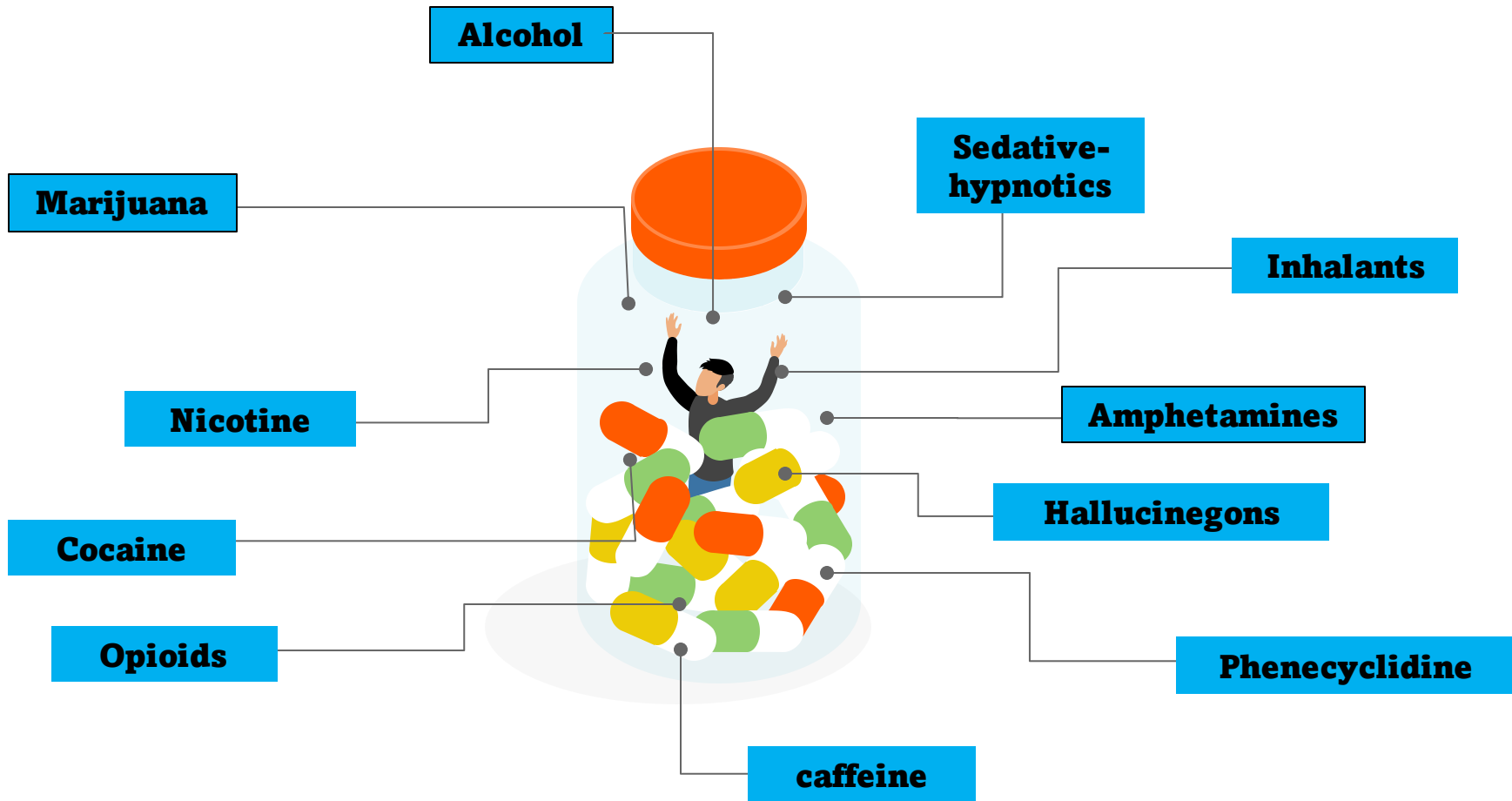




Substance related disorders



What is substance use disorder?

problematic pattern of substance use that leads to some form of functional impairment or distress.

Keep in mind that frequent use of a substance does not necessarily indicate a substance use disorder unless it is causing problems for the patient.

The functional impairment are control impairment, social & occupational impairment, & risky use (in driving car/ continue use despite awareness of its related problems)

What is substance induced disorders ?

Intoxication

- Temporary condition of having physical or mental control deminished by Recent ingestion of substance

withdrawal

- Physical &/ or mental effects that person experiences after stop using or reduce taking of a substance



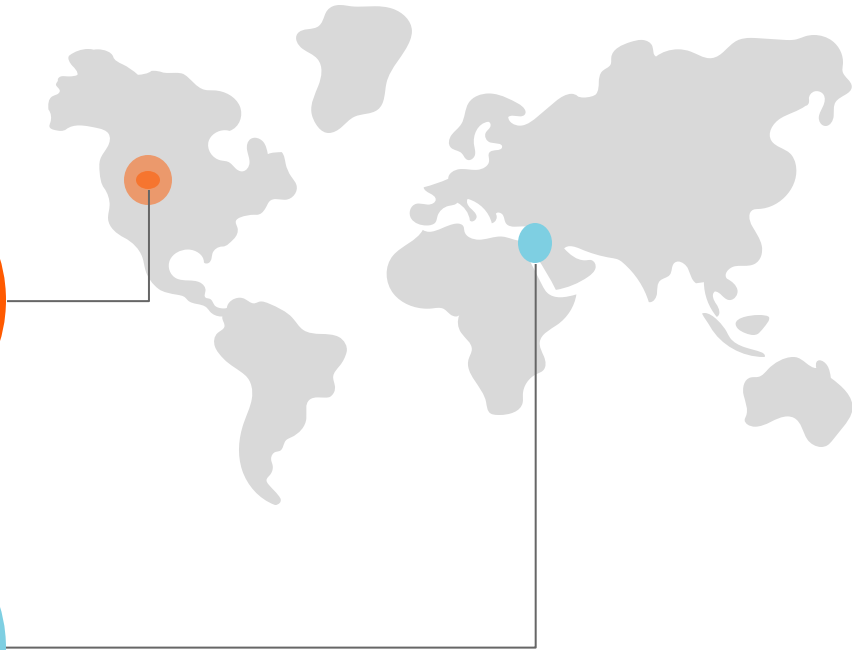
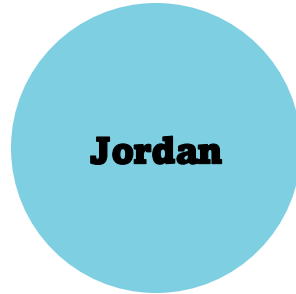
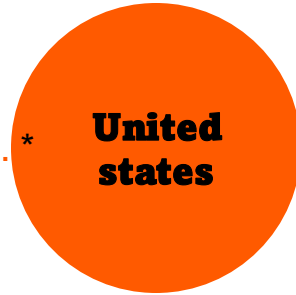
Alcohol and **nicotine** are the most commonly used substances World wide.

Substance use disorders are Common among men more than women

Epidemiology

One-year prevalence of any substance use disorder in the United States is approximately **8%.** *
• sedative- hepnotics are highly abused medications

Alcohol & synthetic cannabinoids are the **most commonly** used substances **

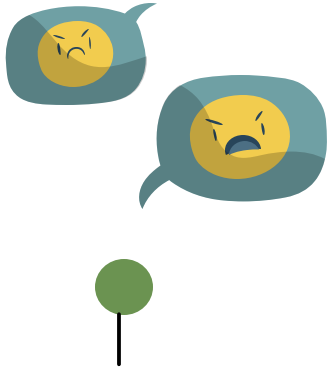


*: First aid psychiatry; 5th edition

**.: resource: patterns of substance use among patients in addiction rehabilitation in Jordan; data. Collected from 2 public centers in amman; published in 2020

Common psychiatric symptoms among substances addiction

Mood symptoms



Substance-induced mood symptoms improve during prolonged abstinence, whereas primary mood symptoms persist.

Psychotic symptoms



Personality disorders



Psychiatric comorbidities



major depression, anxiety disorders

It is often challenging to decide whether psychiatric symptoms are primary or substance-induced.

Diagnosis

Both the **intoxicated and withdrawing patient** can present difficulties in diagnosis and treatment. Since it is common for persons to abuse several substances at once, the clinical presentation is often confusing, and signs/symptoms may be atypical. Always be on the lookout for use of multiple substances.

Treatment

- Behavioral counseling should be part of every substance use disorder treatment.
- Psychosocial treatments are effective and include motivational intervention (MI), cognitive behavioral therapy (CBT), contingency management, and individual and group therapy.
- Twelve-step groups such as Alcoholics Anonymous (AA) and Narcotics Anonymous (NA) should also be encouraged as part of the treatment.
- Pharmacotherapy is available for some drugs of abuse

Diagnosis

1. History .

- substance abuse Hx
- medical history (complications of substance abuse)
- psychiatric Hx
- risk factors
 - Family history
 - Physiology: Individuals who are innately more tolerant to alcohol may be more likely to develop alcohol abuse.
 - Developmental history: Poor parenting, childhood physical or sexual abuse
 - Environmental risk factors
 - Psychiatric disturbances: Conduct disorder, ADHD, depression, and low self-esteem.

2. Physical & psychiatric examination (MSE, signs of substance abuse)

3. Diagnostic tests

- Urine drug screen
- Hair testing: typically tests for cocaine, amphetamines, methamphetamines, opiates, PCP, marijuana
- Breath: typically tests for alcohol
- Blood: increased AST, ALT, and GGT for alcohol abuse.

1. Alcohol / mechanism of action



01

A potent CNS depressant

Activates GABA (inhibitory), dopamine, and serotonin receptors CNS. It inhibits glutamate receptor activity (excitatory) and voltage-gated calcium channels

02

Alcohol metabolism

Metabolized to acetaldehyde by alcohol dehydrogenase. & then Acetaldehyde → acetic acid (enzyme: aldehyde dehydrogenase)

03

Heavy drinkers

These enzymes are upregulated in heavy drinkers.

Alcohol use disorder:



Diagnosis

- The **AUDIT-C** is used to screen for alcohol use disorder
- **Biochemical markers** are useful in detecting **recent prolonged drinking**; ongoing monitoring of biomarkers can also help detect a relapse. Most commonly used biomarkers are **BAL**, **liver function tests** and **mean corpuscular volume (MCV)**.

AST:ALT ratio $\geq 2:1$ and elevated GGT suggest excessive long-term alcohol use; they take a few weeks to return to normal during abstinence.

Treatment :



First-line treatments:

- **Naltrexone** (Opioid receptor antagonist/ IM)
Reduces desire/craving and Will precipitate withdrawal in patients with physical opioid dependence.
- **Acamprosate** (modulate glutamate transmission)
Prevent relapsing after stopping alcohol, can be used in patients with liver disease c/l in renal disease.

2nd line treatment:

- **Disulfiram** (Blocks the enzyme aldehyde dehydrogenase) c/l. in severe cardiac disease, pregnancy, and psychosis.
- **Topiramate** (Anticonvulsant that potentiates GABA and inhibits glutamate receptors.) Reduces cravings for alcohol & alcohol us

AUDIT- C

1. How often do you have a drink containing alcohol?

Never (0)

Monthly or
less (1)

Two to four times a
month (2)

Two to three times
per week (3)

Four or more times a
week (4)

2. How many drinks containing alcohol do you have on a typical day when you are drinking?

1 or 2 (0)

3 or 4 (1)

5 or 6 (2)

7 to 9 (3)

10 or more (4)

3. How often do you have six or more drinks on one occasion?

Never (0)

Less than
Monthly (1)

Monthly (2)

Two to three times
per week (3)

Four or more times a
week (4)

TOTAL SCORE

Add the number for each question to get your total score.

(scores of 0 reflect no alcohol use). In men, a score of 4 or more is considered positive; in women, a score of 3 or more is considered positive.

• Alcohol intoxication

Clinical presentation:

the effects of EtOH depend on the blood alcohol level (BAL). Serum EtOH level or an expired air breathalyzer can determine the extent of intoxication

TABLE 7-2. Clinical Presentation of Alcohol Intoxication

EFFECTS	BAL
Impaired fine motor control	20–50 mg/dL
Impaired judgment and coordination	50–100 mg/dL
Ataxic gait and poor balance	100–150 mg/dL
Lethargy, difficulty sitting upright, difficulty with memory, nausea/vomiting	150–250 mg/dL
Coma (in the novice drinker)	300 mg/dL
Respiratory depression, death possible	400 mg/dL

The absorption and elimination rates of alcohol are **variable** and depend on many factors, including **age, sex, body weight, chronic nature of use, duration of consumption, food in the stomach, and the state of nutrition and liver health.**

Management

- **Monitor**: Airway, breathing, circulation, glucose, electrolytes, acid–base status.
- Give **parenteral thiamine** (to prevent or treat Wernicke’s encephalopathy) and folate.
- **Naloxone** may be necessary to reverse effects of co-ingested opioids.
- A **computed tomography (CT) scan** of the head may be necessary to rule out subdural hematoma or other brain injury.
- The liver will eventually metabolize alcohol without any other interventions.
- **Severely intoxicated patients** may require **mechanical ventilation** with attention to **acid–base balance, temperature, and electrolytes** while they are recovering.
- **Gastrointestinal evacuation** indicated when a significant amount of EtOH was ingested within the preceding 30–60 min

Alcohol withdrawal symptoms

cessation of use causes a **compensatory hyperactivity with glutamate excitotoxicity**. Alcohol withdrawal is potentially **lethal!**

TABLE 7-3. Alcohol Withdrawal Symptoms

<i>Alcohol withdrawal symptoms</i> usually begin in 6–24 hours after the last drink and may last 2–7 days.
<i>Mild:</i> Irritability, tremor, insomnia.
<i>Moderate:</i> Diaphoresis, hypertension, tachycardia, fever, disorientation.
<i>Severe:</i> Tonic-clonic seizures , DTs, hallucinations.

depend on the duration and quantity of EtOH consumption, liver size, and body mass.

Hypomagnesemia may predispose to seizures; thus, it should be corrected promptly.

Seizures are treated with **benzodiazepines**. Long-term treatment with anticonvulsants is not recommended for alcohol withdrawal seizures.

About a third of persons with seizures (physical illness) develop **delirium tremens (DTs)**.

- Most serious & medical emergency with MR 5% & up to 35% if left untreated. Treated with benzodiazepan
- Age >30 and prior DTs increase the risk.
- In addition to delirium, symptoms of DTs may include hallucinations (most commonly visual), agitation, gross tremor, autonomic instability, and fluctuating levels of psychomotor activity.

Management

- **Benzodiazepines** should be given in sufficient doses to keep the patient calm and lightly sedated, then tapered down slowly. **Carbamazepine or valproic acid** can be used in mild withdrawal.
- **Thiamine, folic acid, and a multivitamin** to treat nutritional deficiencies
- **Electrolyte and fluid abnormalities** must be corrected.
- Providers must pay careful attention to the **level of consciousness, and consider the possibility of traumatic injuries.**
- Check for **signs of hepatic failure** (e.g., ascites, jaundice, caput medusae, coagulopathy).

Alcoholic ketoacidosis

- Frequently seen in the setting of alcohol cessation after an alcohol binge secondary to protracted vomiting and lack of oral intake.
- Hallmark is ketosis without hyperglycemia and a negative alcohol level.
- Laboratory studies reveal a high anion gap metabolic acidosis, ketonemia, and low levels of potassium, magnesium, and phosphorus.
- Treatment consists of hydration with D5NS, and replacing electrolytes.

Long term complications of alcohol intake **Wernicke's encephalopathy:**

- Caused by **thiamine (vitamin B1) deficiency** resulting from poor nutrition.
- **Acute** and can be reversed with **thiamine therapy**.
- **Features:** Ataxia (broad-based), confusion, ocular abnormalities (nystagmus, gaze palsies).
- **If left untreated**, Wernicke's encephalopathy may progress to **Korsakoff syndrome:**



Chronic amnestic syndrome

Reversible in only about 20% of patients.

Features: Impaired recent memory, anterograde amnesia, compensatory confabulation (unconsciously making up answers when memory has failed).

Give all patients with altered mental status thiamine before glucose, to avoid precipitating Wernicke–Korsakoff syndrome. Thiamine is a coenzyme used in carbohydrate metabolism.

2. Cocaine/ mechanism of action



Cocaine blocks the reuptake of dopamine, epinephrine, and norepinephrine from the synaptic cleft, causing a stimulant effect. Dopamine plays a role in the behavioral reinforcement (“reward”) system of the brain.

Route of administration: intranasally, inhallatiinal, IV, & orally

Cocaine overdose can cause death secondary to cardiac arrhythmia, MI, seizure, or respiratory depression.

Cocaine use disorders



Treatment of cocaine use disorder

- There is no Food and Drug Administration (FDA)-approved pharmacotherapy for cocaine use disorder.
- Off-label medications are sometimes used (naltrexone, modafinil, topiramate).
- Psychological interventions (contingency management, relapse prevention, NA, etc.) are the mainstay of treatment.

Cocaine intoxication disorders

Since cocaine is an indirect sympathomimetic, intoxication mimics the fight-or-flight response

General: Euphoria, heightened self-esteem, increase or decrease in blood pressure, tachycardia or bradycardia, nausea, dilated pupils, weight loss, psychomotor agitation or depression, chills, and sweating.

Dangerous: Seizures, cardiac arrhythmias, hyperthermia, paranoia, and hallucinations (especially tactile).

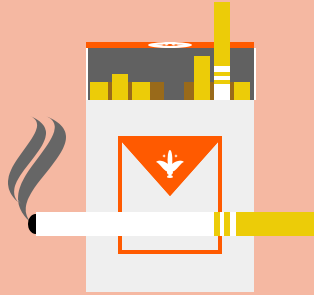
Management

- For mild-to-moderate agitation and anxiety: **Reassurance of the patient and benzodiazepines.**
- For severe agitation or psychosis: **Antipsychotics** (e.g., haloperidol).
- **Symptomatic support** (i.e., control hypertension, arrhythmias).
- Temperature of $>102^{\circ}\text{F}$ should be treated aggressively with an **ice bath, cooling blanket, and other supportive measures**

Cocaine intoxication

- Abrupt abstinence is **not life threatening**.
- Produces **post-intoxication depression (“crash”)**: Malaise, fatigue, hypersomnolence, depression, anhedonia, hunger, constricted pupils, vivid dreams, psychomotor agitation, or retardation. Occasionally, these patients can become suicidal.
- With mild-to-moderate cocaine use, withdrawal symptoms resolve within **72 hours**; with heavy, chronic use, they may last for **1–2 weeks**.
- Treatment is **supportive**, but severe psychiatric symptoms may warrant hospitalization.

3. Nicotine related disorder



Nicotine

- Nicotine is derived from the tobacco plant
- stimulates **nicotinic receptors in autonomic ganglia** of the sympathetic and parasympathetic nervous systems.
- It is **highly addictive** through its effects on the dopaminergic system.
- Nicotine use causes both **tolerance and physical dependence** (i.e., prominent craving and withdrawal).
- **Effects:** Restlessness, insomnia, anxiety, and increase in gastrointestinal motility.
- **Withdrawal symptoms:** Intense craving, dysphoria, anxiety, poor concentration, increase in appetite, weight gain, irritability, restlessness, and insomnia.
- Cigarette smoking is the leading cause of preventable morbidity and mortality in the United States, posing many health risks including COPD, cardiovascular diseases, and various cancers



FDA approved pharmacotherapy

Varenicline (Chantix)

A4 β 2 nAChR partial agonist

Bupropion (Zyban)

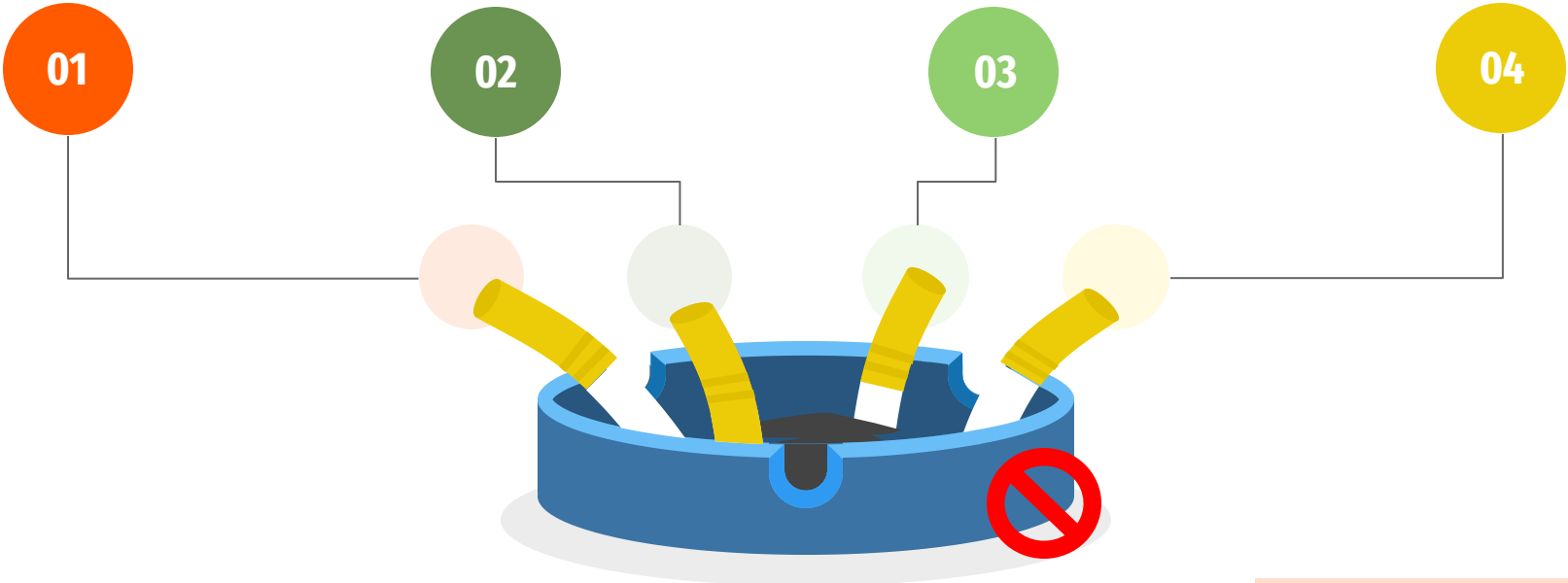
Antidepressant inhibits reuptake of dopamine and NE; helps reduce craving and withdrawal

Nicotine replacement therapy

transdermal patch, gum, lozenge, nasal spray, and inhaler.

Behavioral support

Should be a part of every treatment



Relapses are common

4. Amphetamines



Classic amphetamines

Block reuptake and facilitate release of dopamine and NE from nerve endings.

- Examples: Dextroamphetamine (Dexedrine), methylphenidate (Ritalin), methamphetamine (Desoxyn, “ice,” “speed,” “crystal meth,” “crank”).
- Methamphetamines are easily manufactured in home laboratories using over-the-counter medications (e.g., pseudoephedrine).
- Methamphetamines are used medically in the treatment of narcolepsy, ADHD, binge eating, and occasionally depressive disorders

Substituted (“designer,” “club drugs”)

Release dopamine, NE, and serotonin from nerve endings.

- Examples: MDMA (“ecstasy”), MDEA (“eve”).
- Often used in dance clubs and raves.
- Have both stimulant and hallucinogenic properties.
- Serotonin syndrome is possible if designer amphetamines

Amphetamines intoxication

Amphetamine intoxication causes symptoms similar to those of cocaine

- MDMA and MDEA may induce sense of closeness to others.
- Overdose can cause hyperthermia, dehydration (especially after a prolonged period of dancing in a club), rhabdomyolysis, and renal failure.

Long term Complications:

Psychosis & Chronic amphetamine use leads to accelerated tooth decay (“meth mouth”)

Treatment:

Rehydrate, correct electrolyte balance, and treat hyperthermia

5. Sedative – hypnotics

Benzodiazepines

Commonly used in the treatment of **anxiety disorders**.

Easily obtained via prescription from physicians' offices and emergency departments.

Potentiate the effects of GABA by modulating the receptor, thereby increasing frequency of chloride channel opening



Barbiturates

Used in the treatment of **epilepsy** and as **anesthetics**.

Potentiate the effects of GABA by binding to the **receptor** and increasing duration of chloride channel opening.

At high doses, barbiturates act as direct GABA agonists, and therefore have a **lower margin of safety relative to BZDs**.

They are synergistic in combination with BZDs (as well as other CNS depressants such as alcohol); respiratory depression can occur.

Intoxication

Intoxication with sedatives produces drowsiness, confusion, hypotension, slurred speech, incoordination, ataxia, mood lability, impaired judgment, nystagmus, respiratory depression, and coma or death in overdose. Symptoms are synergistic when combined with EtOH or opioids/narcotics.

Treatment

- Maintain airway, breathing, and circulation. Monitor vital signs.
- **Activated charcoal and gastric lavage** to prevent further gastrointestinal absorption (if drug was ingested in the prior 4–6 hours).
- For **barbiturates** only: Alkalinize urine with sodium bicarbonate to promote renal excretion.
- For **benzodiazepines** only: Flumazenil in overdose.
- **Supportive care**—improve respiratory status, control hypotension.

Long-term complications: dependence & depressive mood.

Withdrawal: Same as ethanol

Ttt: Benzodiazepines (stabilize patient, then taper gradually). Carbamazepine or valproic acid taper not as beneficial.

In general, withdrawal from drugs that are sedating (e.g., alcohol, barbiturates, benzodiazepines) is life threatening, while withdrawal from stimulants (e.g., cocaine, amphetamines) is not.

6. Phencyclidine (angel dust)



is a dissociative, hallucinogenic drug that antagonizes (NMDA) glutamate receptors and activates dopaminergic neurons. It can have stimulant or CNS depressant effects, depending on the dose taken.

PCP can be smoked as “wet” (sprinkled on cigarette) or as a “joint” (sprinkled on marijuana).

Ketamine is similar to PCP, but is less potent. Ketamine is sometimes used as a “date rape” drug, as it is odorless and tasteless

Intoxication

PCP intoxication symptoms—**RED DANES**

Rage

Erythema (redness of skin)

Dilated pupils

Delusions

Amnnesia

Nystagmus (rotatory is pathognomonic)

Excitation

Skin dryness

+ hallucinations & Synthesia

Signs of injury (fight or flight), memory & speech deficit, & cognitive impairment

Treatment

- Monitor vitals, temperature, and electrolytes, and minimize sensory stimulation.
- Use benzodiazepines (lorazepam) to treat agitation, anxiety, muscle spasms, and seizures.
- Use antipsychotics (haloperidol) to control severe agitation or psychotic symptoms.

Withdrawal

No withdrawal syndrome, but “flashbacks” (recurrence of intoxication symptoms due to release of the drug from body lipid stores) may occur.

7. Cannabis – marijuana (pot, weed, grass)

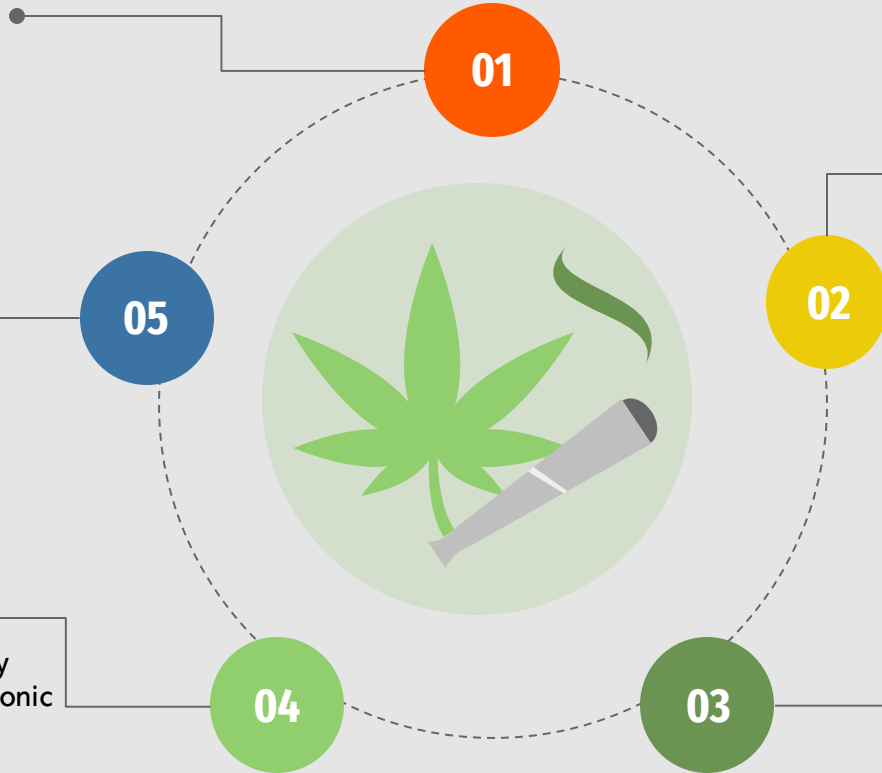
Most commonly used illicit substance

A specific class of compounds found in marijuana, cannabidiols (CBDs), is currently being studied for management of pain, seizures, and anxiety/depression.

Chronic use may cause respiratory problems such as asthma and chronic bronchitis, immunosuppression, cancer, and possible effects on reproductive hormones

The main psychoactive component which produces the “high” in cannabis is THC

Cannabinoid receptors in the brain inhibit adenylate cyclase.



Intoxication

- Marijuana causes euphoria, anxiety, impaired motor coordination, perceptual disturbances (sensation of slowed time), mild tachycardia, anxiety, conjunctival injection (red eyes), dry mouth, and increased appetite (“the munchies”).
- Cannabis-induced psychotic disorders with paranoia, hallucinations, and/or delusions may occur. There is no overdose syndrome for marijuana use.
- treatments; Supportive, psychosocial interventions (e.g., contingency management, groups).

Withdrawal

- Withdrawal symptoms may include irritability, anxiety, restlessness, aggression, strange dreams, depression, headaches, sweating, chills, insomnia, and low appetite.
- Treatment: Supportive and symptomatic.

8. Hallucinogens

- Hallucinogenic drugs of abuse include psilocybin (mushrooms), mescaline (peyote cactus), and (LSD).
- Pharmacological effects vary, but LSD is believed to act on the serotonergic system.
- Hallucinogens do not cause physical dependence or withdrawal, though users can rarely develop psychological dependence.
- long-term LSD use, patients may experience flashbacks later in life.

Intoxication

Effects include perceptual changes (illusions, hallucinations, body image distortions, synesthesia), labile affect, dilated pupils, tachycardia, hypertension, hyperthermia, tremors, incoordination, sweating, and palpitations.

- Usually lasts 6–12 hours, but may last for several days.
- May have a “**bad trip**” that consists of marked anxiety, panic, and psychotic symptoms (paranoia, hallucinations).
- **Treatment:** Monitor for dangerous behavior and reassure patient. Use benzodiazepines as first-line for agitation (can use antipsychotics if needed).



9. Opioids

- Opioid medications and drugs of abuse stimulate mu, kappa, and delta opiate receptors (normally stimulated by endogenous opiates), and are involved in **analgesia, sedation, and dependence**.
- Opioids also have effects on the **dopaminergic system**, which mediates their addictive and rewarding properties.
- **Examples** include heroin, oxycodone, codeine, dextromethorphan, morphine, methadone, and meperidine (Demerol)
- Prescription opioids (OxyContin [oxycodone], Vicodin [hydrocodone/acetaminophen], and Percocet [oxycodone/acetaminophen])—**not heroin**—are the most commonly used opioids.
- Behaviors such as **losing medication, “doctor shopping,” and running out of medication early** should alert clinicians of possible misuse.
- Opioids are **associated with more deaths** (usually due to unintentional overdose) than any other drug



Opioids use disorder treatment – naloxone is DOC

Methadone	Long-acting opioid receptor agonist	Administered once daily. Significantly reduces morbidity and mortality in opioid-dependent persons.	Restricted to federally licensed substance abuse treatment programs. Can cause QTc interval prolongation: screening electrocardiogram is indicated, particularly in patients with high risk of cardiac disease.
Buprenorphine	Partial opioid receptor agonist—can precipitate withdrawal if used too soon after full opioid agonists	Sublingual preparation that is safer than methadone, as its effects reach a plateau and make overdose unlikely. Comes as Suboxone, which contains buprenorphine and naloxone; this preparation prevents intoxication from intravenous injection.	Only available by prescription from specially licensed office-based physicians.
Naltrexone	Competitive opioid antagonist, precipitates withdrawal if used within 7 days of heroin use	Either daily oral medication or monthly depot injection. It is a good choice for highly motivated patients such as health care professionals.	Compliance is an issue for oral formulation.

Intoxication

- nausea, vomiting, sedation, decrease in pain perception, decrease in gastrointestinal motility, pupil constriction, and respiratory depression (which can be fatal). Meperidine is the exception to opioids producing miosis.
- Meperidine and monoamine oxidase inhibitors taken in combination may cause **serotonin syndrome**
- **treatment:**
 - Ensure adequate airway, breathing, and circulation.
 - In overdose, administration of **naloxone** (an opioid antagonist) will improve respiratory depression but may cause severe withdrawal in an opioid-dependent patient.
 - Ventilatory support may be required.
 - Patients at risk of opioid overdose should be prescribed a naloxone (Narcan) to keep at home for emergencies.

Withdrawal

- dysphoria, insomnia, lacrimation, rhinorrhea, yawning, weakness, sweating, piloerection, nausea/vomiting, fever, dilated pupils, abdominal cramps, arthralgia/myalgia, hypertension, tachycardia, and craving.
- Monitor degree of withdrawal with COWS (Clinical Opioid Withdrawal Scale), which uses objective measures (i.e., pulse, pupil size, tremor) to assess withdrawal severity.

Moderate symptoms: Symptomatic treatment with clonidine (for autonomic s&s), (NSAIDs) for pain, loperamide for diarrhea, dicyclomine for abdominal cramps, etc.

Severe symptoms: Detox with buprenorphine or methadone.

10. Inhalants

- substances: hydrocarbons bases (glue, paints thinners, fuel, nitrous oxide)
- epidemiology: most prevalent in high-school individual
- MOA: CNS depressants

N₂O



Intoxication

Effects: Perceptual disturbances, paranoia, lethargy, dizziness, nausea/vomiting, headache, nystagmus, tremor, muscle weakness, hyporeflexia, ataxia, slurred speech, euphoria, hypoxia, clouding of consciousness, or coma.

- Acute intoxication: 15–30 minutes. May be sustained with repeated use.
- Overdose: May be fatal secondary to respiratory depression or cardiac arrhythmias
- **treatment:** Monitor airway, breathing, and circulation; may need oxygen with hypoxic states. & Identify solvent because some (e.g., leaded gasoline) may require chelation.

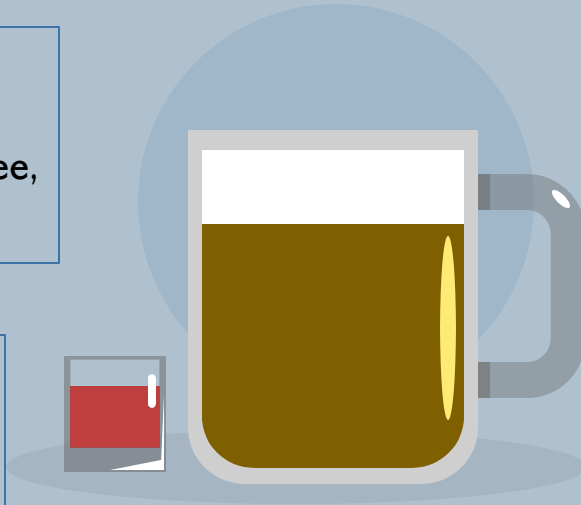
Long term complications

permanent damage to CNS (e.g., neurocognitive impairment, cerebellar dysfunction, Parkinsonism, seizures), peripheral neuropathy, myopathy, aplastic anemia, malignancy, metabolic acidosis, urinary calculi, glomerulonephritis, myocarditis, myocardial infarction, and hepatotoxicity

11. Caffeine

the most commonly used psychoactive substance in the US, in the form of coffee, tea, or energy drinks.

It acts as an adenosine antagonist, causing increase in (cAMP) and stimulating the release of excitatory NT



Caffeine withdrawal symptoms occur in 50–75% of caffeine users if cessation is abrupt.

- Withdrawal symptoms include headache, fatigue, irritability, nausea, vomiting, drowsiness, muscle pain, and depression.
- Usually resolves within 1½ weeks.



2+ cups = 250 mg

Anxiety, insomnia, muscle twitching, rambling speech, flushed face, diuresis, gastrointestinal disturbance, restlessness, excitement, and tachycardia.



1+ g

May cause tinnitus, severe agitation, visual light flashes, and cardiac arrhythmias.



++

10+ g

Death may occur secondary to seizures and respiratory failure



> **932,000.** Since 1999 in us according to CDC

In 2020

Drugs overdose death
in US

91,799

Annual death

Directly & indirectly

750,000

Opioids

Main driver of drug
overdose death

83.3 %

Despite the fact that Jordan has a minor markets
of illegal drugs & lowprevelance of addict, bUT
still we are under risk

Resources:

- First aid for psychiatry clerkship ,5th editiin, chapter 7
- Amboss (substance use disorder), edited article in 2021
- -kaplan step 2 lecture notes for epidemiology, ethics & psychiatry.

- Dn by: Saja Yousef

Thank you

Do u have any question?