

STUDY GUIDE

SUBSTANCE ABUSE

The purpose of the study guide is to familiarize yourself with the terms you will study in class. This study guide alone will not allow you to pass your exam. You must attend the prep-course.



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Disclaimer

Each study guide is unique and presents the information in a clear and condensed form to orient you to the material applicable to the exam. The materials cite various textbooks, journal articles and literature, including some found on websites.

We strongly encourage you to review and study these study guides, take the practice tests, and become familiar with the terms and concepts before stepping into class. Our goal is to help you attack the content by sharing these specific study tools and test-taking strategies with you, which have proven to be successful. You will need to attend and complete our preparation course in order to qualify for our money-back guarantee. The study guide and prep course, when used together, will best prepare you for the final exam.

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INSTRUCTIONS:

- Read the study guide.
- Print and complete the sample test. Correct your test and review the incorrect items.
- Attend class to ensure your money-back guarantee.

We look forward to helping you achieve your academic goals!

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I. OVERVIEW OF SUBSTANCE AND DEPENDENCE ABUSE

1. TERMINOLOGY

- a. **Substance Abuse: Is defined as a pattern of maladaptive substance** use that is associated with recurrent and significant adverse consequences (DSM-IV). It is characterized by at least 3 of the 7 symptoms:
 - i. Tolerance of the substance, meaning that an individual gradually becomes able to consume with the substance without unpleasant side effects
 - ii. Withdrawal, meaning the deprivation of the substance causes significant physical and emotional stress
 - iii. Increased consumption of the substance over time
 - iv. A lack of desire or ability to stop using the substance
 - v. Large amounts of time devoted to finding ways to obtain amounts of the substance needed to achieve a desired effect
 - vi. Abandonment of otherwise typical social, occupational, and recreational activities because of the time needed for substance use
 - vii. Continued use of the substance in spite of an individual's knowledge of its deleterious effects
- b. Substance Dependence: Is defined as a compulsive pattern of substance use **characterized by a loss of control over substance use and continued use despite the significant substance-related problems** (DSM-IV).

2. THEORIES OF ABUSE AND DEPENDENCE

- a. **Psychoanalytic Theories of Substance Abuse**
 - i. Substance abuse has been categorized within the psychoanalytic concept of symptoms. **Psychoanalytic theory focuses on making the unconscious conscious**, which in the case of substance abuse, the individual develops better understanding of the "underlying cause" which is the key to the removal of the "symptoms" once substance abuse has been identified (Rogers, Morgenstern and Walters, (2003).

3. MODELS OF ABUSE AND DEPENDENCE

- a. Physical Dependence Model, emphasizing on withdrawal symptoms
- b. Positive Reinforcement Model, emphasizing on reward/reinforcing drug effect
- c. Incentive-Sensitization and Opponent-Process Models
 - i. I-S model makes a distinction between drug liking (the “high”) and drug wanting/neediness (craving)
- d. O-P a model of mood/emotions in general where the initial effect (e.g. joy) is tied to the stimulus and occurs only when the stimulus is present; the opponent affect (e.g. sorrow) occurs later on, after the stimulus is gone and is less intense, and the repeated exposure to the stimulus will not change the initial effect but will change the opponent affect (will make it occur faster, lasting longer and more intense) (Meyers, Quenzer and Quenzer, 2005).
- e. Disease Model, treating addiction as a medical disorder. This model is widely accepted and offers 2 different aspects, which are Susceptibility model (leading to loss of control) and Exposure model (drug exposure, brain changes and loss of control) (Meyers, Quenzer and Quenzer, 2005).
- f. **Comprehensive Model of Drug Abuse & Dependence, requiring the use of the biopsychosocial model. This allows for a cohesive understanding of when, where and why the addicts started using drugs or are substance dependent (i.e. factors such as peer influence, lack of awareness of consequences, and inability to evaluate consequences.)** (Meyers, Quenzer and Quenzer, 2005).

4. DEMOGRAPHICS

- a. **In 2010, an estimated 22.6 million Americans aged 12 or older were current illicit drug users.** Illicit drugs include marijuana/hashish, cocaine, heroin, hallucinogens, inhalants, or prescription-types psychotherapeutics used non-medically (SAMSHA’s Office of Applied Studies, 2010).
- b. In 2010, an estimated 22.1 million persons (8.7%) were classified with substance dependence or abuse in the past year based on the criteria specified in the DSM-IV (SAMSHA’s Office of Applied Studies, 2010).
- c. Gender: 11.6% were males and 5.9% were females.
- d. Race/Ethnicity: In 2010, among persons aged 12 or older, rates of substance dependence or abuse were lower among Asians (4.1%) and Native Hawaiians or Other Pacific Islanders (5.6%) than among other racial/ethnic groups. The rates for the other racial/ethnic groups were 16.0% for American Indians or Alaska Natives, 9.7% for persons reporting two or more races, 9.7% for

Hispanics, 8.9 % for whites, and 8.2% for blacks. (SAMSHA's Office of Applied Studies, 2010).

- e. Geographic Area: In 2010, rates of substance dependence or abuse for persons aged 12 or older were 10.0% in the West, 7.8% in the South, 8.8% in the Midwest, and 8.9% in the Northeast.

5. COSTS TO SOCIETY AND ASSOCIATIONS WITH SOCIAL PROBLEMS

- a. Cost: The trafficking and abuse of drugs in the United States affect nearly all aspects of our lives. The economic cost alone is immense, estimated at nearly \$215 billion. ***The damage caused by drug abuse and addiction is reflected in an overburdened justice system, a strained health care system, lost productivity, and environmental destruction*** (U.S Department of Justice, 2010).
- b. Associations with Social Problems:
According to the U.S Department of Justice (2010):
 - i. Impact on Crime and Criminal Justice Systems: The consequences of illicit drug use impact the entire criminal justice system, taxing resources at each stage of the arrest, adjudication, incarceration, and post-release supervision process. Although drug courts and diversion programs in many jurisdictions have helped to alleviate this burden, substance abuse within the criminal justice population remains widespread.
 - ii. Impact on Productivity: Premature mortality, illness, injury leading to incapacitation, and imprisonment all serve to directly reduce national productivity. Public financial resources expended in the areas of health care and criminal justice as a result of illegal drug trafficking and use are resources that would otherwise be available for other policy initiatives.
 - iii. Impact on the Environment: The environmental impact of illicit drugs is largely the result of outdoor cannabis cultivation and methamphetamine production. Many of the chemicals used to produce methamphetamine are flammable, and the improper storage, use, and disposal of such chemicals that are typical among methamphetamine producers often lead to fires and explosions at clandestine laboratories. They are typically discarded improperly in fields, streams, forests, and sewer systems, causing extensive environmental damage.

6. SCREENING AND DIAGNOSIS

- a. **Screening: It's important to screen all patients for drug and alcohol use when there are no obvious red flags, suspicious physical findings, or atypical features of chronic disease** (Mersey, 2003).
- b. **Diagnosis: The American Medical Association's Diagnostic and Statistical Manual of Mental Disorders required the presence of tolerance or withdrawal symptoms before a diagnosis of alcohol or drug dependence could be made** (Mersey, 2003)

II. CLASSIFICATION OF DRUGS

1. FEDERAL DRUG CLASSIFICATION SCHEDULES:

With the Controlled Substances Act of 1970, a major illegal substance control campaign began. Americans witnessed a corresponding shift of resources and public attention onto the growing problem of substance abuse and its effects on society (National Substance Abuse Index, n.d.).

- a. Schedule I
 - i. The drug or other substance has a high potential for abuse.
 - ii. The drug or other substance has not been currently accepted as medical use for treatment in the United States.
 - iii. There is a lack of accepted safety for use of the drug or other substance under medical supervision.
- b. Schedule II
 - i. The drug or other substance has a high potential for abuse.
 - ii. The drug or other substance has a currently accepted medical use in treatment in the United States or a currently accepted medical use with severe restrictions
 - iii. ***Abuse of the drug or other substance may lead to severe psychological or physical dependence.***
- c. Schedule III
 - i. The drug or other substance has a potential for abuse less than the drugs or other substances in schedules I and II.
 - ii. The drug or other substance has a currently accepted medical use in treatment in the United States.
 - iii. ***Abuse of the drug or other substance may lead to moderate or low physical dependence or high psychological dependence.***
- d. Schedule IV
 - i. The drug or other substance has a low potential for abuse relative to the drugs or other substances in schedule III.
 - ii. The drug or other substance has a currently accepted medical use in treatment in the United States.
 - iii. Abuse of the drug or other substance may lead to limited physical dependence or psychological dependence relative to the drugs or other substances in schedule III.

- e. Schedule V
 - i. The drug or other substance has a low potential for abuse relative to the drugs or other substances in schedule IV.
 - ii. The drug or other substance has a currently accepted medical use in treatment in the United States.
 - iii. Abuse of the drug or other substance may lead to limited physical dependence or psychological dependence relative to the drugs or other substances in schedule IV.

III. PHARMACOLOGICAL AND NEUROPHYSIOLOGICAL PRINCIPLES

1. PHARMACOLOGICAL AND NEUROPHYSIOLOGICAL PRINCIPLES:

The scientific study of the actions of drugs and their effects on a living organism and the effect of the living organism on the way the drug exerts its effects (Meyers, Quenzer and Quenzer, 2005).

2. NERVOUS SYSTEM:

Most drugs affect nervous systems by modulating synaptic transmission. Drugs may mimic effects of neurotransmitters, block their effects, alter synthesis or release, or alter metabolic processes (Meyers, Quenzer and Quenzer, 2005).

3. ACTIONS OF DRUGS:

Addictive drugs commonly increase dopamine in the mesolimbic area of the brain. (National Substance Abuse Index, n.d.).

4. DRUG INTERACTIONS:

- a. Alcohol:
 - i. The pharmacokinetics of alcohol determines its bioavailability.
 - ii. Chronic alcohol use leads to both tolerance and physical dependence
 - iii. Alcohol affects many organ systems
 - iv. Alcohol acts on multiple neurotransmitters
- b. Opiates:
 - i. Minor differences in molecular structure determine behavioral effects
 - ii. Bioavailability predicts both physiological and behavioral effects
 - iii. Opioids have their most important effects on the CNS and on the gastrointestinal tract
 - iv. Opiate receptor-mediated cellular changes are inhibitory
 - v. Opioids inhibit pain transmission at spinal and supraspinal levels
 - vi. The consequences of long-term opiate use include tolerance, sensitization, and dependence

- vii. Neurobiological adaptation and rebound constitute tolerance and withdrawal
- c. Amphetamines:
 - i. Amphetamine is a psychostimulant that has therapeutic uses
 - ii. High-dose or chronic use can cause psychotic reactions as well as brain damage
- d. Nicotine:
 - i. Elicits different mood changes in smokers compared to non-smokers
 - ii. Enhances cognitive function
 - iii. Nicotine's reinforcing effects are mediated by activation of the mesolimbic dopamine system
 - iv. Produces wide range of physiological effects
 - v. Chronic exposure to nicotine induces tolerance and dependence
- e. Marijuana and the Cannabinoids:
 - i. Cannabinoid effects are mediated by cannabinoid receptors
 - ii. Endocannabinoids are cannabinoid agonists synthesized by the brain
 - iii. Cannabis consumption produces a dose-dependent state of intoxication in humans
 - iv. Can lead to deficits in cognition and psychomotor performance
 - v. Leads to adverse behavioral and health effects
- f. Hallucinogenic Drugs:
 - i. Produce a complex set of psychological and physiological responses
 - ii. Share a common indoleamine or phenethylamine structure
- g. Inhalants:
 - i. Effects are similar to alcohol intoxication
 - ii. Reduce CNS excitability by acting on specific ionotropic receptor

IV. ALCOHOL

1. HISTORY AND TYPES

- a. History: The production and use of alcoholic beverages date to the earliest periods of human civilization. ***The production of alcoholic beverages is generally thought to be one of the first chemical processes discovered by humans, at least partly because the fermentation of fruit and vegetable matter, a process that results in the production of alcohol, occurs naturally and commonly.*** Today, alcoholic beverages of one kind or another are a part of every human culture. (Rogers, Morgenstern, and Walters, 2003).
- b. Types:
 - i. Gin: is a distilled beverage. It is a combination of alcohol, water, and various flavors. Gin does not improve with age, so it is not stored in wooden casks (World Health Organization, n.d.).
 - ii. Vodka: originally distilled from fermented wheat mash but now also made from a mash of rye, corn, or potatoes (World Health Organization, n.d.).
 - iii. Rum: is a distilled beverage made from fermented molasses or sugarcane juice and is aged for at least three years. Caramel is sometimes used for coloring (World Health Organization, n.d.).
 - iv. Whiskey: is made by distilling fermented juice of cereal grains such as corn, rye or barley casks (World Health Organization, n.d.).
 - v. Tequila: distilled from the fermented juice of the plant Agave tequilana (World Health Organization, n.d.).
 - vi. Brandy: distilled from wine or fermented fruit juices. Brandy is usually aged in oak casks (World Health Organization, n.d.).
 - vii. Liqueurs: are flavored spirits prepared by infusing certain woods, fruits, or flowers, in either water or alcohol and adding sugar and, etc. (World Health Organization, n.d.).
 - viii. Wine & Champagne: is a beverage obtained by full or partial alcoholic fermentation of fresh, crushed grapes or grape juice, with an aging process (Rahman, 2007).
 - ix. Beer: is produced by the fermentation of partially germinated cereal grains, referred to as malt, by yeasts. Beers have a final ethanol content of about 3%-8%. A huge variety of beers exists, and they include: ales, lagers, and stouts. (Rahman, 2007).

- c. Determinants of blood alcohol level
- i. Blood alcohol content is usually expressed as a percentage of alcohol in the blood. California Department of Motor Vehicles states that the BAC percentages are calculated in terms of grams of alcohol per 100 milliliters of blood or grams of alcohol per 210 liters of breath. The alcohol percentages vary depending on several factors such as age, height, and types of alcohol consumption.

2. EFFECTS

c. Effects of alcohol vary depending on the BAC % level. See chart below.

Progressive effects of alcohol		
BAC (% by vol.)	Behavior	Impairment
0.010–0.029	<ul style="list-style-type: none"> ■ Average individual appears normal 	<ul style="list-style-type: none"> ■ Subtle effects that can be detected with special tests
0.030–0.059	<ul style="list-style-type: none"> ■ Mild euphoria ■ Relaxation ■ Joyousness ■ Talkativeness ■ Decreased inhibition 	<ul style="list-style-type: none"> ■ Concentration
0.06–0.09	<ul style="list-style-type: none"> ■ Blunted feelings ■ Disinhibition ■ Extraversion 	<ul style="list-style-type: none"> ■ Reasoning ■ Depth perception ■ Peripheral vision ■ Glare recovery
0.10–0.19	<ul style="list-style-type: none"> ■ Over-expression ■ Emotional swings ■ Anger or sadness ■ Boisterousness 	<ul style="list-style-type: none"> ■ Reflexes ■ Reaction time ■ Gross motor control ■ Staggering

	<ul style="list-style-type: none"> ■ Decreased libido 	<ul style="list-style-type: none"> ■ Slurred speech
0.20–0.29	<ul style="list-style-type: none"> ■ Stupor ■ Loss of understanding ■ Impaired sensations 	<ul style="list-style-type: none"> ■ Severe motor impairment ■ Loss of consciousness ■ Memory blackout
0.30–0.39	<ul style="list-style-type: none"> ■ Severe central nervous system depression ■ Unconsciousness ■ Death is possible 	<ul style="list-style-type: none"> ■ Bladder function ■ Breathing ■ Heart rate
0.40–0.50	<ul style="list-style-type: none"> ■ General lack of behavior ■ Unconsciousness ■ Death is possible 	<ul style="list-style-type: none"> ■ Breathing ■ Heart rate
≥0.50	<ul style="list-style-type: none"> ■ Death 	

3. USES AND ADMINISTRATION

- d. Binge drinking: consumption of alcohol that brings a person's blood alcohol concentration (BAC) to .08 percent or above, which typically happens when a man consumes five or more drinks or a woman consume four or more drinks in about 2 hours.
- e. Alcohol is usually administered orally in its original state or mixed with other bases (such as fruit juice).

4. TOLERANCE, WITHDRAWAL, AND OVERDOSE

- a. Tolerance: Alcohol consumption interferes with many bodily functions and affects behavior. ***Tolerance means that after continued drinking, consumption of a constant amount of alcohol produces a lesser effect or increasing amounts of alcohol are necessary to produce the same effect*** (National Institute on Alcohol Abuse and Alcoholism, 1995).

- b. Withdrawal: Alcohol withdrawal refers to symptoms that may occur when a person has been drinking too much alcohol every day suddenly stops drinking alcohol. Some symptoms include: anxiety, depression, fatigue, irritability, mood swings, headache, insomnia and sweating (PubMed Health, 2011).
- c. Overdose: An overdose of alcohol can cause alcohol poisoning. Alcohol depresses nerves that control involuntary actions such as breathing and the gag reflex. A fatal dose of alcohol will eventually stop these functions (College Drinking Prevention, n.d.).
 - i. Critical Signs and Symptoms of Alcohol Poisoning:
 - ii. Mental confusion, stupor, coma or person cannot be roused, vomiting, seizures, slow breathing, irregular breathing, and hypothermia.

5. DEPENDENCY ISSUES

- a. Dependency on alcohol is progressive. That means that it gets worse over time, and gradually the effects become more serious. **Alcohol dependency is marked by 3 or more of the following criteria in a 12-month period** (as defined by DMS IV) (Office of Alcohol and Drug Education. n.d.).
 - i. **Withdrawal Symptoms**
 - ii. Markedly Increased Tolerance
 - iii. **Unintended Use**
 - iv. Preoccupation with Use
 - v. Diminished time in activities not related to use
 - vi. **Continue use despite negative consequences**

6. PREVENTION AND TREATMENT

- a. Prevention: Reduce or avoid alcohol.
- b. Treatment: **The goal of treatment includes: reducing withdrawal symptoms, prevent complications and therapy to get the individual to stop drinking** (abstinence) (PubMed Health, 2011). There are **2 types of treatments**:
 - i. **Inpatient**: People with moderate to severe symptoms of alcohol withdrawal may need to be treated at a hospital or other facility that treats alcohol withdrawals.
 - ii. **Outpatient**: People who have mild to moderate alcohol withdrawal symptoms, can be treated in an outpatient setting but will need to visit health care provider until symptoms of alcoholism/withdrawals have dissipated.

V. ANTI-ANXIETY AND SEDATIVE HYPNOTICS

1. HISTORY AND TYPES

- a. **History:** *By the 19th century, sedatives, anxiolytics, and hypnotics were created to ameliorate the effects of stress and ease feelings of discomfort, tension, anxiety, and dysphoria.* Agents like ethanol, bromide salts, choral hydrate, and paralydehyde were used. By 1959, anti-anxiety and sedative hypnotics such as benzodiazepine and barbiturates roused to over 3000 different types, of which 50 are currently marketed (Solam and Ahmed, (2011).
- b. Types:
 - i. Sedative: refers to a substance that moderates activity and excitement while inducing a calming effect (Nelson, 2006).
 - ii. **Hypnotic:** *refers to a substance that causes drowsiness and facilitates the onset and maintenance of natural sleep* (Nelson, 2006).
 - iii. Anxiolytic: is applied to a sedative-hypnotic; useful in demonstrating their efficacy in certain psychiatric disorders like generalized anxiety disorder (Nelson, 2006).

2. EFFECTS

- a. **Use of anti-anxiety and sedatives creates a false and temporary feeling of euphoria** which is short-lived bursts of increased energy or an abnormal sense of heightened alertness (Citizens Commission on Human Rights, 2005). These drugs work by influencing the normal functions of the body:
 - iv. Insomnia
 - v. Light-headedness
 - vi. Involuntary movement
 - vii. Anxiety
 - viii. Fatigue and tiredness
 - ix. Nausea/vomiting
 - x. Diarrhea
 - xi. Irritability
 - xii. Dizziness
 - xiii. Weakness
 - xiv. Drowsiness
 - xv. Loss of muscular coordination
 - xvi. Headache
 - xvii. Muscular pain

- b. Long term effects:
 - i. Risk of depressive and suicidal thoughts and feelings
 - ii. Emotional blunting or numbness
 - iii. Mania, hostility, rage, aggressive or impulsive behavior and hallucinations

3. USES AND ADMINISTRATION

- a. **Oral administration is one of the safest methods of delivering sedative drugs.** However, some experience a “hit or miss” because drug absorbent is based on your body’s capacity to absorb the chemicals released into your body. This is also dependent on: body weight, height, gender and/or age (Citizens Commission on Human Rights, 2005).

4. TOLERANCE, WITHDRAWAL, AND OVERDOSE

- a. Tolerance: Physical tolerance can be developed when people become dependent on the drugs. It is the gradual need for greater amounts of the drug to feel the same effects.
- b. Withdrawal: Typical withdrawal symptoms includes: depression, sweating, cramps, nausea, psychotic reactions and seizures (Nursing Pharmacology Information, (n.d.) Adverse effects of an overdose may cause:
 - xviii. Overdose:
 - xix. Drowsiness
 - xx. Impaired judgment
 - xxi. Impaired motor skills
 - xxii. CNS/respiratory depression with high dosage
 - xxiii. Paradoxical excitement
 - xxiv. Pain, Restlessness, Excitement or delirium
 - xxv. Hypersensitivity
 - xxvi. Cardiovascular collapse

5. PREVENTION AND TREATMENT

- a. Prevention: To help prevent problems, follow exact order and dosage from physicians. The biological, psychological and social forces can lead to addiction, therefore, for preventative measure; encourage those who are headed towards addictive behavior to seek help (MD Guidelines, (n.d.)).

- b. Treatment: Treatment requires a longer length of time because withdrawals can last longer (especially in women and elderly). The goal is detoxification first and allow treatment to proceed for up to 12 months; which requires the individual to stay abstinent and focus on changing their behavior (MD Guidelines, (n.d.)).

6. DEPENDENCY ISSUES

- b. Occasionally, an individual who is prescribed one of the sedative, hypnotic and/or anxiolytic medications to assist with anxiety, insomnia, muscle tensions, seizures and alcohol/drug withdrawals, may misuse/abuse it. An individual who develops drug-seeking behavior to the extent that important activities are given up or reduced to obtain the substance can become dependent on the drug (MD Guidelines, (n.d.)).

VI. INHALED SUBSTANCES

1. HISTORY AND TYPES

- a. History: The true history of inhalants dates back to 1400 B.C. with the Greeks using special vapors to enter into a trance. These vapors were believed to be ethylene gas, which can stimulate the nervous system when inhaled. However, it was not until the turn of the 18th century that a young Humphry Davy experimented with nitrous oxide and discovered the mind-altering effects of what is known as “laughing gas”. With this experiment, several other scientists partook in experiencing with chemicals such as ether, chloroform, and glue. Today, many of these are being used as drugs and greatly abused by an array of people for various reasons (Lobo, 2004).
- b. Types: Products that are often used as inhalants are: (National Institute on Drug Abuse, 2011).
 - i. **Volatile Solvents: liquids that vaporize at room temperature**
 - ii. Aerosols: sprays that contain propellants and solvents
 - iii. Gases: found in household or commercial products and used as medical anesthetics
 - iv. Nitrites: a special class of inhalants that are used primarily as sexual enhancers

2. EFFECTS

- a. Lethal Effects: Sniffing highly concentrated amounts of the chemicals in solvents or aerosol sprays can directly induce heart failure and death within minutes of a session repeated inhalation (National Institute on Drug Abuse, 2011).
- b. **Harmful Irreversible Effects: Hearing loss, peripheral neuropathies or limb spasms, central nervous system and bone marrow damage** (National Institute on Drug Abuse, 2011).
- c. **Serious but Potentially Reversible Effects: Liver and kidney damage and blood oxygen depletion.**
- d. HIV/AIDS, Hepatitis, and other Infectious Diseases: Nitrites are used to enhance sexual pleasure and performance; they can be associated with unsafe sexual practices that greatly increase the risk of contracting and spreading infectious diseases (National Institute on Drug Abuse, 2011).

3. USES AND ADMINISTRATION

- a. Inhalants can be breathed in through the nose or mouth in a variety of ways (known as “huffing”), such as sniffing or snorting fumes from a container, spraying aerosols directly into the nose or mouth, or placing an inhalant-soaker rag in the mouth. Users may also inhale fumes from a balloon or a plastic or paper bag that contains inhalant (National Institute on Drug Abuse, 2011).

4. TOLERANCE, WITHDRAWAL, AND OVERDOSE

- a. Tolerance: can develop with regular use of inhalants. This makes it necessary to inhale more and more to get the same effect (MyDr from MIMS, n.d.).
- b. Withdrawal: are not common but some people who are dependent on inhalants and suddenly stop using them may experience some mild withdrawal symptoms which includes, anxiety, depression, loss of appetite, irritation, aggressive behavior, dizziness, tremors and nausea (MyDr from MIMS, n.d.).
- c. Overdose: Compulsive use can cause inhalant intoxication. Exposure to high doses can cause confusion and delirium. Additional symptoms varies from belligerence, apathy, impaired judgment and impaired functioning in work or social situation, nausea and vomiting (National Institute on Drug Abuse, 2011).

5. PREVENTION AND TREATMENT

- a. Prevention: Educate public of health risk regarding use of inhalants. Proper education through networking with various agencies is the key to producing proper training and preventative measures.
- b. Treatment: Treatment is tailored to suit the person’s circumstances and involves several methods that range from: abstinence, harm reduction, counseling, group therapy, detoxification and medication (National Inhalant Prevention Coalition, n.d.). Treatment should focus on understanding the inhalant abuser and their problems and needs and base on the following:
 - i. Networking among the different agencies within the community (i.e. teachers, nurses, childcare workers and counselors and treatment programs)

- ii. Social in nature (i.e. group counseling/therapy and activities)
- iii. Regular check-ups to detect relapses
- iv. Careful evaluation of patient records to identify and monitor progression

6. DEPENDENCY ISSUES

- a. Long-term inhalant abuse can break down myelin, a fatty tissue that surrounds and protects some nerve fibers. When this is damaged, it can lead to muscle spasms and tremors or even permanent difficulty with basic actions. Addiction can occur with repeated use (National Inhalant Prevention Coalition, n.d.).

VII. TOBACCO AND NICOTINE

1. HISTORY AND TYPES

- a. History: Tobacco was first grown in the New World, where it was used almost exclusively for religious ceremonies and other special occasions, such as the signing of treaties and the celebration of important life events. Tobacco was used for these purposes largely because of its mild hallucinatory effects. Europeans who arrived in the New World during the fifteenth century and later were introduced to the product. They began using it for purely recreational purposes (Newton, 2010).
- b. Types: Tobacco is a product obtained from the leaves of plants belonging to the genus *Nicotiana*. When dried and cured, tobacco leaves are used to make a variety of products including cigarettes, cigars, snuff, chewing tobacco, and snus, a moist form of the powder placed under the lips (Newton, 2010).

2. EFFECTS

- a. According to the National Institute on Drug Abuse, nicotine is highly addictive. ***The tar in cigarettes increases a smoker's risk of lung cancer, emphysema, and bronchial disorders.*** The carbon monoxide in smoke increases the chance of cardiovascular diseases.

3. USES AND ADMINISTRATION

- a. Cigarettes and other forms of tobacco, including cigars, pipe tobacco, snuff and chewing tobacco contain the addictive drug nicotine. ***A typical smoker will take 10 puffs on a cigarette over a period of 5 minutes, and a person who smokes 1 1/2 pack daily will get 300 "hits" of nicotine each day.*** Nicotine is readily absorbed into the bloodstream when a tobacco product is chewed, inhaled or smoked (National Institute on Drug Abuse, (2011).

4. TOLERANCE, WITHDRAWAL, AND OVERDOSE

- a. Tolerance: Frequent inhalation of tobacco/nicotine, develops tolerance. Higher doses of tobacco/nicotine are required to produce the same initial effects (initial=first time use). Some of this tolerance is lost overnight, and people who smoke often report that the first cigarette of the day is the strongest or the best (National Institute on Drug Abuse, (2011).
- b. Withdrawal: When an addicted user tries to quit, he/she experiences withdrawal symptoms that include: irritability, attention difficulties, sleep disturbances, increased appetite and powerful cravings for tobacco. Symptoms usually peak within the first few days and may subside within a few weeks (National Institute on Drug Abuse, (2011).
- c. Overdose: Nicotine poisoning results from too much nicotine. ***When an overdose occurs, it may be fatal due to poisoned muscles making it difficult for a person to breathe.*** Acute nicotine poisoning usually occurs in children who accidentally chew on nicotine gum or patches. Some symptoms include: abdominal cramps, agitation, breathing-rapids/stops, coma, confusion, convulsions, drooling, fainting, headaches, high blood pressure, and weakness (Malgamoz, n.d.).

5. PREVENTION AND TREATMENT

- a. Prevention: The only prevention is the cessation (termination) of tobacco use. One must learn to understand how tobacco use adversely affects their health and others around them. However, different modes of recommendation for intervention have emerged. With the help of clinicians and counseling, one can be well informed and learn how to reduce and/or omit the use of tobacco, such as; counseling and behavioral interventions. Additionally, offering social support both within and outside of treatment setting has helped tobacco users quit. On the legislative side, efforts to limit tobacco use, stop tobacco advertising and promotion, and promotion of clean indoor air and taxation has contributed to some preventive measures (Center for Disease Control. (n.d.).
- b. Treatment:
 - i. Medications: Nicotine replacement therapies such as nicotine gum and transdermal nicotine patch are used to relieve withdrawal symptoms. The medication approach generally provides users with lower overall nicotine levels.

- ii. Behavioral: Behavioral interventions play a major role smoking cessation (in conjunction with medication). Methods such as self-help materials and individual cognitive-behavioral therapy, teaches individuals to recognize high-risk smoking situations and help them develop coping and managing strategies to improve problem-solving skills; all while increasing their social support (National Institute on Drug Abuse, (2011)).

6. DEPENDENCY ISSUES

- a. Long-term use of nicotine frequently leads to addiction. The way that nicotine is absorbed and metabolized by the body enhances its addictive potential. Nicotine affects the entire body and directly affects the heart including changes in heart rate and blood pressure. It also affects the nerves that control respiration (which changes breathing patterns). While nicotine provides individuals with temporary "highs", the long term affects results in various cancers of the body (NIDA for Teens. (n.d)).

VIII. PSYCHOMOTOR STIMULANTS

1. HISTORY AND TYPES

- a. History: The history of stimulant dates back to old Chinese herbs that had central-stimulating properties used to treat asthma and nasal congestion. Stimulants like amphetamine were used extensively by army troops during World War II as energy tablets to combat fatigue, sleepiness and to improve endurance. However, the chemical structures of these various stimulants have been altered to not only enhance medical cures, but it has been used for recreational purposes as well. (Pfeiffer and Smythies, 1970).
- b. Types: **Stimulants are a class of drugs that elevate mood, increase feelings of well-being and increase energy and alertness.** Some examples include cocaine, amphetamine, methamphetamine, methylphenidate, nicotine and MDMA (Ecstasy) (NIDA for Teens. (n.d.).
 - i. Cocaine comes in a powder which is a hydrochloride salt made from the leaf of the coca plant. Crack is a smokeable form of cocaine that is processed with ammonia or baking soda and water and heated to remove the hydrochloride (NIDA for Teens. (n.d.).
 - ii. **Methamphetamine is a powerful stimulant, originally derived from amphetamine. It comes in clear crystals or powder and easily dissolves in water or alcohol.** Although most of the methamphetamine used in the United States comes from “superlabs,” it is also made in small laboratories using inexpensive over-the-counter and often toxic ingredients (such as drain cleaner, battery acid, and antifreeze) (NIDA for Teens. (n.d.).
 - iii. Amphetamines, such as Adderall, are stimulants that often come in pill form and are sometimes prescribed by doctors for medical problems, most commonly attention deficit hyperactivity disorder (ADHD). Amphetamines can also be abused—that is, used in a way other than as prescribed (e.g., crushed and snorted) or used by someone without a prescription. Methylphenidate, such as Concerta or Ritalin, is another medication prescribed for people with ADHD. As seen with amphetamines, including Adderall, numerous studies have shown its effectiveness when used as prescribed. When it is abused, however, methylphenidate can lead to many of the same problems seen with other stimulants (NIDA for Teens. (n.d.).

2. EFFECTS

- a. **All stimulants work by increasing dopamine levels in the brain.** Stimulants can increase blood pressure, heart rate, body temperature and decrease sleep and appetite; which in turn can lead to malnutrition. Repeated use of stimulants can lead to feelings of hostility and paranoia (NIDA for Teens. (n.d.))

3. USES AND ADMINISTRATION

- a. Use: Stimulant medications are often used to treat individuals diagnosed with attention deficit hyperactivity disorder. However, it has been used for both “performance enhancement” and recreational purposes (NIDA for Teens. (n.d.)).
- b. Administration: Administration of most stimulants for recreational purposes includes:
 - i. Swallowed in pill form.
 - ii. Snorted in powder form through the nostrils, where the drug is absorbed into the bloodstream through the nasal tissues.
 - iii. Injected, using a needle and syringe, to release the drug directly into a vein.
 - iv. Heated in crystal form and smoked (inhaled into the lungs).

4. TOLERANCE, WITHDRAWAL, AND OVERDOSE

- a. Tolerance: **Repeated use of such stimulants like cocaine can lead to tolerance of its euphoric effects, causing the individual to take greater amounts to get the same effects as their initial use** (NIDA for Teens. (n.d.)).
- b. Withdrawal: Symptoms include:
 - i. Fatigue
 - ii. Depression
 - iii. Disturbed sleep patterns
- c. Overdose: Overuse of a stimulant can cause sudden death. However, most people who overuse a stimulant will experience heart problems, strokes, hyperthermia and convulsions, which may result in death if not treated immediately.

5. PREVENTION AND TREATMENT

- a. Prevention: Relapse prevention in stimulant abuse resembles the post-withdrawal treatment of several other forms of substance abuse prevention programs.
- b. Treatment: ***The uses of behavioral therapies are effective in treating addiction to psychomotor stimulants.*** They are designed to help the person change their thinking and expectations and behaviors. Additionally, it teaches them coping mechanisms to deal with the stressors (NIDA for Teens. (n.d.).

6. DEPENDENCY ISSUES:

- a. Long-term use of these stimulants can cause addiction. This means that the individual repeatedly seeks out and uses the drug regardless of its harmful effects.

IX. OPIOIDS

1. HISTORY AND TYPES

- a. History: Opium, the sap of the seedpod of *Papaver Somniferum*, was found as early as 3000 BC and later spread from its origins in Turkey to Islam to India to China to Europe and America. In 1644, the Chinese emperor banned tobacco smoking, which resulted in the use of opium. During the British control of opium production in India in the 1800s, several Opium Wars (1841, 1856-58, 1860) occurred. Americans later experience opium during the Civil war, where opium was used to aid diseases and wounds (which was still used as treatment till the mid-1950s for depression and anxiety). By 1914, the Harrison Narcotics Act regulated and taxed the production, importation and distribution of opiates. By 1924, the government banned the non-medical use of opioids (such as heroin) and in 1970, banned the medical use of opioids, as well (Kipnis and Davidoff, (n.d.).
- b. Types of Opioids:
 - i. Codeine: is a pain medication that is taken by mouth. It is short-acting, meaning it lasts only for a few hours per dose. Codeine is often combined with acetaminophen, though it may also be administered with aspirin (Jacques, 2009).
 - ii. Oxycodone: is available in both a short-acting and long-acting pain medication form. It may be taken on its own, or it may be combined with other analgesics such as aspirin or acetaminophen (Jacques, 2009).
 - iii. Fentanyl: is available as a short-acting pain medication in lollipop form, and it may be used for the management of breakthrough pain. A long-acting patch form is also available, which can be effective for up to 72 hours (Jacques, 2009).
 - iv. Hydrocodone: like codeine and oxycodone, may be combined with other analgesics such as aspirin or acetaminophen. It is a short-acting pain medication and is very similar to codeine (Jacques, 2009).
 - v. Hydromorphone: is a short-acting opioid that is known to take effect quickly. It may be used in oral form though injection and suppository forms are also available (Jacques, 2009).
 - vi. Hydromorphone is sometimes used in place of morphine (Jacques, 2009).
 - vii. **Morphine: is one of the most effective opioids** -- and also potentially one of the strongest. **Though available in a quick-release lozenge**

form, it is most often injected by a healthcare professional at a hospital or clinic (Jacques, 2009).

- viii. Methadone: Though it is commonly used as a weaning drug for some opioids or heroin, methadone is also useful in the management of control chronic pain. It is usually effective for about four to six hours at a time (Jacques, 2009).
- ix. Oxymorphone: is available in short-acting forms, either through injection or a suppository. A long-acting form is also available that is effective for up to twelve hours. Oxymorphone is sometimes used in place of morphine (Jacques, 2009).
- x. Pentazocine: is similar to codeine and is a short-acting opioid. It is rarely used in its strongest form due to its tendency to cause confusion and anxiety, especially in seniors (Jacques, 2009).

2. EFFECTS

- a. According Adverse Effects' Positive Articles (n.d.), adverse effects of opioids on health may cause the following:
 - i. Nausea: Exposure to opioids can cause an individual to experience nausea with or without vomiting. Opioids particularly affect the brain and gastrointestinal track that causes nausea.
 - ii. Vomiting: Opioids affect the part of the brain that controls vomiting. This is mainly due to the gastric stasis (large volume vomiting, brief nausea relieved by vomiting, esophageal reflux, epigastric fullness, and early satiation)
 - iii. Drowsiness: Opioids use is marked by events of drowsiness or sedation. Few opioid medications like morphine and diacetylmorphine (heroin) can cause strong drowsiness or sedation.
 - iv. Itching: Opioids use can also result in causing itching as it releases histamines in the body. The person may experience itching as opioids bind with receptors in brain and spinal cord.
 - v. Constipation: it is primarily the result of opioid effects on the Central Nervous System, spinal cord and myenteric plexus of gut that, in turn; reduce gut motor activity and increase stool transit time. (The colon has more time to desiccate its contents, leaving hard stools that are difficult to pass)
 - vi. Respiratory Depression: (also known as hypoventilation) **is the most severe reaction associated with opioid use**. This occurs when airflow might be inadequate to execute required gas exchange (oxygen).

- vii. Hyperalgesia: consequences of long-term treatment with opioid analgesics, especially when increasing tolerance has resulted in loss of efficacy and consequent progressive dose of escalation over time.

3. USES AND ADMINISTRATION

- a. Opioids are a type of analgesic, or medication used to control pain sensations. Opioids work by attaching to certain receptors in the nervous system and changing the way the brain perceives and interprets pain (Jacques, 2009).
- b. Administration of Opioids:
According to Jacques (2009)
 - i. Intravenously: Small doses of opioids, often via a pain pump, to provide short-term pain relief. Opioids are commonly used after major surgeries, such as a hip replacement or spine surgery.
 - ii. Orally: Opioids may be taken by mouth in pill form or as a liquid, which is how most chronic pain medications are delivered. Oral opioids may be formulated to provide short-term or long-term pain relief, for a few or several hours respectively.
 - iii. **Topically: Opioids may be applied to the skin in patch form**, which slowly dispenses a dose of pain medication through the skin. Used for long-term pain relief, patches may be effective for a few days at a time.
 - iv. Via Suppository: More often used for cancer pain than for other types of chronic pain, opioid suppositories release slow amounts of the analgesic over a time period of up to twelve hours.

4. TOLERANCE, WITHDRAWAL, AND OVERDOSE

- a. Tolerance: is the process whereby neuroadaptation occurs (through receptor desensitization) resulting in reduced drug effects. **Tolerance occurs quickly to the effects on mood, itching, urinary retention, and respiratory depression but occurs more slowly to the analgesia and other physical side effects** (Havsy, n.d.).
- b. Withdrawal: When you stop taking painkillers abruptly, your body can go into withdrawal. The speed and severity of withdrawal depend on the half-life of the opiate; heroin and morphine withdrawal occur more quickly and are more severe than methadone withdrawal, but methadone withdrawal takes longer. The acute withdrawal phase is often followed by a protracted phase

of depression and insomnia that can last for months. According to Havsy (n.d.), some of the typical withdrawal symptoms from opioids include:

- i. Anxiety
 - ii. Increased heart rate, breathing rate, and blood pressure
 - iii. Profuse sweating
 - iv. Nausea, vomiting, abdominal cramps and diarrhea
 - v. Insomnia
 - vi. Dilated pupils
 - vii. Muscle aches and pains
- c. Overdose: According to Kipnis and Davidoff, (n.d.), overdose is due to excessive use of opioids. Some of the symptoms and signs include:
- i. Miosis (small pupils; except with Demerol use which causes paralysis of the ciliary body and pupils dilate)
 - ii. Nodding
 - iii. Hypotension
 - iv. Depressed respiration
 - v. Bradycardia (slow heart rhythm)
 - vi. Euphoria
 - vii. Floating feeling
 - viii. Classic triad seen in overdose:
 1. Miosis
 2. Coma
 3. Respiratory Depression
 4. Pulmonary edema
 5. Seizures

5. PREVENTION AND TREATMENT

- a. Prevention: Involves management of opioid dependence, while the primary interest is still the cure of these diseases (long-term stable abstinence from all opioids). Stable abstinence is achieved in two phases: a detoxification phase, in which the patient has to reduce and finally stop the consumption of all opioids; and a phase of relapse prevention, in which abstinence must be maintained (Wim van Den, Goppel, and M. van Ree, 2003).
- b. Treatment: Treatment for opioid users is mostly conducted in outpatient settings, which can include specialist centers, general practitioners' surgeries, and low-threshold facilities. Opioid substitution treatment, combined with psychosocial interventions, was found to be the most effective treatment option for opioid users (Wim Van Den, Goppel, and M. Van Ree, 2003).

6. DEPENDENCY ISSUES:

Opiate addiction is recognized as a central nervous system disorder, caused by continuous opiate intake. It can develop with ongoing administration, leading to a withdrawal syndrome with abrupt discontinuation (Waismann Method, (n.d.).

X. CANNABINOIDS

1. HISTORY AND TYPES

- a. History: As early as 5,000 years ago Cannabis was noted for its effects on the central nervous system. Evidence suggested that the medicinal use of Cannabis goes back to the Chinese emperor Chen Nung, who was the father of Chinese agriculture. Medicinal Cannabis preparation was widely used in Western medicine during the 19th century (FreedomIsGreen.com, (n.d.)). They were often used for pain relief, appetite stimulation and sedation.
- b. Types: Provided by The Health Center (n.d.), listed are the types of cannabiniods.
 - i. Cannabinoids: Are groups of chemical compounds present in the cannabis plant that affect body and mind through their interaction with special receptors. ***These cannabinoid receptors are found extensively throughout the immune, digestive, reproductive, central and peripheral nervous systems of humans (and animals), and their activation is what leads to the medicinal effects of cannabis.***
 - ii. ***THC is the most well-known cannabiniod (seen in marijuana) and the most psychoactive, which means it has the ability to affect behavior, mood, perception, and consciousness.*** THC is responsible for the euphoric feeling some people consider as being “high” as well mild painkilling effects and appetite stimulation.
 - iii. THCA is an acidic form of THC. This compound cannot cross into the brain and is not psychoactive. The application of heat breaks down THCA to the usable THC. It is believed THCA has systemic anti-inflammatory properties.
 - iv. CBN (Cannabinol) is somewhat psychoactive of roughly 10% the activity of THC. CBN is a breakdown product when THC is exposed to light and/ or heat.
 - v. CBD (Cannabidiol) is not psychoactive; studies have shown it to have anti-inflammatory, anti-anxiety, anti-nausea, neuro-protective, blood pressure lowering, and pain-killing properties, among many others.
 - vi. CBDA is an acidic form of CBD. It can be converted to CBD with the application of heat.

2. EFFECTS: ACCORDING TO MECHOULAM (2002), THE ADVERSE EFFECTS INCLUDES:

- a. Impairment of short-term memory
- b. Impairment of attention, judgment and other cognitive functions
- c. Loss of coordination and balance

3. USES AND ADMINISTRATION

- a. Uses: Although THC exerts pharmacological effects on numerous systems in the mammalian body; the primary interest has been in its effects on the central nervous system (CNS). Some of the most notable actions include motor depression, hypothermia, analgesia, and catalepsy; however, initially (or at low doses) the effect be stimulatory (euphoria and sedation) (Drug Info. *Cannabis Facts*, (n.d.)).
- b. Administration: Cannabinoids can be administered by smoking, vaporizing, oral ingestion, transdermal patch, intravenous injection, sublingual absorption, or rectal suppository (Drug Info. *Cannabis Facts*, (n.d.)).

4. TOLERANCE, WITHDRAWAL, AND OVERDOSE

- a. Tolerance: Tolerance with marijuana use does not occur often as many other drugs; however, it can become a problem with chronic overuse. Development of tolerance would usually take an individual to consume larger amounts to get the same effect (Drug Info. *Cannabis Facts*, (n.d.)).
- b. Withdrawal: If a dependent person stops taking cannabis, they may experience withdrawal symptoms because their body has to get used to functioning without it. Most experience withdrawal symptoms for less than a week, although their sleep may be affected for longer. Some symptoms include:
 - vii. Irritability
 - viii. Sleeping difficulties
 - ix. Anxiety
 - x. Craving
 - xi. Loss of appetite and weight loss
- c. Overdose: An overdose can occur when a person takes too much of the drug, which is often due to the inhibited reasoning that drugs like marijuana can bring. In All About Counseling. (n.d.), symptoms can include:

- i. Feelings of paranoia or fear
- ii. Nausea and vomiting
- iii. An increased heart rates
- iv. Hallucination and disorientation

5. PREVENTION AND TREATMENT

- a. Prevention: According to Addictions and Recovery (n.d.), **professionals will need to help the individuals to recognize and avoid high-risk situations that may cause the individual to think about using. Common high-risk situations include:**
 - xii. **Hungry**
 - xiii. **Angry**
 - xiv. **Lonely**
 - xv. **Tired**
- c. Treatment: Behavioral interventions, including cognitive-behavioral therapy and motivational incentives have shown efficacy in treating marijuana dependence.

6. DEPENDENCY ISSUES

- d. According to All About Counseling (n.d.), **the use of cannabinoids is not addictive or cause dependency**, but it is based on three variables that affects dependency: drug, set and setting. The use and abuse of substance like marijuana is a function of behavior interrelated to psychological and environmental factors that cause dependency behavior.

XI. HALLUCINOGENS

1. HISTORY AND TYPES

- a. History: According to NIDA (n.d.), the use of hallucinogens is not new to society. Like many substances from the past, they were used in cultural and religious contexts. In the late 1930s, Europe took a great interest in using LSD for therapeutic purposes; which in 1974, the National Institute of Mental Health concluded that LSD had no therapeutic use as research and experimentation led to identified hallucinogenic properties that were detrimental to the human body. However, the use of hallucinogens for recreational purposes was at its peak in the 1960s and referred to as psychedelic drugs. By the 1980s and early 1990s, hallucinogens popularity appeared to decline as new drugs like cocaine and methamphetamine emerged. But, in the mid to late 1990s, the club scene ignited a rebirth of the use of hallucinogenic drugs. Today, young adults ages 18-25 are most likely to use hallucinogenic drugs which may result in personal-temporary gratification and high. However, the risks are neurotoxic and can leave users with permanently impaired judgment (LAPD Drug Recognition Expert Unit, 1997).
- b. Types: Hallucinogens are drugs that cause hallucinations-profound distortions in a person's perceptions of reality.
 - i. LSD (lysergic): **is the drug commonly identified with the term "hallucinogen" and the most widely used in this class of drugs.** It is manufactured from lysergic acid, which is found in ergot, a fungus that grows on rye and other grains. (Street names: acid, trips, tabs, microdots, and dots)
 - ii. Peyote: is a small, spineless cactus in which the principal active ingredient is mescaline. Mescaline can also be produced through chemical synthesis. (street names: cactus, cactus buttons, cactus joint, mesc and mescal)
 - iii. Psilocybin (4-phophoryloxy-N, N-dimethyltryptamine): is obtained from certain types of mushrooms that are indigenous to tropical, and subtropical regions of South American, Mexico, and the U.S. These mushrooms contains less than .5% psilocybin plus trace amounts of psilocin-another hallucinogenic substance. (Street names: shrooms, mushies, magic, golden tops, blue meanies and liberty caps)
 - iv. **PCP (phencyclidine): Developed as an intravenous anesthetic.** (Street names: angel dust, ozone, wack and rocket fuel)

2. EFFECTS

- a. LSD, peyote, psilocybin, and PCP are drugs that cause hallucinations, which distorts a person's perception of reality. The adverse effects are:
 - i. Seeing images
 - ii. Hearing sounds
 - iii. Feeling sensation that are not real
- b. Each type of hallucinogens has different effects:
 - i. LSD: Feeling several different emotions at once or swing rapidly from one emotion to another. The user's sense of time and self is altered. Experiences may seem to cross over different senses such as:
 1. Giving the user the feeling of hearing colors and seeing sounds. These changes can be frightening and can cause panic. Some user experience severe, terrifying thoughts and feelings of despair, fear of losing control, fear of insanity, and death while using LSD (NIDA, n.d.).
 2. Flashbacks or recurrences of certain aspects of the drug experience can occur through various points in time (day, months or years).
 - ii. Peyote: Long-term residual psychological and cognitive effects of mescaline are still not understood. However, most experience flashbacks.
 - iii. Psilocybin: Similar to LSD effects: alterations of autonomic function, motor reflexes, behavior, and perception. The consequences of using Psilocybin is the psychological effects it has on the alteration of perception of time and an inability to discern fantasy from reality. Panic reactions and psychosis may occur. Long-term effects include flashbacks, risk of psychiatric illness, and impaired memory (NIDA, n.d.).
 - iv. PCP: Use of PCP causes agitation, delusions, and irritations. PCP is a dissociative drug meaning that it distorts perceptions of sight and sound and produces feelings of detachment from the environment and self. Symptoms mimic schizophrenia and cause mood disturbances (NIDA, n.d.).
- c. The immediate effects can last up to 12 hours. However, some users will experience "bad trips" which the effects of the hallucinogens results in a negative experience. Those who experience a "bad-trip" will feel:
 - i. Extreme anxiety or fear
 - ii. Frightening hallucinations
 - iii. Panic, leading to taking risks
 - iv. Feelings of "losing control" or "going mad"

- v. Paranoia
- vi. Suicide or violence

3. USES AND ADMINISTRATION

- a. LSD is sold in tablets, capsules, and, occasionally, liquid form; thus, it is usually taken orally. LSD is often added to absorbent paper, which is then divided into decorated pieces, each equivalent to one dose. The experiences, often referred to as “trips,” are long; typically, they end after about 12 hours (NIDA, n.d.).
- b. Peyote. The top of the peyote cactus, also referred to as the crown, consists of disc-shaped buttons that are cut from the roots and dried. These buttons are generally chewed or soaked in water to produce an intoxicating liquid. The hallucinogenic dose of mescaline is about 0.3 to 0.5 grams, and its effects last about 12 hours. Because the extract is so bitter, some individuals prefer to prepare a tea by boiling the cacti for several hours (NIDA, n.d.).
- c. Psilocybin. Mushrooms containing psilocybin are available fresh or dried and are typically taken orally. Psilocybin (4-phosphoryloxy-N, N-dimethyltryptamine) and its biologically active form, psilocin (4-hydroxy-N, N-dimethyltryptamine), cannot be inactivated by cooking or freezing preparations. Thus, they may also be brewed as a tea or added to other foods to mask their bitter flavor. The effects of psilocybin, which appear within 20 minutes of ingestion, last approximately 6 hours (NIDA, n.d.).
- d. PCP is a white crystalline powder that is readily soluble in water or alcohol. It has a distinctive bitter chemical taste. PCP can be mixed easily with dyes and is often sold on the illicit drug market in a variety of tablet, capsule, and colored powder forms that are normally snorted, smoked, or orally ingested. For smoking, PCP is often applied to a leafy material such as mint, parsley, oregano, or marijuana. Depending upon how much and by what route PCP is taken, its effects can last approximately 4–6 hours (NIDA, n.d.).

4. TOLERANCE, WITHDRAWAL, AND OVERDOSE

- a. Tolerance: Any individual using hallucinogens can develop tolerance to it. It will require them to take large amounts of the drug to have the same effects as their initial experience. After prolonged use, hallucinogens can become addicting. However, it goes away when the individual stop using the drug regularly (NSW Health, 2011).

- b. Withdrawal: If a person who is dependent on hallucinogens and stop taking them, they may experience withdrawal symptoms because their body has to get used to functioning without the drugs. There is an array of withdrawal symptoms that includes:
 - i. Flashbacks
 - ii. Muscle spasms
 - iii. Loss of coordination
 - iv. Zombie like state
 - v. Hypertension
 - vi. Tachycardia
 - vii. Fear of going insane
 - viii. Depression
 - v. Frank Psychosis
- c. Overdose: high doses of hallucinogens can increase the immediate negative effects. And overdose occurs when the user has taken more hallucinogen than their body can cope with. According to Youth on Drugs (n.d.), other issues such as; knowing the purity or strength of the hallucinogen increases the risk of an overdose. Symptoms of hallucinogen overdose includes:
 - i. Longer, more intense trip
 - ii. Psychosis
 - iii. Muscle spasms and seizures
 - iv. Loss of coordination
 - v. Convulsions
 - vi. Nausea, vomiting, diarrhea
 - vii. Catatonic syndrome
 - viii. Heart/lung failure
 - ix. Ruptured blood vessels in the brain
 - x. Coma
 - xi. Death

5. PREVENTION AND TREATMENT

- a. Prevention: One of the best ways to prevent use of hallucinogens is through education. Through education, many people can recognize the dangerousness of drug use. If it's too late for prevention, there are relapse prevention programs to help ex-users stay off of drugs (Recovery Connection, n.d.).
- b. Treatment: There is no set protocol for hallucinogens, but there are medications to help calm the body and mind during withdrawal and psychological shifts from the absence of the drug. There are also treatment

therapies that use cognitive therapy to help users alter their thinking (Recovery Connection, n.d.).

6. DEPENDENCY ISSUES:

- a. ***People who are psychologically dependent on hallucinogens may find the urge to use it when they are in specific surroundings such as, socialization with friends.*** There is a small risk of physical dependence from hallucinogens.

XII. OTHER DRUGS OF ABUSE

1. ANABOLIC STEROIDS:

- a. Most anabolic steroids are synthetic substances similar to the male sex hormone testosterone.
- b. Taken orally or injected.
- c. **Abuse of anabolic steroids can lead to health problems that may be irreversible.** NIDA (n.d.) states that the major effects include:
 - i. **Liver damage, jaundice,** fluid retention, high blood pressure and increases in bad cholesterol.
 - ii. In Male: Shrinking of testicles, baldness, breast development and infertility
 - iii. In Females: Growth of facial hair, menstrual changes, male-pattern baldness and deepened voice.

2. OVER-THE-COUNTER (OTC) SUBSTANCES

- a. OTC drugs are medications that can be purchased at a pharmacy, grocery or convenience store without a prescription to treat the symptoms of common colds or pains.
- b. Overdoses from OTC medications can occur. All drugs, including OTC medications can change the body's function and chemistry from its natural state and can be harmful if it's not taken as directed (Above the Influence, n.d.).

3. HERBAL SUBSTANCES

- a. Common drugs of abuse such as; **cannabis, opioids and cocaine are popular herbal drugs that have been offered for centuries.** Currently, more drug users are utilizing and abusing new herbal drugs. These new herbal drugs are falsely propagated as safe and legal. However, abuse of any substance is just as dangerous as the ones that have been identified as illegal (Beyer, n.d). The common abused herbal drugs are:
 - i. Nightshades: Is an edible and poisonous plant. The extraction or release after ingestion blocks receptors and causes symptoms of: tachycardia, dilated pupils, decreased gastrointestinal motility, dry hot skin, and dry

mouth due to decreases sweat and saliva production. The effects of this drug to the body causes agitation, disorientation and hallucinations (Beyer, n.d).

- ii. Ayahuasca: Is a psychoactive beverage. This plant contains dimethyltryptamine (DMT) which is a potent short-acting hallucinogenic agent but is not active following ingestions of high doses (Beyer, J. (n.d).
- iii. Morning Glory & Lysergic Acid Amide: is a common name for over 1,000 species of plants that have hallucinogenic properties. The fresh or dried seeds are ground, mixed with water and ingested orally (Beyer, n.d).
- iv. Ephedra & Khat: The main active ingredients of these plants are the alkaloids ephedrine and pseudoephedrine. These compounds are potent CNS stimulants and also have sympathomimetic effects on the peripheral nervous system (Beyer, n.d).
- v. Nutmeg: Are the seeds of the evergreen tropical tree *Myristica fragrans*. Seeds are covered by a net like red aril, which is used to produce mace. The seeds are psychoactive when given in high doses (Beyer, n.d).
- vi. *Salvia Divinorum*: is a psychoactive herbaceous plant native to the Mazatec. Its effects are similar to magic mushrooms (Beyer, n.d).
- vii. Kava: Is used to treat anxiety but in large doses, Kava can cause acute liver failure (Beyer, n.d).

4. CLUB DRUGS

- a. Club drugs are a pharmacologically heterogeneous group of psychoactive drugs that tend to be abused by teens and young adults at bars, nightclubs, concerts and parties (NIDA, n.d.).
- b. These drugs includes:
 - i. GHB (Xyrem) is a CNS depressant used to medically treat narcolepsy.
 - 1. **Abuse of GHB can cause coma and seizures.**
 - ii. Rohypnol (flunitrazepam) is a sedative-hypnotic drug.
 - 2. **Causes amnesia and incapacitate users.**
 - iii. Ketamine is a dissociative anesthetic, mostly used in veterinary practice.
 - 3. Distorts perception and produces feelings of detachment from the environment and self.
- c. Repeated use of GHB, Rohypnol and Ketamine may lead to withdrawals:
 - i. Insomnia, anxiety, tremors, and sweating.

Other club drugs include: MDMA (ecstasy), methamphetamine, and LSD.

- iv. Ecstasy is a synthetic drug that has stimulant and psychoactive properties. This drug is usually taken by mouth in a pill, tablet or capsule.

1. Short-term effects include feelings of mental stimulation, emotional warmth, enhanced sensory perception, and increased physical energy. The adverse health effects include nausea, chills, sweating, teeth clenching, muscle cramping, and blurred vision (NIDA, n.d.).
- v. Methamphetamine is an addictive stimulant that is long lasting and toxic to dopamine nerve terminal in the CNS. It is a white, odorless, bitter-tasting powder taken orally or by snorting or injecting, or a rock "crystal" that is heated and smoked.
 1. Short term effects includes an increase in wakefulness and physical activity, produces rapid heart rate, irregular heartbeat, and increased blood pressure and body temperature. The adverse effects include mood disturbances, violent behavior, anxiety, confusion, insomnia and severe dental problems (NIDA, n.d.).
- vi. LSD is a hallucinogen that distorts perceptions of reality and produce hallucinations. This drug can be taken by mouth orally in the form of tablets, capsules, liquid or absorbent paper.
 1. LSD produces unpredictable psychological effects, with "trips" lasting about 12 hours. Physical effects include increased body temperature, heart rate, and blood pressure, sleeplessness and loss of appetite (NIDA, n.d.).

5. OTHER PRESCRIPTION DRUGS OF INTEREST

- a. Prescription drug abuse means taking a prescription medication that is not legally prescribed and/or taking it for reasons or in dosages other than as prescribed.
- b. Abuse of prescription drugs such as hydrocodone (Vicodin), oxycodone (OxtContin) and meperidine (Demerol) can produce serious health effects that may result in addiction (NIDA, n.d.). There are 3 classes of prescription medications that are commonly abused:
 - i. Opioids
 - ii. CNS depressants
 - iii. Stimulants
- c. Long-term effects vary depending on type of prescription drugs used. Any drugs taken repeatedly or in high doses, stimulants can cause anxiety, paranoia, dangerously high body temperatures, irregular heartbeats and/or seizures (NIDA, n.d.).

XIII. ANTIPSYCHOTIC DRUGS

1. HISTORY AND TYPES

- a. History: The first series of antipsychotic medications were introduced in the 1950s. They were used to help patients with psychosis to lead a more normal and fulfilling life by alleviating symptoms of hallucinations, visual and auditory and paranoid thoughts. The first series of antipsychotic medications had many side effects that include; muscle stiffness, tremor, and abnormal movements. This led to additional research to find better drugs to treat individuals with psychosis and schizophrenia. In 1990s, a new series of antipsychotic drugs (which were referred to as “atypical antipsychotics”) emerged with fewer side effects. However, not all antipsychotic medications can cure the illness but they can make the symptoms milder and shorten episodes of illness as well (Medicine.Net, n.d).
- b. Types:
 - i. **Clozapine (Clozaril) is used to treat individuals with treatment-resistant schizophrenia** (not responding to other drugs). The side effects is a blood disorder called agranulocytosis (loss of white blood cells that fight infections) (Medicine.Net, n.d).
 - ii. Risperidone (Risperdal) is used to interfere communication among the brain’s nerves. The side effects are sudden-jerky and involuntary motions of the head, neck, arms, body or eyes, dizziness, hyperactivity, tiredness, abdominal pain, fatigue, fever, and nausea (Medicine.Net, n.d).
 - iii. Aripiprazole (Abilify) is used to treat psychoses. It helps block several receptors on the nerve of the brain for several neurotransmitters which is a chemical that nerves use to communicate with each other (dopamine and serotonin receptors). The side effects include anxiety, blurred vision, constipation, cough, headache, insomnia, lightheadedness, nausea, rash, restlessness, runny nose, sleepiness, tremors, vomiting, weakness and weight gain (Medicine.Net, n.d).
 - iv. Olanzapine (Zyprexa) is used to treat schizophrenia and acute manic episodes associated with bipolar 1 disorder. It helps block receptors for several neurotransmitters in the brain. The side effects include akathisia (an inability to sit still), constipation, dizziness, drowsiness, insomnia, dry mouth, orthostatic hypotension, tremor and weight gain (Medicine.Net, n.d).

- v. Quetiapine (Seroquel) is an oral antipsychotic drug used for treating schizophrenia and bipolar disorder. It inhibits communication between the nerves of the brain. The side effects include headache, agitation, dizziness, drowsiness, weight gain and stomach upset (Medicine.Net, n.d).
- vi. Ziprasidone (Geodon) is an oral and injectable drug that is used for treating psychoses. Its beneficial effect of ziprasidone, which blocks dopamine and serotonin receptors. The side effects includes feeling unusually tired, nausea, constipation, dizziness, restlessness, diarrhea, rash, and an abnormal muscle movement including tremor, shuffling and uncontrollable movements (Medicine.Net, n.d).

2. EFFECTS:

- a. Majority of antipsychotic drugs affect neurotransmitters that allow communication between nerve cells. Dopamine is found to be most relevant to schizophrenia symptoms. Antipsychotic drugs are geared to interfere with dopamine, which causes some blockage of psychosis and schizophrenia symptoms. See "Types" above in section A- (b: i-vi) for specific drug effects.
- b. Most side effects of antipsychotic medications are mild and are common within the first few weeks but will disappear. They include:
 - i. Drowsiness
 - ii. Rapid heartbeat
 - iii. Dizziness
 - iv. Weight gain
 - v. Decrease in sexual ability or interest
 - vi. Problems with menstrual periods
 - vii. Sunburn
 - viii. Skin rashes

3. USES AND ADMINISTRATION

- a. Uses: Dependent on types of antipsychotic medication, some are very potent and doctors may prescribe lower dosage, while some that are not as potent will be prescribed a higher dosage.
- b. Administration: Some antipsychotic medications are taken once a day or 2 times a day to help reduce side effects in tablet, pills or capsule forms. Other antipsychotic medications are available in "depot" forms that can be injected once or twice a month.

XIV. ANTIDEPRESSANTS AND MOOD STABILIZERS

1. HISTORY AND TYPES

a. History:

- i. Antidepressants: The first antidepressant was discovered by accident in the 1950s. Scientists at Munsterlingen asylum in Switzerland sought treatment for schizophrenia and discovered a drug that could change the balance of the brain's neurotransmitters (neurotransmitters are chemicals that control mood, pain, and sensations). This discovery did not help schizophrenics because it made their symptoms worse, however; they soon realized that the medication was ideal for their patients with depression. By 1955, patients who were using these antidepressant pills called imipramine, which was marketed as Tofranil, found themselves to be more sociable and energetic. This discovery led other drug companies to develop new antidepressant drugs while at its early ages; the drugs produced only provided 60% to 80% relief for patients and also caused serious side effects. The eagerness to produce better pills led scientist to develop new pills that targeted a new class of antidepressants. Prozac, Zoloft, and Paxil became the leading antidepressant medications in the later 1980s and early 1990s (Fitzpatrick, 2010).
- ii. Mood Stabilizers: ***The first mood stabilizer that was discovered in 1817 was Lithium when doctors were using it to treat gout.*** It was not until 1970 that lithium was approved by the Food and Drug Administration. For the first 50 years, lithium was used to treat people who were manic-depressive (Purse, 2010).

b. Types:

- i. Antidepressants: According to the Antidepressants and Mood Stabilizing lecture (n.d.), there are four classes of drugs used for treatment of unipolar depression (Unipolar-depressive)
 1. Tricyclic antidepressant (TCAs): Imipramine, Amitriptyline, Doxepine, Despiramine, and Nortriptyline: are well absorbed after oral administration and are highly protein bound in the plasma. TCAs are used to treat panic attacks.
 2. Heterocyclic antidepressants: Amoxapine, Maprotiline, Trazodone, Bupropion, Venlafaxine, Mirtazapine and Duloxetine: are similar to tricyclics and requires administration several times a day.

3. Selective serotonin reuptake inhibitors (SSRIs): Fluoxetine, Paroxetine, and Citalopram: are long-acting drugs used to treat panic disorder, obsessive-compulsive disorders, and post-traumatic stress disorder.
 4. Monoamine Oxidase Inhibitors (MAOI): Phenelzine, Tranylcypromine, and Moclobemide: are readily absorbed from the GI tract, it produces a long-lasting block of MAOIs and used to treat panic disorders.
- ii. Mood Stabilizers:
1. Lithium: Is used mainly for treatment of bipolar mood disorders because it's anti-manic and mood stabilizing properties.
 2. **Valproate: Is used to treat acute mania. It is an anticonvulsant approved for use as mood stabilizer medication.**
 3. Carbamazepine: An alternative use to lithium and valproate. It is an anticonvulsant medication also used as a stabilizer in the treatment of bipolar disorder.
 4. Lamotrigine: Is an antiepileptic drug used to treat depression associated with bipolar.

2. EFFECTS

According to the Antidepressants and Mood Stabilizing lecture (n.d.), the effects of antidepressants and mood stabilizer varies:

- a. Tricyclic antidepressant and Heterocyclic antidepressants: In depressed patients, elevation of mood occurs after two or more weeks of treatment. It can take as long as six weeks to be beneficial to the patient(s). Drowsiness and sedation may occur in the first few days of treatment. Additionally, it can cause dry mouth, urinary retentions, and paralysis.
- b. Selective serotonin reuptake inhibitors (SSRIs): Control the symptoms of depression in a similar way as tricyclics. Instead of sedation and drowsiness, it can produce agitation and anxiety.
- c. Monoamine oxidase inhibitors (MAOI: Resemble tricyclics but may produce behavioral excitement.
- d. Lithium: in a therapeutic concentration, it has no psychotropic effect in a normal individual but when administered to patients in manic state, it can control and minimize the symptoms for several weeks. It helps decrease the frequency and magnitude of mood swings during manic periods but also during depressive periods. Some adverse effects include:
 - i. Mild: Impaired concentration, lethargy, irritability, weakness, nausea, tremor, and fatigue.

- ii. Moderate: Disorientation, confusion, drowsiness, restlessness, unsteady gait, dysarthria, muscle fasciculation and vomiting,
 - iii. Severe: Impaired consciousness, delirium, extrapyramidal, symptoms, generalized fasciculations and convulsion.
- e. Valproate, Carbamazepine, and Lamotrigine: are used as alternatives to Lithium. It helps prevent recurrence of manic and depressive episodes. The adverse effects of these drugs are similar to lithium.

3. USES AND ADMINISTRATION

- a. Mood stabilizers and antidepressants are often taken by pills and in rare occasions, an injection. Doctors usually prescribe the medication for short periods, to minimize dependency. They should be tapered off slowly if they are being taken off the medication (NIMH, n.d.).

4. TOLERANCE, WITHDRAWAL, AND SUICIDAL BEHAVIORS

- a. Tolerance: Mood stabilizers are not addictive but once the individual continues to take them over months or years, their body adjusts to the presence of the drug.
- b. Withdrawal: The absence of drugs after use may result in withdrawal effects that are generally mild. The greatest risk with stopping the use of these drugs is the return of symptoms (CAMH, 2009).
- c. Suicidal behaviors: The risk of suicidal behaviors increases with the use of anti-depressant medications. ***Although studies indicate that depression increases thoughts of suicide, many have suggested that antidepressants may increase suicidal thoughts and/or actions among children and teens.*** To prevent, self-injury and suicide in adolescents, it has been suggested that people close to individuals who are using antidepressants should monitor patient's behavior for any signs of suicidal ideation and behavior (U.S. Food and Drug Administration, 2005).

PRACTICE EXAM

1. Patterns of substance abuse are caused by _____.
 - a. Disruptive behavior
 - b. Maladaptive substance use
 - c. Compulsive use
 - d. Unconscious and conscious thinking

2. Substance Dependence is characterized by _____.
 - a. Loss of control over substance use and continued use despite the significant substance-relation problems
 - b. Loss of control over cognitive thinking and continued use of substance
 - c. A lack of desire or ability to continue using
 - d. A lack of compulsive pattern of substance use

3. A theory and practice with a focus on making the unconscious conscious is _____.
 - a. Physical Dependence
 - b. Substance Dependence
 - c. Disease Model
 - d. Psychoanalytic

4. The use of the biopsychosocial model allows for a cohesive understanding of when, where, and why the addicts started using drugs or are substance dependent is _____.
 - a. Comprehensive Model of Drug Abuse & Dependence
 - b. Comprehensive Model of Substance Abuse
 - c. Comprehensive Model of Opium Abuse
 - d. Comprehensive Model of Psychomotor and Stimuli Abuse

5. An estimated _____ Americans aged 12 or older were current illicit drug users in 2010 (pg. 6).
 - a. 20.6 million
 - b. 21.6 million
 - c. 22.6 million
 - d. 23.6 million

6. The damage caused by drug abuse and addiction is reflected in an overburdened justice system, a strained health care system, lost productivity and _____.
 - a. Environmental Destruction
 - b. Environmental Development
 - c. Environmental Construction
 - d. Environmental Progress

7. When there are no obvious red flags, suspicious physical findings, or atypical features of chronic disease, it is important for the professional to ____ patients for drug and alcohol use.
 - a. watch
 - b. Medicate and Observe
 - c. Screen
 - d. Diagnosis and Classified

8. A major illegal substance control campaign began in 1970, which resulted in the _____.
 - a. Controlled Substances Act
 - b. Federal Drug Classification Act
 - c. National Substance Abuse Act
 - d. Narcotic and Substance Act

9. Abuse of the drug or other substances may lead to severe psychological, or physical dependence is listed in _____.
 - a. Schedule I
 - b. Schedule II
 - c. Schedule III
 - d. Schedule IV
 - e. Schedule V

10. Abuse of the drug or other substance may lead to moderate or low physical dependence, or high psychological dependence is listed in _____.
 - a. Schedule I
 - b. Schedule II
 - c. Schedule III
 - d. Schedule IV
 - e. Schedule V

11. The scientific study of the actions of drugs and their effects on a living organism and the effect of the living organism on the way the drug exerts its effects are ____ and ____ Principles.
- Pharmacokinetics and Neurotransmitters
 - Pharmacokinetics and Neurophysiological
 - Pharmacological and Neurophysiological
 - Pharmacological and Neurotransmitters
12. Most drugs affect the nervous systems by modulating synaptic transmission in the ____.
- Cardiovascular System
 - Musculoskeletal System
 - Nervous System
 - Reproductive System
13. The first chemical processes discovered by humans by the fermentation of fruit and vegetable matter were the production of ____.
- Alcohol
 - Hallucinogenic
 - Marijuana
 - Opiates
14. After drinking alcohol, consumption of a constant amount of alcohol produces a lesser effect causes an individual to increase their amount of consumption to produce the same effect is the result of ____.
- Dependency
 - Overdose
 - Tolerance
 - Withdrawal
15. Dependency of alcohol is marked by 3 or more of the criteria in a 12-month period as defined by DSM-IV. They are ____, ____ and ____.
- Withdrawal Symptoms, Intended Use, and Tolerance Symptoms
 - Withdrawal Symptoms, Tolerance Symptoms, and Overdose Symptoms
 - Withdrawal Symptoms, Diminished time in activities not related to use and Overdose Symptoms
 - Withdrawal Symptoms, Unintended Use, and Continue use despite negative consequences

16. To treat individuals with alcohol dependency/abuse, _____ and _____ treatments are often used to prevent complications and to provide therapy.
- Inpatient and Outpatient
 - Inpatient and Detoxification
 - Inpatient and Relapse Prevention
 - Detoxification and Relapse Prevention
17. _____ and _____ were created to ameliorate the effects of stress and ease feelings of discomfort, tension, anxiety and dysphoria.
- Anti-anxiety and Opium
 - Anxiolytics and Hypnotics
 - Anxiolytics and Nicotine
 - Opium and Nicotine
18. A substance that causes drowsiness and facilitates the onset and maintenance of natural sleep is _____.
- Sedative
 - Hypnotic
 - Anxiolytic
 - Amphetamines
19. Use of _____ and _____ creates a false and temporary feeling of euphoria.
- Anti-anxiety and Sedatives
 - Inhalants and Alcohol
 - Psychomotor and Stimulants
 - Tobacco and Nicotine
20. The safest method of delivering sedative drugs is _____.
- Injection
 - Oral
 - Rectal
 - Inhalation
21. _____ are liquids that vaporize at room temperature.
- Volatile Solvents
 - Aerosols
 - Gases
 - Nitrites

22. Hearing loss, peripheral neuropathies or limb spasms, central nervous system and bone marrow damage are _____ effects.
- Lethal
 - Harmful Irreversible
 - Serious but Potentially Reversible
 - HIV/AIDS, Hepatitis, and other Infectious Diseases
23. Liver and kidney damage and blood oxygen depletion are _____ effects.
- Lethal
 - Harmful Irreversible
 - Serious but Potentially Reversible
 - HIV/AIDS, Hepatitis, and other Infectious Diseases
24. The _____ in cigarettes increases a smoker's risk of lung cancer, emphysema and bronchial disorders.
- Nicotine
 - Tar
 - Paint
 - Methanol
25. A typical smoker will take 10 puffs on a cigarette over a period of 5 minutes, and a person who smokes 1 ½ packs daily will get _____ hits of nicotine each day.
- 100
 - 200
 - 300
 - 400
26. When a(n) _____ occurs, it may be fatal due to poisoned muscles making it difficult for a person to breathe.
- Tolerance
 - Withdrawal
 - Overdose
 - Dependency
27. _____ are a class of drugs that elevate mood, increase feelings of well-being and increase energy and alertness.
- Stimulants
 - Opium
 - Cannabinoid
 - Nicotine

28. ____ is a powerful stimulant, originally derived from amphetamine. It comes in clear crystals or powder and easily dissolves in water or alcohol.
- Amphetamines
 - Cocaine
 - Methamphetamine
 - Methylyphenidate
29. All stimulants work by increasing ____ levels in the brain.
- Dopamine
 - Endocrine
 - Lymphatic
 - Cardiovascular
30. Repeated use of such stimulants like cocaine can lead to ____ of its euphoric effects causing the individual to take greater amounts to get the same effects as their initial use.
- Tolerance
 - Withdrawal
 - Overdose
 - Dependency
31. Treatment for psychomotor stimulants abuse is most effective when using ____ therapy.
- Cognitive
 - Behavioral
 - Relapse
 - Abstinence
32. ____ is one of the most effective opioids and available in a quick release lozenge form.
- Hydromorphone
 - Morphine
 - Methadone
 - Oxymorphone
33. ____ is the most severe reaction associated with opioid use. This occurs when airflow might be inadequate to execute required gas exchange.
- Constipation
 - Drowsiness
 - Hyperalgesia
 - Respiratory Depression

34. Opioids applied to the skin in patch form are known as _____.
a. Intravenously
b. Orally
c. Topically
d. Suppository
35. With the abuse of opioids, _____ occurs quickly to the effects on mood, itching, urinary retention, and respiratory depression, but occurs more slowly to the analgesia and other physical side effects.
a. Tolerance
b. Withdrawal
c. Overdoes
d. Dependency
36. _____ receptors are found extensively throughout the immune, digestive, reproductive, central and peripheral nervous systems of humans and their activation is what leads to the medicinal effects of cannabis.
a. Cannabinoids
b. Opioids
c. Endocrine
d. Lymphatic
37. _____ is the most well-known Cannabinoid and the most psychoactive, which means it has the ability to affect behavior, mood, perception and consciousness.
a. THC
b. THCA
c. CBN
d. CBD
38. Preventative measure for use of cannabinoids involves recognition of _____ situations that include hunger, anger, loneliness and tiredness.
a. Low-risk
b. Medium-risk
c. High-risk
d. No-risk

39. The use of cannabinoids is not ____ or cause ____.
- Addictive/Dependency
 - Psychological/Relapse
 - Dependency/Relapse
 - Addictive/Psychological
40. ____ is the drug commonly identified with the term “hallucinogen” and is found in ergot, a fungus that grows on rye and other grains.
- Lysergic-LSD
 - Peyote
 - Psilocybin
 - Phencyclidine-PCP
41. ____ was developed as an intravenous anesthetic.
- Lysergic-LSD
 - Peyote
 - Psilocybin
 - Phencyclidine-PCP
42. People who are psychologically ____ on hallucinogens may find the urge to use it when they are in specific surroundings such as socializing with friends.
- Tolerant
 - Withdrawal
 - Dependent
 - Overdose
43. Abuse of anabolic steroids can cause major irreversible health problems such as ____ and ____.
- Liver Damage/Jaundice
 - Shrinking of testicles /Convulsion
 - Convulsion/ Dizziness
 - Menstrual Changes/Depression
44. Common ____ consist of cannabis, opioids and cocaine.
- Anabolic Steroids
 - Over-the-Counter Substances
 - Herbal Substances
 - Club Drugs

45. Abuse of GHB (Xyrem) can cause _____ and _____.
- Amnesia and Incapacitation
 - Coma and Seizures
 - Distortion and Detachment
 - Mental Stimulation and Chills
46. Rohypnol is a sedative-hypnotic drug that causes _____ and _____.
- Amnesia and Incapacitation
 - Coma and Seizures
 - Distortion and Detachment
 - Mental Stimulation and Chills
47. _____ is used to treat individuals with treatment-resistant schizophrenia.
- Clozapine
 - Risperidone
 - Aripiprazole
 - Olanzapine
48. The first mood stabilizer discovered was _____.
- Lithium
 - Valproate
 - Carbamazepine
 - Lamotrigine
49. _____ is used to treat acute mania and is an anticonvulsant approved for mood stabilizer medication.
- Lithium
 - Valproate
 - Carbamazepine
 - Lamotrigine
50. Many studies have suggested that the use of antidepressants may increase suicidal thoughts among _____ and _____.
- Infants and Children
 - Children and Teens
 - Teens and Middle Age
 - Middle Age and Older Adults

ANSWER KEY

1. B) Maladaptive Substance use
2. A) Loss of control over substance use and continued use despite the significant substance-relation problems
3. D) Psychoanalytic
4. A) Comprehensive Model of Drug Abuse & Dependence
5. C) 22.6 million
6. A) Environmental Destruction
7. C) Screen
8. A) Controlled Substances Act
9. B) Schedule II
10. C) Schedule III
11. C) Pharmacological and Neurophysiological
12. C) Nervous System
13. A) Alcohol
14. C) Tolerance
15. D) Withdrawal Symptoms, Unintended use, and Continue use despite negative consequences.
16. A) Inpatient and Outpatient
17. B) Anxiolytics and Hypnotics
18. B) Hypnotic
19. A) Anti-anxiety and Sedatives
20. B) Oral
21. A) Volatile Solvents
22. B) Harmful Irreversible
23. C) Serious but Potentially Reversible
24. B) Tar
25. C) 300
26. C) Overdose
27. A) Stimulants
28. C) Methamphetamine
29. A) Dopamine
30. A) Tolerance
31. B) Behavioral
32. B) Morphine
33. D) Respiratory Depression
34. C) Topically
35. A) Tolerance
36. A) Cannabinoids
37. A) THC
38. C) High-risk
39. A) Addictive/ Dependency
40. A) Lysergic-LSD
41. D) Phencyclidine_PCP
42. C) Dependent
43. A) Liver Damage/Jaundice
44. C) Herbal Substances
45. B) Coma and Seizure
46. A) Amnesia and Incapacitation
47. A) Clozapine
48. A) Lithium
49. B) Valproate
50. B) Children and Teens

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