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Special Contribution

An account of individual and group customs and use of the drugs alone or with narcotics.

Patterns of Hallucinogenic Drug Abuse

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The use of hallucinogenic (psychotomimetic, dysleptic, psychedelic) substances to produce altered states of consciousness is not new,[1-3] but recently there has been increased interest and publicity given these agents. This renewed attention has been spurred by the discovery of several new substances, such as d-lysergic acid diethylamide (LSD), psilocybin, and psilocin, which have potencies far greater than the older agents (peyote, mescaline, teonanacatl, ololiuqui). These drugs have captured the imagination of many people who have speculated on their application in many different areas. Anthropologists[4,5] have described the socially sanctioned use of some of these agents in "primitive cultures"; novelists[6] have conceived of their role in utopian societies; and physicians have espoused their usefulness in treating mental illness[7] and for the production of "model psychoses." Others have proposed or described their use as educational tools[8] and for inducing religious "mystical" experiences.[8-10] Still others have commented on their potential use for brainwashing and interrogation purposes.[11]

It is not surprising, therefore, with the greater number of agents available and an increase in publicity, that there has been an attendant increase in the abuse of these substances. By "abuse" we refer to the self-administration of these substances by individuals who have procured or obtained them through illicit channels and/or taken them in medically unsupervised or socially unsanctioned settings. Although many reports both in lay literature and in scientific publications have alluded to and given fragmentary and, at times, sensational accounts of abuses, there has been a scarcity of information gathered systematically and directly from experienced (ab)users of these drugs. It is the purpose of this paper to present detailed information about the most frequently abused hallucinogenic drugs, their patterns of usage, their availability, addiction potential, and dangers.

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The information upon which this report is based was gathered from extensive interviews with 27 "postnarcotic drug addict inpatients" who were being treated at the US Public Health Service Hospital, Lexington, Ky. The patients were contacted by announcements on the bulletin boards of the male and female continued treatment wards stating that the authors would like to talk to any patients who had taken hallucinogenic drugs "on the streets." The 24 males and 3 females who responded over a four-month period did so entirely voluntarily and, as far as could be determined, were candid and honest during their interviews. All but one patient had considerable personal experience with these drugs, and most had personal acquaintance with many users of hallucinogens who were not narcotic addicts. The patients were assured that the information was being collected for medical purposes and that there were no legal implications whatsoever. The exact identity of sources, contacts, and associates was neither sought nor volunteered, but the types and general locations of sources and nature of associates were thoroughly discussed. There were no rewards or privileges promised or given for participating in the investigation, but many of the patients spontaneously thanked the authors for giving them an opportunity to discuss their experiences with these substances.

Specific Substances Used

Peyote.—This hallucinogenic substance is obtained from a cactus plant (peyotl) which is known botanically as *Lophophora Williamsii* and is largely found growing in the arid regions of Mexico. The plant grows mainly underground, but above the earth one finds the source of the drug, an inconspicuous group of button-shaped growths. The crude cactus contains more than ten alkaloids, among which are harmine, bufotenine, lophophorine, and mescaline.[12]

Although the entire plant can be bought in dried form, it is more common to obtain the buttons alone. When the plant or buttons are green the hallucinogenic effects are apparently much diminished. One individual baked the green buttons on

a cookie sheet in order to dry them more quickly and increase their potency. The buttons may be chopped up and placed in gelatin capsules or placed in a food blender and then rolled into little balls. It was also reported that peyote was acquired as a brownish-gray, cloudy liquid in a 30-cc multiple-dose vial.

The price for peyote is extremely variable and depends upon where it is bought. In Texas, peyote can be purchased for one cent per button or 40 cents per 100 buttons. It has been sold in Los Angeles for $1 for four buttons, or it can be bought in plastic sandwich bags, which contain about 25 buttons, for $10. In New York, ten buttons sell for $2 to $5, and a 10-lb bag containing 10 to 15 plants might sell for about $200. A "full moon" (a button approximately four inches in diameter) sells for $3 to $4.

The oral route is by far the most common route of administration. Users of peyote have devised many ways to avoid its gritty, bitter taste, which often induces nausea, gagging, and difficult swallowing. In party settings, the buttons, either whole or chopped up, are often brewed with tea, and then the peyote tea is drunk. For a more intense effect, the cooked buttons are chewed while the tea is sipped slowly. It is also common for persons to drink tea, coffee, wine, or even milk while chewing the peyote to help avoid the bad taste. Ground peyote may also be put in large gelatin capsules and swallowed. Two patients reported "shooting" a liquid concoction of peyote intravenously.

Peyote is often referred to as "the button," "tops," a "moon," "cactus," "the bad seed," or simply as "P."

Mescaline.—A natural alkaloid which occurs in the Mexican cactus, peyotl, mescaline was isolated by Heffter in 1898. The drug is reported to be obtained on the illicit market as a crystalline powder which can be dissolved in water or placed in various-sized gelatin capsules, or as a liquid in an ampule or vial.

The price for the drug varies, depending upon location. The most common price reported was $5 per capsule, but it was also acquired for 50 cents per capsule in New York, NY, or for $7 per capsule in Miami, Fla. An ampule sold for $1.

Most often the capsule is simply swallowed, but it may also be taken with hot orange juice or hot cocoa. "Skin popping" (subcutaneous or intramuscular injections) and "sniffing" the drug have also been reported.

"Mesc" and "Big Chief" represent the only two known nicknames for this drug. Usually the drug is referred to by its proper name.

LSD.—Lysergic acid diethylamide is a semisynthetic derivative obtained from rye ergot. Its mental effects were discovered in 1943 by Albert Hoffman, a chemist, who accidentally ingested a minute amount of the drug. It is the most potent of the hallucinogenic drugs and is also referred to as LSD-25, lysergide, and delysid.

The drug, as obtained through illicit channels, is usually deposited on sugar cubes. It has also been obtained in liquid form in small ampules, in crystalline form (in capsules or by the spoonful), or as a small white pill. The drug was also distributed on animal crackers when certain enforcement agencies declared sugar cubes to be contraband.

In the Boston, Mass, area the drug was purchased for $1 per sugar cube, whereas in New York, NY, and Miami, Fla, a cube might cost from $2 to $7. In Harlem, gelatin capsules containing powdered LSD were bought for $2 to $10 depending on the size of the capsule. One quarter of a teaspoon of LSD (equivalent to seven to ten capsules) sold for $35 while one-half spoons sold for $70 to $75.

The most popular route of administration is oral. Either the powder is dissolved in water and drunk directly or dissolved in something sweet, such as a cola drink. The drug may also be "skin popped" or taken intravenously by means of a specially constructed eyedropper. One patient reported saturating cigarette tobacco with the drug and trying to smoke it, but the "high" was not as satisfactory as when the drug was taken orally.

The drug is usually referred to as LSD but has also been called "25" (apparently from LSD-25). In the Boston area the designation "crackers" (from animal crackers) was used, and when people considered obtaining the drug they often stated, "Let's get some coffee," because the drug was frequently acquired in coffee houses. In Harlem the drug was referred to as "deeda (?)" "the beast," "the ghost," "the chief," and "the hawk."

Psilocybin.—This is one of the two active substances isolated in 1958 by Hofmann from the fungus botanically known as *Psilocybe Mexicana Heim.* We were able to obtain only limited information concerning the illegal use of this drug because of its recent discovery. For the most part, the drug is still unknown to many drug abusers. It may be obtained in either a crystalline, powdered, or liquid form. The price is reported to be the same as that for LSD. There are no known nicknames for the drug.

Drug Combinations.—Many patients claim to have experimented with various drugs used in combination with the hallucinogens. Smoking marijuana ("pot") and taking peyote, mescaline, or LSD is the most common combination of drugs. In general, the patients claim that the marijuana helps produce a "greater relaxation," a "greater sharpness," a decrease in nausea, and accentuation of the more pleasant effects produced by the hallucinogenic agents.

Opinions differ about the effects produced by narcotic drugs used in conjunction with the hallucinogens. Some claim that heroin does not "mix" with these drugs and that the combination tends to make a person feel sick. Others have used heroin or hydromorphone hydrochloride (Dilaudid) to "level off" their experience, to enable them to go

to sleep, to "bring [one] self down," to become "more earthbound," and to achieve "a slower drift."

One patient reported a very pleasant effect from the combination of mescaline and d-amphetamine tannate. Another patient claimed that he had used glutethimide (Doriden) and "goof balls" (barbiturates) to diminish the mescaline effects, while two other patients claimed they did not like the feeling produced by taking barbiturates along with mescaline or LSD.

Concerning the hallucinogenic agents themselves, it appears that they can be used interchangeably to produce similar effects.[13,14] Although some patients felt that they could distinguish these different substances from one another, for the most part the various hallucinogenic agents tended to produce similar experiences and feelings in most individuals.

Availability and Source of Supply

As a group, the availability of the hallucinogenic drugs on the illicit market tends to fluctuate much more than either narcotic drugs, barbiturates, or amphetamines. While narcotic drugs are almost always available "for a price" and barbiturates and amphetamines are constantly and easily available, the hallucinogens appear only sporadically. This may possibly be due to the following reasons: (1) the demand for these drugs is not as constant since physical addiction and withdrawal is not a problem; (2) compared to narcotics there is not the great financial gain possible; (3) many fewer people use these drugs illicitly than use barbiturates or amphetamines (estimates run 5% to 10% of those using barbiturates and/or amphetamines); (4) fewer people desire to use these drugs on a "regular" basis; and (5) these drugs are not available by prescription and few physicians use them at all.

The most regularly available drug seems to be peyote since it can be obtained in large supply as the raw material. Mescaline, LSD, and psilocybin are available much less frequently and are listed in descending order of availability.

With regard to geography, the larger cities seem to provide the greatest ease of access to these agents. Although peyote is "naturally available" in areas of Texas and Mexico, these specific areas are difficult to find and "contacts" are difficult to make. New York, NY, (especially Greenwich Village, Harlem, and lower Manhattan) is not only a source for local residents but apparently is a major point of supply for other areas, especially Miami, Fla. The other East Coast city in which these drugs were reported to be readily available was Boston, but small amounts were also available in Pittsburgh, Baltimore, and Chicago. On the West Coast, Los Angeles, San Francisco, and San Diego were centers where these drugs were available.

The source of supply, economics and method of distribution of the hallucinogenic drugs differ from the narcotic drugs. For example, it is quite common for friends to share hallucinogenic drugs with each other, and frequently they are actually dispensed at parties much in the manner that one might offer a guest an alcoholic drink. This is very rarely the case with narcotic drugs. When the hallucinogens are sold, they are not sold by "pushers" (narcotic drug peddlers) but rather by individuals who deal in barbiturates, amphetamines and "reefers" (marijuana). Pushers, in fact, tend to look down on "pill addicts," consider them to be unreliable, and want as little to do with them as possible. The hallucinogenic drug traffic is not considered as "cutthroat" as that for narcotic drugs (especially heroin) and, by and large, business dealings tend to be friendly and on a personal basis rather than purely for financial gain. In fact, "drug bonuses" are sometimes included in the transaction.

As mentioned previously, the "original" source of supply of peyote is in certain areas of Texas and Mexico. Peyote was acquired by some patients from certain Indians in Mexico and from Mexican settlers and Indians in Texas. One patient of Mexican extraction claimed that his people viewed peyote as a religious drug and there were no real taboos on its use. Other patients were able to acquire the drug by simply ordering it from a "cactus company" in Texas or purchasing it at certain grocery stores in New York City.

Mescaline, being a purified or manufactured substance, was not available "naturally." Some patients reported that they had been able to order the drug directly from a pharmaceutical house or through local drug stores. There were also reports of the drug being synthesized by college students in New York and in the Boston area. One patient actually saw the drug being made and did ingest some and found the results to be identical to mescaline he had obtained previously from other sources.

With respect to LSD and psilocybin, the source of supply was not clear. These drugs seem to be available on a very sporadic and more limited basis than mescaline or peyote. There did not seem to be any established sources where these drugs could usually be obtained.

Patterns of Usage

There appear to be three main patterns of hallucinogenic drug use. First, there are the people who are primarily and preferentially narcotic drug addicts who have used the hallucinogenic agents on one or several occasions mainly for "kicks" or "curiosity." They seldom seek these drugs and tend to use them infrequently, as for example when these agents come their way through a friend or at a party. Rarely do they take the hallucinogenic agent alone but tend to take it after a "fix" with heroin, hydromorphone hydrochloride, morphine, or some other narcotic drug to which they are addicted at the time.

Second, there are the group of people, aptly described by one of the informants as the "professional potheads," who have had extensive experience with various drugs. The most commonly used drug by this group of people is marijuana (hence the name "potheads"), but amphetamines and barbiturates are also popular. Many have had some experience with the narcotic drugs, but on the whole they tend to avoid the opiates. "Creative" and "arty" people, such as struggling actors, musicians, artists, writers, as well as the Greenwich Village type of "beatnik," tend to fall in this category. The "frustrated," "curious," "free thinkers," "nonconformists," and "young rebels," who are seeking a temporary escape also comprise this class of hallucinogenic users, according to our informants. Although the "professional potheads" enjoy the euphoric effects produced by smoking marijuana, they also tend to relish and seek out the feelings of greater insight, inspiration, and sensory stimulation and distortions which the hallucinogens may produce. They are in constant search of agents to rouse them from their apathy, to make life more meaningful, to overcome social inhibitions, and to facilitate meaningful conversations and interpersonal relationships.

Hallucinogenic agents are used by these people mainly on weekends (often "four-day weekends") or on special occasions, such as parties. It is rare for users to take drugs alone. They are mainly taken with friends or at intimate gatherings of people. The parties are of all varieties. Frequently, little conversation takes place while people are under the influence of these drugs, but they claim to experience a greater closeness and rapport with the other members of the group. One patient described having attended "basket weaving" and "lampshade making" parties where all members, under the influence of these drugs, squatted on the floor and silently attended to their tasks. At another type of party, overt sexual activities were carried out. Folk singing was also common. To quote another patient, "Mostly the people sit around trying to dig each other . . . everybody is sitting around and waiting, like on New Year's Eve, for something to happen."

Third, there are a small number of people who take the hallucinogenic agents repeatedly over a sustained period of time to the exclusion of all other drugs. The frequency of drug use during these periods of time is variable. One patient took peyote four times a day over a two-year period, while another patient took it two out of every three days over a three-month period. One patient took mescaline every day for two separate 15-day periods, while another took mescaline every two to three days over a six-month period. Still another patient took mescaline over a five- to six-month period, but he could not estimate the frequency of dosage. The patients also reported having friends who took psilocybin and LSD for long periods of time.

Generally, these patients seemed different from those in the second group, who primarily smoke marijuana. They did not take these drugs in a group for social purposes but used them mainly as a means of attaining some personal, esoteric goal. One patient talked of having achieved an increased sensitivity to nature and a greater insight into himself after prolonged peyote usage. While living by himself on Big Sur in California, he claimed to have achieved a "Christ-like state of mind" and a greater feeling of altruism. Another patient stated that as he kept taking mescaline, he was able to control his experience and attained a state of mind in which "every little thing is projected large," where he was able to see the negative and positive aspects of everything, and where "everything is real." A third patient, of Mexican extraction, kept taking peyote to "find God."

Effect on Sexual Functioning

Little is known or has been reported on the influence of the hallucinogenic drugs on the sexual drive and sexual pleasures. In general, it appears that the hallucinogenic drugs do not seem to either stimulate or diminish sexual drive. While under the influence of these drugs individuals tend to be more preoccupied with their own psychological state or their subjective experiences than with finding a sexual partner. However, once the idea of sex is suggested or comes to mind, sex not only can be consummated but the nature of the sexual act and the feelings associated with it change. The pleasures associated with the sexual act are reported to become much more intense. Although it takes longer to reach climax, the orgasm is greatly prolonged and heightened. Some patients claim that "there is nothing like sex" under the effect of these drugs; "It's just wild." For example, "If you fondle a woman's breast, she becomes the whole breast," and when orgasm is finally achieved, "it feels as though it's spilling right out of you."

In contrast to these claims, two patients found that peyote tended to suppress the sexual drive and prohibited climax. One of these stated that his organ "becomes numb" under peyote.

Addiction Potential

Almost all patients claimed that the hallucinogenic agents, unlike the narcotic and barbiturate drugs, were not addicting in the "physical" sense. Even after prolonged, sustained usage, no drug withdrawal symptoms were experienced, except perhaps for a short period of "let-down."

Although these drugs were not physically addicting, most patients claimed that they were or could be "psychologically addicting" or that habituation could take place. Some of the patients' views on this matter were revealing. One claimed that these drugs differ from heroin in that "you addict yourself with the hallucinogens, whereas heroin addicts you." Another stated that a person becomes "addicted to the feeling and not to the

drug." Other patients felt that a person had to have a psychological disorder to become psychologically addicted to the hallucinogens, mainly because the experience was more like an ordeal than a pleasure. Also, the hallucinogens "make a person ask questions about himself," while narcotics "stop" thinking. A cogent statement pertaining to the problem was given by a patient who said, "Let's be practical. . . . If a person uses a drug five days a week, every week, he is addicted."

There was more divergence of opinion among the informants concerning the matter of drug tolerance. Although Isbell et al[15] have demonstrated experimentally that tolerance to LSD develops rapidly, many patients claimed that this was not their experience. Generally, they stated that the first experience with the hallucinogens tends to be the most intense and that the intensity diminishes somewhat with increased exposure to the drugs, but they feel they can reach virtually the same "high" without increasing the amount of drugs taken. Several patients claimed that "tolerance works in reverse" with the hallucinogens in that a person becomes more susceptible or sensitive to their effects and, in time, can achieve the same "high" or effects on an even lower dosage. Of interest was the statement that they could *almost* slip back on occasion into the same frame of mind even without taking the hallucinogenic agent. Other patients felt that they had definitely become tolerant to the effects of mescaline and peyote and cited the fact that with increased usage the drug effects were less intense, lasted for a shorter time, and that they had to increase the dosage to achieve a suitable "high."

Reported Dangers

Almost all patients who had used the hallucinogens *felt* that they were relatively safe. None had heard of anyone dying from an overdose or of any consistent harmful effects. Most of the dangers seemed to be related to the psychological reactions to the drugs and the poor reality-testing which the drugs may produce, but the patients did not seem to take these very seriously.

One patient reported that the first time he took LSD it was an "overdose," which made him feel that he was going insane. He became so frightened by this feeling that he ran his head into the wall to stop the experience, asked a friend to knock him out (his friend tried to cooperate), and later, on his way to the hospital, experienced homicidal impulses toward the cab driver.

Reports of people acting out homosexual impulses, becoming more withdrawn, depressed, and paranoid when under the influence of these drugs were given. In general, these reactions cleared after the drug effects were off. However, there were also several reports of people going "insane" after prolonged hallucinogenic drug usage, but these people were reported to be "weird" even before they started on these drugs. Many felt there was a greater danger of going "insane" after prolonged amphetamine use than after prolonged hallucinogenic drug use.

There were several reports of another type of danger associated with the poor reality-testing produced by these drugs. For example, one patient reported that he knew a person who tried to stab himself since he believed himself to be invincible. Another patient told of someone taking mescaline who tried to jump off a bridge since he believed his mind and his body to be separate and that, even if his body should die, his mind would live on. Still another patient reported that a friend once tried to jump out of a window because he believed his body to be weightless. There are also reports of people walking out into the ocean but being stopped before any serious harm could occur. Two patients reported near accidents while driving under the influence of hallucinogens.

Summary

This report of hallucinogenic drug abuse is based on extensive interviews with 26 patients who have used these drugs and one patient who had intimate knowledge of their illicit use. The most frequently abused substance was found to be peyote, followed closely by mescaline, with LSD and psilocybin far less frequently used. Availability of these agents was sporadic and, in general, limited to large cities. Their distribution, economics, and pattern of use were different than those of the opiate drugs, and the greatest number of people who abused them also used marijuana, amphetamines, and barbiturates. The hallucinogenic drugs' addiction potential, dangers, and influence on sexual function are also reported.

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