The Challenge of Substance Abuse: Using Evidence Based Practice to Build on Family Strengths

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This workshop will explore myths and facts about substance abuse and its impact on individual and family functioning. It will cover basic concepts about how the most commonly abused drugs work in the brain and body, the differences among use, abuse, dependence and addiction, and what is known about effective treatment.

I. Why people use drugs

II. Defining psychoactive drugs — legal and illegal

   A. Alcohol
   B. Opioids (opium & derivatives)
   C. Sedatives and Hypnotics (non-barbiturates, barbiturates, & benzodiazepines)
   D. Stimulants (cocaine, amphetamines & nicotine)
   E. Marijuana
   F. Psychedelic drugs (LSD, mescaline, psilocybin, designer hallucinogens and enactogens, & PCP)
   G. Inhalants (volatile substances of abuse)

III. Adulterants and how they relate to a drug’s danger

IV. Routes of administration and how they relate to a drug’s danger

V. How psychoactive drugs work in the brain and body

   A. Neurotransmission
   B. Tolerance
   C. Physical dependence
   D. Psychological dependence
   E. Neurotoxicity
   F. Neuroadaptivity

VI. The continuum of use, misuse, abuse and dependence

VII. Assessment and treatment of substance abuse

   A. Assessing the need for treatment and danger to the child related to family preservation
   B. Treatment of substance abuse
   C. Relapse prevention and case management
Psychoactive drugs influence:

- Moods
- Thoughts
- Behaviors

How Selected Drugs of Abuse Work

Central Nervous System (CNS) Depressants

Alcohol: Not fully understood. Fluidization of neuronal membranes (a distortion in the anatomy of the membrane) correlates to intoxication. This is believed to inhibit synaptic transmission and the release of neurotransmitters. There are also specific actions on GABA, dopamine, enkaphalen and serotonin transmission.

Sedatives and Hypnotics: These are a diverse group of drugs from different chemical classes, such as non-barbiturates (such as Chloral hydrate, Miltown), barbiturates (such as Nembutal, Seconal, Tuinal), and benzodiazepines (such as Valium, Librium, Xanaz, Ativan). At low doses they act as sedatives to reduce anxiety; at high doses they act as hypnotics, to induce sleep.

Barbiturates and non-barbiturates are non-selective CNS depressants. They inhibit synaptic transmission and neurotransmitter release in the arousal centers of the brain and they enhance GABA.

Benzodiazepines are selective and act on benzodiazepine receptors, located next to GABA binding sites.

Opiods: These are all natural or synthetic substances that possess morphine-like action such as opium, morphine, codeine, heroin, Demerol, methadone, and Darvon. They bind to specific opiate receptors in the brain, brain stem, and spinal cord and flood the body with artificial enkephalens and endorphins. In response, the body stops producing its own endorphins and also inhibits norepinephrine. Opiods also the release of dopamine in the nucleus accumbens.

Central Nervous System (CNS) Stimulants

Amphetamines: These are a group of synthetic stimulants (such as dextroamphetamine, methamphetamine, Ritalin, Tenuate, Ionamin) that share similar pharmacological properties and resemble the stimulant properties of cocaine, but are much longer acting than cocaine. They are also structurally related to many decongestants. They increase norepinephrin, dopamine and serotonin in the brain. Similar to cocaine, the primary behavioral reinforcer is believed to be the increase in dopamine. Ritalin acts primarily on dopamine in a manner that is very similar to cocaine (it blocks dopamine re-uptake).
**Cocaine and Crack:** Crack is cocaine; it is simply a smokeable form of cocaine that produces a more profound euphoria because it is smoked and gets to the brain more quickly. Cocaine increases norepinephrine, dopamine and serotonin in the brain. The primary behavioral reinforcer is believed to be the increase in dopamine through the blocked re-uptake of dopamine.

**Marijuana**

**Marijuana:** The specific mechanism of action is not fully understood. THC, the primary psychoactive ingredient binds to cannabinoid receptors in the brain and is also believed to alter serotonin and dopamine.

**Risks Associated with Chronic and High Dose Drug Use**

**Alcohol:**

Excessive and chronic alcohol use can lead to an increased risk of high blood pressure, heart attacks, heart arrhythmia and cardiomyopathy (a disease of the heart muscle). Liver damage typically occurs in three irreversible stages: fatty liver, alcohol induced hepatitis and cirrhosis. Large amounts of alcohol may also inflame the mouth, esophagus, stomach as well as the small and large intestines.

Chronic alcohol abuse also destroys brain cells, producing brain deterioration and atrophy. Wernicke-Korsakoff's syndrome, an alcohol related neurological disorder, causes amnesia, loss of short-term memory, disorientation, hallucinations, emotional disturbances, double vision, and loss of muscle control.

Other effects may include increased aggression, antisocial behavior, depression, and anxiety. Late stage alcohol dependence is characterized by cirrhosis and severe withdrawal symptoms (shakes, delirium tremens, hallucinations and convulsions) if use is abruptly discontinued. If not properly treated with medical detoxification, death may occur.

**Cocaine:**

Cocaine binges (repeated use, at increasingly high doses) can lead to irritability, restlessness, and paranoia. Continued binges may result in a full-blown paranoid psychosis, in which the individual loses touch with reality and experiences auditory hallucinations.

Very large amounts and chronic use may also lead to bizarre, erratic, and violent behavior and may also lead to tremors, vertigo, muscle twitches, or paranoia. Some users report feelings of restlessness, irritability, and anxiety. In rare instances, sudden death can occur on the first use of cocaine or unexpectedly thereafter. These deaths are often a result of cardiac arrest or seizures followed by respiratory arrest.
**Methamphetamine:**

Chronic methamphetamine abuse can lead to violent behavior, anxiety, confusion, and insomnia. Similar to cocaine, chronic users may also experience paranoid psychosis, auditory hallucinations, mood disturbances and delusions (for example, the sensation of insects creeping on the skin, called “formication”). The paranoia can result in homicidal as well as suicidal thoughts.

**Heroin:**

Chronic users may develop collapsed veins, infection of the heart lining and valves, abscesses, cellulites, and liver disease. Other complications, including various types of pneumonia, may result from the poor health condition of the user, as well as from heroin's depressing effects on respiration. In addition heroin may have additives that do not really dissolve and result in clogging the blood vessels that lead to the lungs, liver, kidneys, or brain. This can cause infection or even death of small patches of cells in vital organs.

One of the most significant effects of heroin use is physical dependence. With regular heroin use, tolerance develops. Once this happens, the user must increase the dose to achieve the same effect.

Withdrawal produces drug craving, restlessness, muscle and bone pain, insomnia, diarrhea and vomiting, cold flashes with goose bumps and other symptoms. Major withdrawal symptoms peak between 48 and 72 hours after the last dose and subside after about a week. Sudden withdrawal by heavily dependent users who are in poor health is occasionally fatal, although heroin withdrawal is considered less dangerous than alcohol or barbiturate withdrawal. Heroin laced with fentanyl and other poisons have been known to cause death within hours.

**Ecstasy (MDMA):**

Users of MDMA face some of the same risks as users of other stimulants such as cocaine and amphetamines. These include increases in heart rate and blood pressure, a special risk for people with circulatory problems or heart disease, and other symptoms such as muscle tension, involuntary teeth clenching, nausea, blurred vision, faintness, and chills or sweating. These effects disappear when use is stopped.

Research in animals has linked MDMA use to long-term damage to neurons that are involved in mood, thinking, and judgment. However, some studies on the effects of MDMA have been totally discredited. Nerve damage has not been definitively shown in humans.

**Marijuana:**

The risks associated with marijuana use are controversial and much of the research has overstated the risks. However, the immediate effects on short-term memory, motor
coordination and reaction time have been well established. With sporadic, moderate
does, these effects disappear when use is stopped. Heavy marijuana use may cause the
effects to persist slightly longer.

One recent study has shown that heavy, prolonged marijuana use that begins in
adolescence may have long-term effects on memory and cognitive functioning into
adulthood. More research is needed in this area.

**Inhalants/ Volatile Substance Abuse (VSA):**

Prolonged sniffing or “huffing” of the chemicals in solvents or aerosol sprays can cause
irregular and rapid heart rhythms and lead to heart failure and death within minutes.
This syndrome, known as "sudden sniffing death," can result from a single session of
inhalant use. Chronic exposure to inhalants can produce significant, sometimes
irreversible, damage to the heart, lungs, liver, and kidneys.

Chronic use of inhalants has been associated with a number of serious health problems.
Sniffing glue and paint thinner causes kidney abnormalities, while sniffing the solvents
toluene and trichloroethylene cause liver damage. Memory impairment, attention
deficits, and diminished non-verbal intelligence have been related to the abuse of
inhalants. Deaths resulting from heart failure, asphyxiation, or aspiration have occurred.
Additional symptoms exhibited by long-term inhalant abusers include weight loss,
muscle weakness, disorientation, inattentiveness, lack of coordination, irritability and
depression.


**Working with Substance Abusing Clients**

Questions that you can ask your client to consider:

- Do you use drugs when you're alone?
- Can you turn down drugs when they are offered?
- Do you get high before seeing non-using friends?
- Do you ever take something (a drink, a joint, a stimulant) first thing in the
  morning?
- Do you feel flat and dull when you're not using?
- Can you get through a full day without drugs/alcohol and feel no distress?
- Is it becoming difficult to pay for all the drugs you want?
- Do you have many non-using friends?
- How many of your friends who use would you want as friends if you stopped using?
- Do you often find yourself re-reading the same page?
- Are there times when you lose track of conversations?

**Stages of Change**

**Pre-contemplation:** “What problem?”

**Contemplation:** “Okay, so maybe I might have a problem. But then again…”

**Determination:** “I need to do something about this.”

**Maintenance:** “I’d like to keep this up.”

**Relapse:** “I’ll have to get back on track.”

**Action:** “This is what I plan to do…”

Stopping substance abuse requires making real changes:

- Overcoming conditioning
- Restoring the body
- Finding alternative activities & interests
- Learning to handle anxiety and depression
- Dealing with the changing relationships that are a result of both the substance abuse AND efforts to quit

**If treatment is indicated:**

- No single treatment is appropriate for all people.
- No single treatment is more effective than others
- All forms of treatment have high rates of relapse
- Effective treatment must attend to the multiple needs of the person – not just the drug use.
- Remaining in treatment for an adequate period of time is critical
- Counseling (individual and/or group) and other behavioral therapies are important components of effective treatment.
- If a co-existing psychiatric disorder exists, both disorders should be treated in an integrated manner.
- Detoxification is not sufficient to change long-term drug use.

Sources


