LSD and other hallucinogens

Published 29 April 2010.

Hallucinogenic compounds are drugs that cause sensory distortions and hallucinations. Users may also experience strong sensations of fear or depression, but also deep emotional experiences or a feeling of oneness with the world. Primitive peoples have used hallucinogenic substances in their traditional spiritual practices and for healing purposes for thousands of years.

The term “hallucinogen” is somewhat misleading, because sensory illusions are just one aspect of the effects of these substances and are not widespread at the dosages generally used. Other terms used to refer to these substances are psychedelics, entactogenics and entheogens. The effects of hallucinogenic substances are highly individual, and the effects they produce are significantly influenced by the user’s state of mind and environment at that time. Users may experience dramatically different effects from one occasion to another. This variation may also occur within the same occasion. The somatic effects of hallucinogens (including increased heart rate and elevated blood pressure) are temporary and generally relatively mild in comparison to their psychological effects.

In terms of their chemical composition, hallucinogens are quite a disparate group. Some compounds are found in nature (certain mushrooms, plants and herbs), but others are produced partly or entirely in the laboratory. The most widely known and widely researched compound in this group is lysergic acid diethylamine, or LSD, which is a semi-synthetic alkaloid. Other known compounds include DMT, psilocybin, mescaline, Salvinorin A and MDMA. Many other compounds, such as ketamine, phencyclidine, atropine and cannabis may have hallucinogenic effects. Some new illegal hallucinogens on the market (including Bromo-Dragonfly) are so-called “research chemicals”, which were originally used for scientific research purposes. There has been insufficient research into the benefits and harms of hallucinogens in part because of strict legislation. In the 21st century, scientific research has increased following decades of inactivity.

Hallucinogens primarily affect the body via the serotonin system in the brain (particularly the 5-HT2A receptors). They can also affect other neurotransmitters (such as dopamine) and may bind to different types of receptors (including opioid, muscarinic, NMDA). These general effects may appear with medicines that affect the serotonin system as well, such as antidepressants or neuroleptics. The dosage required to produce a hallucinogenic effects may be very small: for example, the usual dose of LSD is only 50 to 150 micrograms. This dose is generally impregnated onto a small printed square of paper (called a “blotter”) which is ingested orally. There are also tablets, capsules and gels. Pure LSD is an odourless white water-soluble powder. The usual dosage of mescaline, obtained from certain cactus plants, is over a thousand times greater than LSD (around 200–300 milligrams). The natural hallucinogenic content varies among different plant and mushroom species, but levels can also be affected by the seasons.

The effects of LSD generally begin within one hour, and last for around 2 to 8 hours. The duration and strength of the effects depend on factors such as the dose ingested. Users may initially experience a slight restlessness and a sensation that things are different from normal. Their pulse rate may increase and their pupils dilate, as their sense perceptions and moods change dramatically. People who take hallucinogens aim to achieve mystical, spiritual or cosmic experiences. Users may “see” music or “hear” colours. They may feel that they are at one with the universe, that they have a deep understanding or understand the meaning of the passage of time. Users’ memories may become blended with reality. Their perceptions of distances, gravity or themselves and their surroundings may be affected. This effect gradually subsides over a few hours, after which the person may be left feeling uneasy and slightly unusual for several hours. The effects of a “bad trip” include nausea, depression, terror, delusions and panic attacks. Severely unpleasant experiences can even lead to suicide. A psychotic episode may last for several days or even longer.

Hallucinogens are not considered to cause physical dependency, nor does discontinuing their use cause withdrawal symptoms. Use of hallucinogens does not cause cravings for a new dose. It is rare for mental dependency to arise. According to estimates, only 2 to 3% of users of hallucinogens develop a dependency. Long-term use of hallucinogens leads to a build-up of tolerance, meaning that a larger dose is needed to achieve the same effect. Sensitivity returns after a break of a few days. These substances are considered to have a relatively weak effect on causing any organ or nerve damage, and no physical consequences have been shown to result from long-term use. They can, however, cause disastrous results by altering people’s perceptions of their surrounding reality and by causing severely
negative emotions. When under the effect, the user's ability to function is reduced both psychologically and motorically. Psychological problems such as depression or anxiety may arise. Risks associated with substances sold on the street include impurities, variations in strength and getting something other than the substance promised.

Hallucinogens – particularly LSD – are associated with “flashbacks”, which refers to a surprising return of the sensory illusions or perceptions experienced during use some time, even years, later. Many users continue to experience short-term sensory disorders even after the hallucinatory effects have subsided, but only a very few experience these symptoms as impairing their quality of life. The frequency of flashbacks does not seem to be affected by the scale of use of hallucinogenic substances. According to one theory, flashbacks are a behaviour learned by the brain during an abnormal period that is triggered by a particular factor, such as stress or intoxicants. Hallucinogens may trigger an underlying psychotic illness such as schizophrenia, but they do not cause such conditions in healthy people.

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For more information
The Drugs and the brain animation explains how various drugs affect the user's feelings and actions via the neurotransmitters in the brain.

References


