CHAPTER-2

DRUGS AND THEIR EFFECT

The term drugs was originally used for dried plants, or parts thereof that were used as medicine directly or following the extraction of active ingredients. In the modern parlance, the term drugs is used to refer substances of herbal or synthetic origin which, by acting on the central nervous system, may cause a state of mind different from what is considered normal. Thus, the modern definition of drugs includes pharmaceuticals, tobacco and alcohol as well as controlled substances and designer drugs. Designer drugs, as the name indicate, are designed to imitate narcotic drugs. These are substances whose molecular structure has been modified in order to optimise their effect on the one hand, and in order to bypass laws and regulations governing the control substances on the other hand. This change in the chemical formula sometimes makes the designer drugs several hundred times stronger than the drug it is designed to imitate. For example, "China White" is a designer drug that imitates heroin, "Ecstasy" imitates amphetamines and PCE imitates PCP (phencyclidine). Once designer drugs have been outlawed by the competent authorities, they are called controlled substance.

From the above, a drug can now be defined as a natural, synthetic or semi-synthetic substance that is used to produce physiological and psychological effects in men and other higher order animals. Natural drugs are active ingredients, or secondary metabolic products of plants or other living systems that may be isolated by extraction. Semi-synthetic drugs are products from

natural or botanical sources, but they have undergone a chemical process. Synthetic drugs, on the other hand, are artificially produce substances which are wholly manufactured from chemical compounds in laboratories, e.g. amphetamines, benzodiazepines, etc. Designer drugs are substances designed to imitate other narcotic drugs—more particularly opiate narcotics.

The toxic and habit forming drugs are generally classified in terms of their chemical composition, effects on the users, medicinal purposes, legality and availability etc. However, for the general understanding of the problem of drug abuse, we may refer the following classification based on the effects of drugs on the human mind or body. Drugs which are derived from botanical or natural sources are divided into three major categories: (a) Hallucinogens—under this category cannabis group of drugs namely- bhang, ganja, (marijuana), hashish, hashish oil and hallucinogenic cactus, mushrooms etc. are included; (b) Depressants, or Sedatives or Hypnotics—under this category, opiate narcotics, namely— raw opium, brownsuger, heroin, morphine and alcohol are included and (c) Stimulants—under this category cocaine, caffeine etc. are included. Synthetic drugs are also divided into three major categories—(a) Hallucinogens—under this category-LSD, PCP (phencyclidine), DOM, MDA, DMT, DET etc. are included. (b) Depressants or Sadatives—under this category analgesics, barbiturates etc. are included and (c) Stimulants—amphetamines, dextro-amphetamines, methamphetamines, mescaline etc. are included in this category. All the aforementioned drugs are capable of causing violent effects on the body and minds of their users. As the laymen are not familiar with different types of drugs that can be abused, their chemical reactions and effects on their victims, a more detailed discussion at this stage may not be out of place.

(a) Hallucinogens: Hallucinogenic drugs produce hallucination in

2. www.interpol.com/ op.cit. .......P- 1
the taker. These drugs alter the user's mood and perception. These drugs are known by several different names, such as psychotomimetic, psychedelic, illusionogenic or mysticomimetic drugs. Some people even prefer to refer them as mind-expanding drugs. Hallucinogenic drugs can have unpredictable effects, such as distorted sense of time and space, expansion of mind, illusions etc. on the minds of their user. In this category of drugs-bhang, ganja (marijuana), hashish, peyote cactus, morning glory seeds, mescaline, as well as LSD and PCP, etc. are included. Bhang, ganja (marijuana) and hashish, which are derived from the Indian hemp plant, "Cannabis Sativa", are best known and most frequently used hallucinogens. Cannabis Sativa grows wild in many parts of the world including United States of America. In India Cannabis Sativa grows wild in the forests of Andhara Pradesh, Tamilnadu, Kerala, Uttar Pradesh and Jammu & Kasmir. In the north east region, this plant is grown illegally in wide areas and smuggled out to the rest of the country. Cannabis Sativa can be used commercially in the production of fibre for ropes and bird seeds. Its products—bhang, ganja, hashish, and hashish oil, varied in strength depending upon the concentration of the chemical, tetrahydrocannabinol (THC), which is responsible for its pleasurable effects. Hashish which is produced by directly by scraping some of its resins, has a higher, 10 to 15 percent THC and more stronger than bhang and ganja. Bhang, consists of dried leaves and shoots of the plant, contains only 1 to 2 percent of THC. Ganja or marijuana comes from the flowering tops of female plants and may contain up to 5 percent of THC.

When smoked, ganja and hashish enter the bloodstream and within a very short time can alter the mood and thinking of the user. The reactions that the drugs have on the mind are unique to each person, but may include feelings of tranquility, swings from hilarity to quiet moods, changes in perceptions,

3.Aggrawai Anil, Narcotic Drugs, 1995, P-98.
distortion in perceptions of time and loss of memory, etc. Specific physical effects are reading of eyes, increased heartbeat and sometimes coughing due to the irritating effects of the smoke on the lungs. The physical changes are quite constant during and immediately after use, but the psychological changes come and go, or in some cases do not occur at all. Ganja or bhang does not cause physical dependence as do heroin and other narcotic drugs. Therefore, the body does not develop a tolerance to the drug and withdrawal of ganja or bhang does not usually produce sickness. However, many scientist believe that psychological dependence can develop from its use.4

LSD—lysergic acid diethylamide— is a much stronger, though less often used hallucinogen. Its affects are both physical and psychological. LSD can change the perceptions of the user in several ways. Colours become more vivid, outlines sharper and objects may appear larger or smaller than normal. A peculiar symptom that LSD produces is synaesthesia, that is, one stimulus produces quite a different kind of sensation. For instance, music may cause the user to see vivid colours or looking at a picture or moving a colour wheel, may creat music in the head. The body image looks distorted. The body as a whole or one limb, may seem to be enlarged or shrunk. This has been called the “Alice in wonderland” effect. Other effects on the body are also remarkable. There is increase in blood pressure, rapid beating of heart, dilation of the pupils of the eye, flushing of skin, reddening of eyes, loss of appetite, salvation, tearing, trembling etc. About 50 mg of LSD can kill an adult human being.

PCP or phencyclidine or angel dust is an acronym of the chemical name for the drug cyclohexylpiperidine. It was discovered in 1926 and is a veterinary anaesthetic. PCP is a white crystalline solid. PCP abusers feel the

4. Trojanwicz, Robert C. & Merry Morash , Juvenile Delinqueney, Concept and Control, P-326.
5 Aggrawal, Anil : op.cit P-108
onset of drug effects in two to five minutes when it is smoked, compared with 30 to 60 minutes when ingested orally. The most remarkable effects of PCP are psychological. Distortion of body images such as an enlargement of limb or a detached head laughing at the person himself, numbness, forgetfulness are the hallmarks of PCP intoxication. Another hallmark of PCP intoxication is the recurring delusion of superhuman strength and invulnerability due to the analgesic property of the drug. The other effects are trembling of the eyeballs, flushing, sweating, vomiting, retention of urine, high fever and increase in pulse rate, blood pressure and respiratory rate. There are some analogues or designer drugs of PCP leaped into the forefront of the drug scene. These are PCE, PHP, PCC and TCP. These are chemicals which are very similar to PCP in chemical structure and produces similar effect.

Besides these, there are a host of other hallucinogens which are used by addicts. These are natural products coming from various plants. They are morning glory seeds, peyote cactus and hallucinogenic mushrooms namely—panaeolus, psilocybe and stropharia. Panaelus, psilocybe and stropharia—all the three species of the mushrooms have the same active alkaloid—psilocybine and psilocine. The most active alkaloid found in peyote catus is mescaline. Peyote intoxication is characterized by a kaleidoscopically moving series of brilliantly coloured visions.

(b) Depressants or Sedatives or Hypnotics: Depressants include the derivatives of the opium poppy and similar semi-sythetic drugs such as heroin, morphine, etc. Depressants are compounds which decelerate the activities of the central nervous system and have an action opposite to that of stimulants. Depending on their strength of action, depressants are divided into three classes of drugs. The strongest are hypnotics which induce sleep.

7. Aggrawal Anil : op.cit P -118
8. Ibid.........................P-121.
9. Ibid..........................P-128
Next comes the sedatives which produce a relaxed state that can lead to sleep. Lastly, there are tranquilizers which bring about relief from anxiety, relaxation of muscles and calmness without sleep or drowsiness. Alcohol is the most common depressant abundantly abused. It depresses the central nervous system and can lead to a temporary loss of control over physical and mental powers. The toxic effects of alcohol are well known, they often cause permanent damage to vital organs like the brain, liver, heart, skin and other parts of the body. Chronic, heavy use of alcohol can lead to physical and neurological damages that is irreversible. These physical damages often lead to life threatening illness that results in premature death. The social costs of alcohol are staggering. Alcoholism is the third largest health problem in the globe. Almost half of the traffic fatalities and one third of all traffic injuries are alcohol related.

Opiate narcotics, that is, opium and pain-relieving drugs made from opium such as morphine, paregoric, codeine are belonged to depressant group of drugs. Synthetic drugs such as demerol, fentanyl, pethidine and methadone are also classified as narcotics. Narcotics are used in medicine mainly to relieve pain and induce sleep. The narcotic abusers develop a physical dependence to the drug and as the body develops tolerance, larger doses are needed to satisfy the cravings. When the narcotic is withheld or when use has been discontinued, there are withdrawal symptoms and physical trauma such as sweating, shaking, nausea and even abdominal pains and leg cramps. In addition to physical dependence, however, psychological dependence also results from narcotic use.

Heroin is the most abused narcotic throughout the world. The drug makes the person believe that his or her problems have been eliminated and he or she can deal with life more adequately. Once the drug has worn off, however, the realities of daily responsibilities and pressures become even more
acute and as a result increased dosage is usually needed to feed the habit. Heroin is self administered by addicts in a number of ways; he can orally ingest it, sniff it, inject it beneath the skin, known as "skin popping", or inject directly into the vein, known as "mainling". A number of poor people in our country take it by way of smoking. However, the most popular method of heroin intake is injection by hypodermic needles. Because of the high cost of the drug and the fact that it often reduces hunger and thirst, the heroin addicts often become malnourished and physically emaciated and therefore more susceptible to diseases like tuberculosis and pneumonia. Negative side effects, such as hepatitis, AIDS, etc. are common because of the use of unsterile needles and sharing of needles by addicts.

Besides opiate narcotics and synthetic opioids, there are a host of pharmaceutical drugs that are widely abused by addicts. The most abundantly abused pharmaceutical depressants are spasmo proxyvon, relipen, cough linctus like phensidyl, correx, tossex, tranquillisers and sleeping pills- diazepam, flunitrazepam etc. In addition to high quality low cost heroin use, the intravenous injection of proxyvon is a problem of the North East, more particularly Mizoram and Manipur. Proxyvon is a preparation of dextropropoxyphene, a legally produced analgesic and opium derivative—a drug notified as a manufactured drug under the NDPS Act 1985. It has become a drug of concern in the north east (India) region because of its irrational and wide abuse by the addict population of this region. The high market value and supply disruption of drugs like heroin in this region may lead to the abuse of synthetic pharmacological addictive surrogates like proxyvon\(^{10}\). Similarly, phensidyl, correx and tossex are preparations of codeine, a narcotic drug. There have been reports of wide abuse of these cough syrups by the addicts of north east region. There are also reports of phensidyl being smuggled into neighbouring countries like Myanmar and Bangladesh\(^{11}\).

10. www.narcoticsindia.nic.in/Proxyvon.html date 3/03/04.
11. Ibid.
(c) Stimulants: Stimulants are drugs, usually amphetamines that stimulate the central nervous system. Stimulants can increase alertness and are often used to combat fatigue, reduce depression and control appetite. In addition to amphetamines, stimulants includes cocaine, dextro amphetamines and methamphetamines. Coffee, tea and caffeine are considered as mild stimulants. Cocaine is extracted from the leaves of coca plant grown in the countries of Peru, Bolivia, Brazil, Chile and Colombia. Cocaine initially stimulates the central nervous system and then depress it. During the early stimulative phase, there is excitement, apprehension, headache, nausea, vomiting, twitching of muscles etc. There is also subsequent rise in pulse rate, blood pressure and rise in temperature—known as cocaine fever. Despite these horrifying symptoms, cocaine is taken by addicts because it initially gives a pleasurable sensation. Cocaine still enjoys the popularity as a recreational drug throughout the world.

Abuse of amphetamines and other stimulants may begin in the doctor's office as a result of a prescribed dosage which becomes abused and overextended. In some cases, over half of the legally manufactured supply of amphetamines finds its way into illegal channels for non-prescriptive use. On the other hand, there are many illegal manufacturer and supplier of amphetamines into the illicit drug market. Amphetamines, methamphetamines and dextroamphetamines are readily available in the illicit drug market. Amphetamines and other stimulants act on the central nervous system and speed up one's body reactions giving a feeling of boundless energy. The symptoms of toxicity of amphetamines are usually described along a four point rating scale. During stage 1, there is restlessness, irritability, insomnia, tremor, sweating, dilation of the pupils and flushing of face. During the stage 2, there is further increased activity, confusion, increased blood pressure, temperatures and respiratory rate. During stage 3, there is delirium, mania, self injury and more
increased blood pressure, temperature and respiratory rate. During the final stage, there are convulsions, coma, circulatory collapse and finally death\textsuperscript{12}. As with most other drugs of abuse, a peculiar psychosis develops after amphetamine use. Amphetamine psychosis is very similar to paranoid schizophrenia, a type of madness where the predominant features are suspiciousness and delusions. The typical symptoms of this psychosis are anxiety, fear, disorganization of thoughts, poor concentration, hallucinations and delusion of persecution\textsuperscript{13}. Though tolerance and physical dependence develop with amphetamine use, the withdrawal symptoms are relatively mild when compared to that of depressants such as heroin. The withdrawal symptoms include lethargy and depression. The depression may be severe and persistent to drive the patient back to drug again.

The most common amphetamine derivatives currently known from the illicit drug market can be classified as follows:

Non-ring substituted amphetamine derivative such as Methamphetamine, Ethylamphetamine, Dimethyl amphetamine, PPMA, N-Hydroxyamphetamine, N-Hydroxy methamphetamine, phenethylamine (PEA), (+)-cathine, (−)-cathinone, and amphetaminil.

Methylenedioxy-amphetamines, such as MDA, MDMA, MDE, MDDMA, N-Hydroxy-MDMA, MBDB, BDB, MMDA, FLEA and 6(2)-cl-MDMA\textsuperscript{14}.

Ring and side chain substituted amphetamines such as 2C-B, 2C-T, 2C-T2, 2C-T7, 2C-C, 2C-\textsuperscript{1}, TMA-2, DOM, DOB, DOC, DOI, DOET, Diethoxybromoamphetamine (all 2,4,5 – ring substituted orientations) and PMA(4MA), DMA(2,5 DMA), TMA, PMMA, 4-MTA, AL and MAL\textsuperscript{15}.

Ecstasy is a special manifestation of amphetamines currently pouring into the illicit drug market. Ecstasy is the tablet form of amphetamines found in

\textsuperscript{12} Aggrawal, Anil, op.cit. P-142.
\textsuperscript{13} Ibid. P-143.
\textsuperscript{14} http/www.interpol.com. op.cit. P-2
\textsuperscript{15} Ibid..........................P-2
many sizes, shapes, colours etc. There are several reasons which makes the amphetamine type stimulants (ATS) very attractive.  

**EFFECT OF DRUGS ON ABUSERS**

As the drug itself varies in form and content, its effects on the victims are also different. Different people react differently under the influence of drugs. Similarly, it produces different effects according to the geographical situations of the consumers. For example, in India, marijuana is said to induce somnambulism, while in Africa, it gives rise to a lively sense of euphoria. The effect of small dose of this drug is like early stage of drunkenness, heavy doses lead to distorted sense of time and space, illusions and hallucinations. The question whether the use of marijuana causes psychosis has aroused a lot of controversy. Writers and researchers from the eastern countries, i.e. India, Egypt, Africa and Turkey, have found the answer in the affirmative. Rigorous studies have revealed the connection between the use of marijuana and psychosis. The basic of this finding is that a very high percentage of inmates in mental asylums were found to have used marijuana. J.H.Tullwash in his article "Hemp Drugs and Insanity" has referred to a number of such reports in India. In a more recent study, J.E Dhunjibhoy also confirmed the phenomenon of "hemp insanity" in the following words. "In India, hemp drugs, whether taken in excess or moderation, over a prolonged period, produces a special form of mental disorder which is characterised by a definite train of symptoms which is fairly uniform in character  

Besides "hemp insanity" a rare phenomenon, known as "flashback" has been described in marijuana smokers. This is a strange phenomenon in which the user suddenly experiences toxic symptoms even when he is in a 

17. Aggrawal, Anil, op. cit. P-93  
18. Quoted by A. Siddique in *Criminology, Problems & Perspective*, 1983 P-411, 412  
drug free state and has quit marijuana for months. The flashback phenomenon is also one of the hall marks of LSD use. A marijuana or LSD user, even when he has quit marijuana or LSD for months, may suddenly turn violent and start running out on the streets as if in a frenzy. The user may pick up dangerous weapon, say a dagger, and go on a rampage, killing people. Once the "flashback" phenomenon wears off, the person is too aghast at what he has done. This peculiar phenomenon is also known as "Jekyll and Hyde effect"\textsuperscript{20}.

Similarly, chronic cocaine addiction may lead to a phenomenon known as "Cocaine Leaps" in which an addict may become severely agitated. A chronic cocaine addict sometimes feels that bugs are crawling underneath his skin, to the point of producing severe skin injuries. These imaginary bugs are called "Cocaine bugs" and the symptom is known as Magnan's symptom. In case of cocaine, another peculiar phenomenon known as reverse tolerance occurs, in which a particular dose is quite innocuous in the beginning, but after repeated use, the same dose may cause toxic symptoms. This has also been called the "kindling" phenomenon and occurs because of complex changes in the brain produced by cocaine\textsuperscript{21}. Chronic cocaine addicts usually have a perforated nasal septum (the cartilaginous central position that divides the nose into two nostrils) because of the sores and bleeding caused by repeated sniffing or snorting of cocaine. Such addicts may also suffer from anosmia or loss of smell\textsuperscript{22}.

Abuse of depressants including opiates and synthetic narcotics produces sensory alteration, anxiety reduction, euphoria, drowsiness, respiratory depression, constricted or pinpoint pupils etc. Smaller doses usually produce calmness and relaxation of muscles. Larger doses usually cause starred speech, impaired judgement and loss of motor coordination. Very large doses

\textsuperscript{20}Aggrawal Anil, op.cit. P-95.
\textsuperscript{21}Ibid............................. P-69
\textsuperscript{22}Ibid..............................P-69

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may cause respiratory depression, clammy skin, convulsion, coma and death. New born babies of abusers may show dependence, withdrawal symptoms, behavioural problems and birth defects. Possible withdrawal syndromes of this category of drugs are anxiety, insomnia, muscle tremors, loss of appetite etc. Abrupt cessation or reduced high dose may cause convulsion, deliriums and death. Similarly, abuse of stimulants like amphetamines and amphetamine type of stimulants (ATS) produces, sleeplessness, restlessness, dryness, euphoric over activity, trembling, lack of inhibition in behaviour, delusion etc. High doses may cause rapid or irregular heart beat, loss of coordination, agitation, increase in body temperature, hallucination, convulsion and may even lead to death.

In general, persistent abuse of any drug, in some forms or other, dulls the senses, relieves pain and induces sleep. It leads to a state of physical and psychological dependence on the drug. All forms of addiction in turn result in an alround deteriorations in the personality of the addict, including his personal care and habits. All the skills and faculties get impaired. Infact the entire life of the addict gets oriented round the drugs. What is worst, when the addict become withdrawn, becomes deceitful and untrustworthy. The abuse of drugs not only erodes his ethical senses, but also drains out the physical and moral strength with disastrous consequences. A wide range of drugs can influence people’s thoughts, emotion, sleep, appetite, social interaction and other aspects of human behaviour. Prolong use of sedatives may cause damage to liver, stomach, brain and nervous system, including loss of memory.

Similarly, constant use of stimulants and hallucinogenic drugs may lead to mental illness, depression, fear psychosis and suspicion. And the most unfortunate aspect of drug use is the rapid spread of HIV (AIDS) among the

24. Ibid.
injecting drug users (IDUs) and in the society at large. Apart from these, drug addiction also adversely affects the family of the individual abuser, law and order, and economy of both the individual abuser and the society. A normal family life can only be a dream for them. Addiction to drugs forced the addict to feed on his addiction by resorting to crimes like theft, cheating, burglary, pickpocketing, decoity and even murder. Reduce impulse control, paranoia and negligence lead the addict to commit more crimes. Drug abuse, thus, adds to the crime statistics.

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