CHAPTER – I
DRUG ADDICTION: HISTORICAL SETTING AND THE
CLASSIFICATION OF DRUGS

Introduction

The history of drugs illuminates the history of humanity and explores the long relationship between mankind and mind-altering substances. Use of drug is as old as the history of mankind. Almost all primitive and modern societies seem to have used some mood modifying drugs; and in some cases, it was only alcohol. Alcohol was made, drunk, and used to excess as far back as memory and records go. Tobacco (*Nicotiana*), hemp (*Cannabis Sativa*), opium poppy (*Papaver Somniferum*) and other plants containing drugs have been chewed and smoked almost as long as alcohol and coffee has been served in the Middle East.

In his sensational best-seller that sheds light on the unknown life of Jesus Christ, Holger Kersten states thus:

The exceptional anesthetic and sedative power of opium was well known to the Jews even in pre-Christian times… so it is certainly possible that Jesus was given opium dissolved in some liquid
while on Cross. Indeed, such a drug cocktail would have been ideal for the purposes of Joseph and his colleagues: not only was Jesus given the best of pain-killers, the dose was designed to make him lose consciousness in a short time and so be able to hang limply ‘dead’ on the Cross.\(^4\)

Moreover, on the clay tablets of Sumerians it was recorded that the juice of the poppy was “collected in the early morning”, perhaps before the eastern sun should have tempered its anodyne\(^5\). The people of lower Mesopotamia-now Iraq-cultivated the poppy plant five thousand years before Christ in order to extract its juice; jil was the name given to it; which means “joy” or “rejoicing”, and this name is still used today for opium in some parts of the world.\(^6\) Similar examples can be found in cultures as diverse as the Celts, the ancient Egyptians, the Aztecs, the Lake Dwellers in Switzerland and other indigenous people around the world\(^7\).

Wine was used atleast from the time of the early Egyptians; narcotics from 4000 B.C;\(^8\) and it was Babylonians, inheritors of Sumerian civilization, who, with their expanding empire, spread the knowledge of the poppy’s medicinal properties eastward to Persia and westward to Egypt where its use as a remedy for human ailments are known as early as 1550B.C\(^9\).
Medicinal use of *marijuana* has been dated to 2737 B.C. in China\(^\text{10}\). Hemp has been used in India since time immemorial to stimulate mental ability and sexual powers.

Aristotle’s disciple, Theophrastus testifies the use of *datura* by the ancient Greeks; and further evidence links the rites to the ingestion of a hallucinogen. The Greeks too, learned its uses, for it is from their word *opion*, juice of the poppy, Latinised word comes. The poppy was old in Greek Legend before Homer in *Iliad*, recounting a decoction of it used by Helen of Troy, said that it had the power of *forgetfulness of pain and the sense of evil*. But not until the 19\(^{\text{th}}\) century A.D was the active substances in drugs extracted.

There followed a time when some of these newly discovered substances *morphine, laudanum, cocaine* were completely unregulated and prescribed freely by physicians for a wide variety of ailments. They were available in patent medicines and sold by travelling tinkers, in drugstores, or through the mail. During the American Civil War, *morphine* was used freely; and wounded veterans returned home with their kits of *morphine* and hypodermic needles. Opium dens flourished\(^\text{11}\). Napoleon’s army, returning from Egypt, introduced *cannabis* (*hashish, marijuana*) into France. Avante-garde artists and writers in Paris
developed their own cannabis ritual, leading, in 1844, to the establishment of *Le Club de Haschischins*\(^{12}\).

The use of dependence producing drugs in India also has long traditional and social roots\(^{13}\). Near the end of the nineteenth century, it was realized that *cocaine* was being used in certain parts of the States of Bengal and Bihar for its euphoric effects. The habit spread to large towns such as Calcutta and others. The habit appears to have spread along the main rail routes to northern India\(^{14}\).

But the problem of drug abuse became acute in the decades following World War II. Though drug abuse includes usage of many drugs including alcohol, cannabis, heroin and opium and the various derivatives such as cocaine, cannabis, hashish etc., a brief history of drug addiction due to very common drugs *viz.* alcohol, opium, cannabis, morphine and cocaine has been discussed below to elicit out dimensions of drug abuse in India:

**Traditional Drugs**

- **Alcohol**

  Alcohol can be said to be man’s oldest drug\(^{15}\). In India, it has been used from time immemorial.\(^{16}\) Post-independent India is no exception to
widespread alcoholism\textsuperscript{17}. In 1976, the Government of India appointed a committee with the Director General of the Indian Council of Medical Research as its Chairman to examine the extent of alcoholism and drug abuse in India. The committee concluded that alcoholism is a growing menace and the Government should take serious steps to arrest it\textsuperscript{18}.

- **Opium**

The word “\textit{opium}” is derived from the Greek name of “\textit{juice}”. One can infer that opium smoking (and eating) in ancient civilization was done for pleasure. The Sumerians prepared opium 5000 years before Christ. Opium was first used in Assyrian medical tablets from the 7\textsuperscript{th} century B.C.\textsuperscript{19} The earliest mention of opium, as a product of India, was made by the traveller Barbosa in his description of the Malabar Coast in 1511; and the Portuguese historian Pyres in a letter to King Manuel of Portugal in 1516, spoke about opium of Egypt and Bengal\textsuperscript{20}. By the beginning of the Christian era, opium was chiefly produced in Asia Minor. There, it attracted the attention of the Nomadic\textsuperscript{21}. Arab traders have spread opium poppy in India and China\textsuperscript{22}. Opium was known in India in the 9\textsuperscript{th} century and it was undoubtedly widely known in the country in the 15\textsuperscript{th} century, when the Portuguese first came to Calicut in 1498. Opium was an article of trade taken from Arabia to Calicut and other places. It may be
concluded that opium was not an indigenous product of India. It was introduced by the Mohammedans.\textsuperscript{23}

Abdul Fazal stated in \textit{Ain-i-Akbari} that poppy was cultivated in Fatehpur, Allahabad and Gazipur.\textsuperscript{24} There is no doubt that it was extensively cultivated during the Moghul rule, not only in Bengal but in Orissa also. After the fall of the Moghul Empire in 1757, the monopoly of cultivation of poppy passed into the hands of the East India Company. In 1788, Warren Hastings brought whole of the opium trade under the control of the Government. As a result, large quantities of Indian opium exported to China were shipped from Calcutta Port\textsuperscript{25}.

Opium has also been used for socio-cultural reasons in different parts of the country.\textsuperscript{26} After independence in 1947 and with the promulgation of the Constitution of India in January 1950, control over the cultivation and manufacture of opium throughout India passed into the hands of the Government of India. In November, 1950, the Government of India took the first step intended to unify and rationalize the system of control over the production of opium throughout the country by setting up a central organisation known as the Central Bureau of Narcotics headed by the Narcotics Commissioner with the task of superintendence and control over licit cultivation
and production of opium. India being a signatory to the International Convention on Narcotics Drugs, 1961; and a party to the UN Drug Convention, 1988, her policy with regard to cultivation of poppy is guided by International obligations to restrict production of opium to the quantity required domestically; and for export for medicinal and scientific purposes.

India is a traditional producer of licit opium for medicinal and scientific purposes. It is grown mainly in three States viz, Uttar Pradesh, Rajasthan and Madhya Pradesh under official control of Narcotics Commissioner. Licenses are issued by Central Bureau of Narcotics to eligible cultivators of the above States, subject to the conditions laid down by the Central Government.

The control strategy include: restriction of cultivation of opium poppy in selective notified tracts, cultivation by licensed cultivators, a cent percent measurement of the poppy fields, intensive field inspection, test measurement and preliminary weighments of opium produce immediately after collection of the latex, early purchase of opium by the Narcotics Department, payment of price of opium on slab-basis to the cultivators and intensive vigilance and checks by preventive squads.
The Central Bureau of Narcotics is headed by the Narcotics Commissioner who is assisted by the Deputy Narcotics Commissioner, each in-charge of above mentioned three opium growing States. The Deputy Narcotics Commissioner is assisted by the Assistant Narcotics Commissioner; and below him, there are District Opium Officers. The District Opium Officer issues licenses every year as per the policy framed for that year. The District Opium Officer, with the assistance of the field and preventive staff exercises control over cultivation and procurement of opium produced. He undertakes preventive measures to check diversion of opium into illicit channels. In addition, there are Preventive Cells located at vulnerable points to undertake preventive checks.²⁸

The Government of India issues the notification specifying the tracts in which poppy cultivation would be carried out every year. The policy also lays down the guidelines for issuing licenses to different categories of cultivators; and prescribes the area to be cultivated.²⁹

It also specifies the minimum yield of opium in Kgs/hectare which a cultivator must have tendered the previous season to be eligible for licence. Thus, no cultivator can cultivate poppy unless he has specific licence issued to him every year; and that too, on the area specified in that licence. If any
cultivator violates this provision and cultivates illicit opium, he commits an offence.\textsuperscript{30} The preventive staff is deployed on strategic and vulnerable routes to exercise preventive checks to ensure that the cultivators do not divert their opium to the illicit channels.

Once the lancing period is over, the Narcotics Department sets up weighment centres and summons the cultivators to tender their entire product to the government.\textsuperscript{31} The entire opium produced by all farmers is purchased by and only by the Central Bureau of Narcotics at a price fixed by the Central Government.\textsuperscript{32} This definitely prevents diversion to the illicit market. However, the fact remains that though the Central Government raises the Minimum Qualifying Yield (MQY) and the official prices are paid to the farmers, some of them are diverting part of their harvest to the illegal market.\textsuperscript{33}

- **Cannabis**

The use of cannabis plant for a variety of purposes has long existed in India and many other Asian countries\textsuperscript{34}. Archaeological evidence indicates that cannabis cultivation dates back to 6000 BC; religious and mystical use of cannabis in Indian societies was reported from the 7\textsuperscript{th} century AD.\textsuperscript{35} Until the 1980s cannabis consumption does not appear to have been regarded as an issue
of major social concern in India, with little or no official mention of excessive use. Prevalent socio-cultural regulations with regard to the form of use, mode of consumption, context of use and profile of users, ensured a system of use management that limited drug use within the country.\textsuperscript{36}

- Morphine and its Derivatives

  Morphine derived from opium was well-known in ancient times and was used as far back as 4000B.C. In the 15\textsuperscript{th} century, Paracelsus (1493-1541), the Swiss physician, gave the name “landanum” (from the Latin ‘\textit{landare}’ which means “to praise”) to preparations of opium.\textsuperscript{37}

  With the passage of time, the pattern of use and self administration of opium drugs has changed. From smoking of opium, sniffing of heroin, subcutaneous injection of morphine or heroin, the methods of i.v (intra-venous) self-injection etc. have been adopted in recent times. The hypodermic syringe was discovered by Rynd of Dublin in 1845 and Wood of Edinburgh in 1853\textsuperscript{38}. The invention of the syringe shortly before the American Civil War (1861-65) led to enormous use of morphine for battle injuries, relief of pain or anxiety, the induction of relaxation and sleep and the alteration of a state of consciousness\textsuperscript{39}. The hypodermic use of morphine as a drug of addiction has
become in western countries the most common method of administration. In 1898, a further impetus was given to the use of opium through the discovery of heroin by Dresser in Germany.

- **Cocaine**

  Sigmund Freud, the Austrian psychoanalyst (1856-1939) while treating many deeply disturbed cocaine addicts, noted the numbing effect of the drug\textsuperscript{40}. He brought this effect to the attention of the clinical pharmacologist, Carl Koller, who introduced cocaine as a local anesthetic into surgical procedures. Cocaine’s potential for addiction was known and used with sinister intent by South American Indian chiefs hundreds of years ago.\textsuperscript{41}

**Definition of “Narcotic Drugs” and “Psychotropic Substances”**

There are no universally accepted definitions of the expressions ‘narcotic drugs’ and ‘psychotropic substances’.\textsuperscript{42} A “narcotic drug” in medical parlance means “any drug that numbs the body and induces sleep”. The term is derived from the Greek word ‘Narkotics’ meaning ‘numbing’\textsuperscript{43}, which in turn, comes from the Greek word ‘stupor torpor,’ the phrase used for designating numbness\textsuperscript{44}. Some medical experts have defined ‘narcotics’ as...
‘those drugs that relieve pain and produce sleep or stupor; eg: opium, morphine pethidine,’ etc. \(^{45}\) “Narcotic” is generally used to refer to a class of drugs that are central nervous system depressants, which produce insensibility or stupor. The expression “narcotic” as ordinarily used, refers to opioid\(^{46}\), i.e., opium, the derivatives of opium and their semi synthetic or wholly synthetic substitutes.\(^{47}\)

In 1931, when the Conference which adopted the Convention for Limiting the Manufacture and Regulating the Distribution of Narcotic drugs 1931, asked the sub-committee comprised of technical experts to suggest a definition of the expression “narcotic drugs”, the Committee expressed its inability to frame a precise definition. The difficulty was partly one of language: several terms would be required to indicate with scientific precision, the different kinds of drugs covered by the Convention, some of which were narcotic and habit-forming and some were neither narcotic nor habit forming but were convertible into habit-forming narcotic drugs.\(^{48}\)

To avoid confusion caused by various contradictory definitions and to reflect more accurately the medical uses and mechanisms of action of this class of drugs, the term “narcotic” has largely been replaced in recent medical literature by the terms opiate (a preparation of opium or compounds derived
from opium) and opioid (a non-opium compound with a mechanism of action similar to that of opium). A further uniformity of usage is being achieved through the tendency of researchers to use only opioid even where opiate would be technically correct.

Narcotics are clinically used in treatment of pain, cough and diarrhea. They produce a general sense of well being by reducing tension, anxiety and aggression. These effects which are useful therapeutically are also the reasons for their abuse. Unwanted effects of use of the narcotics are: drowsiness, apathy, inability to concentrate, lessened physical activity, dilation of the subcutaneous blood vessels causing flushing of face and neck, constriction of the pupils, constipation, nausea, vomiting and respiratory depression. With repeated use of narcotic drugs, tolerance and dependence develops. Tolerance is characterized by a shortened duration and decreased intensity of analgesia, euphoria and sedation.

A “psychoactive drug” or “psychotropic substance” is a chemical substance that acts primarily upon the central nervous system where it alters brain function, resulting in temporary changes in perception, mood, consciousness and behaviour. These drugs may be used recreationally to purposefully alter one’s consciousness; as entheogens for ritual or spiritual
purposes; or as medication.\textsuperscript{52} The expression ‘psychotropic substance’ is derived historically rather than pharmacologically in its connotation\textsuperscript{53}.

The drugs grouped as psychotropic substances either in the Convention on Psychotropic Substances, 1971 or in the NDPS Act do not have any common characteristics to justify their grouping as psychotropic substances as distinguishable from the group of narcotic drugs. It was the international concern against the increase in cases of poisoning brought about by amphetamines, a group of stimulants in many parts of the world that culminated in the Convention on Psychotropic Substances, 1971. Those substances that were not under international control at that point of time, which belonged to the group of substances known as stimulants, barbiturates, tranquilizers and hallucinogens were sought to be brought under the international control envisaged under the Convention on Psychotropic Substances, 1971. As mentioned earlier, some of the substances belonging to these groups like cocaine have already been grouped as narcotic drugs under the Single Convention on Narcotic Drugs, 1961.
Classification of Psychotropic Drugs.

Psychotropic drugs are classified according to their most prominent behavioural effect, as follows:

1. Soft drugs
2. Hard drugs
3. Narcotic analgesics
4. Alcohol
5. Sedative hypnotic and anti-anxiety agents
6. Psycho-stimulants
7. Hallucinogens
8. Inhalants and Volatile solvents

- **Soft Drugs**

  *Soft* drugs are generally drugs that can be harvested and consumed in a potent form with little or no processing and which are perceived to have less potential for causing physical or mental health damage to the user than *hard* drugs. Marijuana (cannabis) is the most commonly cited soft drug: psychedelic mushrooms also fall under this category. Opium is usually not
characterized as a soft drug because of its high potential for addiction. Soft drugs include: *cannabis*, *mescaline*, *psilocybin*, and *LSD*.\(^{57}\)

- **Hard Drugs**

  The term “hard drugs” is usually used to denote heroin and crack cocaine, the concentrated pharmaceutical preparations naturally occurring from opium poppies and coca plant respectively.\(^{58}\) Hard drugs include: heroin, morphine, pethadine, cocaine and methamphetamine.\(^{59}\) Both heroin and cocaine are used extensively in the medical field as powerful painkillers too.

  Classification of drugs into *hard* ones and *soft* ones seems to be irrational; since it is the drug using behaviour that determines the harmful consequences rather than the choice of drugs: all drugs can be harmful if misused. Hence, the terms when applied to drugs have no legal or pharmacological validity. It is therefore suggested that the distinction should be according to their toxicity and addictive potential.\(^{60}\)
• **Narcotic Analgesics.**

Natural opium, synthetic or semi synthetic opiates, methadone, morphine, pethadine, heroin, buprenorphine etc. falls under this category. They relieve pain and produce sleep and sometimes unconsciousness. It contains alkaloids like morphine, codeine, papaverine etc. Pethadine and heroin are synthetic drugs related to morphine. Morphine is one of the most powerful analgesics. It relieves severe pain in acute myocardial infraction, burns, fracture of bones, terminal stages of cancer etc. It also produces a feeling of well being, reduces excitement and induces sleep. Because of these properties, morphine and other opioids are widely abused. Prolonged use may result in emotional and physical dependence. Morphine dose of 10-15 mg. are usually used by injection. Doses of 250 mg is fatal; and excessive use may result in respiratory depression, point pupil, cyanosis, reduced body temperature and urinary output, fall in blood pressure, shock and coma. Pethadine is another commonly abused opioid especially by hospital workers and medical practitioners who have easy access to it. It is also taken by injection. Heroin is the most favourite narcotic drug among addicts. It can be taken through mouth or on a stuff or by injection. Reactions of heroin are similar to that of morphine.
- **Sedative hypnotic and anti-anxiety agents.**

  Alcohol, barbiturates, non-barbiturate sedatives (e.g. methaqualone, benzodiazepines etc.) come under this category\(^6\). The intoxicating effect of alcohol has been known since ancient times. Alcohol in small dose is an appetizer, moderate doses act on the brain and relieves anxiety, remove inhibitions, and produce *dysphoria* (a feeling of well being).

  As the dose is increased, mental and physical efficiency is reduced and consequently there will be unsteadiness, slurring of speech, defective judgment and increased chances for accidents.

  Alcohol provokes sexual desire but reduces the performance. Heavy and continuous alcohol drinking may result in malnutrition with B-complex deficiency, cirrhosis, peripheral neuropathy and alcohol dependence.\(^6\)

  De-addiction may result in withdrawal symptoms characterized by sweating, abdominal pain, vomiting, disorientation in time and space, hallucinations, delusions, sleeplessness and in severe case; *delirium tremens*\(^6\). Drugs like barbiturates, benzodiazepines\(^6\), methaqualone (mandrax) etc. are
used to reduce excitement, induce sleep, and treatment of epilepsy. Prolonged administration may result in dependence. Methaqualone has a high abuse potential when compared to diazepam\textsuperscript{69}.

- **Psycho stimulants**

  Cocaine, amphetamine, caffeine, nicotine etc. are psycho-stimulants\textsuperscript{70}. Cocaine is a central stimulant and local anesthetic. Cocaine is marketed in the form of powder and usually administered by inhalation. Cocaine administration result in excitement\textsuperscript{71}, elevation of mood, increased muscular activity and suppress the sense of fatigue and hunger\textsuperscript{72}. With large doses, blood pressure and heart rate increases. D-Amphetamine or Dexedrine has high abuse likelihood; especially among students. Amphetamine in usual doses produce alertness, increases self confidence and concentration, elevate mood, produce wakefulness, delays fatigue and hunger, and improves physical performance. But in large doses, there is marked excitation, mental confusion, hallucinations, dilution, convulsions etc. In susceptible persons, a single dose may precipitate psychosis. Repeated use may result in dependence. Amphetamine and cocaine are usually taken by students, drivers and athletes to overcome fatigue and sleep.
- **Hallucinogens**

  The name is derived from their principal effect; namely, the formation of a “dreamy state, totally cut off from reality” (almost in a world of temporary madness). Hallucinogens include: LSD, cannabis, mescaline, psilocybin, etc.\(^73\) It produce a dreamy state, disorientation, loss of contact from reality, mental confusion, visual illusions and blurring of vision. Serious effects include psychotic reaction with suicidal tendency.\(^74\)

- **Inhalants and Volatile solvents**

  Volatile solvents include: toluene, acetone, carbon - tetra - chloride, benzene, lacquers, and cigarette lighter fluid, paint thinner and xylene\(^25\). The glue, correcting fluid etc, are sniffed from smears on rags, from plastic bags, or directly from tubes. This may damage the brain, kidney and liver.\(^76\)

- **Cannabis**

  Cannabis is usually administered by smoking in the form of cigarettes. Smoking a marijuana cigarette may produce an increased sense of
well being, feeling of relaxation, hallucinations, delusions, sense of strangeness and unreality about self; impairment of judgment, concentration and memory; and loss of interest in personal appearance.77

Various Forms of Narcotic Drugs and Psychotropic Substances Commonly Available in the Market.

Different forms of drugs manufactured from cannabis, opium and synthetic drugs are readily available in the market. The major ones are extracted hereunder:

- **Opiates**

  Poppy plant was cultivated in the ancient civilizations of Persia, Egypt and Mesopotamia. Archaeological evidence and fossilized poppy seeds suggest that *Neanderthal* man may have used opium poppy over thirty thousand years ago. Less controversially, the first known written reference to poppy appears in a Sumerian text dated around 4,000 B.C.78 Hippocrates, the father of modern medicine, was one of the first to describe the medicinal use of opium. He prescribed it frequently. Greek physician Galen who practiced in the Roman Empire in the 2\textsuperscript{nd} century, created a recipe called *Mithridate*, using opium.
Opium is the dried resin of the poppy plant—*Papaver Somniferum*. It owes its activity to the presence of a number of alkaloids of two groups, *viz.* the *phenanthrene* and the *isoquinoline*.\(^{79}\) Crude opium is dark brown in colour when fresh but becomes black when dried. It occurs in more or less rounded, irregular, flattened masses. It has a characteristic smell and a bitter taste. The principal alkaloids of opium used in medicine are morphine and codeine.\(^{80}\) The other four main opium alkaloids, which occur naturally in larger amount are narcotine, thebaine, papaverine and narceine. About twenty other alkaloids exist in opium but they have little or no significance, *medically* or *economically*. A number of other “opium alkaloids” are commercial products and are used medically, but they are not obtained directly from opium, but by conversion of morphine, codeine and thebaine.\(^{81}\) Apomorphine, prepared from morphine, is chiefly used as anesthetic. Cases of poisoning may arise from any of the preparations which contain opium or its alkaloids or their derivatives.\(^{82}\)

Opiates have sedative effect on the central nervous system that causes drowsiness and sleep. Due to its effect on the respiratory centre of the brain, respiration becomes slower. Regular usage causes physical and psychological dependence and tolerance. Abstinence syndrome occurs when administration of the drug is discontinued\(^{83}\).
Opioid drugs can have other important physiological effects such as constipation, dry mouth, dizziness, head ache, decrease in the cough reflex, in ability of the urinary bladder or gallbladder to empty, nausea and vomiting, change in the amounts of certain hormones released by the pituitary gland, and depression or even complete inhibition of breathing.\textsuperscript{84}

The strong morphine-like analgesics have been subjected to abuse due to its ability to produce an intense feeling of pleasure or well being. The withdrawal symptoms include: restlessness, muscle and bone pain, insomnia, involuntary leg movements\textsuperscript{85} etc.

Intravenous injection, the most common mode of opioid self-administration by addicts, can result in a number of serious medical complications including hepatitis, AIDS, bacterial infection of heart and other organs. Anaphylactic shock (extreme hypersensitive response) may be caused by impurities present in illicit heroin. Realizing these dreadful consequences, various national and international agencies are co-operating in attempts to control cultivation and manufacture of, and traffic in, habit-forming drugs\textsuperscript{86}.
• **Morphine**

Morphine was isolated from raw opium in 1805 by a German pharmacologist, Friedrich Wilhelm Adam Serurner (1783-1841)\(^{87}\). It was not only the first alkaloid to be extracted from opium, but the first ever alkaloid to be isolated from any plant.\(^{88}\) Since then, criminal use of morphine has tended to be confined to the medical profession alone\(^{89}\). A simple reason for this is the medico’s easy access to this drug. In 1853, the French physician, Charles Gabriel Pravaz (1791-1853) invented the first practical metal syringe provided with a hollow needle, known as the hypodermic syringe, which facilitated easy use of drugs.

Morphine is very sparingly soluble in cold water, but dissolves in boiling water easily—about one part dissolving in 500 parts of boiling water. In fact, these days, morphine is extracted by putting raw opium in boiling water, removing the undissolved opium gum and processing the solution. Morphine is officially prepared in blocks of about 7.5cm × 10 cm × 2.5 cm in size, weighing about 300 to 350 gms and sometimes marked with the trade marks ‘999’ or ‘AAA’\(^{90}\)
Use of morphine results in psychic and physical dependence. Tolerance develops on repeated administration. Morphine was first used medically as a painkiller and, erroneously, as a cause for opium addiction. While opium is either eaten or smoked, morphine is eaten or taken by injection. The effect of opium, when smoked, is similar to that when ingested, and this is rather remarkable when the extremely small quantity of alkaloid which can possibly be absorbed is considered. The morphine habit (morphino-mania or morphinism) often acquired as a result of its regular use for the relief of pain, may consist of determined indulgence in morphine or heroin injections, or mere craving for chlordane or codeine. Heroin is also used in the form of snuff. Dangerous side effects or death can occur when alcohol is combined with morphine.

Because of the user’s rapid development of tolerance and the high physical dependence induced, larger and larger doses are required to remain normal. The difficulties in getting the drug and cost of procurement forces the user into antisocial and criminal activities.

- Thebaine

In 1835, the French chemist, Pierre Joseph Pelletier (1788-1842) isolated thebaine from opium. Thebaine is an opiate alkaloid. Although
chemically it is similar to morphine and codeine, it produces stimulatory effects like convulsions rather than depressant effects, which morphine and codeine produce. Although thebaine is not used therapeutically, it is converted into a variety of compounds such as codeine, hydrocodone, oxycodone, oxymorphone, naloxone, naltrexone etc. that have therapeutic uses.  

- **Heroin**

Whenever morphine is used in killing pain for some length of time, the patient invariably becomes an addict. Addiction is a necessary evil, so to say. A number of poor people in our country take it by smoking. For this, a metal foil from an empty cigarette pack is taken and the white powder spread over it in the form of a straight line. The addict makes a straw from a paper and puts one end of it into his mouth. The other end of the straw is kept a few millimeters away from one end of the powder line. A match is lit and the flame is put beneath the foil. This vaporizes some of the powder and the addict sucks it through the straw lustily. The flame advances along the line beneath the metal foil and at the same time the straw is advanced along the line above it, with addict puffing furiously all the time. In this manner, the addict goes back and forth along the line, till all the powder is consumed. This peculiar way of inhaling the heroin smoke has given rise to the expression ‘chasing the dragon’.
Some addicts keep a metal coin between their teeth and lips. This is supposed to ‘catch’ the impurities. When the addict is short of drug supply, this coin is scraped and whatever drug is recovered is used.\textsuperscript{97}

The most popular method of heroin intake is, however, injection by a hypodermic needle. Consuming the drug by mouth or by sniffing does not give rise to as intense a pleasure as by injecting it directly into a vein. This is because the stomach juices break down the drug. In addition, the veins carrying the drug from the stomach first pass through the liver, where most of the remaining drug is broken down further. For this very reason, whenever doctors want to give morphine to their patients for medical reasons they do so by injection. Shy-beginners take heroin by mouth, but most of them later turn to the needles. Regular use of heroin can lead to tolerance: the users need more and more drug to have the same effect, and by continuous use, body becomes dependent on heroin. If they stops heroin, withdrawal symptoms like restlessness, muscle and bone pain, diarrhea, vomiting and cold flashes, are visible.\textsuperscript{98}

It has been reported that Asia is seriously affected by heroin traffic and abuse\textsuperscript{99}. The heroin consumed in most of the Asian countries is produced either in Afghanistan or Myanmar. Although the production of \textit{Golden Triangle}}
heroin does not seem to have increased since 1997 compared with the up-surring illegal methamphetamine production, its immense stockpile still supplies international markets. Australia and North America are identified as two of the major international heroin markets for *Golden Traingle* heroin as well as the East and Southeast Asian Countries.

- **Codeine**

  Codeine which is widely used for relief from moderate pain and cough suppression is a naturally occurring narcotic in medical treatment.\(^{100}\) Codeine is an alkaloid of opium which is the mostly used narcotic drug. It is a less effective analgesic compared to morphine. Most codeine is synthesized from morphine; and the pharmacological profile of codeine is comparable to that of morphine. Tolerance to codeine develops much as with morphine. Qualitatively, codeine and morphine have similar physical dependence-producing properties. Dihydrocodeine, a derivative of codeine, is a more potent analgesic. Pholcodine, another derivative of codeine is used in cough syrups. Codeine in combination with glutethimide (Doriden) or carisprodal (Soma) are available in the illicit market.\(^{101}\) Adverse impacts of codeine include: vomiting, drymouth, mitosis, hypertension, urinary retention etc.\(^{102}\)
• **Buprenorphine**

Buprenorphine is a semi-synthetic opiate derived from thebaine, an alkaloid of opium with low abuse potential. It is a pain killer that has been around for decades. When taken, it produces euphoria effect and causes physical dependence. Various countries including India report misuse of buprenorphine. Buprenorphine is available in a hydrochloride form in India, which is injectable. Some of the brand names of buprenorphine which are available in India are Norphine, Tidigesic etc. It is scheduled, to be approved by US Food and Drug Administration (FDA) for using it as an opiate reversal drug for heroin use, and the name will be Buprenex.

• **Hydromorphone**

Hydromorphone is a drug developed in Germany in 1920; and introduced to the mass market to relieve moderate to severe pain and severe painful dry coughing. It is two to eight times potent than morphine. It is marketed both in tablet and injectable forms. Its tablets are dissolved and injected by addicts as a substitute for heroin. Hydromorphone and related
opioids produce major effects on the Central Nervous System (CNS) and gastrointestinal tract.

- **Oxycodone**

  Oxycodone is a white odourless crystalline powder synthesized from thebaine, an alkaloid of opium\textsuperscript{106}. Although the effects produced by oxycodone are similar to that of codeine, it is more potent than codeine and has a higher dependence potential. It is effective orally. It is marketed in combination with aspirin (Percodan) or acetaminophen (Percocet).\textsuperscript{107}

- **Hydrocodine**

  Hydrocodine is a semi-synthetic opioid derived from codeine and thebaine which is used as an orally active analgesic and anti-tussive. It is potent than morphine, and is available in tablet, capsule and syrup form. 5 mg. of hydrocodine is equivalent to 30 mg. of codeine when administered orally. Hydrocodine is considered to be morphine for all practical purposes.\textsuperscript{108}

- **Meperidine**

  Meperidine was introduced in 1939 for reducing pain associated with muscle spasms. It is commonly abused on the mistaken belief that it has
little potential for addiction. Clinically, it is used for relief from moderate to severe pain in obstetrics and post-operative cases. Its effects are similar to that of morphine. Meperidine is available in tablets, syrups and injectable forms.\textsuperscript{109}

- **Methadone**

Methadone is a rigorously well-tested medication that is safe and efficacious for the treatment of narcotic withdrawal and dependence. Methadone was first synthesized during the Second World War in Germany in 1937 and used as an analgesic. It was first synthesized by German Scientists Gustar Ehrhart and Max Bock Muhl.\textsuperscript{110}

- **Levo-alphacetylmethadol (LAAM or ORLAMM)**

Levo-alphacetylmethadol is closely related to methadone and has a longer duration of action that extends from 48 to 72 hours. It is under investigation for use in de-addiction treatment programmes.\textsuperscript{111}

- **Pethidine**

Pethidine has proved to be a new model for chemical modification, which led to the synthesis of hundreds of compounds; for
instance, alphaprodine (1, 3-dimethyl -4-phenyl - 4 - propionoxypiperidine) fentanyl (1-phenethyl-1-4-N-Propionylanilinopiperidine) etc. Pethidine or meperidine is a colourless, crystalline powder with a bitter taste. Like other potent analgesics, it causes some degree of euphoria and therefore it is not free from the risk of addiction. It is administrated mainly by the intramuscular or intravenous route for its analgesic, antispasmodic and sedative properties. Its analgesic effects are similar to that of morphine. While the relief associated with it is not as complete as that with morphine, it is better than that with aspirin.\textsuperscript{113}

An overdose, on account of cerebral excitation, has effects similar to atropine or cocaine. The symptoms include: flushed face, dilated pupils, disturbances of vision, dry mouth, tachycardia, raised temperature, vomiting, excitement, tremors, constipation and convulsions.\textsuperscript{114} These may be followed by drowsiness, coma, and death from respiratory depression.\textsuperscript{115}

- **Dextropropoxyphene**

Dextropropoxyphene was first marketed in 1957 under the trade name ‘Darvon’. It is a mild opioid analgesic derived from methadone. It has less addictive potential. It is used for relieving mild to moderate pain. Oral
analgesic potency is one-half to one third than that of codeine, with 65mg approximately equivalent to about 600 mg of aspirin.\textsuperscript{116}

- **Fentanyl**

  Fentanyl was synthesized in the late 1950s in Belgium and was put into clinical use in 1960 as an intravenous anesthetic under the trade name- ‘sublimaze’.\textsuperscript{117} The effect of fentanyl is similar to that of heroin and is hundred times more potent than heroin. Analogues of fentanyl are alfentanil, an ultra-short acting analgesic and sufentanil, an exceptionally potent analgesic for use in heart surgery that may cause death on overdose.\textsuperscript{118} It is used extensively for anesthetic and analgesic purposes.\textsuperscript{119} Carfentanil is an analogue of fentanyl with an analgesic potency 10,000 times that of morphine and is used in veterinary practice to immobilize certain large animals.\textsuperscript{120}

- **Pentazocine**

  Pentazocine is a synthetically prepared potent analgesic. In smaller doses, it produces euphoria. Its use is limited to treating chronic pain due to its comparatively short duration of action and its narrow therapeutic range. With prolonged use, pentazocine is capable of producing mild morphine-like psychic dependence, which is qualitatively different from that produced by morphine-
type drugs. It results in tolerance also. The dependence ability of the drug compared to that of morphine-like substances, is low.\textsuperscript{121}

- **Depressants**

Depressants also known as “downers” that induces sleep and relieves stress and anxiety, had been used by all civilizations. A number of substances that induce central nervous system depression have been developed. These drugs have been referred to as sedatives, hypnotics, minor tranquilizers and anxiolytics.\textsuperscript{122} Due to their wide legitimate use, abusers obtain these drugs from legitimate sources like manufacturers and pharmacists. Of all the drugs, alcohol is the most common depressant.

- **Barbiturates**

Barbiturates were first introduced for medical use in the early 1900s\textsuperscript{123}. They are commonly called “sleeping pills.” The most frequently abused ones are the short acting, *Nembutal and Sconal*; and the potent, *Tuinal*. Barbiturates depress the central nervous system, decreasing the action of the heart, skeletal muscles, nerves, and lungs. Stronger dose may cause a reeling gait, impaired
senses of taste and smell, stomach distress, and difficulty in swallowing. Very strong dose may result in coma or death. In moderate quantities, it produce a state of intoxication similar to that caused by alcohol. Barbiturates, which fall within the group of depressants, are used as sedatives, hypnotics, anesthetics and anticonvulsants; and are classified as ultra-short, intermediate and long-acting. Barbiturates account for many automobile accidents, suicides and accidental deaths. One reason is that person taking barbiturates may forget how many pills they have taken, resulting in accidental overdose.

- **Benzodiazepines**

Chlordiazepoxide, the first benzodiazepine – a minor tranquilizer, ever known was synthesized by Dr. Leo Sternbach in 1955. It was marketed under the trade name ‘Librium’ and was prescribed for anxiety. They are widely prescribed as tranquillizers and sleep-inducing medications. Several other drugs in the benzodiazepine family were synthesized by the researchers while determining the chemical structure of chlordiazepoxide. Diazepam, a drug of this group was found to be much more potent as a treatment for anxiety. Prolonged use leads to physical dependence. The withdrawal syndrome is similar to that of alcohol, and lasts longer than that associated with narcotic drugs.
• **Methaqualone**

Methaqualone is a sedative drug similar to barbiturates, a general Central Nervous System depressant. Methaqualone was first synthesized in India in 1955 by M.L. Gujral during anti-malaria research programme. It was widely used in Europe and Japan as a non-addicting hypnotic. In US, it was manufactured in 1965 under the trade name ‘Quaalude’\(^1\). During 1980s and 1990s, methaqualone was largely smuggled out of India into countries in eastern and southern Africa\(^2\). It resembles barbiturates, but has lower incidence of cardiac or respiratory depression.\(^3\)

• **Glutethimide**

Glutethimide is a hypnotic sedative introduced in 1954 as a safe barbiturate substitute\(^4\). However, addiction tendency and severity of withdrawal symptom of this drug are similar to that of barbiturates.\(^5\)

• **Meprobamate**

It was introduced as an anti-anxiety agent in 1955. It is used in the treatment of anxiety, tension and associated muscle spasms. Its onset and
duration of action are similar to the intermediate acting barbiturate. However, therapeutic doses of meprobamate produce less sedation and toxicity than barbiturates. Use of higher quantities can result in physical and psychological dependence\textsuperscript{134}.

- **Stimulants**

‘Stimulant’ is a name given to several group of drugs that tend to increase alertness and physical activity. Stimulants are used to produce a sense of exhilaration and enhance self-esteem\textsuperscript{135}. They are also used to improve mental and physical performance, increase activity and to reduce appetite\textsuperscript{136}. Amphetamine and cocaine are the most commonly abused stimulants\textsuperscript{137}.

- **Cocaine**

Cocaine is an alkaloid of coca shrub which grows in Andean countries of South America such as Peru, Bolivia and Chile. Pure cocaine was first extracted from the leaf of the erythroxylon coca bush, in the mid of 19\textsuperscript{th} century\textsuperscript{138}. It was isolated in 1858. It is the most potent stimulant of natural origin.
Some cocaine-containing substances were being used by the natives of Andes Mountains in Peru for over 3000 years. Before extraction of cocaine from the coca plant, the leaves of coca plant were chewed by the people of Peru and other South American countries.\textsuperscript{139}

Cocaine is a powerful addictive stimulant that directly affects the brain. In small doses, it produces a state of well being associated with relief from fatigue, increased mental alertness, physical strength and a reduction of hunger. In higher doses, it produces excitement, confusion and convulsions. In view of its stimulant and euphoric effects, it was used in the treatment of a number of psychiatric problems. Because of availability of safer alternatives, it is no longer used to treat psychiatric problems.\textsuperscript{142}

In its pure form, it is a white crystalline powder, ‘cocaine hydrochloride’. Illegal or “street” cocaine is seldom pure. Adulterants are either inert ingredients resembling cocaine or are other substances having some of the drug’s effects. High levels of cocaine in the brain are achieved in seconds, stimulating a compulsion to smoke more. Intravenous injection, another mode of use, also produces rapid effects. Cocaine is the recreational drug of choice today.\textsuperscript{145}
• **Amphetamines**

Amphetamines are psycho-stimulants that increase the activity of the brain. They are of the following three types: Laevo amphetamine, one of its isomers dextroamphetamine and methamphetamine. Amphetamine, dextroamphetamine and methamphetamine are generically referred to as ‘amphetamines’. Amphetamine was first synthesized in 1887 by Laxer Edeleanue at the University of Berlin. It was found to be effective in treating narcolepsy and Parkinson’s disease.

Amphetamines may be sniffed, swallowed, snorted or injected. They induce exhilarating feelings of power, strength, energy, self-assertion, focus and enhanced motivation. The need to sleep or eat is diminished. The effects of amphetamines, especially, methamphetamine, are akin to cocaine. However, its onset is slower and duration is longer. Chronic abuse produces a psychosis that resembles schizophrenia. It is characterized by paranoia, pre-occupation with one’s own thoughts, and auditory / visual hallucinations.

• **Methcathinone**

Methcathinone is an analogue of methamphetamine and cathinone. It is sold in stable and highly water soluble hydrochloride salt form.
Its abuse potential is similar to that of methamphetamine. It produces extended wakefulness, loss of appetite, etc. The effects include a burst of energy, speeding of the mind, increased feelings, invincibility and euphoria. It produces anxiety, insomnia, tremor, weight loss, dehydration, sweating, stomach pain, body ache etc.\textsuperscript{151}

- **Methylphenidate**

  The most important medical use of methylphenidate (Ritalin) is treatment of Anti Deficit Hyper Activity (ADHA)\textsuperscript{152} in children. This is a central nervous system stimulant and it has a calming and focusing effect on those with ADHA. Abuse of methylphenidate produces the same effects as that of amphetamines\textsuperscript{153}.

- **Pemoline**

  Pemoline is a low central nervous system stimulant\textsuperscript{154}. It has a very limited therapeutic use. Abuse of this substance has been reported from some of the African countries\textsuperscript{155}. 
• Hallucinogens

For centuries, many of the naturally occurring hallucinogens found in plants and fungi have been used for medical, social and religious practices. The nomenclature given to this group of drugs does not match with their effects as hallucinogens do not always produce hallucination. They cause perceptual distortions that vary with doses. Psychic effects include disorders of thought associated with time and space. Time may appear to be stand still. Forms and colour seem to change and take new significance. This experience may be pleasurable or frightening to the user. Even after many weeks or months, the user may experience flashbacks\textsuperscript{156}.

The best-known hallucinogen or mind altering drug, is probably lysergic acid diethyl amide, better known as LSD or “acid”. Other hallucinogenic drugs includes: peyote, mescaline, psilocybin, STP, DMT, MDMA and mescaline\textsuperscript{157}. Currently, hallucinogenic substances are produced synthetically to provide higher potency\textsuperscript{158}.
• **Mescaline**

Mescaline was first isolated and identified in 1897 by the German scientist, Arthes Heffter and first synthesized in 1919 by Ernest Spath. Mescaline is the principal active ingredient found in *peyote*, a small, spineless cactus, botanically known as *Lophophora Williams*. Mescaline can be extracted from *peyote* or produced synthetically.¹⁵⁹

• **Dimethyltryptamine (DMT)**

Dimethyltryptamine (DMT) is found in certain plants and seeds. It is ineffective when taken orally unless combined with another drugs like monoamine oxidize inhibitor (MAOI)¹⁶⁰ DMT is smoked, injected or taken orally¹⁶¹. Diethyltryptamine (DET) is an analogue of Dimethyltryptamine and produces the same effects; but is less potent than DMT.¹⁶²

• **Phencyclidine (PCP)**

Phencyclidine, also known as ‘angel dust’ or ‘elephant tranquilizer’ was synthesized in 1950s by Parke-Davis pharmaceutical company
as an intravenous anesthetic named Seryn. Its pure from, it is a white crystalline powder that readily dissolves in water or alcohol\textsuperscript{163}. It first appeared as a street drug in the year 1967.

The name PCP is an acronym of the chemical name for the drug phencyclohexylpiperdine and from this acronym, has sprung up a highly imaginative slang term ‘peacepils’. It is also known by numerous other exotic names like “embalming fluid”, “gorilla biscuits”, “magic mist” and “rocket fuel”\textsuperscript{164}.

- **Lysergic Acid Diethylamide (LSD)**

Dr. Albert Hoffman first synthesized LSD in the year 1938 in Switzerland\textsuperscript{165}. It is derived from lysergic acid, a constituent of ergot, which is a fungus. In fact, the word ‘psychedelic’ - the category to which LSD belongs comes from two Greek words, “psyche” meaning ‘soul’ and “delos” meaning ‘visible’. LSD was used clinically in the 1950s as an aid to psychotherapy in the patients who had difficulty in communication or associating. The abuse of hallucinogens continued to increase during the late 1960s and early 1970s. Abuse of LSD reached the highest in the late 1960s by those interested in
mysticism and exploration of consciousness. It became, together with other similar drugs, a part of hippy culture.\textsuperscript{166}

LSD is used mainly as a home-made capsule or tablet, or may be contained in sugar cubes, candy, chewing gum and blotting paper. Usually, while taking orally, the powder is dissolved in water or in a cola drink or put in any sweet or candy. LSD also comes impregnated in blotting papers.\textsuperscript{167}

The experience that follows is commonly called a “trip” which usually lasts for eight to ten hours. Physically, the drug increases heartbeat, raises the body temperature, and causes irregular breathing. The hands and feet shake, the palms break out into a cold sweat, and the person shivers and has chills with goose pimple. Psychologically, the drug heightens and distorts sensory perception and also produces strange mental reactions\textsuperscript{168}. Such reactions include: experiencing simultaneously too strong, but opposing, emotions; being unable to distinguish one’s body from the surrounding space and losing one’s sense of time.
• **DOM or STP**

  Dimethoxy Methylamphetamine (DOM) also known as STP which stands for ‘Serenity, Tranquility and Peace’, is a synthetic drug which was introduced to the drug scene in 1967 in SanFransisco.\(^{169}\)

• **MDMA (Ecstasy), MDA and DOB**

  Many chemical variants of mescaline and amphetamine that have been synthesized for their ‘feel good’ effect are being widely used in ‘raves’.\(^{170}\) MDMA, the chemical name of which is \((+\text{-})\) \(-\text{N, -demethyl}\) -3, 4 methylenediox metheylamphetamine phenethylamine,\(^{171}\) is popularly known as ‘ecstasy’. MDMA was synthesized in 1914. Other illicitly manufactured analogues include 4-bromo -2 5- dimethoxymphetamine (DOB) and 3, 4-Methlyenedixyphetamine (MDA).\(^{172}\)

  MDMA is an illegal drug that acts as a stimulant and a psychedelic producing an energizing effect as well as distortions in time and perception.\(^{173}\) Young persons use it to promote euphoria, feeling of closeness, empathy, sexuality and to reduce inhibition. It is considered as a “party drug”.\(^{174}\)
- **Cannabis**

Cannabis is generally believed to be an Asiatic plant. The first recorded use of cannabis as a remedy occurred in China nearly 4000 years ago. Shen Nung (2737 B.C.), a mystical Chinese emperor and pharmacist, advocated its use as a sedative and as a psychoactive substance. From China, the use of cannabis spread several centuries before Christ to India and the surrounding Asian countries.

For centuries, cannabis has been used for altering the mood in various parts of the world. Ancient Persians, Greeks, Romans, and Assyrians used it for treating muscle spasms, pain and indigestion.

Cannabis is the expression applied to the Indian hemp plant, *Cannabis sativa*. The plant which has industrial use like making of ropes from the fibre obtained from its stem, also contains a number of psychoactive substances, collectively known as *cannabinoids* that are unique of the cannabis plant. Among the *cannabinoids* found in the cannabis plant are *cannabinol*, *cannabidiol*, *cannabinolic* acids, *cannabigerol*, *cannabichromene*, and several isomers of *tetrahydrocannabinol*. One of these, delta-9-<tetrhydrocannabinol (THC) is believed to be responsible for most of the
characteristic psychoactive effects of cannabis. The resinous exudates of the plant contain the highest concentration of THC. Hashish, named after the Persian founder of the Assassins of the 11th century, is a high potent form of cannabis.\textsuperscript{179}

Hashish oil or liquid cannabis is the most potent form of cannabis which may contain up to 60 percent of THC. It is produced by subjecting cannabis resin to extraction followed by filtration and evaporation. Hashish is known as \textit{charas} in India\textsuperscript{180}.

Ganja, a less potent form of cannabis has the flowering top, stem, leaves and twigs which have less resin. Bhang, the least potent of all cannabis forms, is prepared from the leaves of cannabis plant. Generally it is drunk or eaten. Cannabis is said to be a “gateway drug” that introduces the people into the habit of drug abuse that may lead to abuse of far more dangerous drugs like heroin and cocaine.

Cannabis is quick acting. When smoked, the first effects are usually felt within seconds. The peak follows within minutes and then declines sharply after about forty five minutes, with a ninety minute tail-off.\textsuperscript{181}
Drug Abuse

Non-medical use of drugs and the problem of drug abuse are as old as civilization itself. Drug abuse refers to the use of any drug by self-administration in a manner that deviates from the approved medical and social patterns within a given culture. The word “drug” has acquired bad connotations in recent years because the widespread abuse of a few chemicals that affect the central nervous system has become a serious sociological problem. Nevertheless, drugs can benefit as well as harm the nervous system, and have made possible, a revolution in the way modern doctors treat diseases.

When a drug is being used without medical approval, or used excessively, it is judged to be a “misuse”. ‘Drug abuse’ is an alternative phrase defined by World Health Organisation as “persistent or sporadic excessive use inconsistent with or unrelated to acceptable medical practice”.

Motivations for Drug Use

People take drugs for many reasons: peer pressure, relief from stress, increased energy, to relax, to relieve pain, to escape reality, to feel more self-esteem and for recreation. They may take stimulants to keep alert; or
cocaine for the feeling of excitement it produces. Athletes and body builders take anabolic steroids to increase muscle mass\textsuperscript{185}.

When the cognitive motivations for alcohol and cannabis use among adolescents were examined, factors for drug use were identified: boys are more motivated to use alcohol and cannabis for social cohesion; and cannabis for enhancing positive effect and creativity than girls. Adolescents use drugs to reduce negative effects. All motivation scales significantly correlate with actual substance use.\textsuperscript{186}

Studies reveal that while boys often experiment with cigarettes, alcohol and drugs for thrills or heightened social status, girls are typically motivated by a desire to reduce stress or alleviate depression\textsuperscript{187}. Substance abuse is found to be more prevalent among girls who attained puberty earlier, who have eating disorders (e.g. anorexia, bulimia, bingeing and purging), or who have been subjected to physical or sexual abuse.

The likelihood of using cigarettes, alcohol or drugs increases among girls during the time of disruptive transition, for example, moving to a new community, or advancing from middle school to high school or from higher secondary school to college. Additionally, studies are more and more inclined
to support the idea of separate treatment centres for women; since female substance-abusers who were victims of physical abuse may not respond well to a group with men.\textsuperscript{188}

\textbf{Drug Addiction}

‘Drug addiction’ is a state of mind and body resulting from continuous and repeated use of a drug. Its most visible feature is an overpowering desire to continue taking the drugs, a tendency to increase the dose and a high tendency of withdrawal symptoms\textsuperscript{189}. The fear of withdrawal symptoms generates a self-compulsion on the addict to obtain the drug by any means. Response to tolerance is diminished due to repeated use of the drug; which in turn, induces the addict to take unusual doses to obtain the desired effect.

The cultivation of opium in India and its export to China by the British East India Company in the middle of the 18\textsuperscript{th} century paved the way for the drug menace in the contemporary world.\textsuperscript{190} Drug-abuse cannot be kept confined to a single country or nation.\textsuperscript{191} It is a phenomenon all over the world which had started nearly two hundred and fifty years ago. However, drug-
abuse assumed gigantic proportions and became a global issue only after the Second World War.

**Drugs and Sports**

In order to improve their performance, athletes use drugs. The pressure to win is burdening as the medals can be worth millions of dollars. Drugs which are usually used by the athletes include: anabolic steroids, stimulants, testosterone, erythropoietin and human growth hormones; the first three being the most popular ones.

For events in which body strength and weight are principal determinants as in the case of weight lifting and shot puts, anabolic steroids like stanzolol is used; for events in which output of energy is explosive, central stimulants like amphetamine or cocaine are used; and for events in which steadiness is essential as in the case of rifle shooting, propranolol is used\(^{192}\).

**Harmful Effects of Drug Addiction**

The dreadful consequences of drug addition can be summarized as follows:
a) Damage to human liver and eyes caused by ethyl alcohol and methyl alcohol respectively.

b) Genetic and chromosomal disorders.

c) Impairment of intelligence, memory and efficiency.

d) Mental illness, psychosis etc.¹⁹³

e) Infection and transmission of diseases like AIDS, Hepatitis etc.

f) Wasting of valuable time and money for procuring drugs; which in turn, adversely affects career and occupation.

g) Indulgence in anti-social and criminal activities to procure drug.

h) Breaking up of interpersonal relationship at family and social level.

i) Traffic accidents and industrial accidents under the influence of drugs.

Drug dependence

Though the term “drug dependence” has gained wide acceptance internationally, the older usage, “addiction” is so deeply rooted in common parlance that it will be continued to be used for some more time.¹⁹⁴ ‘Drug dependence’ implies a state-psychological and sometimes physical, resulting from the interaction between a living organism and a drug, characterized by behavioural and other responses that always include a
compulsion to take the drug on a continuous or periodic basis in order to experience its psychical effects and sometimes to avoid the discomfort of its absence.\textsuperscript{195}

Thus, there can be \textit{psychological dependence} and \textit{physical dependence}. In the case of the former, there is no emotional distress even if the drug is withheld; however, in the case of the latter, the person shows physical disturbances when the amount of the drug in the body is remarkably reduced. The reason for the same is that prolonged use of the drug causes adaptive changes in the tissues; and when the drug is withdrawn, these adaptive changes are left unopposed resulting in over-activity. This necessitates continued administration of the drug to prevent abstinence syndrome.\textsuperscript{196}

The major cause of drug dependence is that the addict regards the use of drugs as a means to enhance his pleasure and ease his discomfort. Most of the drugs produce a feeling of well being in the individual. The potential addict starts and continues taking the drug due to any of the following reasons:\textsuperscript{197}

1. Socio - cultural context and traditional customs.
2. As a continuation of its medical use.
3. To satisfy curiosity and to experience the effect of the drug.
(4) To have a pleasurable experience.
(5) To achieve a sense of belonging or to be accepted by others.
(6) For creativity.
(7) To peer pleasure.
(8) To escape from reality or to have a dreamy state.
(9) To increase sexual power.
(10) To revolt against authority.
(11) To achieve a sense of relaxation from stress and strains of family life.
(12) To have plenty of leisure time without duties or other interests;
and
(13) Lack of parental love, care and guidance.

However, when exposed to drugs, all recipients do not develop dependence. Some stop after initial experimentation. Some continue to take but do not become dependent. Still others become compulsive drug users or drug addicts. The majority of those who become addicts has some psychological problem. Apart from the personality of the user, the socio-economic environment and availability of the drug are also factors which influence drug dependence.198
Adverse Impact of Media

By reporting crimes, the media is constantly encouraging the general feeling that crime did not pay. But crime reporting is an extremely complex subject. Today, media is accused of promoting sex, violence and sensationalism and of thickening the pockets of already wealthy moguls. In the realm of drug use also, media is having adverse impacts. Some of them are extracted hereunder:

a) Films: Films may stimulate the young mind’s natural curiosity to experiment with drugs. There are many films which openly show scenes of consumption of alcohol and drugs as a part of parties held for happy occasions.

b) Literature: Novels and short stories are very abundant in praising the drug culture or vividly describing drug use-again a serious “drug pusher” in the present society particularly among the students.

c) Over dramatization and over-emphasis by the media: whenever a celebrity is caught with a “drug”, it is given wide coverage and play up. The same is true about drug seizures and destruction of
cultivation of narcotics also. Unfortunately, this over-emphasis is counter-productive.

d) Drug abuse by celebrities: Most students believe that Pop, Jaz and Rock musicians use drugs. Many artists, poets, musicians, actors, and writers have publicly admitted through media that they are using drugs.

**Role of Medical profession, Parents, Teachers, etc:**

(a) The medical profession: prescription of potentially habit-forming drugs as well as failure to define clearly the duration of use of the drug could lead to continuous self medication of the same drug as well as to similar other drugs.\(^{202}\)

(b) Drug shops: in spite of legal restrictions, many sell drugs to the consumers. Many of them justify their action by saying that they are supplying a pure drug at reasonable price, and if they refuse, the abuser will get impure products from black market.

(c) De-addiction centres: When the drug addict is brought to a de-addiction centre, in the attempt to “wear him off it”, another drug is prescribed and administered; and thereafter he becomes addicted to the said drug.
Role of parents, teachers and educational institutions: Parents, teachers and educational institutions have a great role to play in combating drug abuse. Many a times, they ignore their roles. This is an area which needs a detailed research.

Treatment/De-addiction

Psychiatric problems, social problems, sexual problems and medical problems are the four major risk factors identified as the side-effects of drug use.\(^{203}\) Treatment of substance abusers depends upon the severity and nature of the addiction, motivation, and the availability of services. Treatment can be voluntary or involuntary: Some are taken voluntarily; and with the support of family, friends, etc; some are send by the courts against their will and have virtually no support system. Majority of the patients have criminal history: approximately one third are sent by the criminal justice system.\(^{204}\)

In many of the European countries, there are State-sponsored treatment schemes. In USA, both pharmacological and behavioural treatments are used; often augmented by educational and vocational services. Treatment may include detoxification, therapy, and support groups such as the 12 step groups, Alcoholics Anonymous, Narcotics Anonymous, and Cocaine
Anonymous. Non-residential programmes serve the largest number of patients. Residential facilities include hospitals, group homes, halfway houses and therapeutic communities such as *Phoenix house* and *Daytop Village*: most of the daily activities are treatment-related. Programmes such as *Al-Anon*, *CoAnon*, *Alateen* and, *12 step programme* for family and friends of ‘substance-abusers’ help them to break out of co-dependent cycles\textsuperscript{205}.

Usually, medicines that neutralize the effects of the drug are used. Antabuse is a medicine used in the treatment of alcoholism. It causes severe and sudden reactions (nausea, vomiting, headache) when alcohol is present. Naltrexone is used to treat alcohol and heroin abuse. Stabilizing medications like methadone or buprenorphine are also used for heroin addiction. *Acupuncture* has been successful in treating the cravings that accompany cocaine withdrawal and is being used for pregnant patients to improve the health of their babies.\textsuperscript{206}

However, drug treatment programmes have their own inherent limitations: Many who attempt to get treatment, especially from public facilities have to wait for months to get in. It dissuades them. Similarly, effectiveness of treatment cannot be easily evaluated because of the chronic
nature of drug abuse and alcoholism and the fact that the disease is usually complicated by personal, social, and health factors.⁴⁰⁷

Anyway, treatment programmes form an important part of prevention efforts, and hence both prevention and treatment responses must be fully exploited in the development of drug abuse programmes. As far as India is concerned, the Ministry of Social Justice and Employment has been implementing Programmes for Prevention of Alcoholism and Substance (Drugs) Abuse. Under the Scheme, grant-in-aid is provided to voluntary organizations for implementing community based programmes on awareness generation, preventive education, counselling and identification, detoxification, rehabilitation and after-care of addicts.⁴⁰⁸ The number of drug addicts registered for treatment in the centres financed by the Ministry of Social Justice and Empowerment during 2003-04 and 2004-05 was 1,94,787 and 1,72,320 respectively.⁴⁰⁹ At present, the Ministry is providing assistance to 350 voluntary organizations for running 436 Centres and 332 treatment-cum-rehabilitation centres all over the country. Besides, the Ministry has been utilizing media channels for disseminating information amongst the masses and has been providing grants to NGOs running centres for de-addiction.⁴¹⁰
Conclusion

For centuries, many of the naturally occurring drugs found in plants and fungi have been used for medical, social and religious practices. In India, cannabis was regarded as a holy plant and played an important religious role. *Atharva veda* regarded it as the “sacred grass”. Thus, drug use is not a novel phenomenon in India; but rooted and inextricably connected with Indian culture itself.

But drug-abuse emerged as a national problem only since 1980s. However, the exact number of drug abusers in the country is not known. By the 1960s, the global illicit drug market required an enormous aggregation of addicts to sustain its operations. Till then, India had not figured as a major supplier in the market. But in the India’s northern border, the “Golden Crescent”, namely Pakistan, Afghanistan and Iran produces huge quantities of heroin and supplies it overland through the Middle East to the markets of Europe. Illicit drugs from the “Golden Triangle”, namely Myanmar, Thailand and Laos also were imported to and supplied through India since the early eighties. With the Soviet occupation of Afghanistan in December, 1979 and due to the Gulf War in September 1980, the drug-abuse became widespread throughout the country.
Realising the dreadful consequences of drug abuse, narco-terrorism and spread of AIDS, Government of India is continuously implementing programmes for the prevention of alcoholism, drug abuse and drug-trafficking: grant-in-aid is provided to voluntary organizations for implementing community-based programmes on awareness generation, preventive education, counselling and identification, detoxification, rehabilitation and after-care of the addicts. However, our country is increasingly becoming a terrorist hub whose major source of income is illegal narcotic trade.

India being a signatory to the U.N Convention on Narcotic Drugs 1961, U.N. Convention on Psychotropic Substances, 1971 and UN Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988, is having an international commitment and obligation to tackle narco-terrorism and related issues. Here arises certain pertinent questions: whether the existing legal frame work in India is sufficient to tackle the aforesaid issues. If not, what are the bottlenecks in this regard? In the following chapters region-wise extent and patterns of illicit drug trafficking in India, narco-terrorism and the present global scenario has been analysed in detail.
References


4. Ibid. at pp.214-215: "Among the remedies which it has pleased the Almighty God to give to man to relieve his sufferings, none is so universal and efficacious as opium." Quoted in Louis Goodman and Alfred Gilman, The Pharmacological Basis of Therapeutics, (First Edition 1941), p.186

5. Alfred Burger, A Brief History of Drugs, www.a1b2c3.com

6. Supra n.2 at p.1. See also Alfred R. Lindensmith, Addiction and Opiates, p.207.


9. Supra n.2.


11. Supra n.5


The earliest record of its use came from a small town named Bhagalpur in Bihar State. In course of time, it was observed that cocaine was being secretly sold by certain agencies to people who were taking it in prepared betel leaf (pan). A class of peddlers had sprung up who were selling the drug not only to grown-up people but also to teenage schoolboys. It was usually sold in packets or "lifafas” (envelopes) of a half grain each. See, Choppra, The Cocaine Problem in India, (United Nations Office on Drug and Crime). It worked its way up to towns like Benares, Lucknow, Rampur, Saharanpur and Ambala on the one side and through Allahabad, Kanpur, Agra, Mathura and Delhi on the other. Ibid.

14. Supra n.1 at, p.11.

15. In ancient times, alcoholic beverages were used to treat many disorders. In India, the earliest reference to the use of intoxicating beverages is traceable to the period around 2000 B.C. Three kinds of drinks were known at the time of Manu, namely Quouni prepared from molasses, Madu from the sweet flowers of bassia, Latifolia and Paisthi from rice and barely cakes. Jagla a kind of rice beer, is mentioned in the Susruta-a Sanskrit, medical


19 *It was first mentioned by Barbosa in 1511, and its cultivation appears in the same century*, See, Chopra and Chopra, *Drug Addition with Special Reference to India* (SCIR, New Delhi, 1965) p.264.

20 According to Watt, the beverage post at present taken in the Punjab closely resembles kuknar which was a luxury among the Mohammedans during the time of Akbar. Many other references in the Moghul literature indicate the extent to which the habit of drinking post or kuknar prevailed among the Indians during and after the 16th century See, Sudip Kumar Chaudhari *Drug Addiction Among the Youth in Calcutta*.(1998), p.13.


22 Molly Charles, Dave Bewley Taylor and Amanda Neidpath, *Drug Policy in India : Compounding Harm*, p.3.

23 *Supra.n.17.*


26 Sudip Kumar Chaudhari, *Drug Addiction Among the Youth in Calcutta* (1998), p.13. Opium has also been used for medicinal purposes among the Rajputs in Rajasthan and Gujarat; Molly Charles, Dave Bewley, Taylor and Amanda Neidpath, *Drug Policy in India: Compounding Harm?* p.3. Opium like cannabis is also offered at the harvest festival in a ceremony called akha teej, intended to strengthen family marital clan bonds and put aside old feuds. In South India Kaskasa, a form of opium poppy is used to make the sweet dish – “payasam”, See *Supra.n.17.*

27 The control exercised over production of opium in India satisfies all the requirements of the International Treaties on Narcotic Drugs. Among the many tributes paid to India by the Commission on Narcotics Drugs, the most striking is the recognition of the Indian system of control over poppy cultivation as an international standard. See, website of Government of India, Ministry of Finance, *Central Bureau of Narcotics*, finmin.nic.in.

28 For cultivation of opium, Govt. of India frames licensing policy every year on the basis of which poppy cultivation is to be carried out during that particular crop year. The most important criteria for eligibility are the rendering of minimum qualifying yield (MQY) per hectare as fixed by the Government annually for the particular crop year. Licenses are issued annually for a crop year commencing in October and ends on September of the following year. *Ibid.*

29 During the 2004-05 crop year (8,770 licensed hectares)MQY of 58 kilograms per hectare in Madhya and Rajasthan and of 49 kg in Uttar Pradesh had to be achieved by opium farmers
to be eligible for the renewal of their license in 2005-06. Website of Govt. of India, Ministry of Finance, *Central Bureau of Narcotics* finmin.nic.in.

31 In order to ensure that the cultivators do not mix water or other stuff in the opium, the District Opium Officer tests the quality of the opium using Hot Air Electric Oven. The Opium bags are then sent to the Opium Factories at Neemuch in M.P and Ghazipur in U.P. for chemical test of the purity of the opium, its safe and secure storage and exports to foreign countries for medical and scientific purposes and for domestic requirement. Processing of opium in India began with the setting up of the opium factory in 1820 in Ghazipur (U.P), a town of Eastern U.P. located on the banks of the river Ganga. Later an alkaloid plant was set up at Ghazipur in 1943 during the period of World War II. The Opium and Alkaloid Plants of Ghazipur are spread over an area of about 43 acres. The second plant for processing opium is in Neemuch district of M.P, which is approximately 5 km. from the eastern border of Rajasthan. It also comprises two separate units namely, the Opium Factory and Alkaloid Works. The Neemuch Opium Factory has been in operation since 1st April, 1935. Initially, there was another Opium Factory at Mandsaur but the same was closed down in the year 1969. The Alkaloid works was inaugurated on 6th October, 1976. The campus has an area of 57000 sq.m. The Alkaloid Works at Ghazipur and Neemuch processes raw opium for manufacture of alkaloid/drugs, namely narcotine, thebaine, papaverine and codeine phosphate. Morphine salts and codeine phosphate are the main products supplied to Indian pharmaceutical Industries. The Alkaloid Works also has its own process control and quality control laboratories to ensure regular monitoring of process samples and stringent quality control. The organization also has a full-fledged Research and Development wing. Codeine phosphate, codeine, sulphate, cotamine, dionine, morphine hydrochloride, morphine sulphate, narcotine, opium and thebaine are manufactured. For a discussion, See Web Site of Central Bureau of Narcotics, *Government Opium & Alkaloid Factories At Glance*, cbn.nic.in.

32 The price paid to the farmers depends on the yields achieved, with farmers producing more opium getting paid a higher price per kilogram: in 2004-05, the minimum price paid per kilogram was Rs.750 (US$17) for yields upto 44 kg per hectare. The average for national yield was 56kg/hectare and was paid at a price Rs.1.150 per kilogram. See the website of Govt. of India, Ministry of Finance – Central Bureau of Narcotics, finmin.nic.in.

33 It is important to bear in mind that, in order to prevent diversion to the illicit market, in 2004-05 the maximum licensed area to be cultivated in opium poppies was 0.10 hectare. Therefore, the maximum income that Indian farmers can derive from legal opium production is limited by fixed prices and by limitation of areas cultivated by each of them. With such low prices paid to Indian opium farmers, diversion to the illegal market, where opium can fetch prices as much as four to five times the minimum government price, clearly takes place; although there are no reliable estimate of such diversion. It is worth noting that the CBN tightened its control on opium farming and against diversion, drastically lowering the number of hectares licensed (from 21,141 in 2003-04 to 8,771 in 2004-05) and the number of farmers licensed (from 105, 697 in 2003-04 to 87,682 in 2004-05): See the website of Central Bureau of Narcotics *Government Opium & Alkaloid Factories At Glance*, cbn.nic.in.


Dasmattumantha. M.S, “Addicted to Drugs”, Deshabhimani dated. 23.12.1990. In India and Nepal, the use of cannabis appear to be linked to religious festivals like Shivaratri, Krishna Ashtami (birth of Lord Krishna) and participation in bhajan sessions. Indeed, occasions like Holi, “the festival of colours”, are not complete without the sharing of bhang - a drink made with cannabis. At such select occasions, women and youngsters were permitted to use bhang and other items made from cannabis, including snacks, sweets and curry. See, Sudip Kumar Chaudhari, Drug Addiction among the Youth in Calcutta, (1998), p.15. The provision made for women and children to consume cannabis products in select cultural contexts and in specified forms indicates a strong cultural acceptance for cannabis within India. Norms reaffirmed the cultural dimension of cannabis use and probably prevented excessive non-cultural use of cannabis. As noted earlier, the adherence to cultural norms on sanctioned use emerged from a strong association of cannabis with Lord Shiva. For example, Sadhus (hermits) of various sects who primarily worship Lord Shiva make use of the drug for strengthening their concentration and spiritual search. Prior to smoking cannabis, the sadhus praise their Lord and take it in his name, a pattern of consumption seen also among lay followers. See Molly Charles, Dave Bewley-Taylor and Amanda Neidpath, Drug Policy in India: Compounding Harm, p.3. An opium drink can be used to greet guests to social functions that include marriage celebrations, sealing a business deal or mourning the demise of a relative. In this case, culture permits opium consumption in the male adult population but, unlike with cannabis, there is no specific cultural sanction for women and youngsters to use the substance except for medicinal purposes. Such sanctioned cultural use, and its occasion or context, produces a situation within which a drug’s mind-altering properties are not the sole focus of the practice. See Hamid Ghose, Drugs and Addictive Behavior: A Guide to Treatment (1989), p.23. Sanctioned cultural use was there in consumption during a celebration or get together. Songs and social interaction form the binding force for consuming the substance. Consumption of bhang during Holi calls for community participation from the decision to prepare the drink, through to making it, and finally its consumption in a group setting. The pattern of consumption for smoking cannabis and opium also restricts drug use, because as a group activity the users only inhale a few times from the pipe. See, Encyclopedia - Drug Addiction and Drug Abuse, www.factmonster.com.

In Greek and Roman civilizations it was used as a sleeping drug and this use persisted in Europe in the early part of the 10th century. The discovery of heroin was another contributing factor to the ever-rising addiction rate. Heroin was reported as early as 1874, but was not put into common usage until about 1898. Heroin was ten times stronger than morphine and easier to use than smoking opium. R.R.Levine, Pharmacology: Drug Actions and Reactions (Boston, 1983)pp.211-247.


See, Ernest Jones, The Life and Work of Sigmund Freud, (Vol.1), p.82

See Sudhip Kumar Chaudhari, Drug Addiction Among the Youths in Calcutta, (1998), p13. The chiefs maintained a messenger system along the spine of the Andes to control their
thinly populated kingdoms, which stretched for thousands of miles along the mountains and were isolated from each other by the rugged terrain. The messengers had to run at high altitudes and needed stimulants for this exhausting task. Their wealthy employers provided the runners with coca leaves for this purpose and enslaved them further by paying them with more coca leaves, thus maintaining the addiction for which the poor runners were willing to continue their never-ending jobs. When coca leaves reached Europe with the Spanish, they led to one of the first European waves of euphoric hallucinogenic drugs.


Parikh’s Text Book of Medical Jurisprudence and Toxicology. (Fifth Edition), p.843. Medically, as the UK Interdepartmental Committee under Lord Brain stated *we are concerned with a state of periodic or chronic intoxication produced by the repeated consumption of a drug (natural or synthetic) and either a physical dependence on the drug, including a withdrawal syndrome, or an emotional dependence on the drug both of which cause harm to the user or the society*. Quoted in Renborg, Bertil A, *International Narcotic Control* (Washington, 1947), pp.310-311.

“Narcotics”, health.mongabay.com/conditions/Narcotics.html-42k.

Certain substances grouped as narcotic drugs either in the Single Convention on Narcotic Drugs, 1961 or in the NDPS Act are pharmacologically not narcotic drugs but belong to certain groups of psychoactive substances like stimulants, hallucinogens etc. For example, cannabis and cocaine come under the purview of the Single Convention on Narcotic Drugs, 1961. Under the NDPS Act, they are classified as narcotic drugs. However, pharmacologically they do not belong to the group ‘narcotics’. While cocaine belongs to the group of stimulants, cannabis is a drug of its own class. It is more akin to the group of hallucinogens than to the group of narcotics. See, Mehanathan *Law of Control on Narcotic Drugs and Psychotropic Substances in India*, p.8.

Ibid.

www.answers.com/topic/narcotic.

*Drug of Abuse* (U.S Department of Justice, Drug Enforcement Administration Atlington, 1997), p11.

Dependence can be physical as well as psychological. Physical dependence refers to altered body functioning that necessitates presence of a drug in order to prevent withdrawal symptoms. Early symptoms of dependence are: watery eyes, running nose, severe sneezing and loss of appetite. Other symptoms are elevated heart rate and blood pressure, chills alternating with flushing and excessive sweating, pain in the bones and muscles of the back etc. See Lorenz K.Y.Ng M.D., Stephen Szara M.D, William E.Bunney Jr.M.D. “On Understanding and Treating Narcotic Dependence : A Neuropsychopharmacological Perspective” 70(3) *Addiction* 311-324 (1975).

Supra n.1.


Many jurisdictions, particularly Netherlands have the so called coffee shops which are allowed to sell soft drugs openly, and to keep supplies greater than the amounts allowed by law for personal use, though they are only allowed to sell individual customers the amount allowed for personal use. In theory the limit of the personal use clause is 5 cannabis plants per person for growing or possession of 5 grams hashish or marijuana per person. However, to be prosecuted one would need to possess higher quantities than that. An example of sentence in 2004 for possession of 360 gm: confiscation and a fine of £750. See Drug Policy of Netherlands, www.answers.com. The term soft drug is usually applied to cannabis (marijuana or hashish) because it is not associated with deaths, crimes or violence amongst users and is without evidence of physical addiction. And it is nearly impossible to overdose on these drugs. There are also few physical health risks associated with soft drugs: The National Drug Control Strategy (1996) (Executive Office of the President of the United States), p.12.

Drugscope -Drug Search, www.drugscope.org.uk, Illegal supply of these so called hard drugs is driven mainly by the economics of drug prohibition, with huge profit margins available due to the collision of high demand for the drugs with harsh laws that attempt to prohibit their supply and use. The vast profits on offer mean that the trade is run by highly organized and often violent criminal organizations. See, www.heroinhelper.com.

It could be argued that alcohol and nicotine also qualify because of their addictive properties and health risks. Drugs in this group are generally described as being psychically addictive, easier to overdose on, and /or posing health risks, including death. www.answers.com

Alcohol and tobacco rank high on this scale but are generally categorized as soft due to their legal status, rather than harm potential, even though thousands of people die from alcohol and cigarettes every year. www.drugscope.org.uk


Supra n.2, at 14.

Supra n.62.

Supra n.61.


LSD is a synthetic drug and even minute quantities could produce a hallucinatory state (described as a trip). It is usually used orally as sugar pill into which the drug has been soaked, but other modes of use also have been described. Popularly known as “Acid” in doses of 100 mg. (100 mg - 1 hit, usually full, half or quarter hits are used for a single trip), it is the most expensive and most dangerous. Reactions are similar to cannabis mescaline, psilocybin reactions are similar to those of LSD but less potent than LSD. Preventing and Controlling Drugs Abuse, (WHO, 1989) p.23.


A Brief History of Opium, www.opiates.net. Opium was originally called as ‘King of Narcotics: The drugs that are derived from opium are known as opiates. It is named after a quote by Karl Marx: “Religion is the opium of the people”. (Sometimes rendered as “the opiate of the masses”.) The expression “opiates” is to be distinguished from the expression “opioids” which are wholly synthesized drugs which resemble opiates in action and effect. See, The Encyclopaedia of Psychoactive Drugs-Heroin the Street Narcotic (New York, 1986) p.20.

The phenanthrene group comprises morphine (about 10 per cent), codeine (about 0.5 per cent) thebaine (about 0.3 percent), and their synthetic derivates, such as dionin, heroin, etc, and the narcotic properties are due to them. The isoquinoline group comprises papaverine (about 1 per cent) and narcotic (about 6 per cent) which have mild analgesic but no narcotic properties. See, Parikh’s Text book of Medical Jurisprudence and Toxicology, (fifth edition), p.835.

The rope and dry poppy capsules contain only a trace of opium and are used for their sedative and narcotic action. The poppy seeds (khas khas) are creamish in colour, do not contain any opium, and are therefore harmless. They are used as food and are occasionally sprinkled over sweets. They yield a bland oil which is used for culinary and lighting purposes. See “The Opium Poppy”, opioids.com


Parikh’s Text Book of Medical Jurisprudence and Toxicology (Fifth Edition) p.837.

Ibid.


In the United States, importation of processed substances legally defined as narcotics, such as morphine and cocaine, is absolutely prohibited. Only such quantities of the crude forms (opium and coca leaves, for example) as are deemed necessary to supply medical and scientific needs are authorized under special permit. Domestic processing and distribution are controlled through a system of registration, record keeping, and official order forms. To prescribe narcotics, a licensed physician must be registered annually with the Drug Enforcement Administration. U.S. Department of Justice, and with the State Board of Pharmacy. Further, heroin is never prescribed and certain narcotic prescription cannot be refilled. See, *Colliers Encyclopaedia* Vol. 17 (1994) p.145.

www.opiates.net

World Health Organisation Technical Report Series No. 495 (Geneva 1972)

*Supra n.44at p.14.*


It also produces a number of other effects that may be desirable or undesirable. The desirable effects include a sense of well-being, euphoria, relief from anxiety and modified intestinal activity. Some of the undesirable effects of morphine are that it causes respiratory depression and contracts smooth muscles particularly of biliary and urinary tracts. See, *Drug of Abuse* (U.S. Department of justice, Drug Enforcement Administration, Arlington, 1997) , p.13.

www.inforplease.com

www.drugs.com “Opium and its preparations provide a type of satisfaction which the addict cannot obtain in a more realistic manner. Generally, all individuals who repeatedly take opium, morphine or heroin for non-therapeutic reasons are seriously maladjusted persons and display a common syndrome, consisting of dysphoria, problems of sexual identification, and disturbance of interpersonal relationships. In the dysphoria, reality is distorted, and life looks much better while the drugs are being used. Disagreeable situations do not seem to be so important, and it is difficult for the dependent individual to forgo this altered perception of reality once he has experienced it. The disturbances in sexual identification are demonstrated by over compensatory attempts at masculinity, homosexual tendencies, or in some cases, heterosexual perversions. Interpersonal relationship tends to be poor, the addict looks upon other males as authoritarian or weak and empty, and adult females as threatening figures to be either avoided or abused. See, *Parikh’s Text book of Medical Jurisprudence and Toxicology* (Fifth Edition) pp.840-841.


Some even used heroin as a medicine for morphine addiction. But it turned out to be a cruel disappointment. It proved to be more dangerous drug than morphine as far as addiction was concerned. It led to very strong addiction. The addict tends to languish as long as heroin is not given to him, but once the heroine is injected into his veins, he galvanizes into action. It appears as if life has been infused into a corpse. Some addicts compare the sensation to that of a sexual orgasm. It is important to note here that pure heroin is a white powder with a bitter taste. When it contains impurities it is brownish in colour, which gave it the name ‘brown sugar’, ‘Black tar’ heroin is another form of heroin. The colour and consistency of black tar heroin are the result of the crude processing methods used in its processing. Heroin is inhaled or injected intravenously. However, at that time heroin was widely acclaimed as an answer to the problem of medical addiction. Leading scientists agreed with
Dresser that heroin has a potent non-addictive analgesic and can be, used both as a pain killer and a recreational drug. en.wikpedia.org.

www.whitehousedrug policy.gov.

Supra n.44 at p.35.

www.n.m.gov/medlineplus.

“New Drugs”, National Herald, New Delhi,16.5.2006, p.5. Various studies show that heroin addicts are more per million population in Canada (180), Great Britain (25) Hong Kong (2900), South Korea (540) and USA (290), Sudip Kumar Chaudary, Drug Addiction Among the Youth in Calcutta : A Sociological Analysis, pp.15-16.

www.usdoj.gov.

Ibid.


Supra n.42 at p.12.

Supra n.103.


Supra n. 50 at p.13.

Ibid.

www.streetdrugs.org.

www.whitehousedrug policy.gov: “Methadone is as effective as morphine (when injected intramuscularly) in controlling moderate to severe, acute and chronic pain. Duration of its analgesic action is the same as that of morphine. Methadone has some advantage over morphine as an oral analgesic. Methadone suppresses the signs and symptoms of morphine type abstinence. When taken orally, it has a substantially longer duration of action than morphine in suppressing the abstinence syndrome. The effects of methadone last up to 24 hours. For these reasons, it is being used increasingly as a substitute for heroin and other natural and synthetic – narcotics in de-addiction treatment programmes that include maintenance of morphine-like drugs. There are many synthetic compounds chemically related to methadone. Among them, dextromoramide (+)-4-(2-methyl-4-oxo-3, 3-diphenyl 4 (1-pyrrolidinyl) morphine and dipipanone (4,4-diphenyl 6-piperidine-3-heptanone) have known therapeutic use, See, World Health Organisation Technical Report Series No.495 (Geneva 1972). See also, Henry H. Lennard et.al. “Methadone Treatment”, Science, 1078-1079(1973).

Supra n.50.


Supra n. 82 at p.41.

Supra n.49.
The fatal dose is about 2 gm. Much smaller dose can produce alarming and even fatal collapse, if the drug is given along with monoamine oxidase inhibitor or a phenothaizine drug. The average fatal period is 24 hours. Parikh’s Text book of Medical Jurie prudence and Toxicology (Fifth Edition), p.41. Pethidine is being increasingly used for its analgesic, sedative and tranquillizing effects. Tolerance to it is rapidly established. Its continued use results in addiction, characterized by euphoria, dulling of intelligence and impairment of memory. If the drug is then withheld, the patient experiences withdrawal symptoms, such as restlessness, watery eyes, stuffy nose, sweating, malaise, anxiety, depression, and a general feeling of heaviness especially in the limbs which may also be affected by cramp-like pains. Further and larger doses may then be required to allay these symptoms. With larger doses, a confessional state with hallucinations, illusions, and personality changes may develop more rapidly than in the case with morphine. The withdrawal symptoms are severe and include twitching and convulsions. Accidental poisoning may occur from a therapeutic dose of pethidine. Pethidine is a drug of addiction. Nurses and doctors are the most likely candidates for this, as the drug is administered by injection and easily available to them. The addiction itself is quite severe, difficult to treat, and carries considerable mortality. See, K.C.Hoissick, “Pethidine Addiction”, www.pubmed.central.com.

www.streetdrugs.org (British Medical Association).
U.S Food and Drug Administration www.fda.gov.
Supra n.50 at p.13.
Supra n. 109.
Supra n.112.

The two major groups of depressants that are of importance in the licit and illicit markets are barbiturates and benzodiazepines. There are marked similarities among the withdrawal symptoms caused by the drugs classified a depressants. In its mildest form, withdrawal syndrome produces insomnia and anxiety. Tremors and weaknesses are present at higher level of dependence. See, Drug of Abuse, (U.S Department of Justice, Drug Enforcement Administration, Arlington, 1997) p.21.

Barbiturates are derived from barbituric acid, a chemical discovered in 1863 by Adolph Von Baeyer. Email Hermann Fisher and Joseph Von Mering synthesized barbital from barbituric acid. It is hypnotic that can induce sleep. In 1912, phenobarbital, another barbiturate was synthesized, It was used as a sedative-hypnotic (a drug that induces relaxation, relief from anxiety and sleep). More than 2,500 barbiturates have been synthesized so far of which 50 had been marketed for use of human beings”. See, www.streetdrugs.org.

www.usdoj.gov. Abusers prefer the short-acting and intermediate acting barbiturates like pentobarbital, secobarbital and amobarbital. Butalbital, butabarbital, talbutal and aprobarbital are short and intermediate-acting barbiturates. Long-acting barbiturates include Phenobarbital and mephobarbital. See, Supra n.50. at p.22.

Supra n.43 at p.394.
www.fim/uoguelph.ca/upload files/risk management.ppt.
They are used in the treatment of obesity, narcolepsy and attention deficit disorder (ADD). They are taken orally, sniffed, smoked and injected. Smoking, snorting or injecting stimulants produce a sudden sensation known as a ‘rush’ or a ‘flash’. Tolerance develops rapidly. Physical and psychological dependence occur. Depression, anxiety, drug craving and extreme fatigue (crash) commonly follow abrupt discontinuation of the drug. See, Drugs of Abuse, (US Department of Justice, Drug Enforcement Administration, Arlington, 1997), p.22. Supra n.135.


Supra n.100.


In the late19th and early 20th centuries, cocaine was a common ingredient in patent medicines, and many soft drinks, including Coca-cola. See, Coilliers Encyclopaedia (vol6 1994) p.673. Coca-cola got its name from the coca leaf extract which it contained until 1904. The short-term mood elevating effects of cocaine, and its easy availability among the general public resulted in widespread abuse. Growing concern regarding its dangers led to restrictive legislation in the United States. By 1914, only carefully controlled medical use was permitted. See, Medrel Avtentine Smith, “Cocaine”. www.designerdrugs.com.

Cocaine is most commonly used by sharply inhaling, or “snorting” the powder into the nose, from which it is absorbed through the nasal membranes into the blood. Psychological effects, such as feeling energized or unusually competent, occur within minutes. See, National Institute on Drug Abuse Website www.nida.nih.gov.

Supra n.43 at p.674.
The cocaine habit has been compared to a person being gradually enclosed in the coils of a
erserpent that slowly winds itself round the body with increasing pressure, to the terror of its
victim, ultimately leading do death. Seldom is there any permanent breaking the coil, once it starts. See, Anil Aggrawal, Narcotic Drugs (1995) p.52.

Huder.S.Thompson, Amphetamines, As a Drug of Abuse. It is popular among students, athletes and truck drivers. Japan and Sweden faced a crisis of amphetamine abuse. After Second World War, Japan had an epidemic of amphetamine abuse. Synthetic stimulants to which group the amphetamines and ecstasy group of drugs belong are used clinically for treating narcolepsy (sudden attacks of daytime sleep) and obesity (slimming pills). It is also used in the treatment of hyperactive children (Attention Deficit Disorder or ADD). amphetamines.com.

Supra n.1 at p.92.

Supra n. 50 at pp.30-31.

Ibid..

Ibid. at p.27.


www.pemoline.com

Supra n. 42 at p.18.

Supra n 50 at p.34..


www.drugs.com/mescaline.html. The effective human dosage is 0.3-0.5 grams. Addicts may consume as many as 30 buttons during one session. The buttons are chewed and have an unpleasant bittertaste. See, en.wikipedia.org.

Supra n.49.

Supra n.141.

Dymethyltryptamine is either inhaled or injected. The effects of a single dose of 60 to 150 mg last only 45 to 60 minutes. For this reason, it is sometimes known as the businessman’s trip or the lunch-hour trip. The effects are mainly hallucinatory. DMT may cause psychological though not physical dependence. It appears on the street as an orange liquid or as crystals. See, peyote.com./jonste/dmt.ht-25k.


Though first discovered in 1926, its anesthetic potential was realized as late as in 1957. In 1958 phencyclidine was marketed as a general anesthetic for experimental use on humans. Observing the serenity the drug produced in monkeys, the manufacturer, Parke-Davis choose the trade name Sernyl. Most general anesthetics produce respiratory depression, thus forcing anesthetists to assists respiration during anesthesia. Sernyl did not have this drawback and was thus widely promoted for its lack of respiratory depression. But in 1965,
human use had to be discontinued because of some adverse effects. www.nih.gov.info. A moderate intake of the drug causes the user to feel detached, distant and estranged from his surroundings with other symptoms like numbness, slurred speech and loss of coordination, in some cases accompanied by a sense of strength and invulnerability. Some users may experience acute anxiety and a feeling of impending doom. In some users it may cause paranoia and violent hostility. In some others it may produce psychosis indistinguishable from schizophrenia. See, ‘Drug of Abuse’ (U.S. Department of Justice, Drug Enforcement Administration, Arlington, 1997) pp.30-36.

The psychological effects of the drug are variable. There are changes in perception, affecting all the senses, in particular vision. Stationary objects appear to move and change shape. There may be a crossing-over of perception. In such a situation sounds are heard and colours are seen. Flashbacks occur days or even months after the intakeen.wikipedia.org. LSD belongs to the group of drugs known as hallucinogens. These drugs alter the user’s mood or perception. Hallucinogens derive their name from the Latin alucinari meaning “to wander in mind”. These drugs are known by several different names, such as psychotomimetic, psychedelic, illusiongenic or mysticomimetic drugs. Some of them are known as mind-expanding drugs. LSD is one of the most powerful drugs known to man; an effective dose consists of only 25 microgrammes. Exactly how LSD acts on the mind is not really known at present. It seems to cause chemical changes in the brain and to bind itself to the nucleic acids (nucleic acid are natural compounds that bear the ‘blueprints’ for the life activities of cells). It does not develop physical dependence, i.e; LSD does not produce a withdrawal syndrome or drug-seeking behaviour. However, tolerance develops quickly and within a few weeks, dose of over 500 microgrammes are required to produce a full reaction. See, Shankar Pratap Singh ‘Transnational Organized Crime The Indian Perspective’ p.420. About 30 gm of LSD is enough for more than a quarter of a million misusers. This fact gave rise to apocryphal stories of cities going mad when someone spiked the city’s water supply with 30 gm of LSD. Anil Aggrawal, Narcotic Drugs (1995), p.99.

Psychological reactions during or after taking LSD may include panic, depression, or sudden mental disturbance, which may persist over a period of time or may recur spontaneously many months later. A person who uses LSD over a period of time may have difficulty in thinking clearly or in concentrating on a goal. Some studies have indicated that LSD may result in damage to the chromosomes, which may lead to birth defects in offspring of the LSD user. See, Supra n. 43 at p.395.

In 1964, Sr Alexander T. Shulgin synthesized DOM while working on the development of a series of methoxylated amphetamines for the Dow Chemical Co. It is estimated to be approximately a 100 times more potent than iescaline, but 30 to 50 times less potent than LSD.

Raves are all night dance parties held in unusual settings, such as warehouses etc that use high volume music.

Supra n.50 at p.35.
In India, the Directorate of Revenue Intelligence officials reported the country’s first “love drug” after a raid at a tablet factory in Hyderabad in the second week of June 2004. The seized MDMA tablets, methaloqualone powder, methamphetamine tablets and other raw materials were estimated to cost Rs. 103 crore. See, Times of India 13/6/2004 Report by Anil Mukherjee/T.N.N. See, also, Debasis Bagchi, Narcotic Drugs: Solace or Misery? (vol.I) p, 179.

cannabis.net.

www.ukcia.org.

In Indian subcontinent, cannabis was regarded as a holy plant and played an important religious role. It was mentioned as a “sacred grass” in the “Atharava Veda”. See, Rutin, Nera and Comitas, Lambros, “Ganja in Jamaica” (Hauge, 1975), p.12. It is difficult to establish where and how its use as an inebriant was learned by the common people. Use of cannabis by the common people of India became frequent when the custom of smoking hemp arose and became socially acceptable. Choudhury, Sandipkumar, Drug Addiction among the Youth in Calcutta – A Sociological Analysis, p.14. The use of intoxicating drinks and drugs is known to have existed in ancient India; Aryans are believed to have used a drink called Somarasa. See Cohen, Daniel, Dreams Vicious and Drugs, (Newyork, New Vienpress. 1976), p.41. Historically, the consumption of alcoholic drinks and hemp drugs is reported to be upto 8th or 9th century A.D. In India cannabis is used in three forms-ganja, bhang and charas. The use of cannabis is socially sanctioned and is associated with socio-religious ceremonies of the Hindu God Shiva. See. Mendelosn, Jackte and Nang, K. Alcohol Use and Abuse in America (Briston, Litha Brown Company, 1985).


www.gdcada.org.


Supra n.22 at p.2

Supra n.5

Supra n.61 at p.8.

“Drug Addiction and Drug Abuse”, www.factmonster.com. Hamilton Wright, considered by some the father of U.S. anti- narcotics laws, reports that American contractors give cocaine to their Negro employees to get more work out of them; See, Musto, The American Disease. p.180


Supra n.22 at , p.7.
“Females Typically Have Different Motivations For Drug Use”, www.4therapy.com.

Supra n.61 at p.9.

Ibid

For the statistics relating to drug addiction in various countries, See Appendix.


Supra n.61. at pp.104-112.

Supra n.194 at pp.22-23.


“A Factor Analytic Study of Motivations for Drug Use”, stinet.dtic.mil.

Supra n.194 at p.vii.


www.factmonster.com


The State Union Territory wise figures are given in Appendix.

The State/Union Territory wise details of Govt. grants released to NGOs during the period from 2004-05 to 2006-07 is given in the Appendix, Table 2.