

Substance-Related and Addictive Disorders

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Updated 2021

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Substance-Related & Addictive Disorders - Introduction

- All drugs in excess → direct activation of reward system
 - (vs activation through adaptive behaviors)
 - Produces feelings of **pleasure (“high”)**
 - **Reinforcement of behaviors + production of memories**
 - Normal activities may be neglected
- Lower levels of self-control
 - May reflect impaired brain **inhibitory mechanisms** → predisposed to SUD
- Gambling disorder included
 - Other behavioral addictions not included → insufficient evidence
 - Internet gaming, sex addition, exercise addiction, shopping addiction

Substance Use Disorders

Substance Use Disorders – Features

- Cognitive, behavioral, physiological symptoms
 - Indicates **continued substance use**, despite significant related problems
 - Applies to all cases → few instances where not all sx apply
 - **Underlying change in brain circuitry**
 - May persist beyond detoxification
 - Repeated **relapses**, intense **drug craving** (with drug-related stimuli)
- Pathological pattern of behaviors
 - Criterion A groups
 - **Impaired control (1-4)**
 - **Social impairment (5-7)**
 - **Risky use (8-9)**
 - **Pharmacological criteria (10-11)**

Substance Use Disorders – Features

Impaired Control

- A1) Using **larger amounts or longer** than intended
- A2) Persistent desire or failed efforts to **cut down**
- A3) Spending **great deal of time** in related activities
- A4) Intense desire/urge for drug (**craving**)

Social Impairment

- A5) Failure to fulfill **major role obligations**
- A6) Use despite persistent **social/interpersonal problems**
- A7) Important activities **given up**

Risky Use

- A8) Use in **physically hazardous** situations
- A9) Use despite persistent **physical/psychological problems**

Pharmacological Criteria

- **A10) Tolerance**
- **A11) Withdrawal**

Substance Use Disorders – Features

- Cravings

- May occur any time → more likely in environment prev assoc with drugs
- **Classical conditioning** → assoc with specific reward structures

- Risky use

- Key feature is **FAILURE TO ABSTAIN despite difficulties**
 - (NOT existence of problem)

- Tolerance

- Tolerance different CNS effects may develop at **different rates**
- Need to distinguish from **individual variability**

- Withdrawal

- Past hx of withdrawal → assoc with **more severe clinical course**
 - Earlier onset SUD, higher levels of substance use, more problems

Substance Use Disorders – Features

- Does NOT included tolerance/withdrawal during appropriate tx
 - Opioids, sedatives, stimulants (but can be used inappropriately)
 - May have **normal + expected** pharmacological tolerance + withdrawal
- Severity
 - **Mild:** 2-3 symptoms
 - **Moderate:** 4-5 symptoms
 - **Severe:** 6+ symptoms
- Specifiers
 - In early remission
 - In sustained remission
 - On maintenance therapy
 - In a controlled environment

Substance-Induced Disorders

Substance-Induced Disorders – Intoxication

- Criteria

- A) **Reversible substance-specific syndrome** (due to recent ingestion)
- B) Attributable to **physiological effects** of substance
- D) Not due to AMC/AMD

- Commonly occurs among SUD

- But **frequently without SUD**
- Does NOT apply to **tobacco**
- Does NOT apply if only one symptom

- Most common changes in intoxication

- Perception, wakefulness, attention, thinking, judgement
- Psychomotor behavior, interpersonal behavior
- **Short-term/acute vs sustained/chronic intoxication**
- Some symptoms may persist beyond substance detection period

Substance-Induced Disorders – Withdrawal

- Criteria
 - A) **Substance-specific syndrome**, due to cessation/reduction of use
 - C) Significant distress or impairment
 - D) not due to AMC/AMD
- Usually associated with SUD (not always)
 - Most have **urge to re-administer** substance to reduce symptoms

Substance-Induced Disorders – Routes & Speed

- Routes of administration
 - Those with **more rapid + efficient absorption into bloodstream**
 - **More intense** intoxication → incr risk of **escalating pattern**
 - Eventually leading to **withdrawal**
- Short-acting substances
 - More likely to produce **immediate intoxication**
 - **Higher potential** for withdrawal (vs long-acting)
- Long-acting substances
 - Longer **time between cessation to onset** of withdrawal
 - Longer **withdrawal duration** (typically less intense)
- Multiple substances often used
 - Simultaneously or sequentially

Substance-Induced Disorders – Associated Lab Findings

- Blood + urine samples
 - Can help determine recent use + specific substance
 - Does NOT by itself indicate SUD (but negative test does not rule out)
 - May be helpful in **identifying withdrawal** (differentiate from AMD)
 - High blood levels → may suggest considerable **tolerance**

Substance-Induced Disorders – Development & Course

- Prevalence

- High among **age 18-24** → virtually every substance

- Onset

- Often begins in **teens** → **intoxication** usually the initial sx
- Withdrawal can occur any time

Substance-Induced Mental Disorder – Shared Criteria

- A. Clinically significant symptomatic presentation of relevant mental disorder
- B. History, physical exam, lab findings of:
 - 1. Symptom onset **during/soon after** → intoxication, withdrawal, exposure
 - 2. Substance/medication **capable** of producing symptoms
- C. Not non-substance/medication-induced
 - 1. Symptom onset preceding sub/med use
 - 2. Symptom persistence after cessation of sub/med use/intox/withdrawal
 - 3. Other evidence (previous non-sub/med-induced episodes)
- D. Not exclusively during **delirium**
- E. Significant distress or impairment

Substance-Induced Mental Disorder – Features

- Generalizations

- Sedating drugs
 - Intoxication → depression
 - Withdrawal → anxiety
- Stimulants drugs
 - Intoxication → psychosis, anxiety
 - Withdrawal → depression
- Both may produce **temporary sleep + sexual disturbances**

- Medications

- Neurocognitive cx
 - Anesthetics, antihistamines, antihypertensives
 - Organophosphates, insecticides, carbon monoxide
- Psychosis
 - Anticholinergics, cardiovascular, steroids, stimulants, depressants, OTC
- Mood disturbances
 - Antihypertensives, steroids, disulfiram, stimulants, depressants, OTCs

Substance-Induced Mental Disorder – Development/Course

- Symptom profiles → may be identical to independent syndrome
 - Substance-induced mental disorder → intox/withdrawal
 - Medication-induced mental disorder → at suggested doses
- Condition usually temporary
 - Likely to disappear within 1 month of cessation of
 - Acute withdrawal, severe intoxication, use of medication
 - Likely to improve quickly with abstinence
 - Exceptions → persist longer
 - **NCD** (alcohol, inhalant, sedative/hypnotic/anxiolytic)
 - **Hallucinogen persisting perception disorder**
- Predisposition varies
 - **Unclear if family or personal hx** of independent psychiatric syndrome more likely to develop substance-induced disorder
 - Likely to **exacerbate** pre-existing independent syndrome

Substance-Induced Mental Disorder – Function

- Same consequences related to independent mental disorder
 - Likely to disappear within 1 month of abstinence
 - Also functional consequences assoc with SUD

Alcohol-Related Disorders

Alcohol Use Disorder

Alcohol Use Disorder – Diagnostic Criteria

A. Use, leading to sig impairment or distress, 12-mo period (2/11):

1. Using **larger amounts or longer** than intended
2. Persistent desire or failed efforts to **cut down**
3. Spending **great deal of time** in related activities
4. Intense desire/urge for drug (**craving**)
5. Failure to fulfill **major role obligations**
6. Use despite persistent **social/interpersonal problems**
7. Important activities **given up**
8. Use in **physically hazardous** situations
9. Use despite persistent **physical/psychological problems**
10. **Tolerance**
11. **Withdrawal**

Alcohol Use Disorder – Diagnostic Specifiers

- *Specify if:*
 - **In early remission:** no criteria met for 3-12 months (except craving)
 - **In sustained remission:** no criteria met for 12+ months (except craving)
- *Specify if:*
 - **In a controlled environment:** where access to substance is restricted
- *Specify current severity:*
 - **Mild:** 2-3 sx
 - **Moderate:** 4-5 sx
 - **Severe:** 6+ sx

Alcohol Use Disorder – Diagnostic Features

- Alcohol withdrawal

- **4-12 hours AFTER** reduction of intake, following prolonged + heavy use
- May be unpleasant + intense → **so pt may continue to drink**
 - Often to avoid or relieve withdrawal sx (despite adverse consequences)
- **Sleep problems may persist** for months at lower intensities
 - May contribute to relapse

- Problematic use

- Hazardous → driving car, swimming, operative machinery
- Physical → blackouts, liver disease
- Psychological → depression
- Social/interpersonal → violent arguments, child abuse

Alcohol Use Disorder – Associated Features

- Similar problems assoc with other substances
 - May be used to **alleviate unwanted effects** of other substances
 - May be used as **substitute** when other substance not available
 - **Conduct, depression, anxiety, insomnia** associated
- Repeated heavy use → affects nearly every organ system
 - GI → **gastritis, stomach/duodenal ulcers**
 - 15% of heavy drinkers → **cirrhosis, pancreatitis**
 - Incr rates of **GI cancer** (esophagus, stomach, others)
 - Cardiovascular → **low-grade HTN**
 - Incr rates of **cardiomyopathy, other myopathies** if heavy drinking
 - Incr TG, LDL → incr risk of **heart disease**
 - Peripheral neuropathy (weakness, paresthesia, decr sensation)
 - CNS → either direct effect of alcohol, trauma, vitamin deficiencies
 - Cognitive deficits, degenerative changes in cerebellum
 - **Wernicke-Korsakoff** → impaired ability to **encode new memory**

Alcohol Use Disorder – Suicide Risk

- Increase rate of suicidal behavior + completed suicide
 - During severe intoxication
 - In context of temporary alcohol-induced depressive/bipolar disorders

Alcohol Use Disorder – Prevalence

- 12-month prevalence (US)
 - Age 12-17 = **4.6%**
 - Age 18+ = **8.5%**
 - Age 18-29 = **16.2%** → HIGHEST
 - Age 65+ = **1.5%** → lowest

- Gender
 - Adult men = **12.4%** (more common among MEN)
 - Adult women = **4.9%**

Age 12-17	Age 18+
<ul style="list-style-type: none"> • Hispanics (6.0%) • Native Americans/Alaskans (5.7%) • Whites (5.0%) • African Americans (1.8%) • Asian Americans/Pacific Islanders (1.6%) 	<ul style="list-style-type: none"> • Native Americans/Alaskans (12.1%) • Whites (8.9%) • Hispanics (7.9%) • African Americans (6.9%) • Asian Americans/Pacific Islanders (4.5%)

Alcohol Use Disorder – Development & Course (1)

- Onset

- First episode of intoxication → likely **mid-teens**
 - Problems not meeting full criteria may occur prior to age 20
- Age at onset of AUD → **late teens to mid 20s**
 - Majority develop alcohol-related disorders by late 30s
 - Withdrawal usually appears after other aspects of AUD
- **Earlier-onset AUD**
 - Pre-existing conduct problems, earlier onset of intoxication

- Course → remission + relapses

- Decision to stop (often in **response to crisis**) → weeks of abstinence
 - May have limited periods of controlled/non-problematic drinking
- If alcohol intake resumes → highly likely to **rapidly escalate**
 - Severe problems likely to return

Alcohol Use Disorder – Development & Course (2)

- NOT an intractable condition
 - **Only small proportion** are very severe + chronic
 - Typically much more **promising prognosis**
- Adolescents with conduct disorder + antisocial behavior
 - Often co-occurs with alcohol + other substance-related disorders
- 10% of AUD have onset after age 40
 - More severe intoxication + subsequent problems (with less consumption)
 - Incr **brain susceptibility** to depressant effects
 - Decr rates of **liver metabolism**
 - Decr % **body water**
 - More assoc with other medical complications

Alcohol Use Disorder – Risk & Prognostic Factors

- Environmental

- Cultural attitudes, availability/price, personal experiences, stress levels
- Peer substance use, exaggerated positive expectations of alcohol effects
- Suboptimal coping mechanisms

- Genetic & Physiological

- Strong familial assoc → 40-60% of risk variance explained by genetics
- **3-4x higher among close relatives** of person with AUD
 - **Number of affected relatives**
 - **Closer genetic relationship** to affected person
 - **Severity** of alcohol-related problems
- Higher in monozygotic twins
- **3-4x incr risk in children** of person with AUD (even if adopted)

Alcohol Use Disorder – Risk & Prognostic Factors

- Phenotype risk
 - Low-risk → **acute alcohol-related skin flush** (esp Asians)
 - High-risk
 - Pre-existing **schizophrenia or bipolar disorder**
 - **Impulsivity** (incr risk for ALL SUD, gambling disorder)
 - **Low level of response** to alcohol
 - Gene variations may account for response levels
- Course modifiers
 - Higher impulsivity → **earlier onset, more severe AUD**

Alcohol Use Disorder – Culture-Related Issues

- Most cultures → alcohol most frequent intoxicating substance
 - **3.8% of all global deaths, 4.6% of global DALYs** (due to alcohol)
 - US → 80% tried alcohol by age 18, 65% current drinkers (past year)
 - World → 3.6% current AUD
 - Lowest in Africa (1%), Americas (5.2%), highest Eastern Europe (11%)
- Gene polymorphisms for ADH, ALDH
 - Most often seen in Asians → affects response to alcohol
 - **Flushed face, palpitations** → may limited alcohol use
 - 40% of Japanese, Chinese, Korean, related groups
 - Related to **LOWER risk for AUD**
- AUD criteria → performs equally well across most groups

Alcohol Use Disorder – Gender-Related Issues

- Higher rates of drinking + related disorders → in **MALES**
- Females may develop HIGHER BAC per drink
 - **Weight less**
 - **More fat, less water** in body
 - **Metabolize less alcohol** in esophagus/stomach
 - May be more vulnerable to physical consequences (**liver disease**)

Alcohol Use Disorder – Diagnostic Markers

- Blood alcohol concentration
- GGT & CDT → may be useful for **monitoring abstinence**
 - GGT → 70% with high GGT = persistent heavy drinkers (8+/day)
 - CDT → may have **higher sensitivity/specificity**
 - Both GGT & CDT return to normal **within days to weeks**
 - Combination may be superior to either alone
- MCV → elevated if heavy drinking
 - **Direct effect of alcohol on erythropoiesis**
 - Poor method of monitoring abstinence (long half-life of RBCs)
- LFTs (ALT, ALP) → can reveal **liver injury** (from heavy drinking)
- Nonspecific labs → incr TG, HDL, uric acid

Alcohol Use Disorder – Diagnostic Markers

- Physical signs/symptoms
 - Gastritis, hepatomegaly → dyspepsia, nausea, bloating
 - Esophageal varices, hemorrhoids
 - Tremor, unsteady gait, insomnia, erectile dysfunction
 - Males → **decr testicular size, feminizing effects** (decr testosterone)
 - Females → **menstrual irregularities**
 - Pregnancy → **spontaneous abortion, FASD**
- If pre-existing hx of epilepsy or severe head trauma
 - Incr risk of **alcohol-related seizures**
- Alcohol withdrawal
 - Nausea, vomiting, gastritis, hematemesis
 - Dry mouth, puffy blotchy complexion, mild peripheral edema

Alcohol Use Disorder – Functional Consequences

- Major areas of life function likely to be impaired
 - Contribute to absenteeism from work, accidents, low productivity
 - Higher rates of AUD in homeless individuals
 - **MOST** continue to live with families + function within jobs
- Increased risk of accidents, violence, suicide
 - **20% of ICU admission** related to alcohol
 - 40% of US population → **alcohol-related adverse event** within lifetime
 - **55% of fatal driving events** → due to alcohol
- Severe AUD
 - Assoc with **criminal acts, homicide** (esp if ASPD)
 - Contributes to disinhibition, sadness, irritability → **suicide + SA**
- May have unanticipated alcohol withdrawal in hospital

Alcohol Use Disorder – Differential Diagnosis

- Non-pathological use of alcohol
 - **Minority (<20%) of drinkers** develop AUD (even if daily or intoxication)
- Sedative, hypnotic or anxiolytic use disorder
 - Similar signs/symptoms → may have **different course**
 - **Different medical problems**
- Conduct disorder, antisocial PD
 - AUD seen in **MAJORITY of CD + ASPD**
 - Assoc with early onset AUD + worse prognosis

Alcohol Use Disorder – Comorbidity

- Markedly increased rates of AUD in:
 - **Bipolar disorders**
 - **Schizophrenia**
 - **Antisocial PD**
- Anxiety, depressive disorders related to AUD
 - May be related to temporary alcohol-induced depressive sx
- May suppressive immune mechanism (if severe, repeated)
 - Predispose to **infections, cancer**

Alcohol Intoxication

Alcohol Intoxication – Diagnostic Criteria

- A. Recent ingestion of alcohol
- B. Significant problematic behavioral or psychological changes, developing during/shortly after ingestion
- C. Signs or symptoms (1/6):
 - 1. Slurred speech
 - 2. Incoordination
 - 3. Unsteady gait
 - 4. Nystagmus
 - 5. Attention/memory impairment
 - 6. Stupor/coma
- D. Not due to AMC, AMD, another substance

Alcohol Intoxication – Diagnostic Features

- Behavioral/psychological changes
 - Inappropriate **sexual or aggressive behavior**
 - **Mood lability**
 - Impaired **judgement**
 - Impaired **social/occupational functioning**
- If intense intoxication → may result in life-threatening coma

Alcohol Intoxication – Associated Features

- “Blackouts”
 - Assoc **amnesia for events that occurred during intoxication**
 - May be related to high BAC + rapidity reaching high levels
- Different symptoms at different time points
 - Mild intoxication after **~2 drinks**
 - More intense sx of **intoxication when BAC RISING**
 - Metabolize ~1 drink per hour
 - Early (when BAC rising)
 - **Talkativeness, well-being, bright/expansive mood**
 - Later (BAC falling)
 - **More depressed, withdrawn, cognitively impaired**
 - Very high BAC (if not tolerant) → **sleep**, first stage of **anesthesia**
 - Extremely high BAC → **respiratory depression, low HR, even death**
- **Incr rate of suicidal behavior + completed suicide**

Alcohol Intoxication – Prevalence

- Large majority have been intoxicated within lifetime
 - 12th grade students → 44% drunk in past year
 - College students → 70% drunk in past year

Alcohol Intoxication – Development & Course

- Intoxication → develops over minutes to hours
 - Typically lasts **several hours**
- Onset
 - Average age at first intoxication = **age 15**
 - Higher prevalence = **age 18-25**
 - Decr frequency + intensity with advancing age
- **Earlier onset** of regular intoxication → **incr risk of AUD**

Alcohol Intoxication – Risk & Prognostic Factors

- Temperamental
 - More episodes with **sensation seeking, impulsivity**
- Environmental
 - More episodes with **heavy drinking environment**

Alcohol Intoxication – Culture-Related Issues

- Parallel culture differences regarding alcohol use overall
 - College fraternities, sororities
 - Dates of cultural significances (NYE)
 - Specific events, religious celebrations
- Other groups may strongly discourage all drinking/intoxication
 - Mormons, fundamentalists Christians, Muslims

Alcohol Intoxication – Gender-Related Issues

- Western societies
 - Drinking/drunkenness more tolerated in **MALES**
 - Gender differences less prominent recently
 - Esp in adolescence/young adulthood

Alcohol Intoxication – Diagnostic Markers

- Observe behavior + smelling alcohol on breath
 - Incr degree of intoxication with incr BAC, other sedating substances

Alcohol Intoxication – Functional Consequences

- Contributes to >30,000 alcohol-related deaths in US per year
- Major costs
 - Drunk driving
 - Lost time from school/work
 - Interpersonal arguments
 - Physical fights

Alcohol Intoxication – Differential Diagnosis

- Other medical conditions
 - May temporarily resemble alcohol intoxication
 - Diabetic acidosis, cerebellar ataxia, multiple sclerosis
- Sedative, hypnotic, or anxiolytic intoxication

Alcohol Intoxication – Comorbidity

- May co-occur with other substance intoxication
 - Esp if conduct disorder or ASPD

Alcohol Withdrawal

Alcohol Withdrawal – Diagnostic Criteria

- A. **Cessation/reduction in heavy + prolonged** alcohol use
- B. Withdrawal sx, within hours-days after reduction (2/8)
 - 1. **Autonomic hyperactivity**
 - 2. **Incr hand tremor**
 - 3. **Insomnia**
 - 4. **Nausea/vomiting**
 - 5. **Transient hallucinations/illusions** (visual, auditory, tactile)
 - 6. **Psychomotor agitation**
 - 7. **Anxiety**
 - 8. **Generalized tonic-clonic seizures**
- C. **Significant distress or impairment**
- D. **Not due to AMC, AMD, another substance**

Alcohol Withdrawal – Diagnostic Specifiers

- *Specify if:*
 - **With perceptual disturbances:** intact reality testing, not delirium

Alcohol Withdrawal – Diagnostic Features

- Symptoms may be relieved by **alcohol or benzos**
- Withdrawal sx typically being when BAC declines sharply
 - Peak intensity during **DAY 2** of abstinence
 - Likely to improve by **DAY 4/5**
- Anxiety, insomnia, autonomic dysfunction
 - May persist at lower levels of intensity for **3-6 months**
- Of those developing alcohol withdrawal
 - <10% → severe autonomic hyperactivity, tremors, DTs
 - <3% → tonic-clonic seizures

Alcohol Withdrawal – Associated Features

- Alcohol withdrawal delirium may occur
 - May have confusion, changes in consciousness
 - Visual, tactile, auditory hallucinations → delirium tremens
 - Clinically relevant medical condition may also be present
 - Liver failure, pneumonia, GI bleed, hypoglycemia, electrolyte imbalance
 - Head trauma sequelae

Alcohol Withdrawal – Prevalence

- Of middle-class, high functioning AUD
 - 50% have experience full alcohol withdrawal syndrome
- Among hospitalized/homeless with AUD
 - >80% rate of AWS
- Alcohol withdrawal delirium/seizures in **<10% of AWS**

Alcohol Withdrawal – Development & Course

- Acute alcohol withdrawal
 - Typically lasts **4-5 days** (only after extended heavy drinking)
 - Rare in individuals younger than age 30
 - Incr risk + severity with age

Alcohol Withdrawal – Risk & Prognostic Factors

- Environmental
 - Quantity
 - Frequency
 - Duration of drinking
- Increased risk if
 - **Family hx** of alcohol withdrawal
 - **Personal hx** of alcohol withdrawal
 - Concurrent medical conditions
 - Concurrent sedative, hypnotic, or anxiolytic drug use

Alcohol Withdrawal – Diagnostic Markers

- Autonomic hyperactivity
 - In context of falling BAC + hx of prolonged heavy drinking

Alcohol Withdrawal – Functional Consequences

- May **perpetuate drinking behaviors + contribute to relapse**
- May require **medically supervised detox, hospitalization**
- Loss of **work productivity**
- Greater functional impairment + poor prognosis

Alcohol Withdrawal – Differential Diagnosis

- Other medical conditions
 - Hypoglycemia
 - Diabetic ketoacidosis
 - Essential tremor
- Sedative, hypnotic, or anxiolytic withdrawal

Alcohol Withdrawal – Comorbidity

- More likely with:
 - Heavier alcohol intake
 - Conduct disorder, ASPD
- More SEVERE in:
 - **Older individuals**
 - Dependent on **other depressants**
 - **Previous alcohol withdrawal**

Other Alcohol-Induced Disorders

Other Alcohol-Induced Disorders

- Alcohol-induced
 - Psychotic disorder
 - Bipolar disorder
 - Depressive disorder
 - Anxiety disorder
 - Sleep disorder
 - Sexual dysfunction
 - Major/mild neurocognitive disorder

Other Alcohol-Induced Disorders

- Rates of alcohol-induced disorders vary
 - Lifetime risk for MDE in AUD = **40%**
 - Only 33-50% represent independent major depressive syndromes
 - Similar rates for sleep, anxiety
 - Alcohol-induced psychotic episodes = **RARE**

Unspecified Alcohol-Related Disorder

Unspecified Alcohol-Related Disorder

- Does not meet an full criteria

Caffeine-Related Disorders

Caffeine Intoxication

Caffeine Intoxication – Diagnostic Criteria

- A. Recent consumption of caffeine (typically >250mg)
- B. Signs/symptoms (5/12):
 - 1. Restlessness
 - 2. Nervousness
 - 3. Excitement
 - 4. Insomnia
 - 5. Flushed face
 - 6. Diuresis
 - 7. GI disturbance
 - 8. Muscle twitching
 - 9. Rambling thought/speech
 - 10. Tachycardia, arrhythmia
 - 11. Inexhaustibility
 - 12. Psychomotor agitation
- C. Significant distress or impairment
- D. Not due to AMC, AMD, another substance

Caffeine Intoxication – Diagnostic Features

- >85% children + adults consume caffeine regularly
 - Many different sources → **most widely used behaviorally active drug**
 - May develop tolerance + withdrawal
 - Not enough data for clinical significance of “caffeine use disorder”
 - Evidence for caffeine intoxication + withdrawal
- Symptoms at low doses (200mg)
 - Restlessness, nervousness, excitement, insomnia, flushed face, diuresis, GI complaints
 - In vulnerable individuals (children, elderly, caffeine-naïve)
- Symptoms at high doses (>1000mg)
 - Muscle twitching, rambling thought/speech, tachycardia/arrhythmia, periods of inexhaustibility, psychomotor agitation

Caffeine Intoxication – Associated Features

- At high doses
 - **Mild sensory disturbance** → ringing of ears, flashes of light
 - **Incr HR** (small doses can slow HR)
 - Unclear if causes headaches
- Physical exam
 - Agitation, restlessness, sweating, tachycardia, flushed face, incr bowel motility
- Caffeine blood levels → not diagnostic

Caffeine Intoxication – Prevalence

- Prevalence = UNCLEAR (? 7%)

Caffeine Intoxication – Development & Course

- Caffeine half-life = 4-6 hours
 - Intoxication symptoms usually remit **within first day**
 - No long-lasting consequences
- Very high doses (5-10 grams) → may be lethal
- Advancing age
 - More intense reactions
 - Greater complaints of interference with sleep, hyperarousal
- Children & adolescents → may be at incr risk for intoxication
 - Low body weight
 - Lack of tolerance
 - Lack of knowledge about effects

Caffeine Intoxication – Risk & Prognostic Factors

- Environmental

- More often in those who
 - Use caffeine **LESS frequently**
 - **Recent increased intake** by substantial amount
- **Oral contraceptives**
 - DECREASE elimination of caffeine → incr risk of intoxication

- Genetic & Physiological

- Genetic factors may affect risk

Caffeine Intoxication – Functional Consequences

- May have serious consequences
 - Dysfunction at work/school
 - Social indiscretions
 - Failure to fulfill role obligations
- High doses can be fatal
- May precipitate caffeine-induced disorder

Caffeine Intoxication – Differential Diagnosis

- Other mental disorder
 - Manic episode, panic disorder, GAD, sleep disorders
 - Amphetamine intoxication
 - Sedative, hypnotic or anxiolytic withdrawal, tobacco withdrawal
 - Medication-induced side effects (e.g. akathisia)
- Other caffeine-induced disorders
 - Induced sleep or anxiety disorder → symptoms in excess of intoxication

Caffeine Intoxication – Comorbidity

- Typical dietary caffeine doses → not assoc with problems
- Heavy use (>400mg)
 - May exacerbate anxiety, somatic sx, GI distress
- Extremely high doses
 - Grand mal seizures, respiratory failure, death
- Excessive use assoc with certain mental disorders
 - Depressive, bipolar, psychotic
 - Eating disorders, sleep disorders
 - Substance-related disorder
- Anxiety disorders → more likely to AVOID caffeine

Caffeine Withdrawal

Caffeine Withdrawal – Diagnostic Criteria

SimplePsych

A. Prolonged daily use of caffeine

B. Abrupt cessation/reduction in use, 3/5 sx within 24 hours:

- 1. Headache**
- 2. Marked fatigue/drowsiness**
- 3. Dysphoria mood**, depressed mood, irritability
- 4. Difficulty concentrating**
- 5. Flu-like sx** (nausea, vomiting, muscle pain/stiffness)

C. Significant distress or impairment

D. Not better explained by AMC, AMD, another substance

Caffeine Withdrawal – Diagnostic Features

SimplePsych

- HEADACHE = **hallmark feature**
 - May be diffuse, gradual, throbbing, severe, sensitive to movement
- Some consumers may be unaware of physical dependence
 - May misattribute to **other causes** (flu, migraine)
 - May develop if required to abstain prior to medical procedures
 - Or if usual dose missed due to change in routine
- Incr risk + severity as function of usual daily dose
 - But large variability
 - May occur with abrupt cessation of low chronic daily dose

Caffeine Withdrawal – Associated Features

SimplePsych

- Impaired behavioral + cognitive performance
 - Esp **sustained attention**
 - Decr motivation to work, sociability
 - Incr analgesic use
- EEG → incr theta power, decr beta-2 power

Caffeine Withdrawal – Prevalence

SimplePsych

- Prevalence = UNKNOWN
 - Headache in 50% cases (of caffeine abstinence)
 - Of those attempting to permanent stop → **>70% experience ONE sx**
- Can decr incidence of withdrawal by gradual reduction

Caffeine Withdrawal – Development & Course

SimplePsych

• Onset

- Symptoms usually being **12-24 hours** after last dose
 - Peak after **1-2 days** of abstinence
- Can last for **2-9 days**
 - Withdrawal headaches → can occur for up to **21 days**
- After re-ingestion of caffeine → **symptoms remit rapidly** (30-60 mins)

• Rates of consumption **increase with age until mid-30s**

- Then levels off
- Increasing use of caffeinated energy drinks in young

Caffeine Withdrawal – Risk & Prognostic Factors

SimplePsych

- Temperamental
 - **Heavy caffeine users** → mental disorders, eating disorders
 - Smokers, prisoners, substance abusers
- Environmental
 - Sudden **unavailability of caffeine** (restrictions)
 - Medical procedures, pregnancy, hospitalizations
 - Religious observances, wartime, travel, research participation
- Genetic & Physiological
 - Genetic factors may incr vulnerability → no specific genes
- Course modifiers
 - **Below normal** doses may be sufficient to prevent/attenuate withdrawal

Caffeine Withdrawal – Culture-Related Issues

- Religious fasting

Caffeine Withdrawal – Functional Consequences

SimplePsych

- Rates of impairment range
 - Unable to work, exercise, care for children
 - Staying in bed all day
 - Missing religious services
 - Ending vacation early
 - Cancelling social gatherings
 - Decr cognitive + motor performance
- **“worst headaches ever experienced”**

Caffeine Withdrawal – Differential Diagnosis

SimplePsych

- Other medical disorders and medication side effects
 - Migraines, headache disorders
 - Viral illness, sinus conditions
 - Tension
 - Other drug withdrawal (stimulants)
 - Medication side effects

Caffeine Withdrawal – Comorbidity

SimplePsych

- May be assoc with
 - MDD, GAD, panic disorder
 - ASPD
 - Mod-severe AUD
 - Cannabis, cocaine use

Other Caffeine-Induced Disorders

Other Caffeine-Induced Disorders

SimplePsych

- Caffeine-Induced:

- Anxiety disorder
- Sleep disorder

Unspecified Caffeine-Related Disorder

Unspecified Caffeine-Related Disorder

SimplePsych

- Does not meet any full criteria

Cannabis-Related Disorders

Cannabis Use Disorders

Cannabis Use Disorders – Diagnostic Criteria

A. Use, leading to sig impairment or distress, 12-mo period (2/11):

1. Using **larger amounts or longer** than intended
2. Persistent desire or failed efforts to **cut down**
3. Spending **great deal of time** in related activities
4. Intense desire/urge for drug (**craving**)
5. Failure to fulfill **major role obligations**
6. Use despite persistent **social/interpersonal problems**
7. Important activities **given up**
8. Use in **physically hazardous** situations
9. Use despite persistent **physical/psychological problems**
10. **Tolerance**
11. **Withdrawal**

Cannabis Use Disorders – Diagnostic Specifiers

- *Specify if:*
 - **In early remission:** no criteria met for 3-12 months (except craving)
 - **In sustained remission:** no criteria met for 12+ months (except craving)
- *Specify if:*
 - **In a controlled environment:** where access to substance is restricted
- *Specify current severity:*
 - **Mild:** 2-3 sx
 - **Moderate:** 4-5 sx
 - **Severe:** 6+ sx

Cannabis Use Disorders – Diagnostic Features

- Substances derived from cannabis plant (many names)
 - **Hashish** = concentrated extraction of cannabis plant = hashish
- Also includes chemically similar synthetic compounds
 - Synthetic oral formulations of THC → medicinal use
 - Synthetic cannabinoids → non-medicinal use (K2, Spice)
- Diverse effects of cannabinoids in brain
 - CB1 + CB2 cannabinoid receptors → throughout CNS
 - Endocannabinoids → act like neurotransmitters
- Potency of cannabis varies (THC concentration)
 - Typical cannabis plant → 1-15%
 - Hashish → 10-20%
 - **Increasing potency** during past 2 decades (based on seized cannabis)

Cannabis Use Disorders – Diagnostic Features

- Administration

- Smoked → pipes, water pipes, joints, blunts
- Orally → mixed with food
- Vaporized → heating plant material to release cannabinoids
- **Smoking + vaporization** → more rapid onset + intense effects

- Regular use → develops features of SUD

- Individuals often observe as only SUD they have
 - But frequently occurs with other SUDs
 - May minimize sx related to cannabis (as may be less severe)
- **Pharmacological + behavior tolerance reported**
 - Tolerance lost when cannabis use discontinued for long period

- Cannabis withdrawal syndrome new to DSM5

- Typically not as severe as alcohol or opiate withdrawal

Cannabis Use Disorders – Diagnostic Features

- Frequency of use varies → still causing problems
 - Family, school, work, social
- If taken for legitimate medical reasons
 - Tolerance + withdrawal will naturally occur → should not counted

Cannabis Use Disorders – Associated Features

- Often report being use to cope
 - **Mood, sleep, pain**, other physiological/psychological problems
 - Often do have concurrent mental disorders
 - Reports cannabis use contributes to **exacerbation of same sx**
 - Other reasons for use
 - Euphoria, forget about problems, anger, social activity
- Some who use multiple times per day
 - Do NOT perceive themselves as spending considerable time
 - May minimized use
- Signs of acute + chronic use
 - Red eyes (conjunctival injection), cannabis odor, yellowing of fingertips, chronic cough, burning of incense (to hide odor)
 - **Exaggerated craving/impulse for specific foods**, at unusual times

Cannabis Use Disorders – Prevalence

- Most widely used illicit psychoactive substance in US
 - **Increasing prevalence** during past decade
 - Gender differences concordant with other SUD
 - More common in **MALES** (less difference among adolescents)
- 12-month prevalence
 - Age 12-17 = **3.4%** (male 3.8%, female 3.0%)
 - Age 18+ = **1.5%** (male 2.2%, female 0.8%)
 - Age 18-29 = 4.4% → HIGHEST group
 - Age 65+ = 0.01% → lowest (decr with age)
 - Greater prevalence more likely reflects widespread use (vs addictive)
- Moderate prevalence differences by ethnicity/race

Cannabis Use Disorders – Development & Course (1)

- Onset

- Most common → during **adolescence/young adulthood**
 - Less frequently → preteen years, after late 20s
 - “Medical marijuana” → may incr onset among older adults
- Typically develops over extended period of time
 - May be **more rapid progression in adolescents** (esp if conduct)
- Traditionally among first substances adolescents try (tobacco, alcohol)
 - May perceive as **LESS harmful** → likely contributes to incr use
 - Does **NOT typically result** in severe behavior/cognitive dysfunction
 - More frequent use in diverse situations (vs alcohol)
 - May contribute to rapid transition for some adolescents
 - Also to pattern of **using throughout day** (in severe CUD)

Cannabis Use Disorders – Development & Course (2)

- Use among preteens, adolescents, young adults
 - Typically excessive **use with peers**, other delinquent behaviors
 - Usually assoc with **conduct problems**
 - Milder cases → use despite clear problems
 - Disapproval by peers, school, family
 - Risk of physical/behavioral consequences
 - More severe cases → progression to using alone, throughout day
 - Interferes with daily function, replaced previous prosocial activities
- Adolescent use
 - Changes in **mood stability, energy level, eating patterns** → COMMON
 - Likely due to direct intoxication, coming down, attempts to conceal use
 - **School-related problems** common
 - Dramatic drop in grade, truancy, decr interest in activities + outcomes

Cannabis Use Disorders – Development & Course (3)

- Adults

- Typically **well-established patterns of daily use**
 - Despite clear psychosocial/medical problems
 - Repeated desire/failed attempts to stop
- Milder cases resemble adolescents
- Increasing rate of use among middle-age + older adults
 - **Cohort effect** → high use in late 1960/1970s

- Early onset (before age 15)

- **ROBUST predictor** of development of CUD, SUD, AMD as young adult
- Likely related to externalizing problems (esp **conduct disorder**)
- Also predictor of internalizing problems (likely just general risk factor)

Cannabis Use Disorders – Risk & Prognostic Factors

- Temperamental

- Hx **conduct disorder or ASPD** → risk factors for many SUD + CUD
- Externalizing + internalizing disorders during C&A
- Youth with **high behavioral disinhibition scores**
 - Early-onset SUD (incl CUD, multiple substances)
 - Early conduct problems

- Environmental

- **Academic failure**, unstable/abusive family situation, low SES
- **Tobacco smoking**, cannabis use among immediate family, family hx SUD
- **Ease of availability**

- Genetic & Physiological

- **Heritability 30-80%**
- Common genetic basis for adolescent substance use + conduct problems

Cannabis Use Disorders – Culture-Related Issues

- Probably world's most commonly used illicit substance
 - Prevalence likely similar among developed countries
 - Frequent first drug of experimentation of all culture groups in US
- Acceptance of medical cannabis → varies across/within cultures

Cannabis Use Disorders – Diagnostic Markers

- Cannabinoids → FAT SOLUBLE
 - Persist in bodily fluids for extended periods of time → excreted slowly
 - Urine testing

Cannabis Use Disorders – Functional Consequences

- Psychosocial, cognitive, health functioning
 - **Higher executive function impaired** → dose-dependent
 - Difficulty at school, work
 - Accident due to potential dangerous behaviors (under influence)
 - High levels of carcinogens when smoked
 - Similar **risk of respiratory illness** (as tobacco smokers)
 - Onset/exacerbation of many other mental disorders
 - May be **causal factor in schizophrenia**
 - Onset of acute psychotic episode, exacerbate sx, adversely effect tx
- Amotivational syndrome
 - Decr prosocial goal-directed activity → poor school/work performance

Cannabis Use Disorders – Differential Diagnosis

- Non-problematic cannabis use
- Other mental disorder
 - Chronic cannabis use → may look like persistent depressive disorder
 - Acute adverse reactions to cannabis
 - Panic disorder, MDD, bipolar disorder
 - Delusional disorder, schizophrenia
 - Physical exam sign, urine testing

Cannabis Use Disorders – Comorbidity

- Higher lifetime probability of using more dangerous substances
 - “Gateway drug” → opioids, cocaine
 - High comorbidity with other SUD, mental conditions
 - Poorer life satisfaction, incr mental health tx, hospitalization
 - Higher rates of depression, anxiety disorder, **suicide attempts**, conduct
 - Higher rates of AUD, TUD (likely other SUDs)
- Those seeking tx for CUD → 74% other substance problem
 - Alcohol 40%, cocaine 12%, methamphetamine 6%, opiates 2%
- Younger than age 18 → 61% other substance problem
 - Alcohol 48%, cocaine %, methamphetamine 2%, opiates 2%
- Cannabis often secondary substance problem
 - In **25-80%** of those in treatment for another substance

Cannabis Use Disorders – Comorbidity

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Cannabis Use Disorders – Comorbidity

- High rates of concurrent mental disorders
 - **MDD (11%), any anxiety disorder (24%), bipolar I (13%)**
 - Personality disorders → antisocial (30%), OCPD (19%), paranoid (18%)
 - 33% internalizing disorders (anxiety, depression, PTSD)
 - 60% externalizing disorders (conduct, ADHD)
- Few clear medical conditions that commonly co-occur
 - But impacts multiple aspects of normal human functioning
 - Most significant is **respiratory system**
 - High rates of bronchitis, sputum production, SOB, wheezing

Cannabis Intoxication

Cannabis Intoxication – Diagnostic Criteria

- A. Recent use of cannabis
- B. Problematic **behavioral/psychological changes** shortly after
 1. Impaired motor coordination, euphoria, anxiety, sensation of slowed time, impaired judgement, social withdrawal
- C. Signs/symptoms, within 2 hours (2/4)
 1. **Conjunctival injection**
 2. **Incr appetite**
 3. **Dry mouth**
 4. **Tachycardia**
- D. Not better explained by AMC, AMD, another substance

Cannabis Intoxication – Diagnostic Specifiers

- *Specify if:*
 - **With perceptual disturbances:** intact reality testing, not delirium
 - (if no intact reality testing, consider substance-induced psychosis)

Cannabis Intoxication – Diagnostic Features

- Problematic behavioral or psychological changes
 - Typically begins with **“high” feeling**
 - Then euphoria, inappropriate laughter, grandiosity
 - Sedation, lethargy, impaired STM, impaired judgement
 - Difficulty with complex mental processes, impaired motor performance
 - Distorted sensory perceptions, sensation of time passing slowly
 - Occasionally → anxiety, dysphoria, social withdrawal
- Accompanying physiological effects within 2 hours (2/4)
 - **Conjunctival injection, dry mouth, tachycardia, incr appetite**
- Timing of effects
 - Smoked → within minutes, lasts 3-4 hours
 - Oral → within few hours, longer than 3-4 hours
 - Fat soluble cannabinoids → may persist/reoccur for 12-24 hours
 - Magnitude of effect → dose, route, individual characteristics

Cannabis Intoxication – Prevalence

- Prevalence of actual episodes = UNKNOWN
 - Likely similar to prevalence of cannabis users

Cannabis Intoxication – Functional Consequences

- May have serious consequences
 - Work, school function
 - Social indiscretions
 - Role obligations
 - Traffic accidents
 - Unprotected sex
- Rarely → may precipitate **psychosis**

Cannabis Intoxication – Differential Diagnosis

- Other substance intoxication
 - Alcohol, sedatives, hypnotics, anxiolytic intoxication
 - Decr appetite, incr aggression, cause nystagmus/ataxia
 - Hallucinogens in low doses → similar picture
 - PCP → perceptual changes too, BUT ataxia + aggression
- Other cannabis-induced disorders
 - Predominates clinical picture + warrants independent clinical attention

Cannabis Withdrawal

Cannabis Withdrawal – Diagnostic Criteria

- A. Cessation of heavy, prolonged cannabis use
- B. Withdrawal signs/symptoms, within **1 week** (3/7):
 - 1. **Irritability**, anger, aggression
 - 2. **Anxiety**, nervousness
 - 3. **Restlessness**
 - 4. **Depressed mood**
 - 5. **Sleep difficulty** (insomnia, disturbing dreams)
 - 6. **Decr appetite or weight loss**
 - 7. **1 uncomfortable physical sx**
 - (Abdo pain, tremors, sweating, fever, chills, headache)
- C. Significant distress or impairment
- D. Not better explained by AMC, AMD, another substance

Cannabis Withdrawal – Diagnostic Features

- After initial periods of decr appetite + insomnia
 - Fatigue, yawning, **hypersomnia, difficulty concentrating**
 - Rebound periods of **incr appetite**
- May use cannabis/other substances to relieve withdrawal sx
 - May report causing difficulty quitting, contributing to relapse
 - Withdrawal sx usually NOT severe enough to require medical attention
 - May benefit from interventions to alleviate sx, improve quit rates
- Prevalence of withdrawal
 - Among lifetime users → **33%** have experienced withdrawal
 - Heavy users or in treatment → **50-95%** have experienced withdrawal

Cannabis Withdrawal – Development & Course

- Amount, freq, duration required for withdrawal → UNKNOWN
- Course
 - Onset → **first 1-3 days** after cessation
 - Peak → within **first week**
 - Duration → **1-2 weeks**
 - Sleep difficulty → may last **>1 month**
- Documented among adolescents + adults
 - Adults → **more common + severe**
 - Likely related to more persistent, frequent, amount use

Cannabis Withdrawal – Risk & Prognostic Factors

- Environmental
 - Likely more prevalence + severe among **heavier cannabis users**
 - Esp those **seeking treatment**
 - Severity related to **severity of comorbid mental disorder symptoms**

Cannabis Withdrawal – Functional Consequences

- May use cannabis to relieve withdrawal sx
 - Ongoing CUD → difficulty quitting
 - May initiate use of other drugs for relief
- Greater withdrawal
 - May be assoc with worse outcomes
 - May disrupt daily living

Cannabis Withdrawal – Differential Diagnosis

- Other substance withdrawal syndromes
- Depressive, bipolar disorders
- Another medical condition

Other Cannabis-Induced Disorders

Other Cannabis-Induced Disorders

- Cannabis-Induced:
 - **Psychotic disorder**
 - **Anxiety disorder**
 - **Sleep disorder**
 - **Delirium**
- (diagnose **INSTEAD** of cannabis intoxication/withdrawal if sufficiently severe to warrant independent clinical attention)

Unspecified Cannabis-Related Disorder

Unspecified Cannabis-Related Disorder

- Does NOT meet any full criteria

Hallucinogen-Related Disorders

Phencyclidine Use Disorder

Phencyclidine Use Disorder – Diagnostic Criteria

A. Use, leading to sig impairment or distress, 12-mo period (2/11):

1. Using **larger amounts or longer** than intended
2. Persistent desire or failed efforts to **cut down**
3. Spending **great deal of time** in related activities
4. Intense desire/urge for drug (**craving**)
5. Failure to fulfill **major role obligations**
6. Use despite persistent **social/interpersonal problems**
7. Important activities **given up**
8. Use in **physically hazardous** situations
9. Use despite persistent **physical/psychological problems**
10. **Tolerance**
11. **Withdrawal**

Phencyclidine Use Disorder – Diagnostic Specifiers

- *Specify if:*
 - **In early remission:** no criteria met for 3-12 months (except craving)
 - **In sustained remission:** no criteria met for 12+ months (except craving)
- *Specify if:*
 - **In a controlled environment:** where access to substance is restricted
- *Specify current severity:*
 - **Mild:** 2-3 sx
 - **Moderate:** 4-5 sx
 - **Severe:** 6+ sx

Phencyclidine Use Disorder – Diagnostic Features

- Phencyclidine (PCP, “angel dust”)
 - Similarly acting compounds (**ketamine, cyclohexamine, dizocilpine**)
 - Developed as dissociative anesthetics (1950s) → street drugs (1960s)
- Route → usually **smoked, oral** (can be snorted, injected)
- Effect → low dose = **dissociation**, high dose = **stupor, coma**
 - Primary psychoactive effects (of PCP) → **few hours**
 - Total elimination → **8+ days**
 - Hallucinogenic effects → may last **weeks**
 - May precipitate **persistent psychotic episode** (resembles scz)
- Ketamine → may have use in tx of MDD
- Withdrawal → NOT clearly established in humans

Phencyclidine Use Disorder – Associated Features

- Detectable in urine → **up to 8 days** (longer if high doses)
- Intoxication
 - Dissociative sx, analgesia, **nystagmus**
 - Hypertension → risk of hypotension, shock
 - May have **violent behavior** (may believe being attacked)
- Residual sx after use → may **resemble schizophrenia**

Phencyclidine Use Disorder – Prevalence

- Prevalence of DISORDER = UNKNOWN
- Lifetime use of PCP → **2.5% gen pop** (incr with age)
 - Age 12-17 = 0.3%
 - Age 18-25 = 1.3%
 - Age 26+ = 2.9%
- Among 12th graders
 - Increasing PCP use
 - Stable ketamine use

Phencyclidine Use Disorder – Risk & Prognostic Factors

- LITTLE KNOWN about risk factors
- In treatment, those with primary PCP use
 - Younger
 - Lower education
 - More likely from US West, US Northeast

Phencyclidine Use Disorder – Culture-Related Issues

- Ketamine use among youth (age 16-23)
 - More common among **whites** (0.5%) vs other ethnic groups (0-0.3%)
- In treatment, those with primary PCP use
 - Predominantly **black** (49%) or **Hispanic** (29%)

Phencyclidine Use Disorder – Gender-Related Issues

- Among PCP-related ER visits → **75% MALE**

Phencyclidine Use Disorder – Diagnostic Markers

- Present in urine → **up to 8 days after ingestion**
- Physical signs
 - Nystagmus, analgesia, prominent hypertension

Phencyclidine Use Disorder – Functional Consequences

- Intoxication

- Cardiovascular + neurological toxicities
 - **Seizures**, dystonia, dyskinesias, catalepsy
 - Hypothermia, hyperthermia
- Intracranial hemorrhage, rhabdomyolysis, respiratory problems
- **Physical injuries** (from accidents, fights, falls)
- Cardiac arrest (rare)

- Chronic use

- May have deficits in **memory, speech, cognition**

Phencyclidine Use Disorder – Differential Diagnosis

- Other substance use disorders
 - PCP may be common additive to other substances (cannabis, cocaine)
- Schizophrenia, other mental disorders
 - Psychosis → schizophrenia, PCP-induced psychotic disorder
 - Low mood → MDD
 - Violence, aggression → conduct disorder, ASPD

Other Hallucinogen Use Disorder

Other Hallucinogen Use Disorder – Diagnostic Criteria

A. Use, leading to sig impairment or distress, 12-mo period (2/11):

1. Using **larger amounts or longer** than intended
2. Persistent desire or failed efforts to **cut down**
3. Spending **great deal of time** in related activities
4. Intense desire/urge for drug (**craving**)
5. Failure to fulfill **major role obligations**
6. Use despite persistent **social/interpersonal problems**
7. Important activities **given up**
8. Use in **physically hazardous** situations
9. Use despite persistent **physical/psychological problems**
10. **Tolerance**
11. **Withdrawal**

Other Hallucinogen Use Disorder – Diagnostic Specifiers

- ***Specify the particular hallucinogen***
- ***Specify if:***
 - **In early remission:** no criteria met for 3-12 months (except craving)
 - **In sustained remission:** no criteria met for 12+ months (except craving)
- ***Specify if:***
 - **In a controlled environment:** where access to substance is restricted
- ***Specify current severity:***
 - **Mild:** 2-3 sx
 - **Moderate:** 4-5 sx
 - **Severe:** 6+ sx

Other Hallucinogen Use Disorder – Diagnostic Features (1)

- Diverse group of substances, different chemical structures
 - May have different molecular mechanisms
 - Similar **alterations in perception, mood, cognition**
 - (excludes cannabis/THC → different effects)
- Phenylalkylamines → mescaline, MDMA/ecstasy, DOM
- Indoleamines → psilocybin, DMT
- Ergolines → LSD, morning glory seeds
- Ethnobotanicals → *Salvia divinorum*, jimsonweed
- Usually taken → **orally**
 - Some smoked (DMT, salvia)
 - Rarely intranasal or injection (ecstasy)

Other Hallucinogen Use Disorder – Diagnostic Features (2)

- Duration of effect VARIES
 - LSD, MDMA long half-life → may spend **hours-days** using/recovering
 - DMT, salvia short-acting
- Tolerance to hallucinogens develops
 - With repeated use → both autonomic + psychological effects
 - **Cross-tolerance between LSD + other hallucinogens**
 - But does not extend to other drug categories (amphetamines, cannabis)
- MDMA/ecstasy → both hallucinogen + stimulant properties
 - Most common criteria (>50% adults, >30% younger)
 - Continued use despite physical/psychological problems
 - Spending great deal of time, Hazardous use, Tolerance
 - Rarely → legal problems, persistent desire/inability to quit
 - Evidence of **withdrawal** from MDMA (59-98%)

Other Hallucinogen Use Disorder – Associated Features

- Hallucinogen intoxication
 - May have **temporary increase in suicidality**
 - LSD → may have **frightening visual hallucinations**

Other Hallucinogen Use Disorder – Prevalence

- One of the rarest SUD

- Higher among clinical samples
- Among those using hallucinogens, disorder in:
 - 17% of adolescents, 8% of adults

- 12-month prevalence (US)

- Age 12-17 = 0.5% (M 0.4%, F 0.6%) → FEMALES higher
- Age 18+ = 0.1% (M 0.2%, F 0.1%) → MALES higher
- **Age 18-29 = 0.6% → PEAK**
- Age 45+ = 0.0%

- Ethnic differences

- Age 12-17 → Native Americans/Alaskans (1.2%), Hispanics (0.6%), whites (0.6%), African American (0.2%), Asian American/Pacific Islanders (0.2%)
- Age 18+ → Native Americans/Alaskans (0.2%), Hispanics (0.2%), whites (0.2%), Asian American/Pacific Islanders (0.07%), African American (0.03%)

Other Hallucinogen Use Disorder – Development & Course

- Unclear if early onset assoc with disorder
 - Early-onset MDMA users → more likely to be polydrug users
 - **MDMA users** → incr risk of disorder
- Course → little known
 - Thought to have **low incidence, low persistence, high recovery rates**
 - Very rare among older adults
- High use in adolescents (age 12-17)
 - Past 12-month use of 1+ hallucinogens → 3%
 - 44% lifetime use of MDMA

Other Hallucinogen Use Disorder – Risk & Prognostic

- Temperamental

- **MDMA use, other SUDs** (esp alcohol, tobacco, cannabis), **MDD**
 - Elevated rates of OHUD
 - Cannabis, alcohol, tobacco → may be precursor to hallucinogen use
- Salvia → incr **risk-taking behavior, illegal activities** (in age 18-25)
- **Higher peer drug use, high sensation seeking** → incr MDMA use
- ASPD → may be higher in those using hallucinogens + 2+ other drugs
- Antisocial behaviors may influence FEMALES more (for OHUD)
 - But not conduct disorder or ASPD

- Genetic & Physiological

- Male twins → variance due to additive genetics = 26-79%

Other Hallucinogen Use Disorder – Culture-Related Issues

- Hallucinogens as part of established religious practices
 - **Peyote** → Native American Church, Mexico
 - NOT linked to neuro/psychological deficits
 - **Psilocybin** → South America, Mexico, parts of US
 - **Ayahuasca** → Santo Daime, Uniao de Vegetal sects

Other Hallucinogen Use Disorder – Gender-Related Issues

- In adolescents
 - MALES → more likely to endorse “hazardous use”
 - FEMALES → may have incr odds of OHUD

Other Hallucinogen Use Disorder – Diagnostic Markers

- Lab testing may be helpful to distinguish different hallucinogens
 - Some agents very potent, even at low doses

Other Hallucinogen Use Disorder – Functional Consequence

- MDMA → may have **long-term neurotoxic effects**
 - Memory impairment, sleep disturbance
 - Psychological function, serotonin system dysfunction
 - Neuroendocrine function
 - Brain microvasculature, white matter maturation, axon damage
 - May decr functional connectivity among brain regions

Other Hallucinogen Use Disorder – Differential Diagnosis

- Other substance use disorders
 - Hallucinogens commonly contaminated with other drugs
- Schizophrenia
 - May falsely attribute sx to use of hallucinogens
- Other mental disorders or medical conditions
 - Panic disorder, depressive, bipolar disorder
 - Alcohol, sedative withdrawal
 - Hypoglycemia
 - Seizure disorder, stroke, ophthalmological disorder, CNS tumors

Other Hallucinogen Use Disorder – Comorbidity

- Higher prevalence of other SUDs
 - Ecstasy → more likely to be polydrug user, have other SUD
- Higher prevalence of other mental disorders
 - Anxiety, depressive, bipolar disorder (esp with ecstasy, salvia)
 - ASPD, adult antisocial behavior
 - Unclear whether precursor or consequence to OHUD

Phencyclidine Intoxication

Phencyclidine Intoxication – Diagnostic Criteria

- A. Recent use of PCP (or similar substance)
- B. Problematic behavioral changes, during/shortly after use
 - 1. Belligerence, violence, impulsiveness, unpredictability, psychomotor agitation, impaired judgement
- C. Intoxication signs/symptoms, **within 1 hour, (2/8)**:
 - 1. **Nystagmus** (vertical or horizontal)
 - 2. **Hypertension or tachycardia**
 - 3. **Decr responsive to pain** or numbness
 - 4. **Ataxia**
 - 5. **Dysarthria**
 - 6. **Muscle rigidity**
 - 7. **Seizures or coma**
 - 8. **Hyperacusis**
- D. Not better explained by AMC, AMD, another substance

Phencyclidine Intoxication – Diagnostic Features

- Most common clinical presentations
 - **Disorientation + confusion** (without hallucinations)
 - **Hallucinations or delusions**
 - **Catatonic-like syndrome**
 - **Coma**
- Intoxication → may last for **several hours**
 - May last for **several days or longer** (type of presentation, other drugs)

Phencyclidine Intoxication – Prevalence

- Likely related to prevalence of USE
- PCP
 - General population → **2.5%**
 - 12th graders → 2.3% ever used (of those, 57% in past 12 months)
- Ketamine
 - 12th graders → 1.7% past 12 months

Phencyclidine Intoxication – Diagnostic Markers

- PCP detectable in urine for **up to 8 days**
 - Levels only weakly assoc with clinical presentation
- May have **elevated CK, AST**

Phencyclidine Intoxication – Functional Consequences

- Cardiovascular + neurological toxicity
 - Seizures
 - Dystonia, dyskinesia
 - Catalepsy
 - Hypothermia, hyperthermia

Phencyclidine Intoxication – Differential Diagnosis

- If reality testing NOT intact → consider PCP-induced psychosis
- Other substance intoxication
 - Other hallucinogens, amphetamines, cocaine, stimulants
 - Anticholinergics, benzo withdrawal
 - PCP features → nystagmus, bizarre + violent behavior
- Other conditions
 - Schizophrenia, depression
 - Withdrawal from other drugs (sedatives, alcohol)
 - Metabolic disorders → hypoglycemia, hyponatremia
 - CNS tumors, seizure disorders, sepsis, NMS, vascular insults

Other Hallucinogen Intoxication

Other Hallucinogen Intoxication – Diagnostic Criteria

- A. Recent use of hallucinogen (other than PCP)
- B. Problematic **behavioral/psychological changes**, during/after
 - 1. Marked anxiety/depression, ideas of reference, fear of losing mind, paranoia, impaired judgement
- C. **Perceptual changes** occur in **state of full wakefulness + alertness**
 - 1. Intensification of perceptions, depersonalization, derealization, illusions, hallucinations, synesthesia
- D. Intoxication physiological signs (2/7)
 - 1. **Pupillary dilation**
 - 2. **Blurring of vision**
 - 3. **Tachycardia**
 - 4. **Palpitations**
 - 5. **Sweating**
 - 6. **Tremors**
 - 7. **Incoordination**
- E. Not better explained by AMC, AMD, another substance

Other Hallucinogen Intoxication – Diagnostic Features

- Duration of intoxication depends on specific hallucinogen
 - Salvia → minutes
 - LSD, MDMA → hours+

Other Hallucinogen Intoxication – Prevalence

- Estimated by use prevalence
- 12-month prevalence
 - Age 12+ = 1.8% (M 2.4%, F 1.2%) → higher in MALES
 - Age 12-17 = 3.1% (M=F) → no gender difference
 - Age 18-25 = 7.1% (M 9.2%, F 5.0%) → higher in MALES
 - Age 26+ = 0.7%

Other Hallucinogen Intoxication – Suicide Risk

- Intoxication may lead to **increased suicidality** (still rare)

Other Hallucinogen Intoxication – Functional Consequences

- Perceptual disturbance, impaired judgement
 - **Injuries or fatalities** (MVA, fights, unintentional self-injury)
- Continued MDMA use → linked to **neurotoxic effects**

Other Hallucinogen Intoxication – Differential Diagnosis

- Other substance intoxication
 - Stimulants, anticholinergics, inhalants, PCP
- Other conditions
 - Schizophrenia, depression
 - Withdrawal from other drugs (sedatives, alcohol)
 - Metabolic disorders → hypoglycemia
 - Seizure disorders, CNS tumors, vascular insults
- Hallucinogen persisting perception disorder
 - May continue **episodically or continuously**
 - **For week or longer**, after most recent intoxication
- Other hallucinogen-induced disorders
 - Anxiety disorder

Hallucinogen Persisting Perception Disorder

Hallucinogen Persisting Perception Disorder – Diagnostic Criteria

- A. After cessation, **re-experiencing of 1+ perceptual symptoms**, that were experience while intoxication with the hallucinogen
- B. Significant distress or impairment
- C. Not better explained by AMC, AMD, hypnopompic hallucinations

Hallucinogen Persisting Perception Disorder – Diagnostic Features

- Re-experiencing of perceptual disturbances, when SOBER
 - Tend to be **visual disturbance** (may be any modality)
 - Geometric hallucinations, perception of entire objects,
 - False perception of movement in peripheral vision
 - Trails of images of moving objects, halos around objects
 - Flashes of color, intensified colors, positive afterimages
 - Misperception of image size (macropsia, micropsia)
- Duration → **episodic or nearly continuous**
 - May last for weeks, months, years
- Primarily after → **LSD** (not exclusively)
 - **NOT assoc with times** hallucinogen used (may be minimal exposure)
 - May be triggered by **other substance use** (cannabis, alcohol)
 - May be triggered by **adaptation to dark environment**

Hallucinogen Persisting Perception Disorder – Associated Features

- **INTACT** reality testing

Hallucinogen Persisting Perception Disorder – Prevalence

- Overall prevalence = UNKNOWN
- Among hallucinogen users → **4.2%**

Hallucinogen Persisting Perception Disorder – Development & Course

- Little is known about development
- Course → persistent (weeks to years)

Hallucinogen Persisting Perception Disorder – Risk & Prognostic Factors

- Little evidence on risk factors
 - ? Genetic factors underling susceptibility to LSD effects

Hallucinogen Persisting Perception Disorder – Functional Consequence

- Most able to **suppress disturbances + functional normally**
- May be chronic in some cases

Hallucinogen Persisting Perception Disorder – Differential Diagnosis

- Schizophrenia
- Other drug effects
- Neurodegenerative disorders
- Stroke
- Brain tumors
- Infections
- Head trauma

- Neuroimaging → typically negative

Hallucinogen Persisting Perception Disorder – Comorbidity

- Common comorbid mental disorders
 - Panic disorder
 - Major depressive disorder
 - Alcohol use disorder

Other Phencyclidine-Induced Disorders

Other Phencyclidine-Induced Disorders

- PCP-induced
 - Psychotic disorder
 - Bipolar disorder
 - Depressive disorder
 - Anxiety disorder
 - Delirium

Other Hallucinogen-Induced Disorders

Other Hallucinogen-Induced Disorders

- Hallucinogen-induced
 - Psychotic disorder
 - Bipolar disorder
 - Depressive disorder
 - Anxiety disorder
 - Delirium

Unspecified Phencyclidine-Related Disorders

Unspecified Phencyclidine-Related Disorders

- Does not meet any full criteria

Unspecified Hallucinogen-Related Disorders

Unspecified Hallucinogen-Related Disorders

- Does not meet any full criteria

Inhalant-Related Disorders

Inhalant Use Disorder

Inhalant Use Disorder – Diagnostic Criteria

A. Use, leading to sig impairment or distress, 12-mo period (2/10):

1. Using **larger amounts or longer** than intended
2. Persistent desire or failed efforts to **cut down**
3. Spending **great deal of time** in related activities
4. Intense desire/urge for drug (**craving**)
5. Failure to fulfill **major role obligations**
6. Use despite persistent **social/interpersonal problems**
7. Important activities **given up**
8. Use in **physically hazardous** situations
9. Use despite persistent **physical/psychological problems**
10. **Tolerance**
11. (withdrawal NOT counted)

Inhalant Use Disorder – Diagnostic Specifiers

- ***Specify the particular inhalant***
- ***Specify if:***
 - **In early remission:** no criteria met for 3-12 months (except craving)
 - **In sustained remission:** no criteria met for 12+ months (except craving)
- ***Specify if:***
 - **In a controlled environment:** where access to substance is restricted
- ***Specify current severity:***
 - **Mild:** 2-3 sx
 - **Moderate:** 4-5 sx
 - **Severe:** 6+ sx

Inhalant Use Disorder – Diagnostic Features

- Inhalants → **volatile hydrocarbons**
 - Toxic gases → glues, fuels, paints, toluene, other volatile compounds
 - Often mixture of several substances
- Nitrous oxide, amyl nitrite, butyl nitrite, isobutyl nitrite
 - OTHER (OR UNKNOWN) SUD
- Mild withdrawal → 10% of inhalant users
 - Few use to avoid withdrawal
 - Not recognized as distinct diagnosis

Inhalant Use Disorder – Associated Features

- Repeated intoxication with negative standard drug screens
 - Possession, lingering odors, easy access of inhalants + paraphernalia
 - “**Glue-sniffer’s rash**” → peri-oral/nasal
 - Association with other inhalant users, groups with prevalent inhalant use
 - Aboriginal communities, homeless children in street gangs
 - Characteristic medical complications
 - **Brain white matter pathology, rhabdomyolysis**
 - Multiple SUD
- Assoc with **PAST SUICIDE ATTEMPTS**
 - Esp if previous low mood or anhedonia

Inhalant Use Disorder – Prevalence

- 12-month prevalence
 - **Age 12-17 = 0.4%**
 - Highest among Native Americans, lowest among African Americans
 - Age 18-29 = 0.1%
 - Age 18+ = 0.02%
 - Almost NO females, more European Americans

Inhalant Use Disorder – Risk & Prognostic Factors

- Temperamental

- Predictors of progression to disorder
 - Comorbid other SUD, conduct disorder, ASPD
 - Earlier onset of inhalant use
 - Previous use of mental health services

- Environmental

- Inhalants widely + legally available
- Childhood maltreatment + trauma → assoc with progression to disorder

- Genetic & Physiological

- **Behavioral disinhibition** → highly heritable
 - Related to temperamental factors
 - Families with substance + antisocial problems at risk for IUD

Inhalant Use Disorder – Culture-Related Issues

- Higher prevalence groups
 - Native or aboriginal communities
 - Homeless children in street gangs

Inhalant Use Disorder – Gender-Related Issues

- Adolescents → EQUAL
- Adults → very rare among females

Inhalant Use Disorder – Diagnostic Markers

- Urine, breath, saliva tests available

Inhalant Use Disorder – Functional Consequences

- “Sudden sniffing death” → **cardiac arrhythmia**
 - May even occur on first exposure, NOT dose-related
- Inherent toxicity of butane or propane → may be fatal
- Volatile hydrocarbon use → impairs neurobehavioral function
 - Neurological, GI, cardiovascular, pulmonary problems
- Long-term inhalant users → incr risk of medical conditions
 - TB, HIV/AIDS, STD, bronchitis, asthma, sinusitis, depression, anxiety
- Deaths
 - Respiratory depression, arrhythmias, asphyxiation, aspiration of vomitus
 - Accident, injury

Inhalant Use Disorder – Differential Diagnosis

- Inhalant exposure (unintentional) from industrial/accidents
- Inhalant exposure (intentional), not meeting full criteria
- Inhalant intoxication, not meeting full criteria
- Inhalant-induced disorders
- Other SUD (esp sedating substances)
- Other medical conditions impairment CNS/PNS function
 - Toxic, metabolic, traumatic, neoplastic, infectious
 - Inhalant use disorder can present with → pernicious anemia, subacute combined degenerative of the spinal cord, psychosis, major/mild NCD, brain atrophy, leukoencephalopathy
- Disorders of other organ systems
 - Inhalant use disorders can present with hepatic/renal damage, rhabdomyolysis, methemoglobinemia
 - GI, cardiovascular, pulmonary disease

Inhalant Use Disorder – Comorbidity

- Often have other SUDs
- Commonly co-occurs with
 - Adolescent conduct disorder
 - Adult ASPD
- Strongly assoc with **suicidal ideation + suicide attempts**

Inhalant Intoxication

Inhalant Intoxication – Diagnostic Criteria

- A. Intended or unintended, short-term, high-dose exposure**
- B. Problematic behavioral/psychological changes**
- C. Signs/symptoms (2/13):**
 - 1. Euphoria**
 - 2. Dizziness**
 - 3. Unsteady gait**
 - 4. Nystagmus**
 - 5. Blurred vision or diplopia**
 - 6. Slurred speech**
 - 7. Incoordination**
 - 8. Depressed reflexes**
 - 9. Psychomotor retardation**
 - 10. Tremor**
 - 11. Generalized muscle weakness**
 - 12. Lethargy**
 - 13. Stupor or coma**
- D. Not better explained by AMC, AMD, another substance**

Inhalant Intoxication – Diagnostic Features

- Short duration of intoxication
 - Intoxication clears → **within minutes to hours** (after exposure)
 - Usually occurs in **brief episodes** → may recur

Inhalant Intoxication – Associated Features

- May be indicated by evidence of:
 - **Possession, lingering odors of inhalants**
 - Apparent intoxication in **age 12-17** (highest prevalence of inhalant use)
 - Apparent intoxication with **negative drug screens**

Inhalant Intoxication – Prevalence & Gender-Related Issues

- Prevalence of actual episodes = UNKNOWN
 - Probably similar to inhalant users
- US inhalant use in past year
 - Age 12+ = 0.8% (M 1.0%, F 0.7%) → similar
 - Age 12-17 = 3.6% (M 3.6%, F 4.2%) → more FEMALES
 - Age 18-25 = 1.7%

Inhalant Intoxication – Functional Consequences

- Risk of unconsciousness, anoxia, death
 - Using inhalants in **closed container** (e.g. plastic bag over head)
- “Sudden sniffing death” → from cardiac arrhythmia/arrest
 - May occur with **various volatile inhalants**
- Higher toxicity with **butane, propane** → may cause fatalities
- Risk of persisting medical/neurological problems
 - If frequent intoxications

Inhalant Intoxication – Differential Diagnosis

- Inhalant exposure, without meeting the criteria for inhalant intoxication disorder
- Other substance-related disorders, intoxication
- Other inhalant-related disorders
- Other medical, neurological conditions
 - Toxic, metabolic, traumatic, neoplastic, infectious
 - May produce similar behavioral/psychological changes

Other Inhalant-Induced Disorders

Other Inhalant-Induced Disorders

- Inhalant-induced
 - Psychotic disorder
 - Depressive disorder
 - Anxiety disorder
 - Neurocognitive disorder
 - Delirium

Unspecified Inhalant-Related Disorder

Unspecified Inhalant-Related Disorder

- Does not meet any full criteria

Opioid-Related Disorders

Opioid Use Disorders

Opioid Use Disorders – Diagnostic Criteria

A. Use, leading to sig impairment or distress, 12-mo period (2/11):

1. Using **larger amounts or longer** than intended
2. Persistent desire or failed efforts to **cut down**
3. Spending **great deal of time** in related activities
4. Intense desire/urge for drug (**craving**)
5. Failure to fulfill **major role obligations**
6. Use despite persistent **social/interpersonal problems**
7. Important activities **given up**
8. Use in **physically hazardous** situations
9. Use despite persistent **physical/psychological problems**
10. **Tolerance**
11. **Withdrawal**

Opioid Use Disorders – Diagnostic Specifiers

- *Specify if:*
 - **In early remission:** no criteria met for 3-12 months (except craving)
 - **In sustained remission:** no criteria met for 12+ months (except craving)
- *Specify if:*
 - **On maintenance therapy:** MMT, BUP, NTX
 - **In a controlled environment:** where access to substance is restricted
- *Specify current severity:*
 - **Mild:** 2-3 sx
 - **Moderate:** 4-5 sx
 - **Severe:** 6+ sx

Opioid Use Disorders – Diagnostic Features

- Compulsive, prolonged self-administration of opioids
 - NOT for **legitimate medical purpose**
 - OR using in **excess of amount needed** for medical condition
 - Most develop significant tolerance + experience withdrawal
- Tend to develop regular patterns of compulsive drug use
 - Daily activities planned around opioid use
 - May be purchased from illegal market
 - From physicians → falsifying medical problems, doctor-shopping
 - HCP with OUD → may write prescription for self, divert opioids
- Condition response to drug-related stimuli
 - Likely contribute to **relapse, difficult to extinguish**
 - **Typically persist** long after detoxification

Opioid Use Disorders – Associated Features

- History of drug-related crimes
 - Possession, distribution, forgery, burglary, robbery, larceny, etc.
- HCP, individuals with ready access to opioids
 - Licensing boards, hospital administration, other agencies
- Social problems at ALL SES
 - Marital difficulties, divorce
 - Unemployment, irregular employment

Opioid Use Disorders – Prevalence

- 12-month prevalence (US community)
 - Age 12-17 = 1.0% (heroin use disorder <0.1%)
 - In adolescents, **higher in FEMALES**
 - **Age 18+ = 0.37%** (may be underestimate, many incarcerated with OUD)
 - In adults, **higher in MALES** → males 0.49%, females 0.26%
 - Opioids (not heroin) = 1.5x, **Heroin = 3x**
 - Age 18-29 = 0.82% → PEAK
 - Age 65+ = 0.09%
- 12-month prevalence (Europe)
 - Age 15-64 = 0.1-0.8%

Opioid Use Disorders – Development & Course

- Onset

- Most commonly first observed → **late teens, early 20s**

- Course

- Typically continues for many years → relapses common
 - May have brief abstinences → **20-30% achieve long-term abstinence**
- Long-term mortality → **2% per year**
 - Except military personnel back from Vietnam → 90% abstinence
 - But higher rates of alcohol, amphetamine use disorder, suicidality
- Decr prevalence with age
 - Due to **early mortality + remission after age 40** (“maturing out”)
 - Many continue for decades

Opioid Use Disorders – Risk & Prognostic Factors

- Genetic & Physiological
 - **Impulsivity + novelty seeking** → genetically influenced temperaments
 - Selection of environment

Opioid Use Disorders – Culture-Related Issues

- Ethnic minorities from low SES areas → overrepresented
 - Increasing use among white middle-class (esp females)
 - May reflect **availability + social factors**
- Medical personnel with ready access to opioids → incr risk

Opioid Use Disorders – Diagnostic Markers

- Urine toxicology
 - Positive for most opioid → **for 12-36 hours**
 - Fentanyl requires special test → positive for days
 - Methadone, buprenorphine, LAAM requires special test → days-weeks
 - Often positive for other substances
- Among injection opioid users
 - 80-90% positive for **hepatitis A, B, C**
 - **HIV** → 10-60% (depends on access to clean needle)
 - May have mildly elevated LFTs → resolving hepatitis, toxic contaminants
- Cortisol secretion patterns, body temp regulation changes
 - Up to 6 months after opioid detoxification

Opioid Use Disorders – Suicide Risk

- Incr risk for → **suicide attempts + completed suicides**
 - Repeated intoxication + withdrawal may be assoc with severe depression
 - May lead to suicide attempts + completion
- Non-fatal accidental opioid overdose (common)
 - Distinct from attempted suicide

Opioid Use Disorders – Functional Consequences

- Direct opioid effects

- Decr mucous membrane secretions → **dry mouth + nose**
- Decr GI activity, decr guy motility → **severe constipation**
- Pupillary construction → **visual acuity**

- Injection effects

- Sclerosed veins (tracks), puncture marks on UE →
 - Peripheral edema if severe → switch to veins in legs, neck, groin
- When veins unusable → inject into subcutaneous tissue (“skin-popping”)
 - Cellulitis, abscesses, circular scars
- Risk of tetanus, *Clostridium botulinum* infections (rare, but serious)

- Infections

- Bacterial endocarditis, hepatitis, HIV
- TB (esp heroin or HIV)

Opioid Use Disorders – Functional Consequences

- Snorting opioids, heroin
 - Irritation of **nasal mucosa** → may **perforate nasal septum**
- Sexual function
 - Males → **erectile dysfunction** (during intoxication or chronic use)
 - Females → **reproductive dysfunction, irregular menses**
- Mortality rate → 1.5-2.0% per year
 - **Overdose, accidents, injuries, AIDS, general medical complications**
 - Some areas, violence >> overdose, HIV
- Neonatal effects
 - Mothers with OUD → **50% of infants with physiological dependence**
 - LBW seen → not marked, not assoc with serious consequences

Opioid Use Disorders – Differential Diagnosis

- Opioid-induced mental disorders
 - Opioids LESS likely to produce sx of mental disturbance (vs other drugs)
- Other substance intoxication
 - May resemble **alcohol, sedative, hypnotic, anxiolytic** intoxication
 - Pupillary constriction, response to naloxone challenge
 - May be combination of opioid + other substances
- Other withdrawal disorders
 - Sedative-hypnotic withdrawal → no rhinorrhea, lacrimation, pupil dilation
 - Hallucinogen, stimulant intoxication → also dilated pupils
 - No nausea, vomiting, diarrhea, abdo cramps, rhinorrhea, lacrimation

Opioid Use Disorders – Comorbidity

- Most common medical comorbidities → viral/bacterial infections
 - Less common with prescription opioids
- Often comorbid other SUD
 - Esp tobacco, alcohol, cannabis, stimulants, benzos
 - May be taken to decr sx of opioid withdrawal, decr cravings
 - May be taken to enhance effects of opioids
- Psychiatric comorbidities
 - **Mild-mod depression** → opioid-induced or pre-existing
 - Esp during chronic intoxication, stressors related to OUD
 - **Insomnia** → common (esp during withdrawal)
 - **ASPD** (more common than gen pop)
 - **Hx of conduct disorder** → risk factor SUDs, esp OUD

Opioid Intoxication

Opioid Intoxication – Diagnostic Criteria

- A. Recent opioid use
- B. Problematic behavioral/psychological changes
 - 1. Initial euphoria, then apathy, dysphoria, psychomotor agitation, retardation, impaired judgement
- C. **Pupillary constriction** (or dilation due to anoxia) + (1/3):
 - 1. **Drowsiness or coma**
 - 2. **Slurred speech**
 - 3. **Impaired attention/memory**
- D. Not better explained by AMC, AMD, another substance

Opioid Intoxication – Diagnostic Specifiers

- *Specify if:*
 - **With perceptual disturbances:** intact reality testing, not delirium

Opioid Intoxication – Diagnostic Features

- Behavioral/psychological changes during/after use
 - Initial euphoria
 - Then apathy, dysphoria, psychomotor agitation/retardation
 - Impaired judgement
- Intoxication → **pupillary constriction**
- Severe overdose with anoxia → **pupillary dilation**

Opioid Intoxication – Differential Diagnosis

- Other substance intoxication
- Other opioid-related disorders

Opioid Withdrawal

Opioid Withdrawal – Diagnostic Criteria

- A. Either:
 - 1. **Cessation/reduction** of heavy + prolonged opioid use
 - 2. Administration of **opioid antagonist** after opioid use
- B. Withdrawal signs/symptoms (3/9):
 - 1. **Dysphoric mood**
 - 2. **Insomnia**
 - 3. **Yawning**
 - 4. **Nausea, vomiting**
 - 5. **Diarrhea**
 - 6. **Lacrimation or rhinorrhea**
 - 7. **Pupillary dilation, piloerection, sweating**
 - 8. **Fever**
 - 9. **Muscle aches**
- C. Significant distress or impairment
- D. Not better explained by AMC, AMD, another substance

Opioid Withdrawal – Diagnostic Features

- May be precipitated with **partial agonist** during full agonist use
- Symptoms opposite to acute agonist effects
 - Initially → anxiety, restlessness, irritability, incr pain sensitivity
 - “Achy feeling” (often in back, legs)
 - Piloerection, fever → assoc with **more severe withdrawal**
 - Usually obtain substances before withdrawal this advanced
- Onset of withdrawal → depends on half-life of opioid
 - Short-acting opioids (e.g. heroin) → within 6-12 hours
 - Peak within 1-3 days → subside over 5-7 days
 - Long-acting opioids (MMT, BUP, LAAM) → may take 2-4 days
 - Less acute symptoms can last for weeks-months
 - **Anxiety, dysphoria, anhedonia, insomnia**

Opioid Withdrawal – Associated Features

- Males → may have **spontaneous ejaculations** while awake
- May occur from cessation of opioid use for any reason
 - Recreational use
 - Medical management of pain
 - OAT for OUD
 - Self-treating mental disorders

Opioid Withdrawal – Prevalence

- Among past year heroin use → **60%** had withdrawal

Opioid Withdrawal – Development & Course

- Withdrawal → **typical** in course of OUD
 - May be part of **escalating pattern**
 - Often withdrawal + attempts to relieve withdrawal

Opioid Withdrawal – Differential Diagnosis

- Other withdrawal disorders
- Other substance intoxication
- Other opioid-induced disorders

Other Opioid-Induced Disorders

Other Opioid-Induced Disorders

- Opioid-induced
 - Depressive disorder
 - Anxiety disorder
 - Sleep-wake disorder
 - Sexual dysfunction
 - Delirium

Unspecified Opioid-Related Disorder

Unspecified Opioid-Related Disorder

SimplePsych

- Does not meet any full criteria

Sedative, Hypnotic, or Anxiolytic-Related Disorders

Sedative, Hypnotic, or Anxiolytic Use Disorders

Sedative Use Disorders – Diagnostic Criteria

A. Use, leading to sig impairment or distress, 12-mo period (2/11):

1. Using **larger amounts or longer** than intended
2. Persistent desire or failed efforts to **cut down**
3. Spending **great deal of time** in related activities
4. Intense desire/urge for drug (**craving**)
5. Failure to fulfill **major role obligations**
6. Use despite persistent **social/interpersonal problems**
7. Important activities **given up**
8. Use in **physically hazardous** situations
9. Use despite persistent **physical/psychological problems**
10. **Tolerance**
11. **Withdrawal**

Sedative Use Disorders – Diagnostic Specifiers

- *Specify if:*
 - **In early remission:** no criteria met for 3-12 months (except craving)
 - **In sustained remission:** no criteria met for 12+ months (except craving)
- *Specify if:*
 - **In a controlled environment:** where access to substance is restricted
- *Specify current severity:*
 - **Mild:** 2-3 sx
 - **Moderate:** 4-5 sx
 - **Severe:** 6+ sx

Sedative Use Disorders – Diagnostic Features

- Sedative, hypnotic or anxiolytic substances
 - **Benzodiazepines, benzo-like drugs (Z-drugs)**
 - **Carbamates** (glutethimide, meprobamate)
 - **Barbiturates** (secobarbital)
 - **Barbiturate-like hypnotics** (glutethimide, methaqualone)
 - Does NOT include non-benzo antianxiety agents (buspirone, gepirone)
 - Do not appear assoc with significant abuse
- May be used with other substances
 - To “come down” → stimulants
 - To “boost” effects → methadone
 - To alleviate unwanted effects
- Medical use may still produce tolerance + withdrawal
 - Does not meet criteria for SUD
 - Ensure appropriately prescribed + used

Sedative Use Disorders – Associated Features

- Tolerance with repeated use
 - Tolerance to **brain stem depressant effects** → MUCH SLOWER
 - May take more substance to achieve euphoria or desired effects
 - BUT may have **sudden respiratory depression, hypotension** (→ death)
- Intoxication may be assoc with severe depression
 - Although temporary → can lead to **suicide attempt + completion**

Sedative Use Disorders – Prevalence

- 12-month prevalence

- Age 12-17 = 0.3% (M 0.2%, F 0.4%) → higher in FEMALES
- Age 18+ = 0.2% (M 0.3%, F lower)
- **Age 18-29 = 0.5% → HIGHEST**
- Age 65+ = 0.04% → lowest

- Racial/ethnic variation (12-month prevalence)

- Age 12-17 → whites (0.3%), African Americans (0.2%), Hispanics (0.2%), Native Americans (0.1%), Asian American/Pacific Islanders (0.1%)
- Adults → Native Americans/Alaskans (0.8%), whites (0.2%), African Americans (0.2%), Hispanics (0.2%), Asian American/Pacific Islanders (0.1%)

Sedative Use Disorders – Development & Course

- Usual course
 - Teens/20s → **escalating use** to disorder level (esp if other substance use)
 - Intermittent social use → daily, high tolerance
 - More likely to use to achieve “high”
 - Increasing **interpersonal difficulties, cognitive dysfunction, withdrawal**
- Second, less frequent course
 - Originally as prescription → usually for **anxiety, insomnia, somatic sx**
 - Tolerance builds → increasing dose + frequency
 - May continue to justify use, despite incr drug-seeking, doctor shopping
 - Withdrawal (including **seizure, withdrawal delirium**) may occur
- Onset → usually during adolescence/early adult life
 - **Pharmacodynamic/kinetic changes** with age (in older individuals)
 - **Cognitive + motor impairment** incr with age (may resemble dementia)
 - Dementia more likely to develop intoxication + impaired physiological fxn

Sedative Use Disorders – Risk & Prognostic Factors

- Temperamental
 - Impulsivity + novelty seeking → may be genetically determined
- Environmental
 - Availability → barbiturates Rx decreased when benzo Rx increased
 - Peer factors
 - Alcohol use disorder → receiving Rx for anxiety or insomnia
- Genetic & Physiological
 - Larger role of genetic factors as individuals age from puberty to later life
- Course modifiers
 - **Early onset of use** → more likely to develop DISORDER

Sedative Use Disorders – Culture-Related Issues

- Varies by **prescription patterns + availability**

Sedative Use Disorders – Gender-Related Issues

- FEMALES may be at higher risk

Sedative Use Disorders – Diagnostic Markers

- Almost ALL can be identified in urine or blood
- Long-acting substances may be detectable for **1 week**
 - Diazepam, flurazepam

Sedative Use Disorders – Functional Consequences

- Social consequences → mimic **ALCOHOL**
 - Accidents, interpersonal difficulties, work/school performance COMMON
- Physical exam → decr in autonomic system function
 - Decr HR, RR, BP, postural changes
 - High doses → may be lethal (esp mixed with alcohol)
 - Consequences of trauma from accidents
 - IV use → complications of contaminated needles
- Acute intoxication
 - Elderly → incr risk of **cognitive problems + falls** (even low dose)
 - **Disinhibition** (like alcohol) → aggression, interpersonal/legal problems
 - Accidental or deliberate **overdose**
 - Benzos used alone wide margin of safety → risk mixed with alcohol
 - Accidental overdoses with barbiturate, methaqualone misuse

Sedative Use Disorders – Differential Diagnosis

- Other mental disorder or medical conditions
 - Primary mental disorders (GAD vs withdrawal)
 - AMC (multiple sclerosis)
 - Prior head trauma (subdural hematoma)
- Alcohol use disorder
- Clinical appropriate use of medications

Sedative Use Disorders – Comorbidity

- Assoc with other substance use
 - Alcohol, tobacco, illicit drug use
- May be overlap with other mental disorders
 - Depressive, bipolar, anxiety disorders
 - ASPD (esp if substances obtained illegally)

Sedative, Hypnotic, or Anxiolytic Intoxication

Sedative Intoxication – Diagnostic Criteria

- A. Recent use of sedative, hypnotic, or anxiolytic
- B. Problematic behavioral/psychological changes
 - 1. Inapprop sexual/aggressive behavior, mood lability, impaired judgement
- C. Intoxication signs/symptoms (1/6):
 - 1. Slurred speech
 - 2. Incoordination
 - 3. Unsteady gait
 - 4. Nystagmus
 - 5. Impaired cognition (attention, memory)
 - 6. Stupor, coma
- D. Not better explained by AMC, AMD, another substance

Sedative Intoxication – Diagnostic Features

- Memory impairment = PROMINENT feature
 - Often **anterograde amnesia** (resembles “alcoholic blackouts”)
- May occur with prescriptions, borrowed meds, deliberate misuse

Sedative Intoxication – Associated Features

- Features that increase effects of agents
 - Taking **MORE** than prescribed
 - Taking **MULTIPLE** different medications
 - **MIXING** with alcohol

Sedative Intoxication – Prevalence

- Prevalence in general population = UNCLEAR
 - Likely similar to prevalence of **non-medical use**
 - Non-medical tranquilizer use in **age 12+ = 2.2%** (US)

Sedative Intoxication – Differential Diagnosis

- Alcohol use disorders
- Alcohol intoxication
- Other sedative, hypnotic, or anxiolytic disorders
- Neurocognitive disorders
 - Sedatives can be intoxicating at LOW doses if TBI, delirium

Sedative, Hypnotic, or Anxiolytic Withdrawal

Sedative Withdrawal – Diagnostic Criteria

- A. Cessation/reduction in prolonged sedative use
- B. Withdrawal symptoms, within hours-days of reduction (2/8)
 - 1. **Anxiety**
 - 2. **Insomnia**
 - 3. **Autonomic hyperactivity** (HR >100, sweating)
 - 4. **Nausea or vomiting**
 - 5. **Hand tremor**
 - 6. **Psychomotor agitation**
 - 7. **Grand mal seizures**
 - 8. **Hallucinations** (transient, visual, tactile, auditory)
- C. Significant distress or impairment
- D. Not better explained by AMC, AMD, another substance

Sedative Withdrawal – Diagnostic Specifier

- *Specify if:*
 - **With perceptual disturbances:** intact reality testing, not delirium

Sedative Withdrawal – Diagnostic Features

- Similar to alcohol withdrawal
 - Autonomic hyperactivity → HR, RR, BP, body temp, sweating
- Grand mal seizures → up to **30%** of untreated withdrawals
- Hallucinations/illusions → if **severe, usually in delirium**
 - If reality testing NOT intact → substance-induced psychotic disorder
 - If reality testing INTACT → “with perceptual disturbances” specifier

Sedative Withdrawal – Associated Features

- Timing + severity depends on specific agent
 - **Short-acting (triazolam, LOT)** → can begin within hours
 - Peak intensity day 2 → improves day 4-5
 - **Long-acting (diazepam)** → may not begin for days-weeks
 - Peak intensity in week 2 → improves in week 3-4
- Dosing
 - Tolerance + withdrawal may develop at **therapeutic doses**
 - **Longer duration + higher doses** → more likely severe withdrawal
 - Diazepam 40mg likely withdrawal sx, 100mg likely seizures/delirium
 - If disturbances in consciousness, cognition, hallucinations → **DELIRIUM**
 - (if delirium, do not dx withdrawal)

Sedative Withdrawal – Prevalence

- UNCLEAR

Sedative Withdrawal – Diagnostic Markers

- **Seizures + autonomic instability**
 - In setting of prolonged sedative use → highly likelihood due to withdrawal

Sedative Withdrawal – Differential Diagnosis

- Other medical disorders
 - Hypoglycemia, diabetic ketoacidosis
 - Seizure causes (infection, head injury, poisoning)
- Essential tremor
 - Familial pattern
- Alcohol withdrawal
- Other sedative, hypnotic, or anxiolytic-induced disorders
- Anxiety disorders
 - Recurrence or worsening of underlying anxiety disorder
 - May be difficult to distinguish during sedative taper

Other Sedative, Hypnotic, or Anxiolytic-Induced Disorders

Other Sedative, Hypnotic, or Anxiolytic-Induced Disorders

- Sedative, Hypnotic, or Anxiolytic-Induced
 - Psychotic disorder
 - Bipolar disorder
 - Depressive disorder
 - Anxiety disorder
 - Sleep disorder
 - Sexual dysfunction
 - Major/mild NCD
 - Delirium

Unspecified Sedative, Hypnotic, or Anxiolytic-Related Disorders

Unspecified Sedative, Hypnotic, or Anxiolytic-Related Disorders

- Does not meet any full criteria

Stimulant-Related Disorders

Stimulant Use Disorder

Stimulant Use Disorder – Diagnostic Criteria

A. Use, leading to sig impairment or distress, 12-mo period (2/11):

1. Using **larger amounts or longer** than intended
2. Persistent desire or failed efforts to **cut down**
3. Spending **great deal of time** in related activities
4. Intense desire/urge for drug (**craving**)
5. Failure to fulfill **major role obligations**
6. Use despite persistent **social/interpersonal problems**
7. Important activities **given up**
8. Use in **physically hazardous** situations
9. Use despite persistent **physical/psychological problems**
10. **Tolerance**
11. **Withdrawal**

Stimulant Use Disorder – Diagnostic Specifiers

- *Specify if:*
 - **In early remission:** no criteria met for 3-12 months (except craving)
 - **In sustained remission:** no criteria met for 12+ months (except craving)
- *Specify if:*
 - **In a controlled environment:** where access to substance is restricted
- *Specify current severity:*
 - **Mild:** 2-3 sx
 - **Moderate:** 4-5 sx
 - **Severe:** 6+ sx

Stimulant Use Disorder – Diagnostic Features

- Amphetamine-type stimulants
 - **Amphetamine, dextroamphetamine, methamphetamine**
 - Substituted-phenylethylamine structure
 - **Methylphenidate** (structurally different)
 - Usually PO or IV (methamphetamine can be snorted)
- Plant-derived
 - **Khat**
 - **Cocaine**
 - Coca leaves/paste
 - Cocaine hydrochloride powder → snorted, dissolved then injected
 - Cocaine alkaloids → freebase, crack

Stimulant Use Disorder – Diagnostic Features (2)

- Development of SUD
 - May be **rapid** (within 1 week of exposure) → not always
 - Withdrawal → hypersomnia, incr appetite, dysphoria → incr cravings
 - Depressive sx usually resolve within 1 week
- Similar use patterns + course (amphetamines, cocaine)
 - Potent CNS stimulants, similar psychoactive + sympathomimetic effects
 - Amphetamines → **longer-acting** (vs cocaine), used fewer times per day
 - Chronic, episodic/binge patterns
 - If high dose intoxication, may have
 - **Aggressive/violent behavior**
 - **Temporary anxiety** (resembling panic disorder, GAD)
 - **Paranoid ideation, psychotic episodes** (resembles scz)

Stimulant Use Disorder – Associated Features

- Acute intoxication
 - Instant feeling of **well-being, confidence, euphoria**
 - **Rambling speech**, headache, tinnitus
 - **Transient ideas of reference, paranoid ideation, hallucinations**
 - Usually intact reality testing → **recognize drug effects**
 - May have rapid dramatic behavioral changes → **aggression**
- Long-term disorder use
 - **Chaotic behavior, isolation, aggression, sexual dysfunction**
- Withdrawal
 - Depression, anhedonia, irritability, lability
 - **SUICIDAL IDEATION/BEHAVIOR**
 - Impaired attention + concentration
 - After cocaine cessation → **last hours-days, can persist for 1 month**
- Often conditioned responses to drug-related stimuli
 - Contribute to relapse, difficult to extinguish, persist after detoxification

Stimulant Use Disorder – Prevalence

- 12-month prevalence (Amphetamine-type)
 - Age 12-17 = 0.2% (M 0.1%, F 0.3%) → higher in FEMALES
 - Age 18+ = 0.2% (M 0.2%, F 0.2%) → equal
 - **Age 18-29 = 0.4%**
 - Age 45-64 = 0.1%
 - Intravenous use → **MALES 3-4x** higher
 - Non-IV use more equal (males 54%)
- Racial/ethnic differences (Amphetamine-type)
 - Age 12-17 → **whites (0.3%), African Americans (0.3%)**, Hispanics (0.1%), Asian Americans/Pacific Islanders (0.01%), Native Americans (0%)
 - Adults → **Native American/Alaskans (0.6%)**, whites (0.2%), Hispanics (0.2%), African American (0%), Asian Americans/Pacific Islanders (0%)
- Past-year NON-prescribed use of prescription stimulants
 - High school = **5-9%**
 - College-age = **5-35%**

Stimulant Use Disorder – Prevalence

- 12-month prevalence (Cocaine)

- Age 12-17 = 0.2%
- Age 18+ = 0.3% (M 0.4%, F 0.1%) → higher in MALES
- **Age 18-29 = 0.6%**
- Age 45-64 = 0.1%

- Racial/ethnic differences (Amphetamine-type)

- Age 12-17 → **Hispanics (0.2%), whites (0.2%), Asian Americans/Pacific Islanders (0.2%),** African Americans (0.02%), Native Americans (0%)
- Adults → **Native American/Alaskans (0.8%),** African American (0.4%), Hispanics (0.3%), whites (0.2%), Asian Americans/Pacific Islanders (0.1%)

Stimulant Use Disorder – Development & Course

- More common among → **age 12-25** (vs age 26+)
 - Average first use → **age 23**
 - May be used to control weight, improve performance
 - May use medications prescribed to OTHERS
 - Average treatment admission → **age 31** (methamphetamine-primary)
 - 66% smoke, 18% IV, 10% snort
- Patterns of use
 - **Chronic daily use**
 - **Episodic** → separated by 2+ days
 - **Binges** → high-dose use, over hours-days (physical dependence)
 - Usually terminates when stimulant supplies depleted OR exhaustion
- Route
 - **Smoking + IV** → more rapid progression (vs PO or intranasal)

Stimulant Use Disorder – Risk & Prognostic Factors

- Temperamental

- Comorbid **bipolar, schizophrenia, ASPD, conduct disorder, other SUD**
 - Risk factors for developing stimulant use disorder or relapse
- **Impulsivity** → may affect tx outcomes

- Environmental

- Predictors of cocaine use among teenagers (esp females)
 - **Prenatal cocaine exposure**
 - Postnatal cocaine **use by parents**
 - Exposure to **community violence** during childhood
 - **Unstable home** environment
 - **Psychiatric condition**
 - Association with **dealers + users**

Stimulant Use Disorder – Culture-Related Issues

- May be affected by societal consequences
 - Arrest, school suspension, employment suspension
- Chronic cocaine use in African Americans
 - Impairs **cardiac left ventricular function**
- Those admitted for primary methamphetamine-related disorders
 - 66% white
 - 21% Hispanic
 - 3% Asian/Pacific Islander
 - 3% black

Stimulant Use Disorder – Diagnostic Markers

- Cocaine

- **Benzoyllecgonine** → cocaine metabolite in urine
 - After single dose → **1-3 days**
 - Repeated high doses → **7-12 days**
- **Mildly elevated LFTs** → injection use, concurrent alcohol use
- Discontinuation of chronic cocaine use
 - EEG changes, prolactin changes
 - **Downregulation of dopamine receptors**

- Amphetamines

- Short-acting → detected 1-3 days (4 days if high dose)
- Hair samples → 90 days

- Physical findings → weight loss, malnutrition, poor hygiene

Stimulant Use Disorder – Functional Consequences

- Medical conditions
 - Intranasal use → **sinusitis, irritation, bleeding, perforated septum**
 - Smoking → coughing, bronchitis, pneumonitis
 - Injection → puncture marks, tracks, HIV
 - Infections → **STDs, hepatitis, TB, lung infections**
 - **Seizures**
 - **Pneumothorax** (from Valsalva-like maneuvers to inhale more smoke)
 - Weight loss, malnutrition, injuries (from violence)
- Chest pain during intoxication in young + otherwise healthy
 - **Myocardial infarction**, palpitations, arrhythmias
 - **Sudden death** (from respiratory/cardiac arrest)
- Pregnancy
 - Irregular placental blood flow, abruptio placentae
 - Premature labor/delivery, **very low birth weights**

Stimulant Use Disorder – Functional Consequences

- Social
 - Theft, prostitution, drug dealing
- Methamphetamine users
 - **Neurocognitive impairment** → COMMON
 - Poor oral health → “**meth mouth**” (gum disease, tooth decay, oral sores)
 - Due to toxic effects of smoking + bruxism while intoxicated
 - LESS respiratory effects (smoked fewer times per day vs cocaine)
 - ER visits → psychiatric sx, injury, skin infections, dental pathology

Stimulant Use Disorder – Differential Diagnosis

- Primary mental disorders
 - Schizophrenia, depressive, bipolar disorder, GAD, panic disorder
- Other substance intoxication
 - PCP, designer drugs, mephedrone, bath salts → **TOXICOLOGY**
- Stimulant intoxication or withdrawal

Stimulant Use Disorder – Comorbidity

- Often comorbid other SUD
 - Esp **sedatives** → to reduce insomnia, nervousness, other SE
 - Cocaine → often **alcohol**
 - Amphetamine-type → often **cannabis**
- Comorbid psychiatric disorders
 - **PTSD, ADHD, gambling disorder, ASPD**
- Cardiopulmonary problems with cocaine use
 - **Chest pain** → most common
- Adulterant-related medical problems
 - **Levamisole** → agranulocytosis, febrile neutropenia
 - (antimicrobial, veterinary medication)

Stimulant Intoxication

Stimulant Intoxication – Diagnostic Criteria

- A. Recent use of stimulant
- B. Problematic behavioral/psychological changes
 - 1. Euphoria, affecting blunting, sociability, hypervigilance, interpersonal sensitivity, anxiety, tension, anger, stereotyped behaviors, impaired judgement
- C. Intoxication signs/symptoms, (2/9):
 - 1. **HR changes** (tachycardia/bradycardia)
 - 2. **BP changes** (incr/decr)
 - 3. **Pupillary dilation**
 - 4. **Sweating or chills**
 - 5. **Nausea or vomiting**
 - 6. **Weight loss**
 - 7. **Psychomotor agitation/retardation**
 - 8. **Muscular weakness, respiratory depression, chest pain, arrhythmias**
 - 9. **Confusion, seizures, dyskinesias, dystonias, coma**
- D. Not better explained by AMC, AMD, another substances

Stimulant Intoxication – Diagnostic Specifiers

- *Specify* the specific stimulant
- *Specify if:*
 - **With perceptual disturbances:** intact reality testing, not delirium

Stimulant Intoxication – Diagnostic Features

- Psychotic sx
 - Auditory hallucinations, paranoid ideation
- High feeling
 - Enhanced vigor, gregariousness, grandiosity, talkativeness
 - Hypervigilance, alertness, anxiety,, restlessness
 - Hyperactivity, stereotyped behavior
 - Interpersonal sensitivity, tension, anger, impaired judgement
- Chronic use
 - Affecting blunting, fatigue, sadness, social withdrawal
- Severe intoxication
 - Convulsions, cardiac arrhythmias, hyperthermia, death

Stimulant Intoxication – Associated Features

- Effects depend on dose, characteristics, tolerance, context
 - Stimulant effects → most common
 - Depressant effects → more assoc with chronic high-dose use

Stimulant Intoxication – Differential Diagnosis

- Stimulant-induced disorders
- Other mental disorders
 - Schizophrenia, bipolar, depressive disorder
 - GAD, panic disorders

Stimulant Withdrawal

Stimulant Withdrawal – Diagnostic Criteria

- A. Cessation/reduction of prolonged stimulant use
- B. **Dysphoric mood** + 2/5 physiological sx (within hours-day)
 - 1. Fatigue
 - 2. Vivid, unpleasant dreams
 - 3. Insomnia/hypersomnia
 - 4. Incr appetite
 - 5. Psychomotor retardation/agitation
- C. Significant distress or impairment
- D. Not better explained by AMC, AMD, another substance

Stimulant Withdrawal – Diagnostic Specifiers

- *Specify* the specific stimulant

Stimulant Withdrawal – Diagnostic Features

- Bradycardia → often present, **reliable measure** of withdrawal
- Anhedonia, drug cravings → also often present

Stimulant Withdrawal – Associated Features

- “Crash” → acute withdrawal symptoms
 - Often seen after “runs” or “binges”
 - May require days of rest + recuperation
- Depressive sx with **SUICIDAL IDEATION/BEHAVIOR**
- Majority of stimulant use disorder will experience withdrawal

Stimulant Withdrawal – Differential Diagnosis

- Stimulant use disorder
- Other stimulant-induced disorders

Other Stimulant-Induced Disorders

Other Stimulant-Induced Disorders

- Stimulant-induced
 - Psychotic disorder
 - Bipolar disorder
 - Depressive disorder
 - Anxiety disorder
 - Obsessive-compulsive disorder
 - Sleep disorder
 - Sexual dysfunction
 - Delirium

Unspecified Stimulant-Related Disorder

Unspecified Stimulant-Related Disorder

- Does not meet any full criteria

Tobacco-Related Disorders

Tobacco Use Disorder

Tobacco Use Disorder – Diagnostic Criteria

A. Use, leading to sig impairment or distress, 12-mo period (2/11):

1. Using **larger amounts or longer** than intended
2. Persistent desire or failed efforts to **cut down**
3. Spending **great deal of time** in related activities
4. Intense desire/urge for drug (**craving**)
5. Failure to fulfill **major role obligations**
6. Use despite persistent **social/interpersonal problems**
7. Important activities **given up**
8. Use in **physically hazardous** situations
9. Use despite persistent **physical/psychological problems**
10. **Tolerance**
11. **Withdrawal**

Tobacco Use Disorder – Diagnostic Specifiers

- *Specify if:*
 - **In early remission:** no criteria met for 3-12 months (except craving)
 - **In sustained remission:** no criteria met for 12+ months (except craving)
- *Specify if:*
 - **On maintenance therapy:** NRT
 - **In a controlled environment:** where access to substance is restricted
- *Specify current severity:*
 - **Mild:** 2-3 sx
 - **Moderate:** 4-5 sx
 - **Severe:** 6+ sx

Tobacco Use Disorder – Diagnostic Features

- TUD common among daily cigarettes, smokeless tobacco users
 - Tolerance = **no nausea/dizziness**, more intense with **first use** of day
 - Many use to **avoid withdrawal sx** (well-defined)
 - **Cravings** if no smoking for **several hours**
 - Use despite tobacco-related symptoms + diseases
 - Excessive time → **chain-smoking**
 - High availability → uncommon to spend time obtaining/recovering
 - May forego activity in tobacco-restricted area
 - RARELY results in failure to fulfill obligations
 - May have persistent social/interpersonal problems
 - Physically hazardous use → **in bed, around flammable chemicals**

Tobacco Use Disorder – Associated Features

- Smoking behaviors assoc with TUD
 - **Within 30 mins**
 - **Daily smoking**
 - **More cigarettes per day**
 - **Waking at night to smoke**
- Environmental cues → craving + withdrawal
- Serious medical conditions
 - Cancers (lungs, others)
 - Cardiac + pulmonary disease, cough, SOB
 - Perinatal problems
 - Accelerated skin aging

Tobacco Use Disorder – Prevalence

- Tobacco products → **cigarettes = 90%**
 - Smokeless tobacco (<5%), pipes/cigars (<1%)
- US adults → **21% current smokers** (20% non-daily)
 - 57% never smoked, 22% former smokers
- 12-month prevalence (DSM-IV nicotine dependence)
 - Age 18+ = 13% (M 14%, F 12%) → similar by gender
 - **Age 18-29 = 17%**
 - Age 65+ = 4%
 - **50% of daily smokers**
 - Native American/Alaskans (23%), whites (14%), African American (10%), Asian American/Pacific Islanders (6%), Hispanics (6%)
- Developing nations → much higher in MALES (not in developed)

Tobacco Use Disorder – Development & Course

- Majority of adolescents experiment with tobacco
 - By age 18 → 20% smoke at least monthly → most become daily
 - Initiation after age 21 rare
 - TUD sx begin soon after initiation → most meet **TUD by late adolescence**
- >80% attempt to quit at some time
 - Per attempt → **60% relapse within 1 week**, <5% abstinent for life
 - After multiple attempts → **50% eventually abstain**
 - Most do not quite until after age 30
- Non-daily smoking
 - Becoming more prevalent in last decade (**esp among younger**)

Tobacco Use Disorder – Risk & Prognostic Factors

- Temperamental

- **Externalizing personality traits** → more likely to initiate
- Incr risk of initiating/continuing use, TUD
 - Children → ADHD, conduct disorder
 - Adults → psychotic, depressive, bipolar, anxiety, personality, SUDs

- Environmental

- **Low income, low education** → more likely to start, less likely to stop

- Genetic & Physiological

- Genetic factors → onset, continuation, development of TUD
 - **Heritability 50%** (similar to other SUDs)
 - Some risk specific to tobacco

Tobacco Use Disorder – Culture-Related Issues

- Acceptance tobacco use varies widely
 - **Declining use in US** (1960-1990s)
 - Less evidence in African American, Hispanic populations
 - More prevalent in **developing countries**
 - Unclear whether due to income, education, tobacco control
- Whites (non-Hispanics) → more likely to develop TUD
- Biological differences
 - African Americans → **higher nicotine blood levels** per cigarette
 - May contribute to difficulty quitting
 - **Different nicotine metabolism** (vs whites)

Tobacco Use Disorder – Diagnostic Markers

- Weak related to TUD
 - **Carbon monoxide** (in breath)
 - **Nicotine, cotinine** (in blood, saliva, urine)

Tobacco Use Disorder – Functional Consequences

- Medical consequences → **often in 40s**, worse over time
 - Among those continuing tobacco → **50% die early** from related illness
 - Among tobacco users → **>50% have smoking-related morbidity**
 - Mostly due to exposure to **carbon monoxide, tars, non-nicotine parts**
- Major predictor of reversibility → **duration of smoking**
- Second-hand smoke
 - Incr risk of **heart disease + cancer by 30%**
- Nicotine medications → do not appear to cause harm (long-term)

Tobacco Use Disorder – Comorbidity

- Most common medical comorbidities
 - Cardiovascular disease, COPD, cancers
- Most common psychiatric comorbidities
 - SUD, depressive, bipolar, anxiety, personality → **22-32%** (3-8x higher)
 - ADHD

Tobacco Withdrawal

Tobacco Withdrawal – Diagnostic Criteria

- A. Daily tobacco use, for several weeks
- B. Abrupt cessation/reduction, withdrawal sx within 24 hours (4/7):
 - 1. Irritability, anger, frustration
 - 2. Depressed mood
 - 3. Anxiety
 - 4. Restlessness
 - 5. Concentration difficulties
 - 6. Insomnia
 - 7. Incr appetite
- C. Significant distress or impairment
- D. Not better explained by AMC, AMD, another substance

Tobacco Withdrawal – Diagnostic Features

- Symptoms largely due to nicotine deprivation
 - More intense among cigarette smokers, smokeless tobacco (vs NRT)
 - More rapid onset, higher levels of nicotine
 - Common among daily tobacco users → may occur among non-daily users
 - **Impairs ability to stop tobacco use**
 - Mood changes, functional impairment may occurs
- Physical symptoms
 - **Decr HR** (by 5-12 bpm) in first few days
 - **Incr weight** (by 2-3 kg) in first year

Tobacco Withdrawal – Associated Features

- Symptoms assoc with withdrawal
 - **Cravings for sweet foods**
 - Impaired performance of **tasks requiring vigilance**
 - **Constipation, nausea**
 - **Coughing, sore throat**
 - **Dizziness**
 - Dreaming/nightmares
- Smoking **INCREASES** metabolism of many psychiatric meds
 - Cessation can **INCREASE blood levels**
 - Effect NOT due to nicotine, but due to other compounds in tobacco

Tobacco Withdrawal – Prevalence

- Among those tobacco users who quit for 2+ days
 - **50% will meet criteria for tobacco withdrawal**
 - Most common sx → **anxiety, irritability, difficulty concentrating**
 - Least common sx → depression, insomnia

Tobacco Withdrawal – Development & Course

- Course
 - Onset → **within 24 hours**
 - Peaks → **2-3 days**
 - Lasts → **2-3 weeks**
 - Uncommon for sx beyond 1 month
- Can occur among non-daily users

Tobacco Withdrawal – Risk & Prognostic Factors

- Temperamental
 - More severe withdrawal if:
 - Depressive, bipolar, anxiety disorders
 - ADHD, SUDs
- Genetic & Physiological
 - Genotype can influence probability of withdrawal

Tobacco Withdrawal – Diagnostic Markers

- Weakly related to tobacco withdrawal
 - Carbon monoxide in breath
 - Nicotine, cotinine in blood, saliva, urine

Tobacco Withdrawal – Functional Consequences

- Withdrawal → **impairs ability to stop/control** tobacco use

Tobacco Withdrawal – Differential Diagnosis

- Other substance withdrawal
- Caffeine intoxication
- Anxiety, depressive, bipolar, sleep disorders
- Medication-induced akathisia

- Smoke-free inpatient units → may induce withdrawal
 - May induced withdrawal
 - May mimic, intensify, disguise other disorders or medication SE
 - If tobacco withdrawal → nicotine medication should reduce sx

Other Tobacco-Induced Disorders

Other Tobacco-Induced Disorders

- Tobacco-induced
 - Sleep disorder

Unspecified Tobacco-Related Disorder

Unspecified Tobacco-Related Disorder

- Does not meet any full criteria

Other (or Unknown) Substance-Related Disorder

Other (or Unknown) Substance Use Disorder

Other (or Unknown) SUD – Diagnostic Criteria

SimplePsych

A. Use, leading to sig impairment or distress, 12-mo period (2/11):

1. Using **larger amounts or longer** than intended
2. Persistent desire or failed efforts to **cut down**
3. Spending **great deal of time** in related activities
4. Intense desire/urge for drug (**craving**)
5. Failure to fulfill **major role obligations**
6. Use despite persistent **social/interpersonal problems**
7. Important activities **given up**
8. Use in **physically hazardous** situations
9. Use despite persistent **physical/psychological problems**
10. **Tolerance**
11. **Withdrawal**

Other (or Unknown) SUD – Diagnostic Specifiers

SimplePsych

- *Specify if:*
 - **In early remission:** no criteria met for 3-12 months (except craving)
 - **In sustained remission:** no criteria met for 12+ months (except craving)
- *Specify if:*
 - **In a controlled environment:** where access to substance is restricted
- *Specify current severity:*
 - **Mild:** 2-3 sx
 - **Moderate:** 4-5 sx
 - **Severe:** 6+ sx

Other (or Unknown) SUD – Diagnostic Features

SimplePsych

- Includes

- Anabolic steroids, NSAIDs, cortisol, anti-parkinsonian medications
- Antihistamines, NO, amyl-, butyl-, isobutyl-nitrites
- Betel nut → chewed for mild euphoria, floating sensation
- Kata → sedation, incoordination, weight loss, mild hepatitis, lung abn
- Cathinones → incl *khat*, synthetic chemical derivatives

Other (or Unknown) SUD – Associated Features

SimplePsych

- Recurring episodes of intoxication
 - Negative results on drug screens
 - May have sx characteristic of unidentified substance new to community
- Nitrous oxide (“laughing gas”)
 - **Anesthetic agent** → may be misused by medical/dental professionals
 - Also **propellant** → may be misused by food service workers
 - **“Whippet” cartridges** → adolescents/young adults, esp if also inhalants
 - Up to 240 per day → may have serious medical/mental cx
 - Myeloneuropathy, spinal cord subacute combined degeneration, peripheral neuropathy, psychosis
- Amyl-, butyl-, isobutyl nitrite gases
 - Among **homosexual men**, some **adolescents** (esp **conduct disorder**)
 - Not determined if produce SUD → may just be used for peripheral effects

Other (or Unknown) SUD – Prevalence

- Extremely limited data
 - Likely **LOWER** than other use disorders

Other (or Unknown) SUD – Development & Course

- Pharmacologically varied → no single pattern

Other (or Unknown) SUD – Risk & Prognostic Factors

SimplePsych

- Similar to most SUD
 - **Other SUD**
 - **Conduct disorder, ASPD** → individual or family history
 - **Early onset** of substance problem
 - **Easy availability** of substance
 - **Childhood maltreatment or trauma**
 - Limited early **self-control + behavioral disinhibition**

Other (or Unknown) SUD – Culture-Related Issues

- May have specific indigenous substance within cultural region
 - E.g. betel nut

Other (or Unknown) SUD – Diagnostic Features

SimplePsych

- Urine, breath, saliva tests
 - Can correctly identify commonly used substance (which is falsely sold as novel product)
 - CANNOT identify truly new or unusual substances

Other (or Unknown) SUD – Differential Diagnosis

SimplePsych

- Use of other (or unknown) substance not meeting SUD
 - Use not rare among adolescents → most do not meet criteria
- Substance use disorders
- Other (or unknown) substance-induced disorder
- Other medical conditions

Other (or Unknown) SUD – Comorbidity

SimplePsych

- Common comorbidities
 - **Other SUDs**
 - **Conduct disorder**
 - **ASPD**
 - **Suicidal ideation + suicide attempts**

Other (or Unknown) Substance Intoxication

Other (or Unknown) Substance Intoxication – Diagnostic Criteria

SimplePsych

- A. Reversible substance-specific syndrome, due to recent use
- B. Problematic behavioral/psychological changes
- C. Not better explained by AMC, AMD, another substance

Other (or Unknown) Substance Intoxication – Diagnostic Features

SimplePsych

- Application of criteria → can be very challenging
 - If substance unknown → syndrome usually unknown
 - Ask about similar episodes, from same “street” name or same source

Other (or Unknown) Substance Intoxication – Prevalence

- UNKNOWN

Other (or Unknown) Substance Intoxication – Development & Course

SimplePsych

- Onset + course varies

- Onset typically peaks minutes to hours
- Most rapid via inhalation + injection (vs by mouth)
 - E.g. certain mushroom may have fatal intoxication days later
- Effects usually resolve within hours-days
 - NO → can be eliminated within minutes

- “Hit-and-Run”

- Intoxication substance → **poisons systems + permanent impairments**
- Eg. MPTP (by-product of certain opioid synthesis)
 - Kills dopaminergic cells → induces permanent parkinsonism

Other (or Unknown) Substance Intoxication – Functional Consequences

SimplePsych

- Pattern of consequences vary by substance
 - May be serious

Other (or Unknown) Substance Intoxication – Differential Diagnosis

SimplePsych

- Use of other (or unknown) substance not meeting criteria
- Substance intoxication
- Other (or unknown) substance-induced disorder
- Other (or unknown) substance-related disorders

- Other medical conditions
 - Toxic, metabolic, traumatic, neoplastic, vascular, infectious
 - May impair brain function + cognition
 - Also rule out drug withdrawals

Other (or Unknown) Substance Intoxication – Comorbidity

SimplePsych

- Common comorbidities (as will all SUDs)
 - **Other SUDs**
 - **Conduct disorder**
 - **ASPD**
 - **Suicidal ideation + suicide attempts**

Other (or Unknown) Substance Withdrawal

Other (or Unknown) Substance Withdrawal – Diagnostic Criteria

SimplePsych

- A. Cessation/reduction of heavy + prolonged use
- B. Substance-specific syndrome after reduction
- C. Significant distress + impairment
- D. Not better explained by AMC, AMD, another substance
- E. Not classified under other substance categories

Other (or Unknown) Substance Withdrawal – Diagnostic Features

SimplePsych

- Typically occurs **within hours to days**
- May be challenging if **unknown substance**

Other (or Unknown) Substance Withdrawal – Prevalence

SimplePsych

- UNKNOWN

Other (or Unknown) Substance Withdrawal – Development & Course

SimplePsych

- Onset + course vary greatly
 - Depends on substance, dose, rate of elimination
 - If assoc dysphoria → may motivate **relapse**

Other (or Unknown) Substance Withdrawal – Functional Consequences

SimplePsych

- Varies by substance

Other (or Unknown) Substance Withdrawal – Differential Diagnosis

SimplePsych

- Dose reduction after extending dose, not meeting criteria
- Substance withdrawal
- Other substance/medical-induced disorders
- Different types of other (or unknown) substance-related disorders
- Other medical conditions
 - Toxic, metabolic, traumatic, neoplastic, vascular, infectious
 - May impair brain function + cognition
 - Also rule out drug intoxications

Other (or Unknown) Substance Withdrawal – Comorbidity

SimplePsych

- Common comorbidities (as will all SUDs)
 - **Other SUDs**
 - **Conduct disorder**
 - **ASPD**
 - **Suicidal ideation + suicide attempts**

Other (or Unknown) Substance-Induced Disorders

Other (or Unknown) Substance-Induced Disorders

SimplePsych

- Other (or Unknown) Substance-Induced

- Psychotic disorder
- Bipolar disorder
- Depressive disorder
- Anxiety disorder
- Obsessive-compulsive disorder
- Sleep disorder
- Sexual dysfunction
- Major/mild NCD
- Delirium

Unspecified Other (or Unknown) Substance-Related Disorder

Unspecified Other (or Unknown) Substance-Related Disorder

- Does not meet any full criteria

Non-Substance-Related Disorders

Gambling Disorder

Gambling Disorder – Diagnostic Criteria

SimplePsych

A. Gambling behavior, sig distress/impairment, 12 months, (4/9):

1. Gambling with **increasing amounts of money** for desired excitement
2. **Restless/irritable** when attempting to **cut down or stop**
3. Repeated **unsuccessful attempts** to control, cut back or stop
4. **Preoccupied** with gambling
5. Gambles when **feeling distressed**
6. **“Chases” one’s losses** (returns to get even after loss)
7. **Lies** to conceal extent
8. Has **jeopardized/lost** significant social, job, educational opportunities
9. **Relies on others** to provide money to relieve desperate finances

B. NOT better explained by manic episode

Gambling Disorder – Diagnostic Specifiers

SimplePsych

- *Specify if:*
 - **Episodic:** symptoms subside for several months between periods
 - **Persistent:** continuous for multiple years
- *Specify if:*
 - **In early remission:** no criteria met for 3-12 months
 - **In sustained remission:** no criteria met for 12+ months
- *Specify current severity:*
 - **Mild:** 4-5 sx
 - **Moderate:** 6-7 sx
 - **Severe:** 8-9 sx

Gambling Disorder – Diagnostic Features

SimplePsych

- Gambling
 - Risking something of value to obtain something of greater value
 - Many gamble on games + events → **most do not experience problems**
- Most frequently endorsed criteria
 - **Preoccupation with gambling**
 - **“Chasing” losses** → urgent need to undo loss, may abandon strategy
 - Frequent + long-term chase is characteristic
- Least frequently endorsed criteria
 - **Jeopardizing relationship or career opportunities**
 - **Relying on other to provide money for gambling losses** (bailout)
 - (but most often seen in more severe gambling disorder)
- Lying/deceit
 - May cover up **illegal behaviors** (forgery, fraud, theft, embezzlement)

Gambling Disorder – Associated Features

SimplePsych

- Distortions in thinking
 - **Denial, superstitions, sense of control** over outcome, **overconfidence**
 - May believe money is both **cause + solution** to their problems
- Behaviors
 - **Impulsive, competitive, energetic, restless, easily bored**
 - May be overly **concerned with approval** of others
 - May be **generous to point of extravagance** when winning
- Some → **depressed + lonely**
 - Gamble when feeling **helpless, guilty, depressed**
- Suicide risk among those in treatment
 - **50% have suicidal ideation**
 - **17% have attempted suicide**

Gambling Disorder – Prevalence

SimplePsych

- Past-year prevalence = **0.2 – 0.3%** (gen pop)
- Lifetime prevalence = **0.4 – 1.0%** (gen pop)
 - Males = 0.6% → higher in MALES
 - Females = 0.2%
- Racial/ethnic differences
 - African Americans = 0.9%
 - Whites = 0.4%
 - Hispanics = 0.3%

Gambling Disorder – Development & Course (1)

SimplePsych

- Onset

- Can occur during **adolescence, young/middle/older adulthood**
- Usually develops over years → **faster progression in FEMALES**
- Pattern of increasing frequency + wagers (but not indicative in themselves)

- Most report 1-2 types of gambling

- Frequency more related to type of gambling (vs severity)
 - Daily scratch tickets vs casino/sport/card gambling

- Gambling patterns → regular/episodic, persistent/relapsing

- May incr during periods of stress, depression, substance use/abstinence
- May have periods of heavy gambling, non-problematic gambling, none
- May have spontaneous, long-term remissions
- Tendency to underestimate vulnerability to develop disorder + relapse
- **LOW treatment rates (<10%)** → regardless of gender

Gambling Disorder – Development & Course (2)

SimplePsych

Adolescents, Young Adults

- Earlier onset more common in **MALES**
- Assoc with **impulsivity, substance abuse**
- If developed during high school/college, **most grow out of disorder**
- More likely to prefer **sports betting**
- Less likely to present for **treatment**

Mid-Life, Older Adults

- Later onset more common in **FEMALES**
- Older adults more likely **slots, bingo**

Males

- More likely to begin gambling earlier
- **Earlier onset** of disorder more common
- More likely **cards, sports, horse races**

Females

- Later onset more common in **FEMALES**
- **Progresses to disorder faster**
- More likely to have **depressive, bipolar, anxiety** disorders
- Seek **treatment sooner**
- More likely **slots, bingo**

Gambling Disorder – Risk & Prognostic Factors

SimplePsych

- Temperamental
 - Younger onset of gambling → increased risk of gambling disorder
 - Aggregates with ASPD, depressive, bipolar disorder, SUD, AUD
- Genetic & Physiological
 - Aggregates in families → both environmental + genetic
 - More frequent in **monozygotic twins**
 - More prevalent among **1° relatives with mod-severe AUD**
- Course modifiers
 - Most likely resolve problems over time
 - **Prior gambling problems** → strong predictor for future problems

Gambling Disorder – Culture-Related Issues

SimplePsych

- Varies by specific cultures, race/ethnicities
 - Pai gow, cockfights, blackjack, horse racing
- Differences in prevalence
 - Higher rates in **African Americans, indigenous populations**
 - Hispanics, European Americans equal

Gambling Disorder – Gender-Related Issues

SimplePsych

Males

- More likely to begin gambling earlier
- **Earlier onset** of disorder more common
- More likely **cards, sports, horse races**

Females

- Later onset more common in **FEMALES**
- **Progresses to disorder faster**
- More likely to have **depressive, bipolar, anxiety** disorders
- Seek **treatment sooner**
- More likely **slots, bingo**

Gambling Disorder – Functional Consequences

SimplePsych

- Affects psychosocial, physical + mental health
 - Jeopardized relationships, employment, education
 - May gamble during work + school hours
- Poor general health + high utilization of medical services

Gambling Disorder – Differential Diagnosis

SimplePsych

- Non-disordered gambling
 - Professional gambling → limited risk, discipline central
 - Social gambling → limited period of time, acceptable losses
- Manic episode
 - Loss of judgement, excessive gambling
 - Features dissipate when away from gambling
- Personality disorders → can dx both
- Other medical conditions
 - Urges to gamble with **dopaminergic medications**

Gambling Disorder – Comorbidity

SimplePsych

- General health → POOR
 - **Tachycardia, angina** → more common
 - (even after controlling for other SUDs)
- High rates of comorbid mental disorders
 - **SUDs, depressive, anxiety, personality disorders**
 - May precede gambling disorder
 - May be absent/present during manifestation of gambling disorder
 - May follow gambling disorder (**esp anxiety, SUDs**)