

Module 1: An Overview of Drug Abuse and Dependence

Duration: 90 minutes

Goal

- ♦ To provide an overview of dependence and the most common drugs of abuse. Drugs will be presented in categories according to effects attained taking normal or recommended doses.

Objectives

Following this module the participant will be able to:

- ♦ Define terms necessary for the addiction model (i.e. addiction, dependence, tolerance).
- ♦ Place drugs in categories.
- ♦ Discuss treatment protocol options for physicians dealing with substance related problems.

Teaching Activities

Introduction and Overview	5 minutes
Definition of terms	20 minutes
Categories of drugs	30 minutes
Treatment protocol	30 minutes
Summary	5 minutes

Teaching Format

This training is designed to be delivered primarily in a classroom/didactic lecture format. The design will incorporate a method which presents accepted data for presentation in a medical school environment. Information will be presented by the instructor for facilitated discussion of concepts.

Suggested Readings

American Psychiatric Association (1994). Diagnostic and statistical manual of mental disorders (4th ed., pp.175-272). Washington, DC: Author.

Edwards, G., & Gross, M. M. (1976). Alcohol dependence: Provisional description of a clinical syndrome. British Medical Journal, 1, 1058-1061.

Schuckit, M. A. (1995). Drug and alcohol abuse: A clinical guide to diagnosis and treatment (4th ed.). New York: Plenum.

Schuckit, M. A. (1995). Educating yourself about alcohol and drugs. New York: Plenum.

Teaching Outline

Module 1: An Overview of Drug Abuse and Dependence

Note to Instructors:

Before starting to teach you may want to review the goals and objectives of this module.

I. Introduction

Deliver the following information introducing the subject of drug abuse and dependence.

- A. There are 250 or more drugs that people take to achieve a high.
- B. The information relating to each separate drug cannot be learned in detail, so it is important to develop a manner of categorizing substances and making generalities about a limited number of groups of drugs.
- C. Each of these drug groups has a relatively unique pattern of associated clinical problems.
- D. The major purpose of this lecture is to present the different categories of drugs and the problems associated with their use.

II. Definitions

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A. Psychological dependence / addiction

Refer to HO1.1.

- 1. All drugs likely to be abused cross the blood - brain barrier to the central nervous system (CNS).
- 2. Individual user perceives the alterations to be pleasurable (this is the reward for use).
- 3. When the individual reaches a point when he/she feels uncomfortable if the substance is unavailable, it is possible that they have developed psychological dependence or addiction

B. Physical dependence/addiction

- 1. Chronic intake of any medicinal substance, including aspirin, can result in some alteration in body functioning.

2. The abrupt cessation of use of that substance can be accompanied by a rebound phenomenon where the body develops changes that are the opposite of - the initial drug effects.
3. While this can be seen with many types of medications, there are only three classes of drugs for which the levels of rebound are predictable enough and (from a clinical perspective) serious enough to justify a true diagnosis of a withdrawal phenomenon. Thus, the **depressants**, **opiates**, and **stimulant** drugs are each associated with an abstinence or withdrawal syndrome that is composed of symptoms that are the opposite of the original acute effects of those drugs.
4. Each of the three types of withdrawal syndromes is unique.
5. Physical dependence is documented when a high enough dose of a substance has been taken for a long enough period of time that reduction of intake or cessation of substance use produces the predictable withdrawal or abstinence syndrome.

C. Tolerance

1. For many substances, especially the three categories of drugs capable of producing clinically significant physical dependence, an associated phenomenon is called tolerance.
2. The individual takes enough of the drug on a regular basis so that he or she can tolerate higher and higher doses of the substance without showing a marked increase in effects.
3. A related definition centers on the need to take higher and higher doses of the drug in order to achieve intoxication or the desired effect.
4. Tolerance is a complicated phenomenon that consists of learning, metabolic, and end organ (the brain) changes.

Offer more examples of tolerance

- ♦ Cocaine users need increased amounts at more frequent intervals.
- ♦ Persons who consume alcohol frequently start with low dosage to achieve high and as the frequency of intake increases so does the dosage necessary to achieve the high.
- ♦ Users of prescribed pain medication require higher dosage as frequency and quantity increase.

D. The Dependence Syndrome

1. Early definitions of dependence tended to focus narrowly on the physiological symptoms of tolerance and withdrawal.
2. In 1976, however, Griffith Edwards and Milton Gross published their theory of the Alcohol Dependence Syndrome (ADS), a broad conception of dependence that incorporated elements of both psychological and physical addiction as described earlier.
3. Although originally developed in relation to alcohol, the dependence syndrome concept was subsequently applied to other drugs of abuse. This broad conceptual view of dependence, although somewhat modified, formed the basis for the definitions of dependence in DSM-IV and ICD-10.
4. Briefly, the dependence syndrome is said to have been achieved when an individual demonstrates a series of problems that indicate loss of control over use of the substance.
5. Thus, the elements of the syndrome include repeated intake of the substance despite associated adverse consequences, aspects of tolerance, evidence of a withdrawal or abstinence syndrome, and a general indication that the pattern of use of the substance has become somewhat rigid in its character and is a central focus of the individual's life.

III. *Placing Drugs into Categories*

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Deliver the following information.

1. Now that the definitions of addiction, tolerance, and dependence have been reviewed, it is possible to go on to present information on the drugs themselves.
2. Drugs of abuse can be placed into categories based on the usual effects of the drugs at the usual doses.
3. Specifying the dose likely to be used is important because almost all substances can have different, often opposite effects at greatly different doses.

Refer to HO1.2.

A. Depressants

1. The depressants are drugs that have as their prominent effects at the usual dose:
 - ♦ a decrease in central nervous system (CNS) activity
 - ♦ feelings of sleepiness
 - ♦ a decrease in the perception of some feelings of anxiety
 - ♦ no preeminent painkilling effects
2. Many of these substances also have anticonvulsant and muscle relaxant properties.
3. Drugs that fall into the brain depressant category, all of which share a similar pattern of problems, include:
 - ♦ alcohol
 - ♦ benzodiazepines or Valium-like drugs
 - ♦ barbiturates
 - ♦ carbamates (e.g., meprobamate)
4. In other words, all prescription sleeping pills and almost all prescription anti-anxiety drugs (except for buspirone or Buspar) fall into this category.

B. Stimulants

1. The stimulants are drugs that have as their prominent effects at the usual dose:
 - ♦ an enhancement of CNS activity with an associated decreased appetite
 - ♦ decreased need for sleep
 - ♦ increased levels of energy
 - ♦ increased abilities to concentrate
2. These drugs are also associated with a feeling of euphoria.

3. Stimulants include:

- ✦ all of the different forms of cocaine (the various forms differ only in their melting point and physical form, not in their major effects)
- ✦ all forms of amphetamines (including methamphetamine or crystal)
- ✦ all prescription weight reducing pills
- ✦ most of the over-the-counter weight reducing pills
- ✦ drugs such as methylphenidate (Ritalin)

C. Opiates

1. The opiates are drugs that have as their prominent effects at the usual dose:

- ✦ a decrease in the perception of pain.

2. These drugs are also somewhat sedating and associated with a floating sensation type of euphoria.

3. The opiates include:

- ✦ opium
- ✦ heroin
- ✦ codeine
- ✦ almost all prescription pain pills
- ✦ injections from meperidine (Mepergan, Demerol) to propoxyphene (Darvon)

D. Cannabinols

1. At the usual doses, the cannabinols are drugs that produce:

- ✦ increase in appetite
- ✦ floating type of euphoria
- ✦ marked change in the perception of time

2. Extremely high doses of these substances can produce visual hallucinations, and in these instances the person usually has insight (i.e., he or she realizes that the drug caused the symptoms).
3. The cannabinoids include:
 - ♦ all the various forms of marijuana, from marijuana tobacco to hashish
4. The level of potency of each of the different forms does vary.
5. All forms contain the same active ingredient, delta-9-tetrahydrocannabinol.

Refer to HO1.3.

E. Hallucinogens

1. The hallucinogens are a group of substances that produce at the usual dose:
 - ♦ a marked enhancement of sensory perceptions and misperceptions.
2. Higher doses are required to produce hallucinations, almost always involving colored or flashing lights, or geometric shapes, and rarely involving actual scenes.
3. The hallucinogens include:
 - ♦ LSD (lysergic acid diethylamide)
 - ♦ mescaline or peyote
 - ♦ magic mushrooms
 - ♦ psilocybin
4. Rarely, if ever, do these drugs produce auditory hallucinations.
5. When individuals perceive “sensory enhancements” or visual hallucinations with hallucinogens, they almost always have insight.

F. Phencyclidine

1. Phencyclidine (PCP), when taken at the usual doses, produces effects similar to those produced by the hallucinogens.

2. PCP is markedly different in structure from the hallucinogens, and even at moderate doses is capable of producing a severe agitated confusion, an effect which also distinguishes this drug from the hallucinogens.
3. PCP is a drug that stands in a class by itself.

G. Inhalants/Solvents

1. The inhalants or solvents are a group of substances capable of dissolving fats, that have as their usual effect, a mild excited confusion.

H. Other Drugs

1. Other drugs worthy of brief description but not fitting classically into any of the above categories include:
 - ♦ over-the-counter drugs (incorporating antihistamines, decongestants)
 - ♦ anabolic or muscle building steroids
 - ♦ nitrous oxide
 - ♦ amyl and butyl nitrite
 - ♦ khat
 - ♦ betel nut
2. The lecturer should review the chapter on over-the-counter drugs in the text in preparing for this discussion.

IV. Drug Problems

1. Considering the definitions offered and the explanation of categories of drugs of abuse, we are ready for the next step in this overview.

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2. We will study the considerations each clinician is likely to review, **in the exact order offered here**, when a patient appears with a substance-related problem.

Refer to HO1.4.

A. Overdose

1. An **overdose** or toxic reaction involves such a marked decrease in vital signs that the patient is likely to die without immediate medical attention.
2. This can occur with high doses of depressants, stimulants, and opiates. It can also be seen with the solvents, but is less likely with the other categories of drugs.
3. Treatment involves offering general life supports, using medications and procedures to counteract the major effects of the drugs, and usually allowing the body to metabolize the drug.

B. Abstinence Syndrome

1. **Abstinence syndrome** or state of withdrawal is to be diagnosed when a patient's vital signs are not to the critical point (i.e., who does not have an overdose), demonstrates one of the three classical withdrawal syndromes mentioned before.
2. The abstinence syndrome for **depressants** involves insomnia, agitation, an increase in pulse/respiratory/blood pressure/body temperature, a tremor, and, in less than 5% of cases, convulsions or delirium.
3. The withdrawal syndrome from **opiates** involves agitation, insomnia, a runny nose and cough, diarrhea, and pain in muscles/joints/skin, etc.
4. The withdrawal syndrome from **stimulants** involves sleeping too much, eating too much, and depression.
5. For drugs of abuse with relatively short half-lives (such as alcohol, heroin, or cocaine) the symptoms are likely to begin within hours of decreasing doses, peak in intensity on day two, and markedly improve by day four or five.
6. For drugs with very long half-lives (such as methadone or diazepam) abstinence symptoms might not begin for a week or so, peak in intensity in week two, and might not markedly diminish until week three.
7. All withdrawal syndromes are likely to be followed by several months of similar symptoms at much lower levels of intensity, a phenomenon called **protracted abstinence**.
8. Treatments of acute withdrawal involve offering general supports and, for opiates and depressants, administering a drug of the same class in order to diminish symptoms, after which, the individual is weaned.

9. These topics will be considered in more detail in subsequent lectures.

C. Organic Brain Syndrome

1. A state of confusion or an **organic brain syndrome** (OBS) is diagnosed in association with a drug when there is no evidence of an overdose or withdrawal syndrome but the individual is demonstrating a decrease in cognitive or thinking abilities and an interference with memory.
2. Intoxication with depressant drugs can cause or intensify prior states of confusion.
3. PCP at moderate doses causes a severe agitated confusion.
4. Intoxication with solvents or inhalants can also involve confusion.
5. Other marked confused states are likely to be the result of:
 - ♦ an overdose (where the overdose label takes precedence)
 - ♦ very severe depressant withdrawal state
 - ♦ physiological damage (most often seen after a prolonged heavy intake of alcohol)

Refer to HO1.5.

D. Psychosis

1. **Psychosis** is diagnosed when an individual develops hallucinations (unreal sensory perceptions) and/or delusions (psychotic crazy thoughts) without insight, but is not:
 - ♦ in an overdose
 - ♦ in obvious withdrawal
 - ♦ terribly confused
2. This condition, which is almost always temporary when drug-induced, can be seen with high doses of all the major stimulants, and can also be observed in perhaps 5% or less of alcoholics with severe intoxication.

A separate lecture has been prepared to describe substance-induced mood disorders, anxiety disorders, and psychosis.

3. The hallucinogens, causing sensory stimulation or nondescript visual hallucinations with insight, rarely produce a state of psychosis as defined here.

E. Depression / Severe Anxiety

1. Patients who demonstrate a significant level of depression (often seen with depressant intoxication and stimulant withdrawal) or severe states of anxiety (often seen with depressant withdrawal or stimulant intoxication) are demonstrating these syndromes in the absence of any of the additional syndromes described above.

V. Summary

1. This lecture has introduced some major concepts that need to be understood in order to deal with patients with alcohol and drug problems.
2. Putting drugs into major categories with associated problems is essential for establishing a differential diagnosis for physiological as well as psychological complications of substance use disorders.
3. The ability to divide drugs into categories forms the basis for all of the additional lectures.

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Refer HO1.6.

Continue with the following information.

4. HO1.6 gives a quick overview of drug problems by category of drug.
5. This can help serve as a reference.
6. With the exception of the long-term damage done by alcohol in the CNS, the vast majority of drug-induced states are temporary.
7. The preponderance of alcohol and other drug abuse in the United States is such that every health practitioner should be thoroughly familiar with the signs and symptoms of problems.
8. Early intervention and treatment can save lives.

The instructor is encouraged to take the time during the lecture to offer examples of categories of drugs, clarify students' misperceptions regarding other substances that do not fit into substances of abuse (e.g., antidepressant medications), and to offer clinical examples of the pattern of problems associated with each group of drugs.

It is suggested that the second lecture in this series deal with the appropriate diagnosis of alcohol and drug use disorders. However, for instructors who have only limited amounts of time, it may be possible to combine elements of the diagnosis module (Module 2) with the introduction to drug categories and problems (Module 1).