

# Psychoactive substance use disorders

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# Basic conceptions

- **Psychoactive substance:** compound that can alter one's state of mind
- **Reinforcer:** that causes pleasant or stops unpleasant conditions

# Categories of drugs

## CNS Depressants

Alcohol

Sedatives, hypnotics, and  
anxiolytics

## Opiates

Heroin

Meperidine

Codeine

Hydromorphone

## Hallucinogens

LSD

## Designer drugs

Synthetic cathinons and  
other amphetamine  
derivatives, opioids,  
THC-analogues

## Stimulants

Amphetamines

Methylphenidate

Cocaine

## Cannabis

## Inhalants

# DSM-IV-TR substance-related mental disorders

## 1. Substance use disorders:

- Substance **abuse**
- Substance **dependence**

## 2. Substance -induced disorders:

- Substance intoxication
- Substance **withdrawal** with or without **delirium**
- Substance -induced **amnestic disorder** / dementia
- Substance -induced psychotic disorder (e.g. delusion of jealousy and hallucinations)
- Substance -induced mood, personality, anxiety, sexual, and sleep disorder



# Basic definitions: substance abuse

- Maladaptive pattern of substance use:
  - Failure to fulfill role obligations at work, school or home
  - Physically hazardous situations
  - Legal problems
  - Continued use despite serious social and interpersonal problems

# Basic definitions: substance dependence

- (Heavy and prolonged substance use);
- Tolerance (need for increase amounts; diminished effect of the same amount)
- Withdrawal (certain symptoms when stop substance use, alcohol cures the syndrome)
- Persistent desire or unsuccessful efforts to cut down substance use
- Great amount of time is spent on activity related to the substance
- Social, work or recreational activities are given up
- Continued use despite of knowledge of serious social, psychological, and physical problems

# Dependence

When the substance use is reduced or ceased  
withdrawal symptoms develop

Level of dependence      **lack of withdrawal symptoms**  
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**withdrawal symptoms**

## Two types

### physiological dependence

(Alcohol, BZDs, Opioids – drug-specific effects on certain receptors: e.g. GABA receptors)

### psychological dependence

(Most of the psychoactive substances – dopaminergic effects, reward and motivation systems (striatum, n. accumbens))

# Tolerance

The dose of the drug has to be increased in order to reach the desired effect (pharmacokinetic (enzym induction) and pharmacodynamic (receptor downregulation))

Level of tolerance

effect of  
drug develops

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effect of  
drug doesn't develop

# **Addiction**

**Compulsive behavioural pattern of seeking drugs, consumption of drugs**

**Characterized by  
strong desire towards the drugs, and  
strong tendency to the relapse after the  
withdrawal**

# Alcohol consumption in the World





# Neuropsychiatric disorders due to alcohol consumption

Withdrawal without or with delirium tremens

Alcoholic hallucinatory state

Alcoholic delusional disorder

Alcoholic personality changes

Alcohol-induced Persisting Dementia

Wernicke's encephalopathy

Korsakoff syndrome

# Alcohol withdrawal - clinical presentation

- **Minor withdrawal (5-10 hours)**
  - Autonomic hyperactivity: tremulousness, hyperhidrosis, tachycardia, hypertension, GI upset;
  - Anxiety, insomnia, and vivid dreams
- **Major Withdrawal (12-72 hours)**
  - Hallucinations (visual, tactile) – 10-25%
  - Seizures (generalized tonic-clonic seizures ) – 10%
- **Delirium tremens (48-72 hours) – 5%**
  - **Disordered consciousness**
  - **Life threatening state – medical emergency!!!!**



# Delírium tremens

Most severe form of alcohol withdrawal

Untreated delirium has a mortality rate of  
20 %

Occurs after prolonged and heavy alcohol consumption at cease or reduction of alcohol use

Provoking factors can often be seen  
(fever, internal disturbance)

# Symptoms of delirium

## Psychopathological symptoms:

- Disordered **consciousness**, confusion
- Impaired **attention**, distractibility
- **Disorientation** in relation to time, place and person
- **Hallucinations** and illusions (complex, visual, tactile, auditory)
- **Desorganised** behaviour, agitation, violence

## Vegetative and somatic symptoms:

Autonomic hyperactivity: tremulousness, hyperhidrosis, tachycardia, hypertension, fever

GI upset

Inversion of sleeping

Convulsions

# Treatment of delirium

Prevention

Benzodiazepines

Thiamine

Ensure fluid and electrolyte balance

High calorie, high-carbohydrate diet supplemented  
by multivitamins

Treatment of internal disorders, infections, etc.

# Alcoholic hallucinatory state

At prolonged and heavy alcohol-  
consumption,  
after alcohol-abuse or cease of alcohol  
consumption

# Alcoholic hallucinatory state

Symptoms:

Hallucinations

Clear consciousness, kept orientation

Severe anxiety

Persecutory delusions

Delusions of reference

Altered behaviour by the psychotic contents

Suicidal danger

# Alcoholic delusional disorder

Delusions of jealousy (most often)  
persecutory  
reference

# Alcoholic personality changes

Slowly progressing chronic psychic disturbance involving all parts of personality after prolonged alcohol consumption

# Symptoms

- Changeable mood, superficial emotions, bursts of anger
- Superficial attachment to the family
- Lack of inhibitions, lack of ethic
- Decreased critical sense, unconscientiousness
- Irritability, agressivity
- Decreased adapting to the society
- Decreased judgement
- Deterioration of intelelctual functions



# Alcohol-induced Dementia

## ■ Reason:

Direct neurotoxic effect of alcohol  
and thiamine deficiency

## Symptoms:

- Deterioration of intellectual functions
- Impaired memory, Impaired ability of abstraction
- Impaired judgement, Impaired problemsolving thinking
- Impaired orientation

# Alcohol-related nutritional disorders

- Nutritional and absorption problems: **thiamine (vitamin B1)** deficiency in chronic alcohol dependence
- Lesions: mammillary body, fornix, thalamus, cerebellum and brainstem
- **Korsakoff's syndrome:** short-term memory impairment, confusion, and confabulation
- **Wernicke's encephalopathy:** gait ataxia, confusion, oculomotor problems - horizontal nystagmus and gaze palsy (Wernicke's encephalopathy is reversible but can progress to Korsakoff's syndrome, coma or death; avoid rapid glucose administration BEFORE thiamine)
- Lack of folic acid: macrocytaer anaemia
- Rare: pellagra and beri-beri-like conditions

# Thiamine

Reason of thiamine deficiency:

- Poor nutrition
- Malabsorption
- Thiamine is a cofactor for several important enzymes
- It's involved in the conduction of the axon potential along the axon and in synaptic transmission

# **Effects and consequences of illegal drug use**

# Effects of opiate use

- flushing
- orgasmic sensation in the abdomen
- euphoria
- calmness

# Withdrawal symptoms of opiates

lacrimation

sweating

hot and cold flashes

muscle and joint pain

vomiting

sever anxiety

rhinorrhea

yawning

insomnia

nausea

abdominal

cramps

irritability

# Effects of stimulants

elevated mood

increased energy

increased alertness

transient psychosis

decreased appetite

autonomic hyperarousal:

- tachicardia

- elevated blood pressure

# **Effects of cocaine**

**euphoria**

**disinhibition**

**enhanced sense of mastery**

**sexual alertness**

**improved self esteem**

**rush (rapid onset of euphoria)**

**tactile hallucinations (coke bugs)**



# **Stimulant withdrawal**

**fatigue**

**depression**

**nightmares**

**headache**

**sweating**

**muscle cramps**

**hunger**

# Hallucinogens

**Agents, that induce psychotic-like experiences, hallucinations, perceptual disturbances, feeling of unreality**

## Hallucinogens

**LSD (lysergic acid diethylamide)**

**peyote**

**mescaline**

**MDMA**

# Effects of Hallucinogens

**Alterations in perception:  
hallucinations, illusions  
synthesias**

**(e.g. colors are brighter and more intense or  
colors may be heard and sounds seen)**

**Emotions become intense and labile**

**Introspection**

**Depersonalisation, Derealization**

# **Bad trips**

**Patient develop marked anxiety and  
paranoia**

**Flashback: a brief reoccurrence of a drug  
induced experience  
that occurs in situations unrelated to  
taking the drug**

# Cannabis

- Cannabis derivatives are produced from the hemp *Cannabis sativa*.
- The active ingredient is the THC (delta-9-tetrahydrocannabinol).
- The illicit psychoactive compound (marijuana) is probably the most widely used.

# Effects

- euphoria
- drowsiness
- feeling of calm
- feeling that time has slowed
- improved self confidence
  - perceptual distortions
  - paranoia (suspiciousness)
- decreased motor coordination

# **Cosequences**

**Amotivation syndrome**

**Memory disturbance**

**Marijuana impairs the transfer of  
material from mediate to long term  
memory**

# Inhalants

**Chemicals, that produces psychoactive vapours**

- airplane glue
- paint thinner
- nail-polish remover
  - gasoline
- many substances in aerosol cans

**Active substances:**

**Toluane, acetone, benzene, other organic hydrocarbons**



# Effects

**excitation**

**euphoria**

**slurred speech**

**delirium**

**delusions**

**double vision**

**At higher doses: stupor, coma**

**disinhibition**

**dizziness**

**ataxia**

**hallucinations**

**nystagmus**

# Consequences

**Neuromuscular and brain damage,  
damage to the kidneys, liver  
due to high concentrations of heavy  
metals**

# Therapy of addictive disorders

Connected therapeutic chain from  
detoxification to resocialisation and  
rehabilitation

**Aim of treatment:**

**Improve ability to community and social  
functioning**

# Therapy of addictive disorders

Different methods in treatment  
since drug abuse is

a medical

- a psychological and
- sociological problem

# Therapy

## Pharmacotherapy

(Opioids - methadone, naltrexon  
Alcohol - nalmefene, disulfiram)

## Psychoterapy

## Relapse prevention

# Long-term management of substance dependence: psychosocial treatment and rehabilitation

- Confrontation with reality and **motivating** according to individual needs and capacity to change
- Focusing on and treatment of **co-morbid** mood and anxiety disorders (30-40%)
- **Family-level** intervention
- **Counseling** and community-level intervention:
  - motivation to maintain abstinence and prevent relapse – showing the consequences
  - cope with everyday stress
  - stimulus control and craving
  - build-up alternative lifestyle

# Self-help groups

## Alcoholics Anonymous, Narcotics Anonymous

- Sober peer group, 12-step treatment from confrontation to spiritual awakening
- Role modeling of social functioning without drinking
- Peer help available 24 hours
- Strong group coherence („we-ness”)
- Religion and spirituality

potential problems: confrontation with the medical model, may be dogmatic, requires changes in view of life

Other organizations: LifeRing Secular Recovery, Rational Recovery, SMART Recovery