and jimsonweed. One of the oldest hallucinogens known to Western scientists is mescaline, a derivative of the peyote cactus, used for centuries in natural medicines and religious ceremonies. Substances such as peyote, mescaline, and a variety of exotic fungi (e.g., psilocybin mushrooms) can be smoked, brewed in tea, chewed, and incorporated into food. In the 1960s users exchanged and published recipes for

preparation of hallucinogens through popular publications of the era.

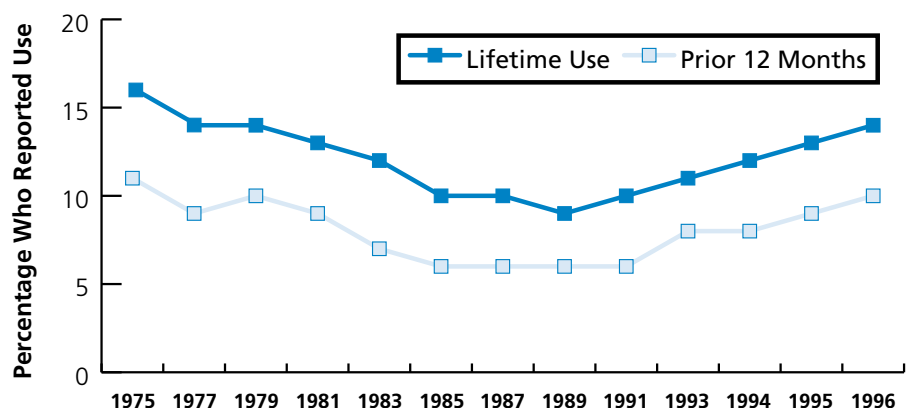
How many people actually used hallucinogens during the 1960s and 1970s? In 1974, 17 percent of all Americans reported they had used a hallucinogen in their lifetime. According to NHSDA, lifetime prevalence among the young adult population rose to 20 percent in 1977 and 25 percent by 1979.

During the same period, other surveys made similar findings. In 1975 the Monitoring the Future (MTF) study reported that 16 percent of high school seniors across the country had used hallucinogens at some point. A 1980 survey of New York State high school students showed that, by age 18, 25 percent had used hallucinogens.<sup>3</sup> These figures represented a remarkable rise in the use of drugs that less than 15 years earlier had been virtually unknown.

## Who is using hallucinogens now?

Until the late 1980s and early 1990s, hallucinogens appeared to be out of vogue as the generation of original users aged. By 1982, 6 percent of adults over 26 years old reported that they had used hallucinogens at least once, but fewer

Exhibit 1: Use of Hallucinogens by High School Seniors



Source: Monitoring the Future Study, University of Michigan.

than 1 percent reported use in the prior year.<sup>4</sup> In 1992, however, drug ethnographers reporting to *Pulse Check* began noticing increased availability of hallucinogens in many areas of the country. At the same time, researchers studying the emerging music and dance phenomena known as “raves” found LSD, MDMA, ketamine, and 2C-B playing a significant part in these activities.<sup>5</sup>

National survey data supported this observation. Exhibit 1 shows high school seniors’ self-reported hallucinogen use for selected years of the MTF study. As these data indicate, the first

year (1975) of the survey produced the highest lifetime use (16 percent), followed by a gradual decline that continued until the end of the 1980s. In 1991 the percentage reporting lifetime use again began to rise, reaching 11 percent in 1993, 13 percent in 1995, and 14 percent in 1996. Use in the prior 12-month period also declined throughout the 1980s, reached a low of 6 percent in 1985, then rose to 8 percent in 1993 and 1994, 9 percent in 1995, and 10 percent in 1996. Exhibit 2 indicates that LSD has typically been the most commonly used hallucinogen, although a similar but smaller

rise in the use of any hallucinogens is also apparent.

Data from a 1992 Dade County, Florida, survey showed an even higher level of use among high school and college students. The Dade County student survey indicated that 17 percent of high school seniors reported using LSD at least once, a figure almost five times the 1991 level and considerably higher than the level reported in the national MTF study.<sup>6</sup>

In recent years, increased hallucinogen use has been concentrated primarily among white students, a group that

## T Drugs Classified as Hallucinogens or Psychedelics

The terms “hallucinogen” and “psychedelic” refer to both synthetic and organic substances that can produce visual, auditory, and tactile distortions in users. The group of drugs so designated generally includes:<sup>7</sup>

- LSD (d-lysergic acid diethylamide) and Nexus (4-bromo-2,5 dimethoxyphenethylamine)—synthetic or laboratory-derived substances that at varying dosages produce degrees of perceptual distortion. LSD is most often soaked into patterned paper, though it may also be distributed in tablet, crystalline, or liquid forms. Nexus is structurally related to mescaline and produces sensory distortion lasting 4 to 8 hours.
- Mescaline, peyote, bufotenine, belladonna, and various fungi—substances derived from plants or other sources in nature that, when smoked, eaten, or otherwise ingested, quickly produce altered perceptual states.
- PCP (phencyclidine) and ketamine hydrochloride (Special K)—central nervous system agents that produce anesthetic, analgesic, and hallucinogenic effects.<sup>8</sup>

These substances were originally tested in humans for their anesthetic use during minor surgery, but use was eventually restricted to the tranquilization of large animals in veterinary medicine. PCP and ketamine appear most often in powder form (“dust”), but they can also be found as liquids.

- MDMA (methylene dioxymethamphetamine), or Ecstasy—a synthetic methamphetamine compound that produces both psychedelic and stimulant effects. MDMA was used clinically until 1988 when the Food and Drug Administration reclassified it as a Schedule I controlled substance (i.e., one with no approved use) because of its abuse potential. MDMA is most often found in the form of tablets or capsules.

Hallucinogens are defined more by the effects they produce than by any common chemical structure. In part the term “hallucinogen” refers to a drug’s ability to distort reality. Although persons with psychotic disturbances may hallucinate without an external stimulus, normal individuals can induce the same (but temporary) effect using hallucinogenic

drugs.<sup>9</sup> Hallucinogens as a group produce varying levels of visual, auditory, and tactile distortions and/or “out of body” sensations. As with all drugs, the intensity of effect depends not only on ingestion of a specific drug and dose but also on the user’s perception or expectation of the experience.<sup>10</sup>

Hallucinogens differ in several ways from other commonly abused drugs such as heroin or cocaine. Although their reality-distorting effects may make them attractive and reinforce repeated usage, most hallucinogens are not physiologically addictive in the same way that opiates or even sedatives are; that is, if tolerance is established, hallucinogens do not produce long-term physiological craving after their effects have worn off.<sup>11</sup> They also differ in the duration of drug action. Unlike the effects of cocaine, which last for only minutes, and those of heroin, which last for a couple hours, the active effects of hallucinogens can continue for several hours. Only methamphetamine can produce a similar long-lasting effect from a single ingestion.

## Data Sources

Data for this report came from the following five sources:

- National Household Survey on Drug Abuse.** First conducted in 1971, NHSDA is supported by the Substance Abuse and Mental Health Services Administration and is a national probability sample of household members 12 years and older. Respondents are interviewed about their current and past use of a wide range of illegal and legal drugs, including alcohol.
- Monitoring the Future Study.** Supported by the National Institute on Drug Abuse (NIDA) and conducted annually since 1975, this survey administers questionnaires to a national probability sample of high school seniors in the United States. Questionnaires are also mailed to a sample from each of the previous senior class samples for up to 10 years after high school. Since 1991 the

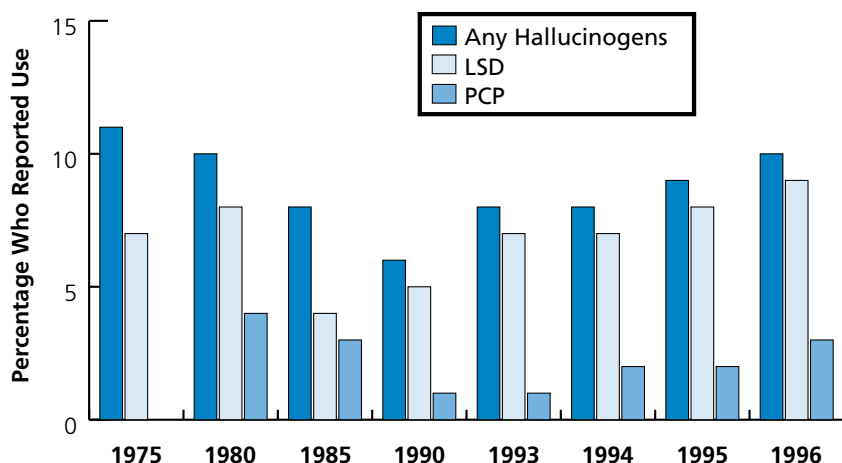
survey has also included samples of 8th- and 10th-grade students.

- Pulse Check.** Conducted quarterly since 1992 and semiannually since spring 1996 by the Office of National Drug Control Policy (ONDCP), *Pulse Check* gathers information from telephone interviews with 15–20 ethnographic sources, 10–15 police agencies, and 50–60 drug treatment providers from across the country. While not a probability sample, it is nevertheless a timely report from persons working “on the front lines” of law enforcement and drug abuse research and treatment.
- Survey of colleges and universities.** A random sample of 4-year colleges and universities was developed for this analysis. The sampling was distributed evenly between public and private institutions in all geographic areas. Sources knowledgeable about student drug use (on-campus

drug program officers or counselors, student health directors, student affairs officers) were interviewed by telephone in October 1995. Questions were asked about which drugs were used most often on campus and what types of students were using them; if applicable, more detailed information was sought on hallucinogen use. Of the 100 institutions sampled, approximately 60 were determined to be eligible for inclusion in this report.<sup>12</sup>

- Survey of drug treatment programs for adolescents.** The 1992 NIDA National Drug Abuse Treatment Unit Survey was also used as a framework to develop a random sample of adolescent drug treatment programs from across the United States. Twenty-five program or clinical directors were interviewed by telephone using the same guidelines described above for college sources.

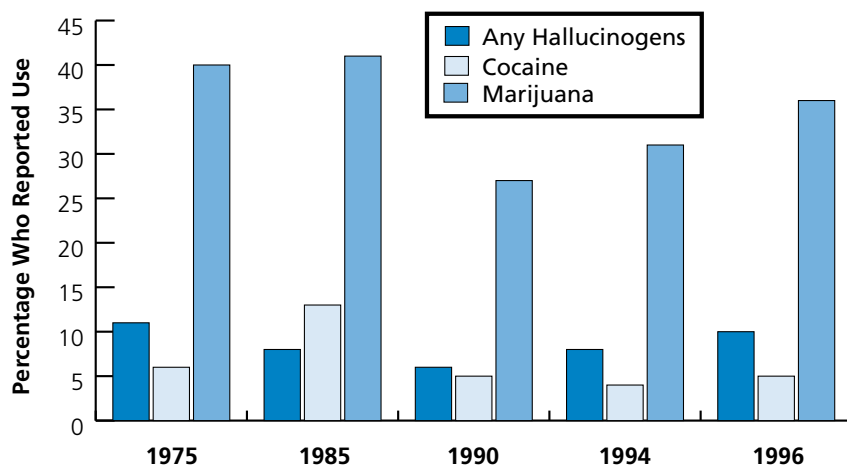
Exhibit 2: **Prior-Year Use of Hallucinogens by High School Seniors**



Source: Monitoring the Future Study, University of Michigan.

has the highest rates of use (both lifetime and annual) for hallucinogens, inhalants, and tranquilizers. According to the 1994 national survey of high school students, 8 percent of white seniors reported using LSD in the prior 12 months compared with less than 1 percent of African-American and 5 percent of Hispanic seniors. Use also appears to be related to socioeconomic status (SES). Data indicate that as the overall use level of LSD began to increase in the late 1980s and early 1990s, a positive relationship between socioeconomic status and use emerged. Students from the highest income groups are now twice as likely as those from the lowest SES group to have used LSD in the previous 12 months. This relationship, however, has nothing to do with price; the cost of hallucinogens is lower than that of both cocaine and heroin.<sup>13</sup>

Exhibit 3: **Prior-Year Use of Hallucinogens, Cocaine, and Marijuana by High School Seniors**



Source: Monitoring the Future Study, University of Michigan.

Although interest in hallucinogens is resurgent, it is difficult to quantify use that continues beyond initial experimentation or to determine whether the rise in hallucinogen use is part of a general upswing in the use of all illegal drugs. Exhibit 3 shows trends in hallucinogen, cocaine, and marijuana use among high school seniors in the year prior to the survey.

The overall increase in illicit drug use by teens and young adults is driven by significant growth in the use by high school students of marijuana, hallucinogens, and, to a lesser degree, crack cocaine. From 1993 to 1996, the percentage of 8th, 10th, and 12th graders who reported using marijuana in the previous year rose steadily, reaching 18 percent, 34 percent, and 36 percent respectively. Daily use of marijuana also rose in all high school grades surveyed. As is true for marijuana, the figure in 1996 for prior-year use of hallucinogens continued to rise to levels statistically and significantly higher than 1995 levels among all grades.

The high school senior survey provides data on noncontinuation rates of drug use.<sup>14</sup> Unfortunately, data show that many of these teens persist as users beyond experimentation. Since 1992 noncontinuation rates for LSD have been the lowest reported in 10 years;<sup>15</sup> that is, more students are starting to use hallucinogens and fewer are stopping.

Not surprisingly, data on juveniles involved with the criminal justice system show even higher rates of illicit drug consumption. Exhibit 4, which reports data from 12th graders who have been arrested and tested for drugs as part of the juvenile Drug Use Forecasting (DUF) program and from the MTF study, shows that use of all illicit drugs has increased in the 1990s, but use of LSD and stimulants has doubled.

Renewed interest in hallucinogens coincides with a perception of reduced risk and greater peer support for use. The high school survey data indicate a significant decline in the percentage of seniors who feel that trying LSD or using it regularly is a “great risk.” In

1991, 90 percent of high school seniors reported that they disapproved of LSD use even once or twice. That number had dropped to 83 percent in 1994 and to 80 percent in 1996. The percentage of high school seniors who said none of their friends uses MDMA decreased significantly from 88 percent in 1990 to 76 percent in 1996.

The report also indicates that hallucinogens are increasingly accessible to high school students. In 1992, 45 percent of high school seniors described LSD as “easy or fairly easy to get”; in 1996 that percentage had risen to 51 percent. The survey authors speculate that although attention has been focused on cocaine and crack for many years, little media coverage has been devoted to hallucinogens and fewer opportunities have existed to observe their adverse effects. This situation may have added to “generational forgetting”<sup>16</sup>—today’s teens knowing less than teens from the previous generation—to the point that hallucinogens surpass cocaine in popularity for all groups except Hispanics.

NHSDA data (see exhibit 5) depict a similar, although less dramatic, time trend than that reported in the MTF studies. In the first year of this survey (1972), 5 percent of youths under 18 said they had used a hallucinogen one or more times. That figure peaked by 1979 (7 percent of respondents under age 17 and 25 percent between the ages of 18 to 25), began to decline, and dropped dramatically for those under 25 in 1985. In the late 1980s and early 1990s, however, the trend began to change somewhat. Among young adults (ages 18–25), lifetime prevalence began to rise from 12 percent in 1985 to 15 percent in 1994. In the most recently published survey, 14 percent of respondents between the

Exhibit 4: *Thirty-Day Prevalence for 12th Graders, by Drug and Year*

Percentage Reporting Past 30-Day Use	1991	1992	1993	1994	1995
<b>Any illicit drug?</b>					
DUF	37.0	44.3	53.7	58.2	62.7
MTF	16.4	14.4	18.3	21.9	23.8
<b>Any illicit drug other than marijuana?</b>					
DUF	12.1	14.5	16.9	19.1	22.3
MTF	7.1	6.3	7.9	8.8	10.0
<b>Marijuana</b>					
DUF	34.9	41.4	51.0	55.2	59.5
MTF	13.8	11.9	15.5	19.0	21.2
<b>LSD</b>					
DUF	3.3	4.3	5.1	5.0	7.2
MTF	1.9	2.0	2.4	2.6	4.0
<b>PCP</b>					
DUF	2.0	1.8	1.9	1.8	3.7
MTF	0.5	0.6	1.0	0.7	0.6
<b>Cocaine</b>					
DUF	4.5	5.3	5.9	5.7	4.9
MTF	1.4	1.3	1.3	1.5	1.8
<b>Crack</b>					
DUF	3.5	2.6	2.5	4.0	5.5
MTF	0.7	0.6	0.7	0.8	1.0
<b>Heroin</b>					
DUF	0.2	0.3	0.4	0.5	1.1
MTF	0.2	0.3	0.2	0.3	0.6
<b>Amphetamine/Stimulants</b>					
DUF	2.9	4.0	6.2	10.2	7.9
MTF	3.2	2.8	3.7	4.0	4.0
<b>Methamphetamine/Ice</b>					
DUF	2.3	3.0	4.6	8.1	7.8
MTF	0.6	0.5	0.6	0.7	1.1

Sources: Drug Use Forecasting Program and Monitoring the Future Study.

ages of 18 and 25 and 5 percent between the ages of 12 and 17 reported using a hallucinogen at least once. As is true for the high school survey data, NHSDA data indicate that much of this increase has been among whites and Hispanics (see exhibit 6). The greatest concentration of reported lifetime use is found among two groups: white youths ages 18–25 (19 percent) and Hispanics ages 18–25 (9 percent).

Although the NHSDA and MTF surveys show increases in hallucinogen use, particularly among the young, data from emergency rooms (ERs) across the country do not. The percentages of ER

mentions for LSD or PCP in the Drug Abuse Warning Network (DAWN) are low (fewer than 0.01 percent); this has been the case throughout the past two decades. However, notable increases in ER mentions have been seen in four cities: Atlanta, Washington, D.C., Chicago, and Seattle. Although hallucinogens have long been known to produce some adverse reactions in users, particularly over time, the lower potency of today’s hallucinogens may not produce acute incidents requiring emergency medical attention. There is increasing anecdotal evidence, however, that the lower dosage drug is simply being consumed more frequently than in the past.<sup>17</sup>

### Variations across the United States

National probability samples have limited ability to reflect recent changes in drug use because of the time needed to conduct the survey, analyze the results, and report the findings. Therefore, the following sources were used to examine hallucinogen use across the United States in 1996: the ONDCP *Pulse Check* series, Community Epidemiology Work Group (CEWG) at NIDA, and two telephone surveys conducted for this report. Although these sources reveal that a renewed interest in hallucinogens is national in scope, they also show regional variation. Epidemiologists reporting to CEWG from New York, Atlanta, San Francisco, Seattle, Miami, and cities in Texas noted increased hallucinogen use.<sup>18</sup> Other areas, such as New Orleans and Denver, report that LSD is widely available for purchase, but indicator data do not reflect any changes in use.

LSD is produced in domestic labs concentrated in Northern California and shipped by mail or couriers through what law enforcement officials describe as a well-established network of distributors.<sup>19</sup> *Pulse Check* and Drug Enforcement Administration (DEA) sources report that LSD is sold primarily in paper or blotter form, with each sheet divided into squares of single dose units containing approximately 25–60 micrograms of the substance. It may also be sold as “microdots” (small tablets) or in gelatin squares (“window panes”). A dose (approximately 55 micrograms) sells for \$1–\$10.

The unit dosages consumed by users in the 1990s are less concentrated than those taken in the 1960s—the heyday of LSD consumption—when dosages were typically 100–200 micrograms. In the San Francisco area, *Pulse Check* ethnographers report that

Exhibit 5: Lifetime Prevalence of Hallucinogen Use by Age

Age	1972	1977	1979	1982	1985	1991	1992	1993	1994	1995
12–17 Any Use (Hallucinogens)	4.8%	4.6%	7.1%	5.2%	3.2%	3.3%	2.6%	2.9%	4.0%	5.4%
18–25 Any Use (Hallucinogens)	–	19.8%	25.1%	21.1%	11.6%	13.2%	13.4%	12.5%	14.5%	14.1%
26–34 Any Use (Hallucinogens)	–	2.6%	4.5%	6.4%*	16.7%	15.5%	15.6%	15.9%	15.5%	15.2%
35+ Any Use (Hallucinogens)	–	–	–	–	2.2%	5.2%	5.2%	6.6%	6.2%	7.6%

\* Includes all users over 26 years old.

Source: National Household Survey on Drug Abuse (1972–1994).

users experience shorter “trips,” lasting only a few hours, and milder hallucinogenic effects than was true of LSD trips 20 years ago. Interviews with rave-goers also indicate a milder and shorter effect from today’s LSD.<sup>20</sup> However, Miami CEWG data show that users may increase the number of doses to make up for reduced potency, thus producing new patterns of use. LSD may also be combined or sequenced with other drugs to enhance or extend its effect. For example, one study describes young users who practice “candy-flipping,” or combining in sequence MDMA or methamphetamine with LSD.<sup>21</sup>

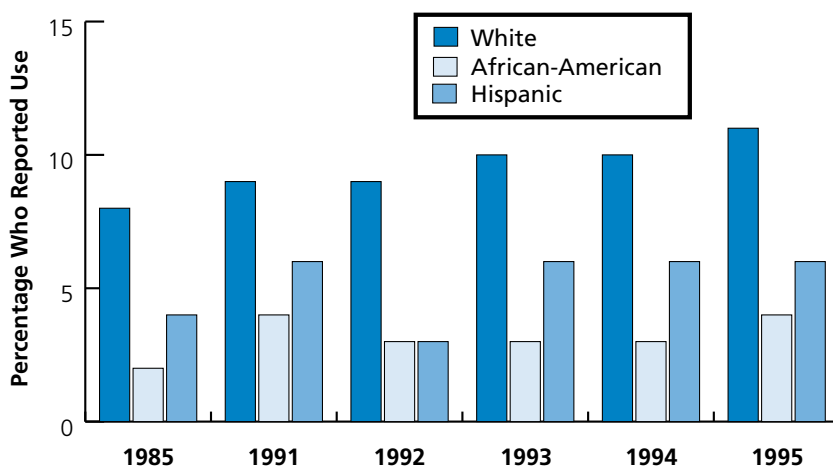
Both *Pulse Check* and CEWG sources report user interest in naturally occurring hallucinogens such as peyote or mescaline. In the October 1994 *Pulse Check*, three sources reported that youths had come into emergency rooms exhibiting symptoms brought on by ingesting jimsonweed, a plant in the deadly nightshade family whose active ingredient, belladonna, has hallucinogenic properties. Even in relatively small quantities, however, it is

generally toxic. Other drugs that have been mentioned in both sources include peyote, mescaline, psilocybin, and bufotenine, all of which have been relatively absent from the drug culture for many years.

New synthetic drugs have generated renewed interest in hallucinogen use. MDMA is one of the most popular of these newer drugs; other drugs that

have surfaced in recent years include Nexus and ketamine. Ketamine use has been reported in New York for more than 2 years, and it is increasingly being used as a “club drug” in New Jersey, Delaware, Washington, D.C., Florida, and Georgia. Ketamine is packaged in baggies or capsules and sells for approximately \$10–\$20 per dose.

Exhibit 6: Lifetime Prevalence of Hallucinogen Use by Ethnicity



Source: National Household Survey on Drug Abuse.

## Hallucinogen use on college campuses

In October 1995 telephone surveys conducted with 59 college and university officials knowledgeable about student drug use indicated that hallucinogens, particularly LSD and psilocybin, are popular in many areas of the country. Of the campuses surveyed, 34 percent reported increasing hallucinogen use, 7 percent reported decreasing use, and 39 percent reported no change. Exhibit 7 shows the drugs used most frequently on campuses across the country. Alcohol and marijuana are the most commonly cited (83 and 78 percent, respectively). However, 44 percent of campuses reported student use of hallucinogens; all cited LSD and 57 percent cited psilocybin and MDMA as the specific hallucinogens students use. Officials at one large Midwestern university claimed that their own campus survey revealed

that 10 percent of students had tried hallucinogens at some time, but only 2 percent had used one of these drugs in the prior 30 days. Similar figures from other campus surveys were reported, ranging from 3 percent to 19 percent lifetime prevalence. Many officials stressed that although hallucinogen use was appearing on campus, it was still confined to a small segment of students and dwarfed by marijuana and alcohol consumption. In several instances campus officials also believe that, although hallucinogen use has only recently resurfaced, it may already have peaked.

Campus sources reported that individuals of both genders and all ethnic groups in the student body are hallucinogen users, although the greatest interest seems to be concentrated among younger students. Unlike the 1960s when hallucinogens were identified with the more marginal or “hippie”

culture, today hallucinogens are used among mainstream students.

Private campuses were as likely as public ones to report hallucinogen use, and religious schools were least likely to do so. Because of student accessibility to the off-campus urban club scene, larger campuses and institutions in urban areas reported the widest range of drug use.

## Young users and treatment

Drug treatment programs across the United States that specialize in treating substance abusers under 18 years old were surveyed about their current population of patients. These sources said their clients use a variety of drugs, although alcohol, marijuana, and hallucinogens (particularly LSD) are the most frequently abused substances. For most youths in treatment, hallucinogen consumption is part of an extensive drug use history; rarely do counselors see adolescents who abuse only hallucinogens. Anecdotal reports from some counselors indicate as many as 80 percent of clients have used hallucinogens; others report diagnosing as many as three or four cases per week of adolescents with hallucinogen-related perceptual disorders. The anecdotal reports attribute the visual system damage to the number of “trips” (including consecutive multiple doses of LSD) that teens often take. The media have reported similar patterns of abuse among young party-goers who ingest large amounts of Ecstasy (seven or eight doses) that may result in long-term, harmful effects on mood, sleep, appetite, and impulse control.<sup>22</sup>

## What are “club drugs”?

Hallucinogens are often reported as part of the “club drug scene”—a term

Exhibit 7: “What types of drugs are used most often by students on your campus?”

Drug	Region I <sup>a</sup> N = 15	Region II <sup>b</sup> N = 17	Region III <sup>c</sup> N = 11	Region IV <sup>d</sup> N = 16	Total N = 59
Opiates	0	0	1	1	2
Cocaine	1	4	7	4	16
Crack	1	5	1	1	8
Marijuana	12	12	11	11	46
Hallucinogens	2	8	6	10	26
Inhalants	2	0	2	1	5
Tranquilizers	2	0	0	1	3
Methamphetamine	3	0	3	6	12
Alcohol	15	12	11	11	49
Other	1	0	0	1	2
No drug use	1	4	0	4	9

<sup>a</sup> Region I: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont

<sup>b</sup> Region II: Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, Washington, D.C., and West Virginia

<sup>c</sup> Region III: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin

<sup>d</sup> Region IV: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming

Source: Survey of Colleges and Universities.



that refers to the use of particular drugs by teens and young adults who frequent music or dance clubs geared to their age group. In general, these are the same youths found in the campus survey: young, often fairly affluent men and women who have limited histories of using drugs such as heroin or cocaine. Urban-area ethnographic sources for *Pulse Check* report hallucinogen use among patrons of the many nightclubs that cater to persons under 21 years of age. Many such clubs serve no alcohol and can attract clientele as young as 13 or 14 years old. In New York City, heroin or cocaine may also be part of the club drug scene, although this seems to be the exception. The most frequently reported club drugs are LSD, MDMA, Nexus, and ketamine. In fact, young club participants in Miami actively scorn “harder” drugs but embrace LSD, MDMA, and other hallucinogens as “safe.”

A study conducted by Abt Associates Inc. in 1994 examined “raves,” phenomena closely tied to the club culture and the drugs that may be used there.<sup>23</sup> A rave is a large party where participants often dance all night to “house music,” technically synthesized rhythms of 120–180 beats per minute played at earsplitting decibel levels. Raves were fashionable in Europe during the late 1980s and have become popular in the United States in recent years. They attract a predominantly middle-income audience, often high school and college students. Whereas they were once “underground”<sup>24</sup>—the whereabouts of the events passed by word of mouth—raves are now openly advertised and discussed on electronic mail services.

Although the music and frenetic activity of raves have little in common with the almost dreamy pace of the hallucinogen culture of the 1960s, other aspects of the

phenomena indicate an active nostalgia for that era: its fashions, emphasis on the “spirituality” of attending raves, promotion of nonviolence, and the use of marijuana and a variety of hallucinogens.

Abt Associates Inc. researchers examined rave activity in New York and San Francisco, informally interviewing participants as well as organizers about various aspects of rave activity, including drug use.<sup>25</sup> They found that the drugs most commonly associated with raves are marijuana and hallucinogens, although methamphetamines and alcohol were evident. Among the hallucinogens, MDMA and LSD were the most popular drugs—the ones some participants associated with the spiritual ethos attached to the events. As was true in the earlier era of hallucinogen use, some rave participants associated a range of benefits, including personal enlightenment, with the use of these drugs. The researchers also found that participants were unaware of the possible harm that repeated or uncontrolled use could produce.

### Implications for law enforcement and public safety

The nature of different drugs (e.g., physical effects produced, costs) is often directly linked to the problems they present for law enforcement. Stimulants (e.g., methamphetamines) and depressants (e.g., alcohol) produce unique psychopharmacological effects (such as agitation, paranoia, or irritability) in users that may make them more difficult for law enforcement officers to restrain. The expense of a drug may also predict users’ involvement with income-generating crimes. One researcher characterizes three types of violence or crime associated with drugs:<sup>26</sup>

- Pharmacologic: crime related to a drug’s pharmacological effects on the user.
- Economic: crime associated with a drug’s costs to the user.
- Systemic: crime associated with trafficking of a drug.

Hallucinogens have not been linked to pharmacologic crime primarily because of their sedative effects. They cost relatively little (\$1–\$5 per unit dose) for the long-lasting results they produce, and their use is concentrated among middle- to upper-income youths with greater access to funds, a fact that reduces the likelihood that economically driven crime would be associated with their use.

The systemic violence connected to heroin and cocaine trafficking has not been found with hallucinogen trafficking. DEA reports that a relatively small number of producers and distributors located in Northern California have controlled the LSD market for a number of years.<sup>27</sup> A handful of chemists, some of whom have been working since the 1960s and 1970s, synthesize the bulk of the drugs produced and distribute them throughout the country. Quantities are shipped from suppliers to known contacts (often on a prepaid basis) and distributed through established user networks. Although some local production of hallucinogens exists, the chemists or producers involved in such enterprises generally confine their products to local markets and therefore pose little threat to established traffickers. LSD may also be distributed at concerts, although ethnographic research indicates that much of the hallucinogen use associated with raves occurs prior to attendance.

Threats to the safety of users and those with whom they come in contact are major problems associated with hallucinogen use. Health risks for drugs such as MDMA include dehydration, appetite suppression, and heartbeat disruption. Adverse psychological reactions, which some users experience with high and/or repeated doses of hallucinogens, are well documented; they include psychotic episodes, panic disorder, and long-term sensory distortion.

In addition to health risks, concerns for public safety are related to hallucinogen use. The use of multiple substances is troubling. Any of the club drugs taken alone can impair motor skills; in combination they can produce deadly synergistic effects. The enduring effects of drugs such as LSD or MDMA can pose special problems. For example, ingestion of a drug with the potential to cause visual and auditory distortion lasting 10–12 hours may mean that the user will drive home from a party while still under its influence. The opinion of one experienced State police source quoted in the October 1994 *Pulse Check* reflects a concern shared by several respondents: “Kids think they’re fine to drive, but their reaction time is all off, and they get into trouble.”

## Summary

As crack has been the drug of the inner city for a decade, hallucinogens appear to be a popular drug among today’s young, more affluent users. All sources reported their popularity among nonminority high school and college users who often reside outside the inner cities. The drugs are relatively inexpensive, domestically produced, and part of a stable, noncompetitive distribution network. Despite law enforcement efforts to disrupt the produc-

tion and distribution of hallucinogens, a small number of manufacturers have provided a relatively steady supply, distributed through local user networks, for more than 20 years. Although rising use may not pose severe threats to law enforcement, it does present problems for public health officials in terms of the health and safety of young users who are rediscovering this family of drugs.

## Notes

1. Bradsher, K. (1995). “All midshipmen drug tested after two caught with LSD.” *New York Times*, October 18, A18.

2. Henderson, L., and W. Glass (eds.) (1994). *LSD: Still With Us After All These Years*. Lexington, MA: Lexington Books.

3. Kandel, D. (1982). “Epidemiology and psychological perspectives in adolescent drug use.” *Journal of the American Academy of Child Psychology* 21(4):328–347.

4. Miller, J., et al. (1982). *National Survey on Drug Abuse: Main Findings*. Washington, D.C.: National Institute on Drug Abuse.

5. Harlow, D. (1994). “Raves and drug use: An exploratory study.” A Research Application Review working paper for internal distribution prepared by Abt Associates Inc.

6. Community Epidemiology Work Group (1995). *Epidemiologic Trends in Drug Abuse*. Rockville, MD: National Institute on Drug Abuse.

7. There has long been debate whether marijuana and hashish should be included in the hallucinogen category because the active ingredient in both (tetrahydrocannabinol, or THC) produces some hallucinogenic effects. They were not included in this report.

8. Because PCP is often included in datasets with hallucinogens, it is included in this analysis even though PCP users are demographically different from other hallucinogen users. Its use is more geographically limited, and PCP use constitutes a small portion of reports in the hallucinogen category.

9. Szara, S. (1994). “Are hallucinogens psychoheuristic?” In G. Lin and R. Glennon (eds.), *Hallucinogens: An Update*. NIDA Research Monograph Series 146, Rockville, MD: National Institute on Drug Abuse, pp. 33–52.

Some users report experiencing “flashbacks” of distorted perception long after the drug is taken, and these often long-delayed reactions are not well understood. Strassman, R. (1984). “Adverse reactions to psychedelic drugs: A review of the literature.” *Journal of Nervous and Mental Disorder* 172:577–595.

10. Zinberg, N. (1984). *Drug, Set and Setting*. New Haven, CT: Yale University Press. Zinberg called this the impact of “set and setting” on drug use. The set is the expectation the user brings to the experience, e.g., the user is expecting to get high. The setting is the context in which the drug is taken—at a party, while alone, in the hospital. Both have a direct influence on the perception of its effect.

11. Glennon, R. (1994). “Classical hallucinogens: An introductory overview.” In G. Lin and R. Glennon (eds.), *Hallucinogens: An Update*, NIDA Research Monograph Series 146, Rockville, MD: National Institute on Drug Abuse, pp. 4–33.

12. Institutions that offered almost exclusively graduate or continuing education programs were eliminated from the analysis in this report because they

served a different, older student population than were found in 4-year institutions.

13. Johnston, L., P. O'Malley, and J. Bachman (1995). *National Survey Results on Drug Abuse from the Monitoring the Future Study (1975–1993)*. Rockville, MD: National Institute on Drug Abuse.

14. *Ibid.*, 54. Noncontinuation rates are calculated as the percentage of those who report that they have used a drug at least once in their lives but not in the 12 months prior to the survey.

15. *Ibid.*, 54.

16. *Ibid.*, 12.

17. Community Epidemiology Work Group, *Epidemiologic Trends in Drug Abuse*.

18. *Ibid.*

19. Drug Enforcement Administration (1995). "LSD in the United States." Drug Intelligence Report, Washington, D.C.: U.S. Department of Justice.

20. Harlow, "Raves and drug use: An exploratory study."

21. *Ibid.*

22. Blakeslee, S. (1995). "Popular drug may damage brain." *New York Times*, August 15, C5.

23. Harlow, "Raves and drug use: An exploratory study."

24. The underground nature of the initial raves had less to do with drug use and more to do with the fact that initial promoters, often not professional promoters or club owners, did not have permits to hold large gatherings.

25. Harlow, "Raves and drug use: An exploratory study."

26. Goldstein, P. (1985). "The drugs/violence nexus: A tripartite conceptualized framework." *Journal of Drug Issues* 15:493–506.

27. Drug Enforcement Administration, "LSD in the United States."

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