

# Chapter 12 Handouts

## Substance-Related Disorders

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## Substance-Related Disorders

### ■ What is a drug?

- \_\_\_\_\_
  - Need not be a medicine or be illegal
- Current language uses the term “substance” rather than “drug” to include alcohol, tobacco, and caffeine

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## Substance-Related Disorders

### ■ Substances may cause \_\_\_\_\_ changes in behavior, emotion, or thought

- May result in substance intoxication (literally, “poisoning”)

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## Substance-Related Disorders

- Substances can also produce long-term problems:
  - Substance abuse: a pattern of behavior in which a person relies on a drug excessively and repeatedly, damaging their relationships, affecting work functioning, and/or putting themselves or others in danger
  - Substance dependence: a more advanced pattern of use in which a person abuses a drug and centers his or her life around it
    - Also called “\_\_\_\_\_”
    - May include \_\_\_\_\_ (need increasing doses to get an effect) and \_\_\_\_\_ (unpleasant and dangerous symptoms when substance use is stopped)

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## Substance-Related Disorders

- About 10% of all adults in the U.S. display substance abuse or dependence
  - Only 26% receive treatment
- Many drugs are available in our society
  - Some are naturally occurring; others are produced in a laboratory
  - Some require a physician’s prescription for legal use; others, like alcohol and nicotine, are legally available to adults
    - Still others, like heroin, are illegal under all circumstances

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## Substance-Related Disorders

- Recent statistics suggest that drug use is a significant social problem
  - Over 28 million people in the U.S. have used an illegal substance within the past year
  - Over 19 million are using one of them currently
  - Almost 25% of all high school seniors have used an illegal drug within the past month

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## Substance-Related Disorders

- There are several categories of substances used and studied:
  - Depressants
  - Stimulants
  - Hallucinogens
  - Cannabis
  - Polydrug use

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## Depressants

- Depressants slow the activity of the central nervous system (CNS)
  - Reduce tension and inhibitions
  - May affect judgment, motor activity, and concentration
- Three most widely used depressants:
  - Alcohol
  - Sedative-hypnotic drugs
  - Opioids

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## Depressants: Alcohol

- About 2/3 of the U.S. population drinks alcohol
  - Nearly 7% of people over age 11 are heavy drinkers, having 5 drinks on at least 5 occasions per month
    - Among heavy drinkers, the ratio of men to women is 3:1 (around 9% to 3%)

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## Depressants: Alcohol

- Ethyl alcohol, or ethanol, is the alcohol in beer, wine, and hard liquor
- It is absorbed into the blood through stomach lining and takes effect in the bloodstream and CNS
- Short-term: alcohol \_\_\_\_\_  
\_\_\_\_\_
- Alcohol helps \_\_\_\_\_ (an inhibitory messenger) shut down neurons and “relax” the drinker

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## Depressants: Alcohol

- First brain area affected is that which controls judgment and inhibition
- Next affected are additional areas in the central nervous system, leaving the drinker even less able to make sound judgments, speak clearly, and remember well
- Motor difficulties increase as drinking continues, and reaction times slow

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## Depressants: Alcohol

- The extent of the effect of ethyl alcohol is determined by its concentration (proportion) in the blood
  - A given amount of alcohol has a lesser effect on a large person than on a small one
- Gender also affects blood alcohol concentration
  - Women have less alcohol dehydrogenase, an enzyme in the stomach that metabolizes alcohol before it enters the blood
  - Women become more intoxicated than men on equal doses of alcohol

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## Depressants: Alcohol

- Levels of impairment are closely tied to the concentration of ethyl alcohol in the blood:
  - BAC = 0.06: Relaxation and comfort
  - BAC = 0.09: Intoxication
  - BAC  $\geq$  0.55: Death
    - Most people lose consciousness before they can drink this much

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## Depressants: Alcohol

- The effects of alcohol subside only after alcohol is metabolized by the \_\_\_\_\_
  - The average rate of this metabolism is 13% of an ounce per hour
  - \_\_\_\_\_

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## Depressants: Alcohol

- Alcohol abuse and dependence
  - Though legal, alcohol is one of the most dangerous recreational drugs
  - Its effects can extend across the lifespan
    - Alcohol use is a major problem in high school, college, and adulthood
    - About 8% of U.S. adults meet the criteria for alcohol abuse or dependence (“alcoholism”) each year
      - In their lifetime, between 9% and 18% of adults will display one of these patterns, with men outnumbering women 2:1

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## Depressants: Alcohol

- The prevalence of alcoholism in a given year is \_\_\_\_\_ for white Americans, African Americans and Hispanic Americans
  - The men in these groups show strikingly different age patterns
- Generally, \_\_\_\_\_ have lower rates of alcohol disorders than do people from other cultures
  - As many as one-half of these individuals have a deficiency of alcohol dehydrogenase; thus they have a negative reaction to even modest alcohol use

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## Depressants: Alcohol

- Alcohol abuse
  - In general, people who abuse alcohol drink large amounts regularly and rely on it to enable them to do things that would otherwise make them anxious
    - Eventually the drinking interferes with work and social functioning
  - Individual patterns of alcohol abuse vary

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## Depressants: Alcohol

- Alcohol dependence
  - For many people, the pattern of alcohol misuse includes dependence
    - They build up a physiological tolerance and need to drink greater amounts to feel its effect
    - They may experience withdrawal, including nausea and vomiting, when they stop drinking
    - A small percentage of alcohol dependent people experience a dramatic and dangerous withdrawal syndrome known as delirium tremens (“the DTs”)
      - Can be fatal!

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## Depressants: Alcohol

- What is the personal and social impact of alcoholism?
  - Alcoholism destroys families, social relationships, and careers
    - Losses to society total almost \$200 billion annually
    - Plays a role in suicides, homicides, assaults, and accidents
    - Seriously affects the children (some 30 million) of alcoholic parents

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## Depressants: Alcohol

- What is the personal and social impact of alcoholism?
  - Long-term excessive drinking can seriously damage physical health
    - \_\_\_\_\_
  - Long-term excessive drinking can cause major nutritional problems
    - Example: Korsakoff's syndrome
  - Women who drink alcohol during pregnancy place their fetuses at risk from \_\_\_\_\_ (FAS)

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## Sedative-Hypnotic Drugs

- Sedative-hypnotic (anxiolytic) drugs produce feelings of relaxation and drowsiness
  - At low doses, they have a calming or sedative effect
  - At high doses, they function as sleep inducers or hypnotics
- Sedative-hypnotic drugs include barbiturates and benzodiazepines

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## Sedative-Hypnotic Drugs: Barbiturates

- First discovered in the late 19<sup>th</sup> century, barbiturates were widely prescribed in the first half of the 20<sup>th</sup> century to fight anxiety and to help people sleep
  - Although still prescribed, they have been largely replaced by benzodiazepines
  - They can cause many problems, not the least of which are abuse, dependence, and overdose

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## Sedative-Hypnotic Drugs: Barbiturates

- Barbiturates are usually taken in pill form
- At low doses, they reduce anxiety in a manner similar to alcohol by attaching to the \_\_\_\_\_ and helping GABA operate
- Also similar to alcohol, barbiturates are \_\_\_\_\_

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## Sedative-Hypnotic Drugs: Barbiturates

- At high doses, barbiturates affect the reticular formation in the brain (the “awake” center), causing people to get sleepy
- At too high a level, they stop respiration, lower blood pressure, and can cause death

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## Sedative-Hypnotic Drugs: Barbiturates

- Repeated use of barbiturates can quickly result in a pattern of abuse and/or dependence
  - A great danger of barbiturate dependence is that the \_\_\_\_\_ of the drug remains the same even while the body is building a \_\_\_\_\_
  - Barbiturate withdrawal is particularly dangerous because it can lead to convulsions

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## Sedative-Hypnotic Drugs: Benzodiazepines

- Benzodiazepines are often prescribed to relieve anxiety
  - Most popular sedative-hypnotics available
    - Class includes Xanax and Valium

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## Sedative-Hypnotic Drugs: Benzodiazepines

- Benzodiazepines have a depressant effect on the central nervous system by binding to \_\_\_\_\_  
\_\_\_\_\_
- Unlike barbiturates and alcohol, however, benzodiazepines relieve anxiety without causing related drowsiness
  - As a result, they are \_\_\_\_\_ to slow breathing and lead to death by overdose

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## Sedative-Hypnotic Drugs: Benzodiazepines

- Once thought to be a safe alternative to other sedative-hypnotic drugs, benzodiazepines can cause intoxication and lead to abuse and dependence
  - As many as 1% of U.S. adults abuse or become physically dependent on benzodiazepines at some point in their lives

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## Opioids

- This class of drug includes both natural (opium, heroin, morphine, codeine) and synthetic (methadone) compounds and is known collectively as “narcotics”
  - Each drug has a different strength, speed of action, and tolerance level

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## Opioids

- Narcotics are smoked, inhaled, injected by needle just under the skin (“skin popped”), or injected directly into the bloodstream (“mainlined”)
  - An injection quickly brings on a “rush”: a spasm of warmth and ecstasy that is sometimes compared with orgasm
    - This spasm is followed by several hours of pleasurable feelings (called a “high” or “nod”)

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## Opioids

- These drugs, also called “\_\_\_\_\_,” provide pain relief and relaxation by depressing the central nervous system
  - Opioids bind to the receptors in the brain that ordinarily receive \_\_\_\_\_
- When these sites receive opioids, they produce pleasurable and calming feelings just as endorphins do
- In addition to reducing tension, opioids can cause nausea, narrowing of the pupils, and constipation

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## Opioids

- Heroin abuse and dependence
  - Heroin use exemplifies the problems posed by opioids:
    - After just a few weeks, users may become caught in a pattern of abuse (and often dependence)
    - Users quickly build a tolerance for the drug and experience withdrawal when they stop taking it
    - Early withdrawal symptoms include anxiety and restlessness; later symptoms include twitching, aches, fever, vomiting, and weight loss from dehydration

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## Opioids

- Heroin abuse and dependence
  - People who are dependent on heroin soon \_\_\_\_\_  
\_\_\_\_\_ and must continually increase their doses in order to achieve even that relief
  - Many users must turn to criminal activity to support their “habit” and avoid withdrawal symptoms

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## Opioids

### ■ Heroin abuse and dependence

- Surveys suggest that close to 1% of adults in the U.S. become addicted to heroin or other opioids at some point in their lives

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## Opioids

### ■ What are the dangers of heroin abuse?

- The most immediate danger is \_\_\_\_\_
  - The drug closes down the respiratory center in the brain, paralyzing breathing and causing death
  - Death is particularly likely during sleep
- \_\_\_\_\_ is also a problem
  - About 2% of those dependent on heroin and other opioids die under the influence of the drug each year
- Users run the risk of getting \_\_\_\_\_
  - Opioids often are “cut” with noxious chemicals
- Dirty needles and other equipment can spread infection

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## Stimulants

### ■ Stimulants are substances that increase the activity of the central nervous system (CNS)

- Cause increases in blood pressure, heart rate, and alertness
- Cause rapid behavior & thinking

### ■ The four most common stimulants are:

- Cocaine
- Amphetamines
- Caffeine
- Nicotine

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## Stimulants: Cocaine

- Derived from the leaves of the coca plant, cocaine is the most powerful natural stimulant known
  - 28 million people in the U.S. have tried cocaine
    - 2 million people are currently using it
  - Close to 3% of the population will become dependent on cocaine at some point in their lives

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## Stimulants: Cocaine

- Cocaine produces a euphoric rush of well-being
  - It stimulates the central nervous system and decreases appetite
- It seems to work by increasing \_\_\_\_\_ at key receptors in the brain by preventing the neurons that release it from reabsorbing it
  - Also appears to increase norepinephrine and serotonin

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## Stimulants: Cocaine

- High doses of cocaine can produce cocaine intoxication, whose symptoms include mania, paranoia, and impaired judgment
  - Some people also experience hallucinations and/or delusions, a condition known as cocaine-induced psychotic disorder
- As the stimulant effects of the drug subside, the user experiences a depression-like letdown, popularly called “crashing”

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## Stimulants: Cocaine

### ■ Cocaine abuse and dependence

- Regular use may lead to a pattern of abuse in which the person remains under the effect of cocaine for much of each day and functions poorly in major areas of life
- Dependence on the drug may also develop
- Currently, close to 1% of all people in the US manifest cocaine abuse or dependence

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## Stimulants: Cocaine

### ■ Cocaine abuse and dependence

- Cocaine use in the past was limited by two the drug's high cost
- Since 1984, cheaper versions of the drug have become available, including:
  - A “freebase” form where the drug is heated and inhaled with a pipe
  - “Crack,” a powerful form of freebase that has been boiled down for smoking in a pipe

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## Stimulants: Cocaine

### ■ What are the dangers of cocaine?

- Aside from its behavioral effects, cocaine poses significant physical danger, especially from accidents and suicide
  - Pregnant women who use cocaine have an increased likelihood of miscarriage and of having children with abnormalities
- The greatest danger of use is the \_\_\_\_\_
  - Excessive doses depress the respiratory of the brain and stop breathing
  - Cocaine use can also can cause heart failure

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## Stimulants: Amphetamines

- Amphetamines are stimulant drugs that are manufactured in the laboratory
  - Methamphetamine, in particular, has had a surge in popularity in recent years
  - Most often taken in pill or capsule form
    - Can be injected or taken in “ice” and “crank” form, counterparts of free-base cocaine and crack

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## Stimulants: Amphetamines

- Like cocaine, amphetamines:
  - Increase energy and alertness and lower appetite when taken in small doses
  - Produce a rush, intoxication, and psychosis in high doses
  - Cause an emotional letdown as they leave the body

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## Stimulants: Amphetamines

- Also like cocaine, amphetamines stimulate the CNS by increasing dopamine, norepinephrine, and serotonin
- \_\_\_\_\_ builds quickly, so users are at \_\_\_\_\_ of becoming dependent
  - When people dependent on the drug stop taking it, serious depression and extended sleep follows
- Around 2% of Americans become dependent on amphetamines at some point in their lives

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## Stimulants: Caffeine

- Caffeine is the world's most widely used stimulant
  - Around 80% of the world's population consume it daily
    - Most consumption is in the form of coffee; the rest is in the form of tea, cola, chocolate, and over-the-counter medications
  - More than 2 to 3 cups of brewed coffee can lead to caffeine intoxication
    - Seizures and respiratory failure can occur at doses greater than 10 grams of caffeine (about 100 cups of coffee)

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## Stimulants: Caffeine

- Many people who suddenly stop or cut back their usual intake experience withdrawal symptoms
  - Symptoms include headaches, depression, anxiety, and fatigue

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## Hallucinogens, Cannabis, and Combinations of Substances

- Other kinds of substances can cause problems for users and for society
  - Hallucinogens
    - Produce delusions, hallucinations, and other sensory changes
  - Cannabis substances
    - Produce sensory changes, but has both depressant and stimulant effects
  - Combinations of substances = polysubstance use

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## Hallucinogens

- Hallucinogens, also known as psychedelic drugs, produce powerful changes in sensory perceptions (sometimes called “trips”)
  - Include natural hallucinogens
    - Mescaline
    - Psilocybin
  - And synthetic hallucinogens
    - Lysergic acid diethylamide (LSD)
    - MDMA (Ecstasy)

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## Hallucinogens

- LSD is one of the most famous and powerful hallucinogens
  - Within two hours of being ingested, it brings on a state of hallucinogen intoxication (hallucinosi)s
    - Increased and altered sensory perception
    - Hallucinations may occur
      - The drug may cause different senses to cross, an effect called synesthesia
    - May produce extremely strong emotions
    - May have some physical effects
  - Effects wear off in about six hours

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## Hallucinogens

- Hallucinogens appear to produce these symptoms by binding to \_\_\_\_\_
  - These receptors control visual information and emotions, thereby causing the various effects of the drug on the user

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## Hallucinogens

- More than 14% of Americans have used hallucinogens at some point in their lives
  - About 2% have used hallucinogens in the past year
- \_\_\_\_\_
  - But the drugs do pose physical dangers
    - Users may experience a “bad trip” – the experience of enormous unpleasant perceptual, emotional, and behavioral reactions
  - Another danger is the risk of hallucinogen persisting perception disorder (“\_\_\_\_\_”)
    - Can occur a year or more after last drug use

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## Cannabis

- The drugs produced from varieties of the hemp plant are, as a group, called cannabis
  - They include:
    - Hashish, the solidified resin of the cannabis plant
    - Marijuana, a mixture of buds, crushed leaves, and flowering tops
- The major active ingredient in cannabis is tetrahydrocannabinol (THC)
  - The greater the THC content, the more powerful the drug

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## Cannabis

- When smoked, cannabis produces a mixture of hallucinogenic, depressant, and stimulant effects
  - At low doses, the user feels joy and relaxation
    - May become anxious, suspicious, or irritated
    - This overall “high” is technically called cannabis intoxication
  - At high doses, cannabis produces odd visual experiences, changes in body image, and hallucinations
- Most of the effects of cannabis last three to six hours
  - Mood changes may continue longer

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## Cannabis

### ■ Marijuana abuse and dependence

- Marijuana was once thought not to cause abuse or dependence
- Today many users are caught in a pattern of abuse
  - Some users develop tolerance and withdrawal, experiencing flu-like symptoms and irritability when drug use is stopped
  - About 2% of people in the U.S. displayed marijuana abuse or dependence in the past year
    - About 5% will fall into these patterns at some point in their lives

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## Cannabis

### ■ Marijuana abuse and dependence

- One theory about the increase in abuse and dependence is the change in the drug itself

- \_\_\_\_\_  
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\_\_\_\_\_

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## Cannabis

### ■ Is marijuana dangerous?

- As the potency of the drug has increased, so have the risks of using it
  - May cause panic reactions similar to those caused by hallucinogens
  - Because of its sensorimotor effects, marijuana has been implicated in accidents
  - Marijuana use has been linked to poor concentration and impaired memory

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## Cannabis

### ■ Is marijuana dangerous?

#### ■ Long-term use poses additional dangers

■ May cause \_\_\_\_\_

■ May affect \_\_\_\_\_:

■ In males, it may inhibit sperm production

■ In women, it may block ovulation

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## Combinations of Substances

■ People often take more than one drug at a time, a pattern called polysubstance use

■ Researchers have examined the ways in which drugs interact with one another, focusing on cross-tolerance and synergistic effects

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## Combinations of Substances

■ \_\_\_\_\_

■ Sometimes two or more drugs are so similar in their actions on the brain and body that as people build a tolerance for one drug, they are simultaneously developing a tolerance for the other (even if they have never taken it)

■ Users displaying this cross-tolerance can reduce the symptoms of \_\_\_\_\_

■ Example: alcohol and benzodiazepines

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## Combinations of Substances

### ■ Synergistic effects

- When different drugs are in the body at the same time, they may multiply, or potentiate, each other's effects
- This combined impact is called a synergistic effect, and is often greater than the sum of the effects of each drug taken alone

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## Combinations of Substances

### ■ Synergistic effects

- One kind of synergistic effect occurs when two or more drugs have \_\_\_\_\_
  - Example: \_\_\_\_\_
  - All depressants, they may severely depress the CNS when mixed, leading to death
- A different kind of synergistic effect results when drugs have \_\_\_\_\_
  - Example: \_\_\_\_\_
  - May build up lethal levels of the drugs because of \_\_\_\_\_ (stimulants impede the liver's processing of barbiturates and alcohol)

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## Combinations of Substances

- Each year tens of thousands of people are admitted to hospitals because of polysubstance use
  - May be accidental or intentional
    - As many as 90% of people who use one illegal drug are also using another to some extent

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## What Causes Substance-Related Disorders?

- Clinical theorists have developed sociocultural, psychological, and biological explanations for substance abuse and dependence
  - No single explanation has gained broad support
  - Best explanation: \_\_\_\_\_

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## Causes of Substance-Related Disorders: The Sociocultural View

- A number of theorists propose that people are more likely to develop patterns of substance abuse or dependence when living in stressful socioeconomic conditions
  - Example: higher rates of unemployment correlate with higher rates of alcohol use
  - Example: people of lower SES have higher rates of substance use in general

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## Causes of Substance-Related Disorders: The Sociocultural View

- Other theorists propose that substance abuse and dependence are more likely to appear in societies where substance use is valued or accepted
  - Example: rates of alcohol use varies between cultures

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## Causes of Substance-Related Disorders: The Psychodynamic View

- Psychodynamic theorists believe that people who abuse substances have powerful dependency needs that can be traced to their early years
  - Caused by a lack of parental nurturing
    - Some people may develop a “substance abuse personality” as a result
  - Limited research does link early impulsivity to later substance use, but the findings are correlational and researchers cannot presently conclude that any one personality trait or group of traits stands out in substance-related disorders

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## Causes of Substance-Related Disorders: The Behavioral and Cognitive Views

- According to behaviorists, operant conditioning may play a key role in the development and maintenance of substance abuse
  - They argue that the \_\_\_\_\_ produced by a drug has a \_\_\_\_\_ effect, thus \_\_\_\_\_ that the user will seek this reaction again
  - Similarly, the rewarding effects may also lead users to try higher doses or more \_\_\_\_\_

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## Causes of Substance-Related Disorders: The Behavioral and Cognitive Views

- Cognitive theorists further argue that such rewards eventually produce an expectancy that substances will be rewarding, and this expectation is sufficient to motivate individuals to increase drug use at times of tension

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### **Causes of Substance-Related Disorders: The Behavioral and Cognitive Views**

- In support of these views, studies have found that many subjects do in fact drink more alcohol or seek heroin when they feel tense
- In a manner of speaking, this model is arguing a “self-medication” hypothesis
  - If true, one would expect higher rates of substance use among people with psychological symptoms
    - Studies have found higher rates of substance use among people with mood disorders, PTSD, eating disorders, and schizophrenia

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### **Causes of Substance-Related Disorders: The Behavioral and Cognitive Views**

- Not all drug users find drugs pleasurable or reinforcing when they first take them
  - So why do users keep taking drugs?

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### **Causes of Substance-Related Disorders: The Behavioral and Cognitive Views**

- Some theorists cite Solomon’s opponent-process theory:
  - The brain is structured such that pleasurable emotions inevitably lead to opponent processes – negative aftereffects – that leave the person feeling worse than usual
  - The opponent processes eventually dominate, and avoidance of the negative aftereffects replaces pursuit of pleasure as the primary factor in drug taking
  - Although a highly regarded theory, the opponent-process explanation has not received systematic research support

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### **Causes of Substance-Related Disorders: The Behavioral and Cognitive Views**

- Other behavioral theorists have proposed that classical conditioning may play a role in drug abuse, dependence, and withdrawal
  - Objects present at the time drugs are taken may act as classically conditioned stimuli and come to produce some of the pleasure brought on by the drugs themselves
  - Although classical conditioning may be at work, it has not received widespread research support as a major factor in such patterns

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### **Causes of Substance-Related Disorders: The Biological View**

- In recent years, researchers have come to suspect that drug misuse may have biological causes
- Studies on genetic predisposition and specific biochemical processes have provided some support for this model

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### **Causes of Substance-Related Disorders: The Biological View**

- Genetic predisposition
  - Research with “alcohol-preferring” rats has demonstrated that their offspring have similar alcohol preferences
  - Similarly, research with human twins has suggested that people may inherit a predisposition to abuse substances
    - Concordance rates in identical (MZ) twins: 54%
    - Concordance rates in fraternal (DZ) twins: 28%

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## Causes of Substance-Related Disorders: The Biological View

### ■ Genetic predisposition

■ Stronger support for a genetic model may come from \_\_\_\_\_

■ Studies compared adoptees whose biological parents were dependent on alcohol with adoptees whose biological parents were not dependent

■ By adulthood, those whose biological parents were dependent showed higher rates of alcohol use themselves

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## Causes of Substance-Related Disorders: The Biological View

### ■ Genetic predisposition

■ Genetic linkage strategies and molecular biology techniques have also provided direct evidence in support of this hypothesis

■ An abnormal form of the dopamine-2 (D2) receptor gene was found in the majority of subjects with alcohol dependence but in less than 20% of nondependent subjects

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## Causes of Substance-Related Disorders: The Biological View

### ■ Biochemical factors

■ Over the past few decades, investigators have pieced together a general biological understanding of drug tolerance and withdrawal

■ \_\_\_\_\_  
■ \_\_\_\_\_

■ Recent brain imaging studies have suggested that many (perhaps all) drugs eventually activate a single “\_\_\_\_\_” or “\_\_\_\_\_” in the brain

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## Causes of Substance-Related Disorders: The Biological View

### ■ Biochemical factors

- The reward center apparently extends from the brain area called the ventral tegmental area to the nucleus accumbens and on to the frontal cortex
- The key NT appears to be \_\_\_\_\_
  - When dopamine is activated at this center, a person experiences pleasure
- Certain drugs stimulate the reward center \_\_\_\_\_
  - Examples: \_\_\_\_\_ and \_\_\_\_\_
- Other drugs stimulate the reward center \_\_\_\_\_
  - Examples: \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_

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## Causes of Substance-Related Disorders: The Biological View

### ■ Biochemical factors

- Theorists suspect that people who abuse substances suffer from a reward-deficiency syndrome
  - Their reward center is not readily activated by “normal” life events so they turn to drugs to stimulate this pleasure pathway, especially in times of stress
    - Defects in D2 receptors have been cited as a possible cause

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## How Are Substance-Related Disorders Treated?

- Many approaches have been used to treat substance-related disorders, including psychodynamic, behavioral, cognitive-behavioral, biological, and sociocultural therapies
- Although these treatments sometimes meet with great success, more often they are only moderately helpful
- Today treatments are typically used in combination on both an outpatient and inpatient basis

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## Psychodynamic Therapies

- Psychodynamic therapists try to help those with substance-related disorders become aware of and correct underlying psychological problems
- Research has not found this model to be very effective
  - Tends to be of greater help when combined with other approaches in a multidimensional treatment program

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## Behavioral Therapies

- A widely used behavioral treatment is aversion therapy, an approach based on classical conditioning principles
  - Individuals are repeatedly presented with an unpleasant stimulus at the very moment they are taking a drug
  - After repeated pairings, they are expected to react negatively to the substance itself and to lose their craving for it

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## Behavioral Therapies

- Aversion therapy is most commonly applied to alcohol abuse/dependence
- Covert sensitization is another version of this approach
  - Requires people with alcoholism to imagine extremely upsetting, repulsive, or frightening scenes while they are drinking
  - The pairing is expected to produce negative responses to liquor itself

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## Behavioral Therapies

- Another behavioral approach focuses on teaching alternative behaviors to drug taking
  - This approach, too, has been applied to alcohol abuse and dependence more than to other substance-related disorders
- Contingency management is a behavioral approach that has been successful in short-term treatment

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## Behavioral Therapies

- Behavioral interventions are of limited success when used alone
  - They are best when used in combination with either biological or cognitive approaches

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## Cognitive-Behavioral Therapies

- Two popular combined approaches, both applied particularly to alcohol use:
  - Behavioral self-control training (BSCT)
    - Clients keep track of their own use and triggers
    - Learn coping strategies for such events
    - Learn to set limits on drinking
    - Learn skills (relaxation, coping, problem-solving)
  - Relapse-prevention training
    - Clients are taught to plan ahead for drinking situations
    - Used particularly to treat alcohol abuse; also used to treat cocaine and marijuana abuse

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## Biological Treatments

- Biological treatments may be used to help people \_\_\_\_\_

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- These approaches are of limited success long-term when used alone but can be helpful when combined with other approaches

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## Biological Treatments

- \_\_\_\_\_
- Systematic and medically supervised withdrawal from a drug

- Can be outpatient or inpatient

- Two strategies:

- Gradual withdrawal by tapering doses of the substance

- Induce withdrawal but give additional medication to block symptoms

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## Biological Treatments

- Detoxification

- Detoxification programs seem to help motivated people withdraw from drugs

- For people who fail to receive psychotherapy after withdrawal, however, \_\_\_\_\_

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## Biological Treatments

### ■ Antagonist drugs

- An aid to resist falling back into a pattern of substance abuse or dependence, antagonist drugs block or change the effects of the addictive substance

- Example: disulfiram (Antabuse) for alcohol

- Example: naltrexone for narcotics, alcohol

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## Biological Treatments

### ■ Drug maintenance therapy

- A drug-related lifestyle may be a greater problem than the drug's direct effects

- Example: heroin addiction

- Thus, methadone maintenance programs are designed to provide a safe substitute for heroin

- Methadone is a laboratory opioid with a long half-life, taken orally once a day

- Programs were roundly criticized as “substituting addictions” but are regaining popularity, partly because of the spread of HIV/AIDS

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## Sociocultural Therapies

- Three main sociocultural approaches to substance-related disorders:

- Self-help and residential treatment programs

- Culture- and gender-sensitive programs

- Community prevention programs

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## Sociocultural Therapies

### ■ Self-help and residential treatment programs

- Most common: \_\_\_\_\_
  - Offers peer support along with moral and spiritual guidelines to help people overcome alcoholism
- Many self-help programs have expanded into residential treatment centers or therapeutic communities
  - People formerly dependent on drugs live, work, and socialize in a drug-free environment while undergoing individual, group, and family therapies

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## Sociocultural Therapies

### ■ Culture- and gender-sensitive programs

- A growing number of treatment programs try to be sensitive to the special sociocultural pressures and problems faced by drug abusers who are poor, homeless, or members of ethnic minority groups
- Similarly, therapists have begun to focus on the unique issues facing female substance users

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## Sociocultural Therapies

### ■ Community prevention programs

- Perhaps the most effective approach to substance-related disorders is to prevent them
  - \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- The most effective of these prevention efforts focus on multiple areas to provide a consistent message about drug use in all areas of life

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