

1 **DRUG DEPENDENCE and ADDICTION**

2020-ANKARA

2 ***What is Addiction?***

- *Addiction is a brain disease* and defined as a chronic, relapsing disorder

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Characterized by:

- Compulsive drug seeking behavior
- Continued abuse of drugs despite negative consequences
- Persistent changes in the brain's structure and function

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Addiction is Like Other Diseases... such as heart disease.

- preventable
- treatable
- It changes biology
- If left untreated, it can last a lifetime and may lead to death.

Besides addiction, drug abuse is linked to a variety of health problems, including HIV/AIDS, cancer, heart disease, and many more. It is also linked to homelessness, crime, and violence. Thus, addiction is costly to both individuals and society.

4 **Why Do People Take Drugs ?**

According to the National Institute on Drug Abuse, people take drugs for a few reasons, including:

- to feel good — To have novel feelings, sensation, experience and to share them
- to feel better — To lessen anxiety and stress, worries, fears, depression, hopelessness
- to do better — improve performance in school and at work or their abilities in sports.

Athletes and bodybuilders may take anabolic steroids to increase muscle mass

curiosity and peer pressure. In this respect, teens are particularly at risk because peer pressure can be very strong.

Teens are more likely than adults to act in risky or daring ways to impress their friends and show their independence from parents and social rules.

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Why do some people become addicted to drugs, while others do not?

As with other diseases and disorders, the likelihood of developing an addiction differs from person to person, and no single factor determines whether a person will become addicted to drugs.

- In general, the more *risk factors* a person has, the greater the chance that taking drugs will lead to drug use and addiction
- *Protective factors*, on the other hand, reduce a person's risk. Risk and protective factors may be either environmental or biological.

6 7 **Addiction Involves Multiple Factors**8

What biological factors increase risk of addiction?

Biological factors that can affect a person's risk of addiction include;

- Genes,
- stage of development, and
- gender or ethnicity.

Scientists estimate that epigenetics, account for between 40 and 60 percent of a person's risk of addiction.

Teens and people with mental disorders are at greater risk of drug use and addiction than others.

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9 **What environmental factors increase the risk of addiction?**

Factors that can increase a person's risk include the following:

Home and Family Parents or older family members who use drugs or misuse alcohol, or who break the law, can increase children's risk of future drug problems.

Peer and School Friends and other peers can have an increasingly strong influence during the teen years.

Academic failure or poor social skills can also put a person at risk for drug use.

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What other factors increase the risk of addiction?

Early Use

- Research shows that the earlier a person begins to use drugs, the more likely he or she is to develop serious problems.
- This may be due to the harmful effect of drugs on the developing brain.
- It also may result from lack of a stable home or family, exposure to physical or sexual abuse, genes, or mental illness.
- Method of use. Smoking a drug or injecting it into a vein increases its addictive potential. Both smoked and injected drugs enter the brain within seconds, producing a powerful rush of pleasure. However, this intense "high" can fade within a few minutes, and the person no longer feels good. Scientists believe that this low feeling drives people to repeat drug use in an attempt to recapture the high pleasurable

11 **Drug use terms and descriptions**

- Addiction: Compulsive nature of the drug use despite physical and/or psychological

harm to the user and society and includes both licit and illicit drugs.

- Substance abuse: Frequently used broad range of substances (including alcohol and inhalants) that can fit the addictive profile.

Dependence:

– Psychological dependency is a dependency of the mind. This means that people feel better when they have the drug. Eg: lysergic acid diethylamide (LSD), Cannabis, cocaine

– Physical dependence is characterized by tolerance (the need for increasingly larger doses in order to achieve the initial effect) and withdrawal symptoms when the user is abstinent.

12 **Drug use terms and descriptions**

Street drug: Drug that is taken for non-medicinal reasons (usually for mind-altering effects)

drug abuse can lead to physical and mental damage and (with some substances) dependence and addiction. Eg: Alcohol, heroin, methamphetamine, crack, cocaine and marijuana (Cannabis).

Hard drug Lead to severe physical addiction generally considered to be more dangerous, with a higher risk of dependence than soft drugs. Eg.: Heroin, methamphetamine, cocaine.

Soft drug (do not cause physical addiction)

While they do not cause physical addiction, some of them may still lead to psychological dependency.

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13 **Drug use terms and descriptions**

Illicit drug: An illegal drug, can't prescribed. Eg.: Cocaine, heroin, LSD, marijuana.

Designer drug: A synthetic drug

Club drug: A drug mainly used in clubs, bars and parties. Ex: Rohypnol, ketamine.

Recreational drugs - used for non medicinal purposes, in particular, for fun or leisure. – Eg.: methamphetamine that is used to treat attention deficit hyperactivity disorder (ADHD), drive long distances and obesity

14 **Drug use terms and descriptions**

Adulterants: drugs that are added to mimic or enhance the effects of the drug being offered. Sometimes amphetamines can be replaced with caffeine or ephedrine

Diluents: Compounds such as sugars or baking soda that are used to increase the bulk of the drug sample.

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15 **Types of Abused Substances**

Legal Substances – Legal substances, approved by law for sale over the counter or by doctor's prescription (caffeine, alcoholic beverages, nicotine, and inhalants (nail polish, glue, inhalers, gasoline).

Illegal Substances – Prescription drugs are considered illegal when diverted from proper use. – Morphine, and synthetic opiates, such as fentanyl, are most often abused by people in the medical professions, who have easier access to these drugs. Other illegal substances include cocaine and crack, marijuana and hashish, heroin, hallucinogenic drugs such as lysergic acid diethylamide, phencycline or "angel dust", "designer drugs" such as MDMA (Ecstasy), and "party drugs" such as GHB (gammhydroxybutyrate).

Prescription drugs such as tranquilizers, amphetamines, benzodiazepines, barbiturates, steroids, and analgesics can be knowingly or unknowingly overprescribed or otherwise used improperly.

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16 **Addiction Is A Developmental Disease that starts in adolescence and childhood**

- Prefrontal cortex is one of the parts of the brain that allows people to assess situations, make sound decisions, and keep emotions and desires under control and still maturing during adolescence
- Introducing drugs in this period of development may cause brain changes that have profound and long-lasting consequences like addiction and other serious problems.
- So, preventing early use may help in reducing these risks

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17 **Times of transition may increase risk of drug use**

For an adult, a divorce or loss of a job

For a teenager, moving , family divorce, or changing schools.

When children advance from elementary through middle school, they face new and challenging social, family, and academic situations. Often during this period, children are exposed to substances such as cigarettes and alcohol for the first time.

When they enter high school, teens may encounter greater availability of drugs, drug use by older teens, and social activities where drugs are used.

18 **How do drugs work in the brain?**

Neurotransmitters—The Brain's Chemical Messengers

The messages are typically carried between neurons by neurotransmitters.

Drugs interfere with the way neurons send, receive, and process signals via neurotransmitters.

- Some drugs, such as marijuana and heroin, can activate neurons because their chemical structure mimics that of a natural neurotransmitter.
- This allows the drugs to attach onto and activate the neurons.

- Although these drugs mimic the brain's own chemicals, they don't activate neurons in the same way as a natural neurotransmitter, and they lead to abnormal messages being sent through the network.

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- Other drugs, such as amphetamine or cocaine, can cause the neurons to release abnormally large amounts of natural neurotransmitters or prevent the reuptake of these chemicals by interfering with transporters.
- This strengthens or disrupts normal communication between neurons.

20 21 **What parts of the brain are affected by drug use?**

Drugs can alter important brain areas and can drive the compulsive drug use that marks addiction.

Brain areas affected by drug use include:

The basal ganglia

The extended amygdala

The prefrontal cortex

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The basal ganglia, which play an important role in positive forms of motivation, including the pleasurable effects of healthy activities like eating, socializing, and sex, and are also involved in the formation of habits and routines.

- These areas form a key node of what is sometimes called the brain's "reward circuit."
- Drugs over-activate this circuit, producing high euphoria; however, repeated exposure makes it difficult to enjoy anything by causing adaptation development and decreased sensitivity.

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- The extended amygdala plays a role in stressful emotions such as anxiety, irritability and discomfort, which refers to the withdrawal syndrome caused by not using the drug. This situation motivates the person to seek the drug again. With the increasing use of drug this region becomes more and more sensitive. Over time, a person with substance use disorder uses drugs to get temporary relief from this discomfort rather than to get high.

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- The prefrontal cortex strengthens the ability to think, plan, solve problems, make decisions and self-control.
- It is the last maturing part of the brain and makes young people the most vulnerable to substance abuse.
- Shifting balance between this circuit and the reward and stress circuits of the basal

ganglia and extended amygdala allows a person with a substance use disorder seek the drug compulsively with reduced impulse control

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- Some drugs, such as opioids, also affect parts of the brain, such as the brain stem, which controls basic critical functions such as heart rate, breathing and sleeping explaining why overdoses can cause depressed breathing and death.

26 **How do drugs produce pleasure?**

- All drugs of abuse - nicotine, cocaine, marijuana, and others - effect the brain's "reward" circuit, which is part of the limbic system.
- Drugs hijack this "reward" system, causing unusually large amounts of dopamine to flood the system.
- This flood of dopamine is what causes the "high" or euphoria associated with drug abuse

Some drugs can cause more fluctuations than with healthy rewards like eating, music, creative pursuits, or social interaction.

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28 **What are the other health consequences of drug addiction?**

- Lung or heart disease, stroke, cancer, death (overdose opioids) or mental health conditions.
- Tobacco smoke can cause many cancers
- Methamphetamine can cause severe dental problems, known as "meth mouth,"
- Inhalants, may damage or destroy nerve cells, either in the brain or the peripheral nervous system
- Human immunodeficiency virus (HIV) and hepatitis C (a serious liver disease) infection can occur from sharing injection equipment and from impaired judgment leading to unsafe sexual activity.
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- Infections, AIDS, tobacco-related fires, toxicity due to bad batches of drug (MPTP, PCP congeners), car accidents, big machinery accidents, other accidents, violent death

29 **Some of the more severe consequences of addiction**

Negative effects of drug use while pregnant or breastfeeding:

Illicit drug use poses risks for pregnant women and their babies.

Pregnant women who use drugs may be more likely to harm the fetus with risky behaviors and poor nutrition.

Drug use can lead to premature birth or low birth weight. It can also cause the baby to have withdrawal symptoms (sometimes in the form of neonatal abstinence syndrome), birth defects or learning and behavioral problems later in life.

Secondhand smoke: Exposure to secondhand smoke increases the risks of heart disease and lung cancer in people who have never smoked.

Secondhand tobacco smoke exposes bystanders to at least 250 chemicals that are known to be harmful, particularly to children

30 **Does drug use cause mental disorders, or vice versa?**

Drug use and mental illness often co-exist.

Common co-occurring mental health disorders include:

- Depression
- Anxiety
- Schizophrenia
- Post-traumatic stress disorder
- Eating disorders
- Attention-deficit hyperactivity disorder

In some cases, mental disorders such as anxiety, depression, or schizophrenia may come before addiction;

in other cases, drug use may trigger or worsen those mental health conditions, particularly in people with specific vulnerabilities.

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31 **TYPES OF ADDICTION**

1. Substances
2. Behaviour Addictions (Eating, Sex, Love, Work, Debit, Gambling, Shopping, Exercise, Technology Addictions)

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CLASSIFICATION

Drugs can be classified in many ways.

They can be classified according to:

- uses (medicinal or recreational)
- effect on the body (the specific effect on the central nervous system)
- source of the substance (synthetic or plant)
- legal status (legal/illegal)
- risk status (dangerous/safe).

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33 **Major classifications of Drug**

Depressants: Ethanol, Opioids, BZDs, Barbiturates, H1 Antagonist

Stimulants: Amphetamine, Cocaine, Khat, Caffeine

Psychedelics/Hallucinogens: LSD, cannabis, PCP, DOM etc.

Inhalants: Acetone, Benzene, amyl nitrate etc. Nicotine: Smoking / Chewing

34 **Classification of drugs by their effect on CNS**

Stimulants

- Tend to *speed up* the activity of a person's central nervous system (CNS) including the brain.

These drugs often result in the user feeling more alert and more energetic. Stimulant drugs increase alertness, attention, and the rate of certain body functions, including blood pressure, breathing, and heart rate.

- Central nervous system (CNS) stimulants, commonly called "uppers," work by stimulating the body.

Examples include Amphetamines, Cocaine, Pseudoephedrine (found in medications such as Sudafed, Codral Cold and Flu), Nicotine, Caffeine, Khat

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35 Commonly Abused Stimulants

- Prescription stimulants include amphetamines and methamphetamine.
- Illicit stimulants include illegally manufactured methamphetamine (meth), cocaine, and crack cocaine, among others.

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36 Amphetamines

Amphetamines, including methamphetamine, are powerful stimulants

- Produce feelings of euphoria and increase alertness and motor activity, Reduce fatigue, appetite, increase heart and breathing rates to dangerous levels, constrict blood vessels in skin and mucous membranes
- High doses can lead to:
 - Nervousness, agitation, irritability confusion, paranoia, hostility

Amphetamines

- Synthetic stimulants
 - Benzedrine, Dexedrine, Methedrine
- Trigger release of and block reuptake of norepinephrine and dopamine
- Amphetamines are usually prescribed to treat sleep disorders, ADHD,(Ritalin, Adderal) obesity and asthma.
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- Abusing amphetamines can lead to physical and psychological side effects such as hypertension, mood swings
- There is a risk of overdose.
 - Tolerance can develop
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37  **Methamphetamine**

Methamphetamine is a powerful, highly addictive stimulant that affects the central nervous system.

Crystal methamphetamine is a form of the drug that looks like glass fragments or shiny, bluish-white rocks. It is chemically similar to amphetamine. Other common names for methamphetamine include *blue, crystal, ice, meth,* and *speed*.

How do people use methamphetamine? People can take methamphetamine by:

- smoking
- swallowing (pill)
- snorting
- injecting the powder that has been dissolved in water/alcohol
- Can lead to deterioration of the nasal cavity and teeth.
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38  **Cocaine**

- Cocaine is a powerfully addictive stimulant alkaloid from the coca leaves
- Health care providers can use it for local anesthesia and some surgeries.
- an illegal drug.
- causes powerful side effects: euphoria, increased energy and alertness, increased sense of confidence, and sexual arousal.
- Cocaine abuse produces an immediate and intense "high," often followed by just as intense a "low," characterized by anxiety, insomnia, restlessness, agitation, and irritability.
- Route: nasal, IV or smoked
- Some people inject a combination of cocaine and heroin, called a Speedball.
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39  **Crack Cocaine**

- Smokable form of cocaine.
- Another popular method of use is to smoke cocaine that has been processed to make a rock crystal (also called "freebase cocaine").
- The crystal is heated to produce vapors that are inhaled into the lungs. This form of cocaine is called Crack
- Smoking crack is dangerous because smoking of a drug causes it to take effect more quickly, meaning heightened risk of developing addiction.
- A person can become addicted after his or her first time trying cocaine.
- Due to its potency, there is a high risk of fatal overdose from using crack cocaine. Even someone using the drug for the first time can overdose.
- Prolonged use of crack cocaine can lead to severe depression, heart problems, stroke, psychosis, and more.

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40 **Treatment - Stimulant Use Disorder (cocaine)**

Treatment including support, education, skills

- Pharmacotherapy
 - No medications
 - If medication used, also need a psychosocial treatment component
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41 **How does cocaine affect the brain?**

- Cocaine increases levels *dopamine* in brain circuits related to the control of movement and reward and mainly prevents reuptake of DA
 - This flood of dopamine in the brain's reward circuit strongly reinforces drug-taking behaviors, because the reward circuit eventually adapts to the excess of dopamine same high, and to obtain relief from withdrawal.
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1 Short term Effects

Short-term health effects of cocaine include: extreme happiness and energy

- mental alertness, hypersensitivity to sight, sound, and touch, irritability
 - *paranoia*—extreme and unreasonable distrust of others
 - Cocaine's effects appear almost immediately and disappear within a few minutes to an hour.
 - Effects of cocaine, depend on the method of use. Injecting or smoking cocaine produces a quicker and stronger but shorter-lasting high than snorting.
 - The high from snorting cocaine may last 15 to 30 minutes. The high from smoking may last 5 to 10 minutes.
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2 Long term Effects

- Some long-term health effects of cocaine depend on the method of use and include the following:
 - *snorting*: loss of smell, nosebleeds, frequent runny nose, and problems with swallowing
 - *smoking*: cough, asthma, respiratory distress, and higher risk of infections like pneumonia
 - *consuming by mouth*: severe bowel decay from reduced blood flow
 - *needle injection*: higher risk for contracting HIV, hepatitis C, and other bloodborne diseases, skin or soft tissue infections, as well as scarring or collapsed veins
 - However, even people involved with non-needle cocaine use place themselves at a risk for HIV because cocaine impairs judgment, which can lead to risky sexual behavior with infected
 - can cause permanent damage to the cardiovascular, respiratory, and central nervous systems.
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- Other long-term effects of cocaine use include being malnourished, because cocaine decreases appetite, and movement disorders, including Parkinson's disease, which may occur after many years of use.
- In addition, people report irritability and restlessness from cocaine binges, and some also experience severe paranoia, in which they lose touch with reality and have *auditory hallucinations*—hearing noises that aren't real.
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44  **KHAT**

- Khat is a stimulant drug. Chewing khat is part of some social traditions in parts of the Middle East, such as Saudi Arabia and Yemen, and in Eastern Africa, such as Somalia.
- The buds and leaves of the khat plant (*Catha edulis*) are chewed for stimulant and euphoric effects, and traditionally have been used for medicinal purposes as well as recreationally.
- Khat contains cathinone and cathine, which are the chemicals that produce the stimulant effects.

45  **Synthetic Cathinones**

Synthetic cathinones, more commonly known as "bath salts," are human-made stimulants chemically related to cathinone, a substance found in the khat plant. Human-made versions of cathinone can be much stronger than the natural product and, in some cases, very dangerous.

46  **Commonly Abused Depressants**

Depressants (*also known as relaxants*) are commonly called, "downers."

- Tend to *slow down* the activity of the CNS, which often results in the user feeling less pain, more relaxed and sleepy.
- Prescription depressant medications work to treat anxiety, insomnia, and certain mental health disorders.
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- CNS depressants are more likely to result in euphoria than depression, especially in moderate use.
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Examples include:

- Alcohol
- Major tranquillisers
- Benzodiazepines (e.g. Valium, Temazepam) Opioids (heroin, morphine)
- Volatile substances (can also be classified as 'other' (glue, petrol, and paint)).
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47  **Alcohol-Ethanol**

ETHANOL is a commonly abused legal substance

Ethanol is metabolized by alcohol and aldehyde dehydrogenases

Effects of ethanol are related to blood ethanol concentration(BAC)

- a. Legal limit for driving is a 0.08% (80 mg EtOH/100 ml blood) BAC
- b. Death due to respiratory depression occurs in the range of 0.4–0.5% BAC, although this is quite variable
- c. Treatment of an overdose of ethanol is symptomatic

48 **Negative Effects Due to Alcohol Use**

- Physical and psychological addiction
- Delirium tremens is a serious alcohol withdrawal. It includes sudden and severe mental or nervous system changes.
- Activation of MFOs that increase the metabolism of many other drugs (eg phenytoin, warfarin)
- Hypertension, Cardiomyopathy and arrhythmias
- Liver damage (for example, cirrhosis, fatty liver)
- When taken in combination with acetaminophen, it can cause severe acute liver damage due to the formation of hepatotoxic metabolites.
- Changes in blood sugar due to impaired gluconeogenesis
- Megaloblastic anemias due to folate or vitamin B12 deficiency or iron deficiency anemia
- Malnutrition, especially Wernicke-Korsakoff syndrome due to thiamine deficiency (extraocular muscle, paralysis of ataxia and confusion)
- Fetal alcohol syndrome is characterized by slow growth, microencephaly, poorly developed coordination, mental retardation and congenital heart abnormalities.
- There is also an increase in spontaneous abortion rates.
- Impaired visual acuity (blurred vision)
- Immune system effects
- Increased liver and pancreatic inflammation, oropharynx and liver cancer

49 **TREATMENT**

- Antabuse (disulfiram), which inhibits aldehyde dehydrogenase, causes nausea and vomiting when alcohol is consumed.
- Other drugs include naltrexone, naloxone, and acamprosate.
- Naltrexone is an opioid receptor antagonist Acamprosate acts on the NMDA subtype of the glutamate receptor.

50 **Benzodiazepines**

- Benzodiazepines are prescription drugs typically prescribed for treatment of conditions like anxiety and insomnia. Due to the highly addictive nature of the drugs, they are usually only prescribed for a short period of time.
- Commonly abused benzodiazepines include Ativan, Valium, Restoril and Xanax among others.
- Benzodiazepines can quickly lead to physical dependence, causing withdrawal symptoms. Benzodiazepines may also cause tolerance

51 **Barbiturates**

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- Barbiturates are a class of depressant drugs which have largely been replaced in medical use by benzodiazepines, due to the highly addictive, overdose risk and narrow therapeutic range
- However, barbiturates are still used to treat some conditions, including seizures.

52 **Consequences Of Depressant Abuse**

Abuse of the drugs, can lead to a number of consequences, which vary according to the substance, duration and severity of abuse, and other factors.

Some consequences of depressant abuse may include:

- delirium
- hallucinations
- increased risk of high blood sugar and diabetes
- low blood pressure
- memory impairment
- death due to withdrawal symptoms (dependence)
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53 **Opioids**

- Opioids include pain-relieving medications, like OxyContin and Vicodin, the illicit drug, heroin, and illicit opioid combinations commonly sold on the street.
- Opioid drugs work in the brain by binding to opioid receptors. When abused, the drugs produce heightened feelings of euphoria
- Opioids are highly addictive, and quickly produce physical dependence, leading to withdrawal symptoms

54 **Heroin**

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- This illegal drug is natural version of manmade prescription opioid narcotics. Highly addictive. Many people who begin abusing opioid prescriptions turn to heroin when they are no longer able to obtain a prescription.
- Heroin may be viewed as a less expensive alternative but even more dangers.
- Heroin sold on the street may be laced with other potent opioids, like fentanyl, or with harmful additives.
- People buying heroin can never be certain the drug is heroin alone, meaning abuse of the drug leads to increased risk of health risks.
- Side effects of heroin include insomnia, nausea and vomiting, and going "on the nod," an intermittent state of consciousness and semi-consciousness, among others.
- Heroin gives you a rush of good feelings at first. But later, everything slows down. People may feel a strong need to take more heroin to feel better.

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55  **Illicit Opioids**

- Illicit opioids include opioids that are manufactured illegally—such as heroin and designer drug combinations, like gray death and u-47700—as well as legal prescriptions which have been diverted for illegal use.
- Some designer opioid drugs may contain several opioids, and the more opioids a single drug contains, the more potent the drug and the higher the risk of overdose with just one use.

56  **Consequences Of Opioid Abuse**

Consequences of opioid abuse can affect all aspects of a person's life, and may be devastating for some.

Withdrawal symptoms may be severe, if not life-threatening, keeping a person using the drugs again and again.

Long-term effects of opioid abuse can lead to chronic constipation, permanent changes to the brain, and cardiac arrest with too high a dose.

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57  **Prescription and Over-the-Counter (OTC) Medicine**

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Common drugs that cause prescription drug addiction include:

- The most commonly abused OTC drugs are cough and cold medicine that have [dextromethorphan](#), which in high doses can make you feel drunk or intoxicated.
 - Opioids pain relievers, including [oxycodone](#) and hydrocodone.
 - [Benzodiazepines](#), such as Xanax and Valium.
 - Medicine used to treat attention deficit hyperactivity disorder (Amphetamines, such as Adderall and Ritalin)
 - Sedatives, including Ambien and Lunesta.
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58  **Hallucinogens are drugs which cause hallucinations, or extreme distortions of a person's perceptions of reality.**

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- Hallucinogen effects include:
 - Colorful visual hallucinations
 - Synesthesias
 - Overflow from one sensory modality to another
 - Alterations in time perception
 - Lability of mood
 - Anxiety & paranoia
 - LSD (D-lysergic acid diethylamide) is one of the most powerful mind-altering chemicals, which is found in a fungus that grows on rye and other grains. LSD has

many other street names, including acid, blotter acid, dots, and mellow yellow

- While LSD is not an addictive drug physically, it is a powerful drug and can lead to panic attacks, psychosis, neurological damage, and physical harm. The drug can be taken orally or injected.

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2 Other hallucinogens

- Psilocybin
 - Extracted from mushroom *psilocybe mexicana* “Magic mushrooms”
- Mescaline
 - Active ingredient of peyote
- Ecstasy (MDMA)
 - Increase feelings of intimacy and enhances mood
 - Chemically similar to mescaline and amphetamines
 - Acts on serotonin
 - Its use peaked in 2001, with 1.8 million users.
- PCP (phencyclidine)
 - *Angel dust*
 - Animal tranquilizer
 - Causes severe paranoia and violence
- DMT (dimethyltryptamine) - smoked, snuffed, IV
- STP (2,5-dimethoxy-4-methylamphetamine)

Prolonged use can cause tolerance, psychological dependence, and symptoms of withdrawal

Side effects may include anxiety, impaired motor function, and memory loss.

59 Consequences of Long-term effects of hallucinogens

- Long-term effects of hallucinogens vary according to the drug.
- Some people who abuse hallucinogens may experience prolonged and persistent psychosis (sometimes years after abuse has stopped) or Hallucinogen Persisting Perception Disorder (HPPD), which is characterized by continued visual disturbances, hallucinations, and symptoms usually associated with neurological disorders.

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60 Methylendioxyamphetamine Ecstasy (MDMA)

Ecstasy (MDMA) is a synthetic drug and an extremely used drug at raves and parties. It is used mainly for recreational purposes.

Short-term effects

euphoria and peace, feelings of empathy towards others, hallucination, increase in self-confidence, lowered anxiety, nausea, blurred vision, muscle cramping, and involuntary teeth clenching.

Long-term effects of ecstasy

addiction, paranoid behavior, aggression, anxiety, depression, impulsiveness, irritability, sleep problems, and trouble concentrating, and problems with sleeping or vision.

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61 **Marijuana**

- Psychoactive (mind-changing) drug that is misused in several different ways. Cannabis refers to dried leaves, flowers, stems and seeds from the Cannabis sativa or Cannabis indica plant. The plant contains the chemical THC and other similar compounds that change the mind
- Marijuana is the most widely used psychotropic drug in the U.S after alcohol. Its use is common among young people.
- The drug is often abused for feelings of euphoria and relaxation, but can cause anxiety, fear, and paranoia.
- Some people experience an acute form of psychosis while using it.
- Hashish, a potent cannabis preparation, is derived from the resin of the plant.
- Cannabis, medical use is a highly controversial drug, but NIDA reports that cannabis use can cause cognitive impairment and lead to psychological dependence.
 - Helps with severe nausea and vomiting during chemotherapy
 - Improves appetite of those with AIDS related wasting syndrome
 - Aids those with multiple sclerosis by reducing pain and spasticity
 - Reduces eye pressure of glaucoma

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62 **Consequences Of Marijuana Abuse**

- One of the largest consequences of marijuana abuse is memory impairment.
- Other side effects -Nausea and vomiting, increased blood pressure and heart rate.
- Long-term use of marijuana may lead to tolerance and psychological addiction, which may lead to dependence on the drug.

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63 **Synthetic Cannabinoids**

- Sometimes called synthetic marijuana, human-made synthetic cannabinoids are liquid, mind-altering chemicals used either as a vapor for e-cigarettes and inhaled or sprayed on plant leaves and smoked.
- Common synthetic cannabinoids include K2 and Spice. affect the same receptors in the brain as marijuana, causing similar side effects: improved mood, feelings of relaxation, altered perception, and symptoms of psychosis.
- Long-term abuse of these drugs can result in increased blood pressure, reduced blood flow to the heart, kidney damage, and seizures.

64 **Tobacco**

Tobacco is a plant grown for its leaves, which are dried and fermented before being put in tobacco products.

Tobacco contains nicotine, an ingredient that can lead to addiction, which is why so many people who use tobacco find it difficult to quit. There are also many other potentially harmful chemicals found in tobacco or created by burning it

- CYP2A6
 - Gene associated with metabolism of nicotine
 - Smokers with defect in this gene less likely to become dependent (Rao et al., 2000)

65 **Inhalants**

- The drug class “inhalants” refers to substances abused only through inhalation. These substances are readily available, making abuse more accessible, though no less dangerous.
- Commonly abused inhalants include aerosol sprays, gases, nitrites, and solvents.

Consequences Of Inhalant Abuse

- Inhalants are abused because they produce an immediate feeling of euphoria. Other short-term effects include speech impairment, dizziness, and lack of coordination.

Consequences of inhalant abuse may be severely damaging, and may include:

- bone marrow damage
- brain damage
- delayed behavioral development from brain damage
- loss of hearing
- liver and kidney damage
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66 **Behavioral Addiction**

- As with drugs, certain behaviors cause brief feelings of happiness or euphoria. However, some long-term behaviors cause a person to lose control of their actions.
- People suffering from these addictions experience symptoms similar to those of drug addicts, including cravings, tolerance, withdrawal and relapse.

Common behavioral addictions include:

- Gambling
- Sex
- Eating
- Internet
- Shopping
- Video Games
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67 **EATING DISORDERS**

- Eating disorders are also known as food addictions. The most common eating disorders are anorexia and bulimia.

68 **TREATMENT**

- Addiction is a treatable, chronic disorder that can be managed successfully.
- Research shows that combining behavioral therapy with medications, if available, is the best way to ensure success for most patients. Treatment approaches must be tailored to address each patient's drug use patterns and drug-related medical, psychiatric, environmental, and social problems.

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70 **Websites**

- NIDA – www.drugabuse.gov
 - National Institute on Drug Abuse
- SAMHSA – www.samhsa.gov
 - Substance Abuse and Mental Health Services Administration
- AAAP – www.aaap.org
 - American Academy of Addiction Psychiatry
- ASAM – www.asam.org
 - American Society of Addiction Medicine
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