

(SECTION III : MENTAL HEALTH AND ADDICTION)

COMMON PROBLEMS OF ADOLSCENCE

1. Acne

It is a skin disorder of adolescents of both sexes where eruptions / pustules develop over face, chest and back caused by over activity of sebaceous glands and clogging of skin pores in response to influx androgen. Acne appearing on face makes oneself conscious because of their unsightliness. A proper understanding of their being natural and requiring proper medical treatment helps the adolescent to come out of the stress.

2. Hypochondria

It is a mental disorder in which the patient is preoccupied with body functions and normal sensations finding faults and seeking medical attention. Negative diagnostic evaluations and guarantee of good health by physicians increase the patient's concern. Hypochondria usually occur in late developer adolescents due to anxiety syndrome.

3. Moods

Socially and emotionally, adolescents feel alternate moods for loneliness and gregariousness. Most of it depends upon their friends and social circle. There are periods of social awkwardness, exhibitionism and aggressive self assertion

4. Craze

There is a tendency to attract attention and appear different from others. Some adolescence become conscious of their weight and tend to eat little resulting in development of various type of deficiencies. Some adolescents develop excessive craving for food, resulting in overeating and obesity

5. Physiological Aberrations

Some adolescents may suffer from perceptual disturbances or physiological aberrations like irregular/ absence of monthly periods in females. They must be got attended to by experts.

6. Neurasthenia

It is a chronic mental and physical weakness and fatigue which results inability to concentrate and enjoy. There is development of insomnia, headache, depression and irritability.

7. Phobias

They are persistent, irrational, intense fears of specific objects, activity or situation. Phobias are of various types like acrophobia (fear of heights),

(SECTION III : MENTAL HEALTH AND ADDICTION)

agoraphobia (fear of open space), arachnophobia (fear of spiders)
claustrophobia (fear of confined space, cynophobia (fear of dogs),
scotophobia (fear of darkness), social phobia (fear of embarrassment in
social situations)

8. Post – traumatic stress disorder

It is a mental disorder in which is a result of traumatic event like rape, assault, natural disaster, torture, etc in which the patient re-experiences the traumatic event in recurrent intrusive recollection, nightmares or flash – back. A treatment by psychiatrist is required.

9. Addiction

Addiction is a state of being up to some habit forming articles like drug, alcohol, tobacco smoking or chewing. It begins in adolescents due to curiosity, advertisement, peer pressure, elders, frustrations, or depression, feeling of independence, false belief in enhanced performance etc.

ADDICTION

- Addiction is the state of being given up to an habit , drug, alcohol, tobacco etc. due to becoming physically, psychologically and physiologically dependent upon the same is called addict.
- Medically, addiction is of three types
 - (i) Drug addiction / drug abuse
 - (ii) Tobacco addiction
 - (iii) Alcohol addiction

DRUG ADDICTION OR DRUG ABUSE

- Drug abuse is taking drugs for purpose other than clinical use, in amount, concentration or frequency that impair physical, physiological and psychological functions of the body
- It is intake of drug:
 - (i) Without valid medical prescription
 - (ii) For non medical purposes
 - (iii) In amount, strength, manner or frequency that damages the physical and mental functioning of an individual

(SECTION III : MENTAL HEALTH AND ADDICTION)

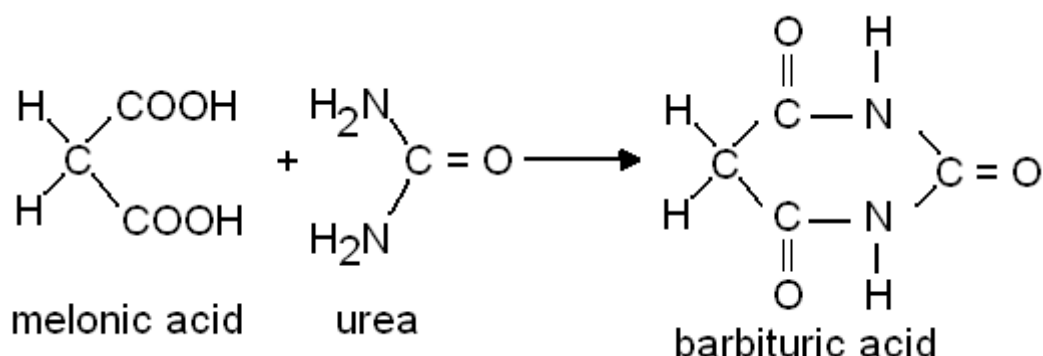
Psychotropic drugs

I) Sedatives and hypnotics

- These are antidepressant drugs or formulation which overcome mental irritability and excitement, assuage pain and lower activity causing drowsiness or sleep. The sleep inducing drugs are also called hypnotic.

Examples Barbiturates, benzodiazepines, flurazepam, etomidate etc.

- Barbiturates are derivatives of barbituric acid that bind GABA receptors or nervous system and keep the chloride channels open for longer period
- This depresses activity of excitable cells and induces sleep, hence used as sleeping pills
- Repeated use leads to skin allergy and coma, while withdrawal may lead to epilepsy.
- Benzodiazepines are antianxiety as well as sedative drugs.



II) Tranquilizers

- They are antidepressant drugs with calming and soothing effect
- Major tranquilizers are the one which is used to treat psychotic state, minor or common tranquilizers are employed to treat anxiety
- Common tranquilizers are antianxiety drugs that reduce mental tension and fatigue without inducing sleep. Most of them are benzodiazepines like diazepam (valium, calmose), chlordiazepoxide (Librium), lorazepam (larpose), nitrazepam (hypnotex) alprazolam (alprax)
- Reserpine (alkaloid from Rauwolfia serpentina) is used as tranquilizer as well as antihypertension drug. It is however known to be precipitate suicidal tendency, mental depression and epileptic convulsions.
- Tranquilizers bring about relaxation of muscles, block reflexes, increase frequency of chloride opening channels and reduce excitability of cells. Drug

(SECTION III : MENTAL HEALTH AND ADDICTION)

abuse leads to behavioral changes, non-coordination of body movement, headache impairment of memory and sexual functions

- Some drugs have both sedative and tranquilizer properties. They are called tranquilo-sedatives

Example : Diazepan (valium)

III) Opiate / opioid narcotics

- The opiate narcotics are drugs that suppresses brain activity and relieve pain. They are popularly called pain killers. They also have a sedative and astringent effect. The opiate narcotics are also used for cough relief and for the treatment of vomiting and diarrhoea
- The bad effects of casual opiate users:
 - Drowsiness
 - Reduction in visual activity
 - Constriction of pupil
 - Impaired attentivity
 - Apathy or loss of interest at work
 - Nausea and vomiting
 - Slow breathing
 - Slow pulse
 - Slurred speech
- Its continued use brings about:
 - Impaired digestion and absorption.
 - Loss of weight
 - Sterility
 - Chances of respiratory and cardiovascular arrest.
 - Poor immunity with repeated infection
 - Opiates taken intravenously may cause blocked veins, hepatitis and HIV infection.
- (i) Opium
 - Opium is the air-dried, milky latex obtained by incising the unripe (fruits) of white poppy plant, papaver somniferum or its variety P.album
 - It is the most effective pain killer and also induces a state of euphoria, an exaggerated feeling of well being, also called "high" opium is eaten or smoked. Opium contains some twenty alkaloids. Its main derivatives are morphine and codeine

(SECTION III : MENTAL HEALTH AND ADDICTION)

- (ii) Morphine
- It is the active principle of opium morphine is the most valuable analgesic. It is also used as sedative and an antianxiety agent.
 - It is widely used in small doses to relieve pain and induce sleep in case of serious injury, burns, fractures and surgeries.
 - Morphine reduces heart beat, blood pressure and urine output, increases blood sugar and causes constipation.
- (iii) Codeine
- It may be obtained from opium or morphine. It is in fact, methylmorphine
 - It has mild analgesic properties. It does not cause addiction. It is an ingredient of many medicines and cough syrups. A notable side effect of codeine is constipation
- (iv) Heroin
- Heroin is a white or brown crystalline semi-synthetic compound prepared from morphine by acetylation. It is the most dangerous opiate. It is thrice as potent as morphine and about 200 times stronger than opium.
 - It is highly addictive. It is banned even for medical use except for research.
 - Heroin may be orally taken, inhaled or injected. It induces drowsiness and lethargy. It's after effect includes impaired digestion, decreased weight, reduced vision, sterility and total loss of interest in work
 - Withdrawal symptoms of heroin include vomiting, diarrhea, shivering, running nose, muscular cramps and epilepsy
- (v) Smack
- It is a crude by-product of heroin synthesis and is commonly called 'brown sugar'. The addicts heat the smack powder and inhale its vapour. Smack is diacetylmorphine hydrochloride. It is a stronger analgesic than morphine
- (vi) Pethidine
- Pethidine is a widely used narcotic analgesic. It has sedative and euphoric effect also. It has a local anesthetic action.
- (vii) Methadone
- Methadone is an orally effective analgesic. Its action is slightly stronger and longer than that of morphine. It causes psychic and physical dependence, but withdrawal symptoms are mild.

(SECTION III : MENTAL HEALTH AND ADDICTION)

IV) Stimulants

- The stimulants temporarily stimulate the nervous system, make a person more wakeful, alert and active and cause excitement.

(i) Caffeine

- Caffeine is a mild stimulant. It is 1,3,7 trimethylxanthine. It is white, crystalline slightly bitter alkaloid and is commonly taken as beverages – tea, coffee, cocoa and cola drinks. It is also taken in chocolate bar and chocolate confectionary
- Caffeine increases the metabolic rate of neurons, thereby increasing alertness and thought. It improves performance and removes freedom. Higher dose cause nervousness, restlessness and insomnia. Excessive intake of caffeine causes addiction
- A cup of tea contains 30-75 mg of caffeine and 200 ml cola drinks has 25-60mg
- Excessive use causes anxiety, irritability diarrhea, irregular heart beat and decreases concentration. It also causes indigestion and disturbs pancreatic and renal functions
- Withdrawal from caffeine leads to headaches, disturbed sleep, lethargy etc.

(ii) Cocaine (coca alkaloid)

- It is an alkaloid and is extracted from dried leaves and young twigs of the south American shrub called erythroxylon coca. It is also synthesized from ecgonine or its derivatives.
- Cocaine is vaso-constrictor and is, therefore, used as local anesthetic
- Cocaine is CNS stimulant. It increases mental alertness and physical strength. It gives a feeling of well being and delays fatigue. It causes lack of sleep and loss of appetite. It is taken for excitement by addicts. Its use may ultimately lead to mental disorder and insanity. Its overdose may cause severe headache, convulsions and death due to respiratory or cardio-vascular failure

(iii) Crack

- Crack is highly potent smokable derivative of cocaine. When smoked, it results in a brief intense 'high' and intense craving for the drug arises in the user
- Crack may cause complication such as heart and nasopharynx damage, seizures and mental problem

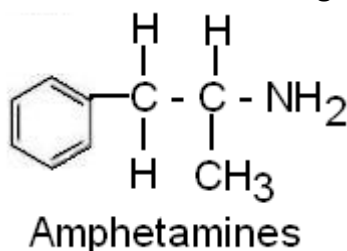
(SECTION III : MENTAL HEALTH AND ADDICTION)

(iv) Betel nut

- Kernel of the betel nut palm. Areca catechu enclosed in betel leaves and mixed with an aromatic paste is chewed extensively in India and Africa. It contains an alkaloid arecoline and red tannin. It is mild CNS stimulant. It stains teeth and gum red.

(v) Amphetamines

- These are synthetic drugs, commonly called antisleep drugs. The amphetamines are strong CNS stimulants and produce increases self-confidence and flow of ideas besides causing excitement and alertness. They are thought to increase physical and mental performances. They are taken by truck driver, students and night workers to keep awake. They impair judgment and vision. This may result in road accidents. They do not remove fatigue. They causes addiction.
- Amphetamine is used as spray or inhalant for relief of cold, asthma etc and are used among the 'dope test' drugs for athletes who use them to stimulate physical and psychological strength. They suppress hunger and are used to reduce weight.
- High doses causes sleeplessness which may lead to mental confusion. Their use may produce after effect like nausea and vomiting.



PSYCHEDELIC DRUGS (Psychotogenic drugs or hallucinogens)

- These are the drugs which induce behavioural abnormalities resembling psychosis by changing thoughts, feelings and perceptions without any actual sensory stimulus e.g. mescaline, psilocybine, LSD, phencyclidine, cannabis compounds.
- They causes optical or auditory hallucinations i.e. illusions, apparent perception of external objects or sounds not actually present.

(SECTION III : MENTAL HEALTH AND ADDICTION)

(i) Mescaline

- It is a water soluble white powder alkaloid which is obtained from the crowns of cactus *Lophophora williamsii*
- Mescaline cause alteration in mood changes in perception, reveries, visual hallucinations, delusions (false belief), depersonalization (to lose the feeling of one's own reality) etc mescaline also increases temperature and blood pressure

(ii) Psilocybine / Psilocybin

- It is also called indocybin and is obtained from the fruiting bodies of the Mexican mushroom (fungus) *Psilocybe Mexicana*
- Psilocybin is used as a hallucinogenic agent. Mexican aborigines use psilocybin to induce trances

(iii) LSD

- LSD or D-Lysergic acid diethylamide-15 is crystalline amidated alkaloid derived from ergot, an extract of fruiting body of fungus *Claviceps purpurea*
- LSD is smoked by the addicts and causes nightmares, hallucination, floating sensation, chronic psychosis and severe damage to the central nervous system. It may cause unconsciousness and even death. LSD also brings about chromosomal and foetal abnormalities. Pathological condition caused by LSD abuse or by eating grain affected by ergot is called ergotism. An LSD dependent person can be readily identified by incoherence in writing.
- LSD is used to induce contraction of involuntary uterine muscle, for checking haemorrhage and to alleviate migraine.

(iv) Hemp or cannabis compound or cannabinoid

- Four drugs, namely bhang, ganja, charas and marijuana, also called marihuana, are obtained from the dried leaves and flower of the hemp plants, *cannabis sativa*, commonly called bhang.
- The most active principle of hemp plant is tetrahydrocannabinol (THC). Hemp products may lead to heroin addiction
- The receptors for cannabinoids are mainly present in brain
- There are four types of hallucinogenic products.
 - Bhang: It is fresh / dried leaves and flowering shoots of both male and female plant. *Cannabis indica* used as ingredient of a drink or other food article.

(SECTION III : MENTAL HEALTH AND ADDICTION)

- Ganja / marijuana: It is dried unfertilized female inflorescence with stem of hemp plant *cannabis sativa*. Usually smoked in cigarettes and pipe.
 - Charas / Hashish : It is resin collected from flowering tops of generally female plant *cannabis sativa* which is usually smoked with tobacco.
 - Hash oil : It is a lipid soluble plant extract and highly concentrated. The active psychoactive substance is Δ^9 -tetrahydrocannabinoid or THC. Its concentration is 5mg/cigarette in case of marijuana, 0.5-6 in bhang, 8-12% by weight of hashish and 25-60% in hash oil. It is quickly absorbed in lungs and converted to psychedelic chemical, 11-hydroxytetrahydrocannabinol in liver. Excretion occurs through faeces.
 - Use of bhang, ganja or charas leads to light headiness, pleasure, anxiety, fearfulness, suspiciousness, dry mouth, dilation of pupils, redness of eyes, increased appetite, impaired depth perception, impaired driving ability, chest pain, slowing of time sense, delayed response, increased urination and hallucination.
 - Regular use causes addiction. It results in behavior changes, reduced secretion of testosterone, loss of fertility, tachycardia, chronic cough and bronchitis.
- (v) Datura and Belladonna
- Seeds of *Datura stramonium* and aerial parts of *Atropa belladonna* are misused for their hallucinogenic properties because of the presence of anticholinergic alkaloids atropine, hyoscyamine and scopolamine. However, even in slight excess, they can cause death.
- (vi) PCP / Phencyclidine
- It is a veterinary medicine used in immobilizing large animal. PCP is available to addict as angle dust or white granular powder. A dose of 5mg causes excitement, analgesia, dysarthria (disorder of impaired motor coordination, flushing distortion of body image, feeling of estrangement, horizontal or vertical oscillation of eye ball, vasospasm of cerebral arteries, insomnia and chronic schizophrenia)
- (vii) Methylendioxy methamphetamine (MDMA)
- MDMA has recently becomes popular with students under the name 'ecstasy' drug. MDMA has CNS-excitant and hallucinogenic properties. It seems to relax inhibitions and enhance communication.

(SECTION III : MENTAL HEALTH AND ADDICTION)

REASONS FOR DRUG ABUSE

- Curiosity : Reference to drugs, smoking and alcohol in print media, electronic media, movies, internet and by addicts creates curiosity for having a personal experiences.
- Experimentation. There is natural tendency of every child to experiment
- Adventure and excitement : A child may go in for use of drug, smoking and alcoholic drink for the sake of adventure and excitement.
- Family set up: In certain families, use of alcohol, tobacco, sleeping pills and pain killers are common. It induces the youngsters to taste the same
- Group or peer pressure: Friends and peer groups often initiate some adolescents to drugs, alcohol and smoking as a defiance of authority and feeling of independence.
- Feeling of independence: Non –adjustment to social hierarchy may initiate some adolescents to drug, alcohol and smoking as defiance of authority and feeling of independence.
- Progressiveness: There is a false perception that taking of drugs, alcohol or smoking is assign of progressiveness in society.
- Stress: Adolescents are often under stress due to pressure from excelling in academic, sports hobbies and other activities. They fall in for addictive substances in order to overcome stress.
- Overcoming frustration and depression: Set back in academic, professional or family life may lead some person to use alcohol drugs or tobacco for overcoming frustration and depression.
- Unsupportive family structure : An unstable or unsupportive family structure often leads youngsters to drug, tobacco or alcohol addiction.

EARLY WARNING SIGNS OF ADDICTION

- Adolescents, hostelers, unemployed, failed and freshly employed persons are likely to start drug abuse. Family members, parents and teachers must keep an eye over their wards for
 - Change in friend circle.
 - Irregular completion of class-work.
 - Poor performance in examination.
 - Avoiding extracurricular activities.

(SECTION III : MENTAL HEALTH AND ADDICTION)

- Avoiding families duties and responsibilities.
- Physical changes like poor appetite, frequent sore throat, redness in eyes, weight loss, reduced physical activity.
- Behavioural changes like withdrawn nature mood alterations, unexpected anger and violence, telling lies, etc.
- Arrest by police or other legal problem.

EFFECTS/SYMPTOMS OF DRUG ABUSE

- Behavior : Addicts show reckless behavior. Vandalism and violence. Interest in work, commitment to duty and self confidence is lost.
- Body coordination : Neural and neuromuscular junctions are affected. As a result, coordination of body parts, working of nervous and muscular systems are influenced. Tremors become common.
- Impaired digestion: Addicts have not much interest in eating proper food. Addiction disturbed peristalsis and secretion of digestive enzymes. Therefore digestion is impaired.
- Nausea and vomiting : Disturbed digestive and nervous system leads to frequent nausea and vomiting.
- Damage to liver and kidney : Drugs, alcohol and tobacco affect liver and kidneys as they become involved in metabolism and elimination of their products. This is not their normal function. They, therefore, becomes damaged. The damaged liver undergoes cirrhosis.
- Disturbed respiratory system: There is irregularity in breathing due to effect of addictive substances on the respiratory centre of brain. The disturbance may lead to respiratory arrest.
- Sexual dysfunctions: Insufficiencies develop in reproductive system leading to impotency.
- Abnormal babies: Drug alcohol and tobacco addict mothers are liable to give birth to abnormal babies
- Infections: Taking of drugs intravenously may spread the serious infections like AIDS and hepatitis B due to sharing of infected needles and syringes. They also spread the infections to life partners since the infections may be sexually transmitted.

(SECTION III : MENTAL HEALTH AND ADDICTION)

WITHDRAWAL SYMPTOMS

- Depressed mood : Cheer disappears. There is little interest in happening in the family or work place.
- Anxiety : An internal feeling of nervousness, fear, agitation and uncertainty occurs.
- Nervousness: There is feeling of nervousness courage and comfort are lacking.
- Restlessness: Inability to settle down due to feeling of uneasiness.
- Irritability : The person becomes angry over the slightest pretext.
- Insomnia : Sleeplessness or insomnia occurs.
- Increased appetite: Many persons develop a tendency to eat more.
- Dryness of throat : A feeling of dryness of thought occurs.
- Craving : There is a persistent internal urge to start taking addictive substances.

The withdrawal symptoms are at their peak after 1-2 days of stoppage. They slowly begin to fade and most of them disappear 3-4 weeks after abstinence.

DEADDICTION

- It is treatment of drug habituation and carving for the abused drug. The various steps in the treatment of drug addiction are
 - Pharmacotherapy
 - Psychosocial therapy
 - Health restoration.
 - Psychological treatment.
 - Prevention of relapse or re-addiction
- Pharmacotherapy: It comprises replacement of abusive drugs with less reinforcing and legally available ones.
- Psychosocial therapy : This includes rehabilitation of drug dependent in the form of counseling by relatives, friends and physicians
- Health restoration: Vitamin administration, proper nutrition, restoration of electrolyte balance, proper hydration are the measures aimed at restoring the health damaged by drugs.

(SECTION III : MENTAL HEALTH AND ADDICTION)

- Psychological treatment : Reasons of taking drugs should be explored and sincere efforts should be made to eliminate them.

PREVENTATION AND CONTROL

- Discipline : Good nurturance with consistent discipline but without suffocating strictness reduces the risk of addictions
- Communication: The child must be able to communicate with the parents seeking clarification of all doubts and discussing problems that arise in studies or develop the class, with friends, siblings and others.
- Independent working : Give responsibility to the child for small task and allow him / her to perform independently
- Avoid undue pressure : No child should be asked to perform beyond threshold limits whether in studies, sports or extracurricular activities
- Education and counseling: Stresses, failures, disappointments and problems are part of life. A child has to be trained, educated and counseled to face them as and when they come.
- June 26 is observed as International Day Against Drug abuse and Illicit Trafficking

ALCOHOL ADDICTION

- Regular consumption of alcohol either in low concentration or in high concentration causes dependency on alcohol which is called alcoholism.
- Alcoholism is addiction, chronic overindulgence and dependence on alcoholic drinks which is often associated with defiant behavior.
- A person addicted to alcoholic drink is called alcoholic. Alcohol is chemically ethyl alcohol or ethanol (C_2H_5OH).

DEVELOPMENT OF DRINKING HABIT

- Gesture of defiance to elders, friends and life partners
- Feeling of independence
- Overcoming of frustration of failure
- Unhappy family life
- Curiosity
- Group pressure

(SECTION III : MENTAL HEALTH AND ADDICTION)

- Pleasure or excitement
- Relief from pain
- Desire to do more work

METABOLISM OF ALCOHOL

- Alcohol is absorbed mainly in stomach and proximal part of intestine. Major metabolism occurs in liver
- 2-10 % is excreted through lungs, urine and sweat, 10% is metabolized over smooth endoplasmic reticulum. Rest is converted into acetaldehyde with the help of alcohol dehydrogenase.
- Acetaldehyde is oxidized in cytosol by acetaldehyde dehydrogenase : It liberates heat. Hence alcohol drinks give them a feeling of flushing.

BLOOD ALCOHOL CONCENTRATION (BAC)

LOW BAC

Flushed face, feeling relaxed and high talkative, drunken behavior

RISING BAC

Effect on cerebellum resulting in clumsy gait, boisterous, loss of motor coordination so that driving ability is impaired

HIGH BAC

Blurred tunnel vision, slurred speech, aggressive behavior. Severe intoxication may result in unconsciousness or even coma

EFFECTS OF ALCOHOLISM

1. Gastric disorder : Alcoholism causes gastric ulcers and inflammations of gastric mucosa.
2. Depressant : Alcohol is generally depressant and reduces efficiency of all organs
3. Arterial dilation : The arteries undergoes dilation, becomes rigid and brittle.
4. Energy : Alcohol is oxidized to release energy which is dissipated from skin making face flushy.

(SECTION III : MENTAL HEALTH AND ADDICTION)

5. Blood sugar : Alcohol addiction reduces level of blood sugar so that nutrient supply to different tissue become deficient.
6. Neuritis : There is inflammation of nerve axon.
7. Babies : Alcoholic mothers give birth to unhealthy, under weight and abnormal babies.
8. Kidneys : Urine is hyper osmotic. This disturbs kidney functions.
9. Breathing : Excess intake of alcohol slows down breathing.
10. Blood: RBC size increases but there is reduced number of erythrocytes, leucocytes and blood platelets.

PSYCHOLOGICAL EFFECTS

1. Amnesia: continuous use of alcohol leads to decreased mental functions. Forgetfulness increases.
2. Suspiciousness: Due to decreased vigour and increased forgetfulness, an alcoholic develops suspiciousness.
3. Accidents: Alcoholics often cause industrial and traffic accidents.

SOCIAL EFFECTS

1. Antisocial behavior: under the influence of alcohol, inhibitions, conscience and morals are often shed leading to all type of antisocial behavior.
2. Absenteeism: Addiction of alcohol leads to loss of interest in work.
3. Neglect of family : An alcoholic is self centered and stops bothering about other members of the family.

DEADDICTION

Alcohol dependence becomes both psychological and physiological. Therefore, withdrawal symptoms are quit apparent -insomnia, anxiety, tremor, irritability, gastric problems. In some cases the symptoms are more sever-hallucinations, confusion and seizures.

1. For deaddiction, psychotherapy or counseling is very important.
2. Patient is provided with thiamine rich diet and brain depressants like benzodiazepines.
3. Patients are also given disulfiram or carbimide. It causes violent reaction if alcohol is taken. The phenomenon is called aversion treatment.